

THE ANTISEPTIC
1959

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Editorial & Publishing Office: 323-24, Thambu Chetty St., Madras-1

Telegrams: "ANTISEPTIC"

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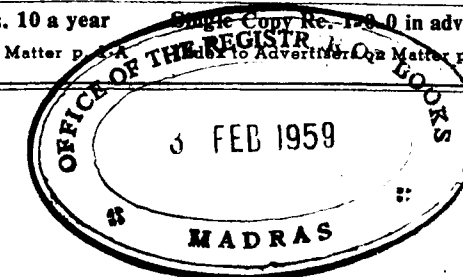
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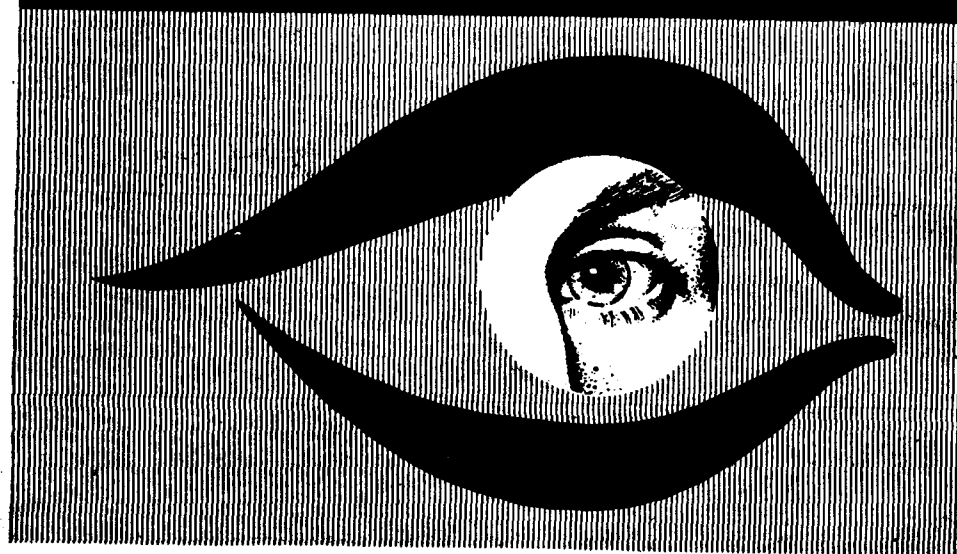
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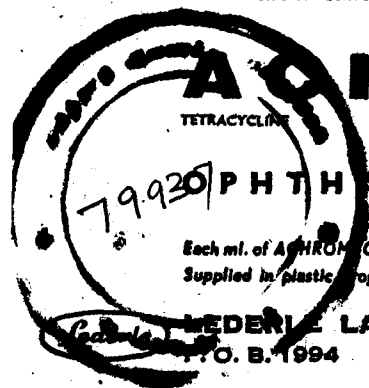
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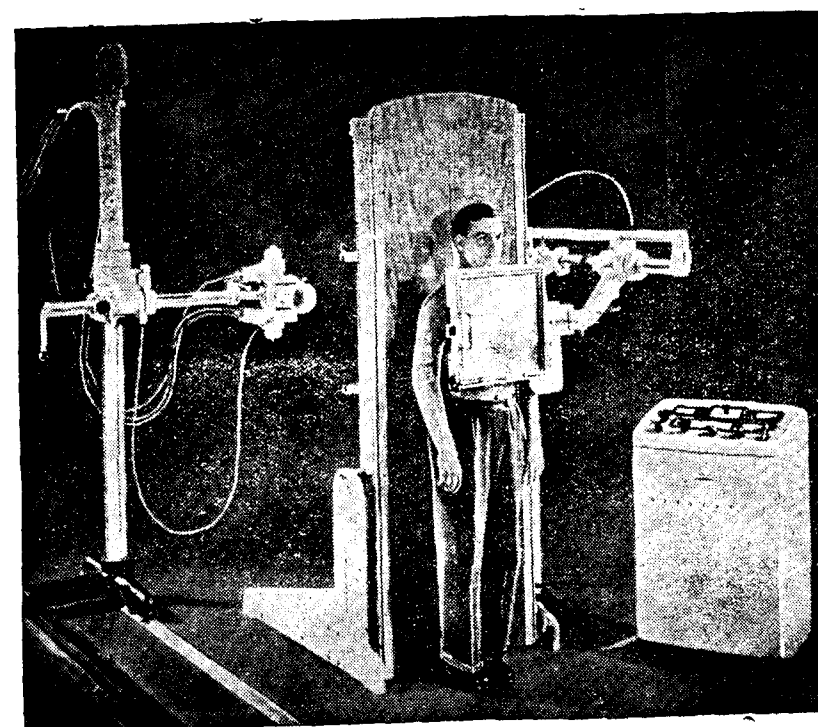
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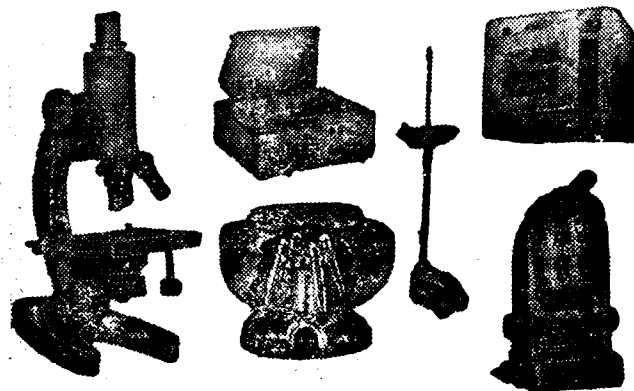
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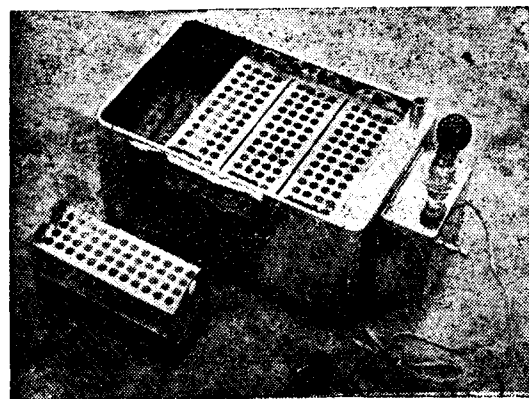


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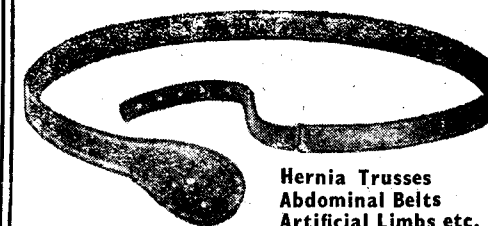
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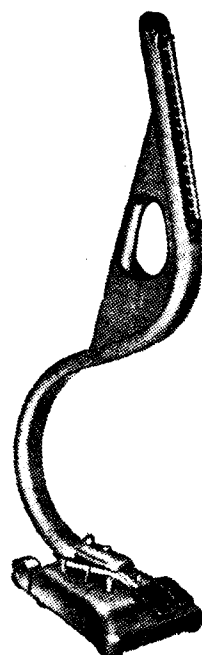
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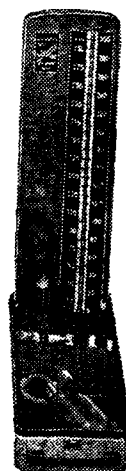
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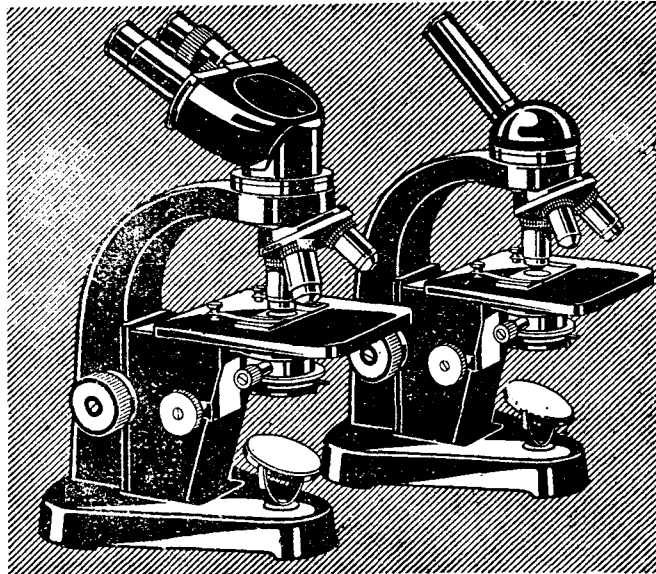
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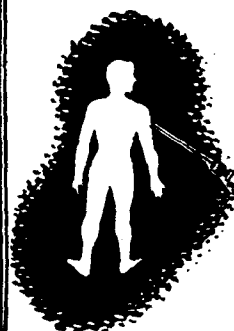
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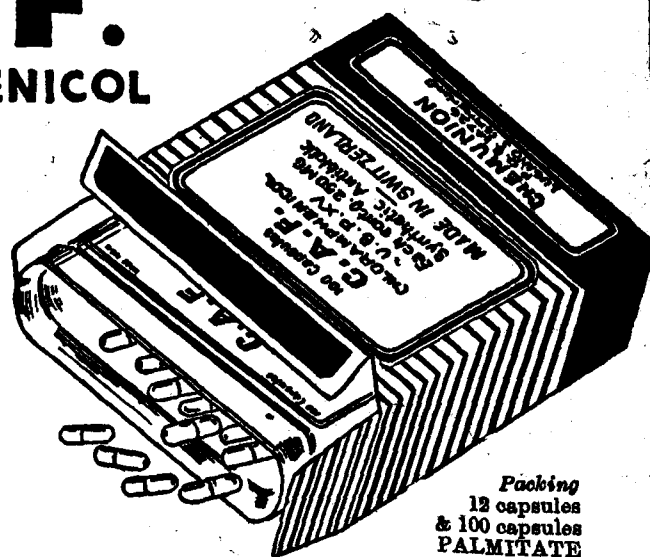
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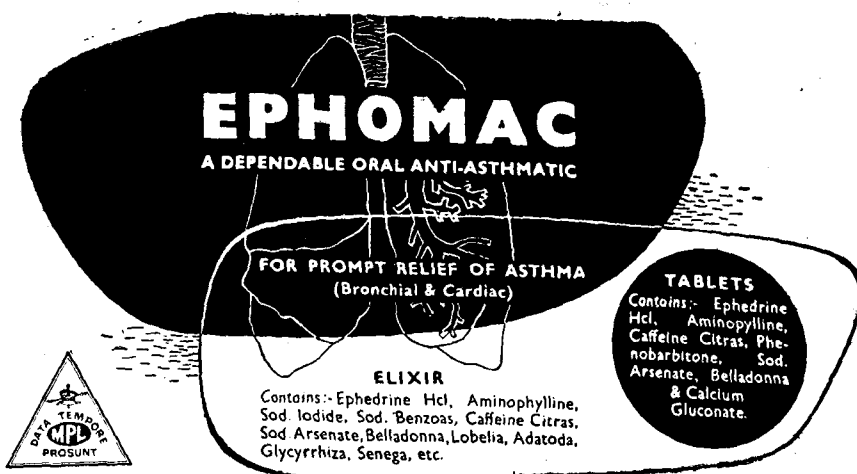
Proteolysed-Liver Extract derived from	10 g. of fresh Liver
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Hæmoglobin	0.5 g.
Vitamin B1 B.P.	8 mg.
Riboflavin B.P.	2 mg.
Nicotinamide B.P.	50 mg.
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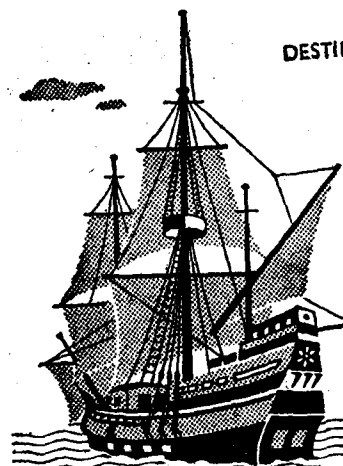
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Vitamin B ₆	1 mg.
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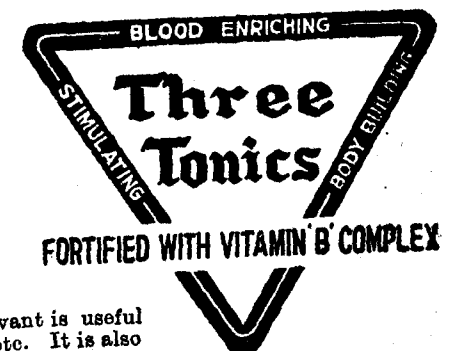
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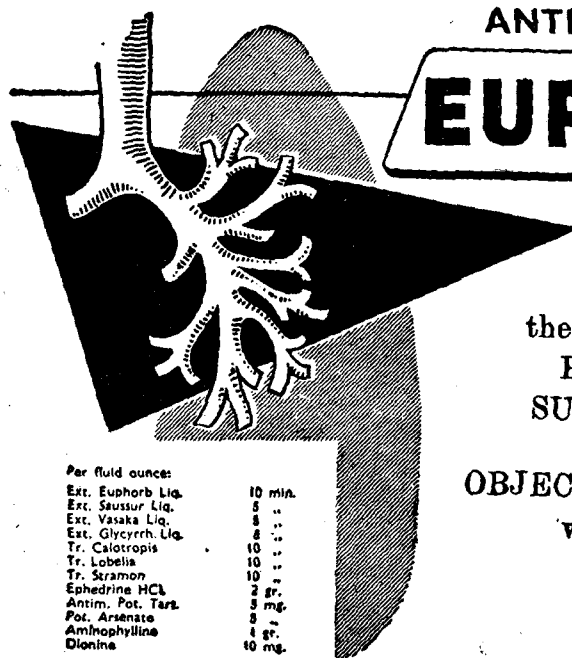
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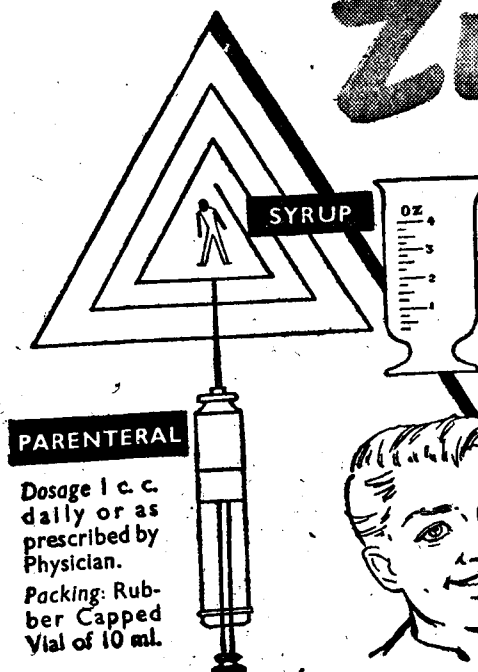


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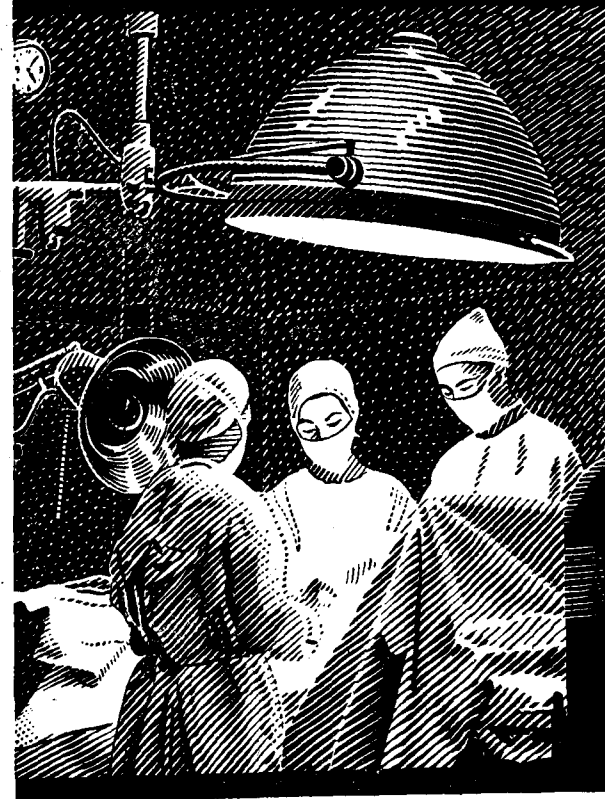
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1. Lamphier, T.A.: Ann. N.Y. Acad. of Sc., 67:10, p. 810, May 1957.

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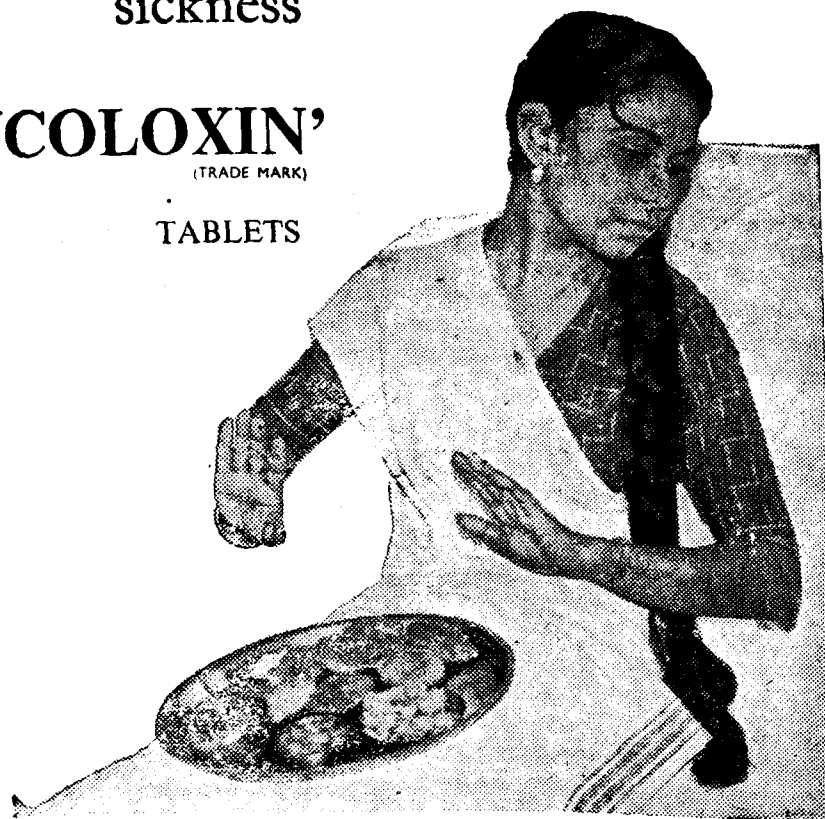
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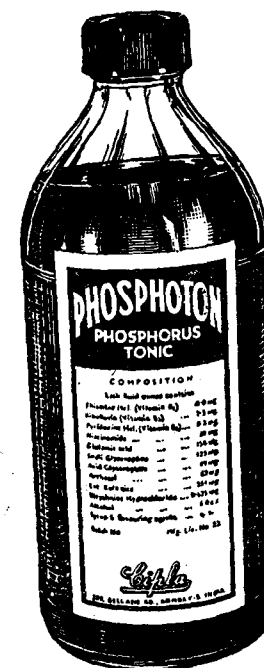
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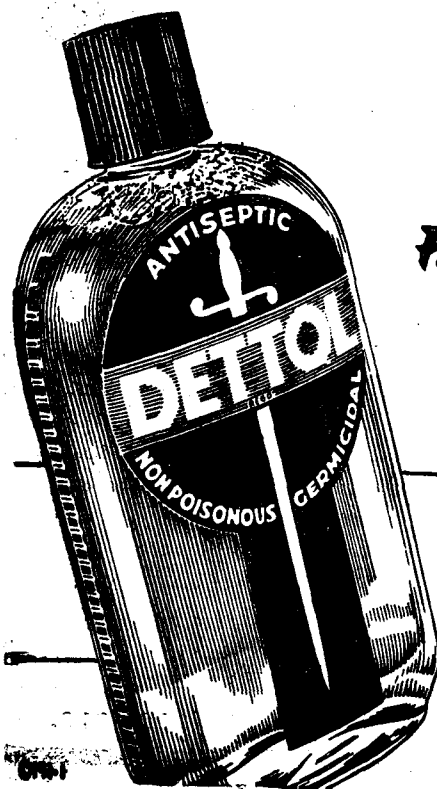
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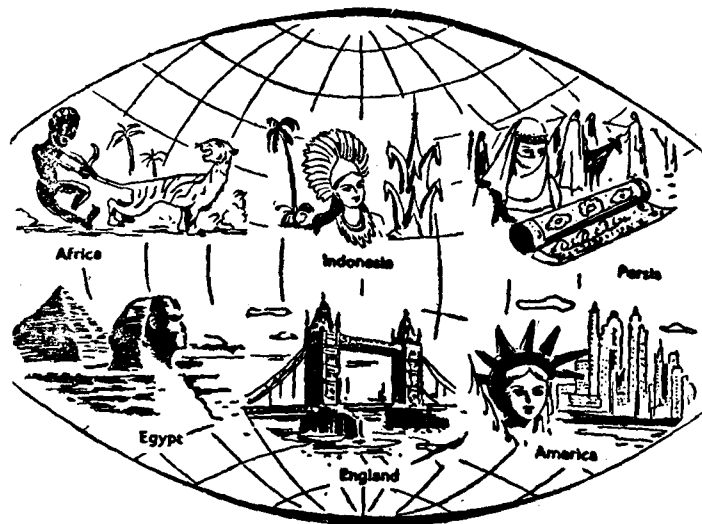
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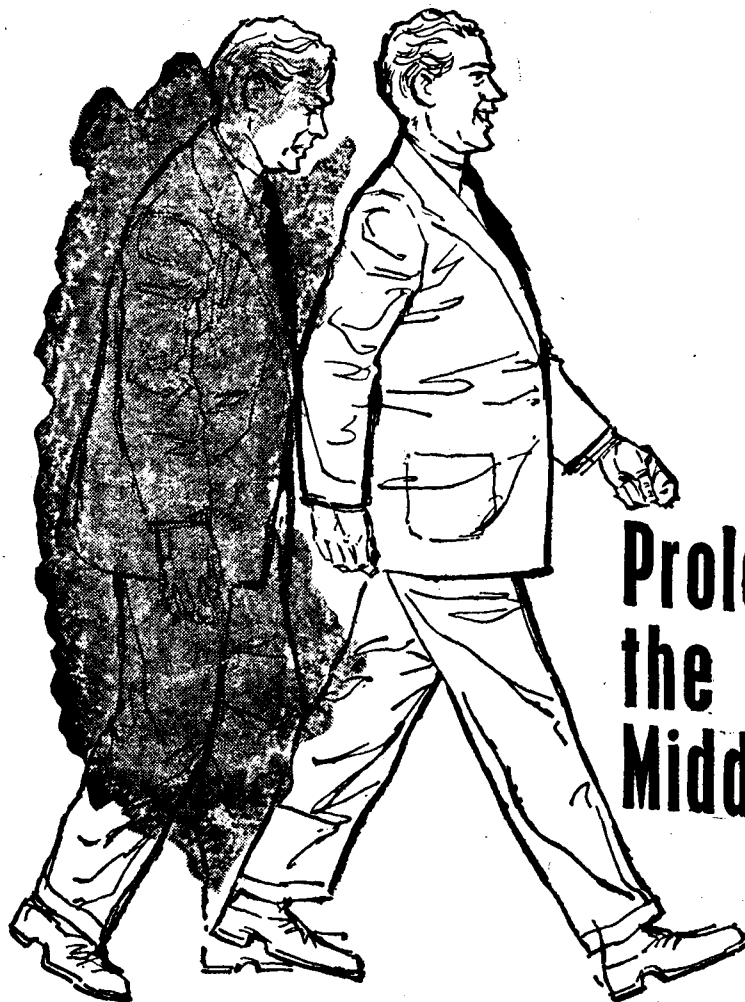


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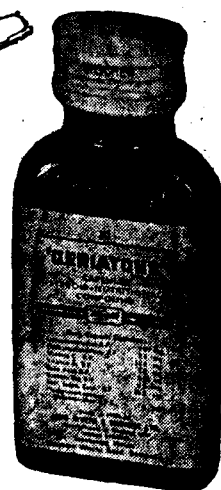
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Lown, B., and Levine, S. A.: Current Concepts in Digitalis Therapy.
Boston, Little, Brown & Company, 1954, p. 23, par. 2.

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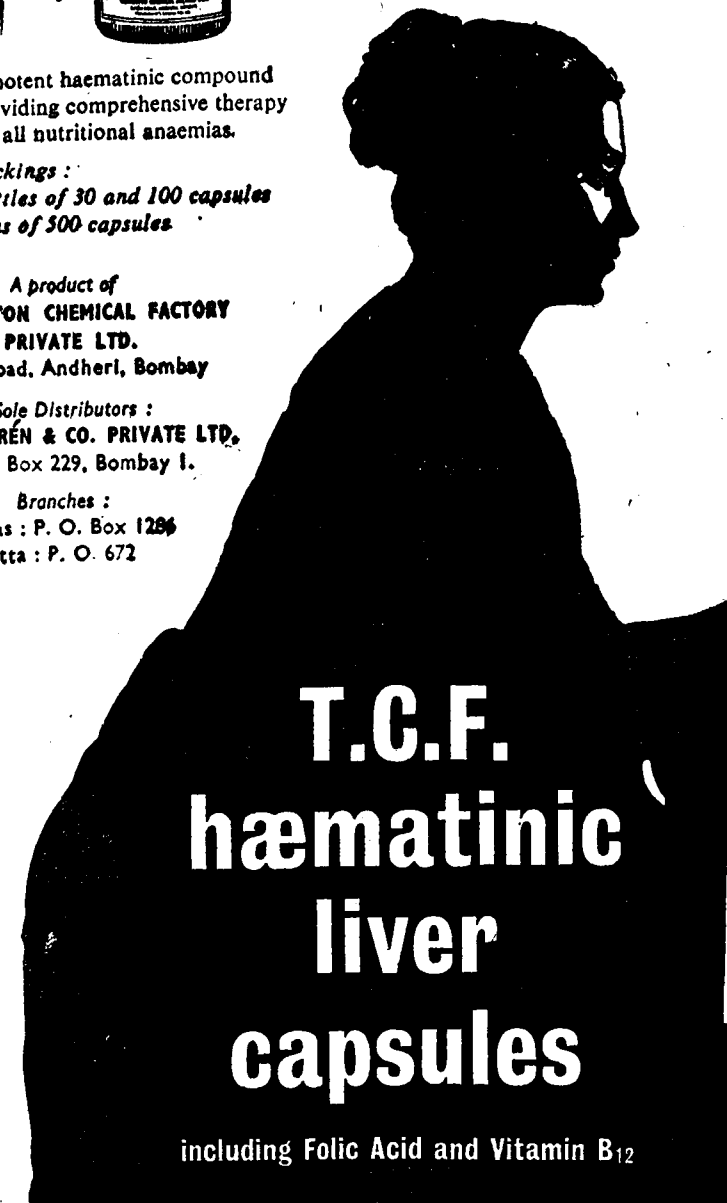
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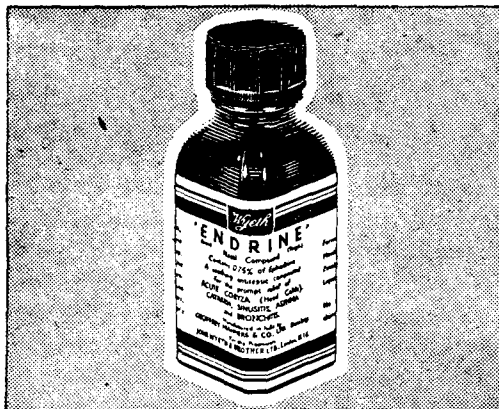
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FRANCO-INDIAN UNITED LABORATORIES,
Bapnu Ghar, Hornby Vellard, BOMBAY 18.



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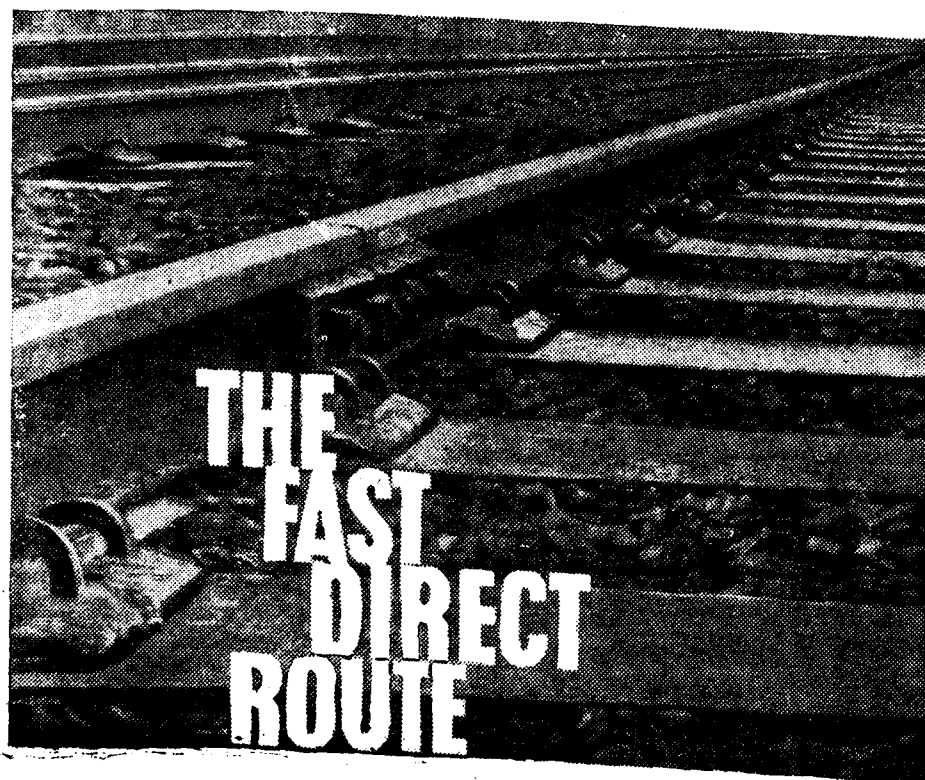
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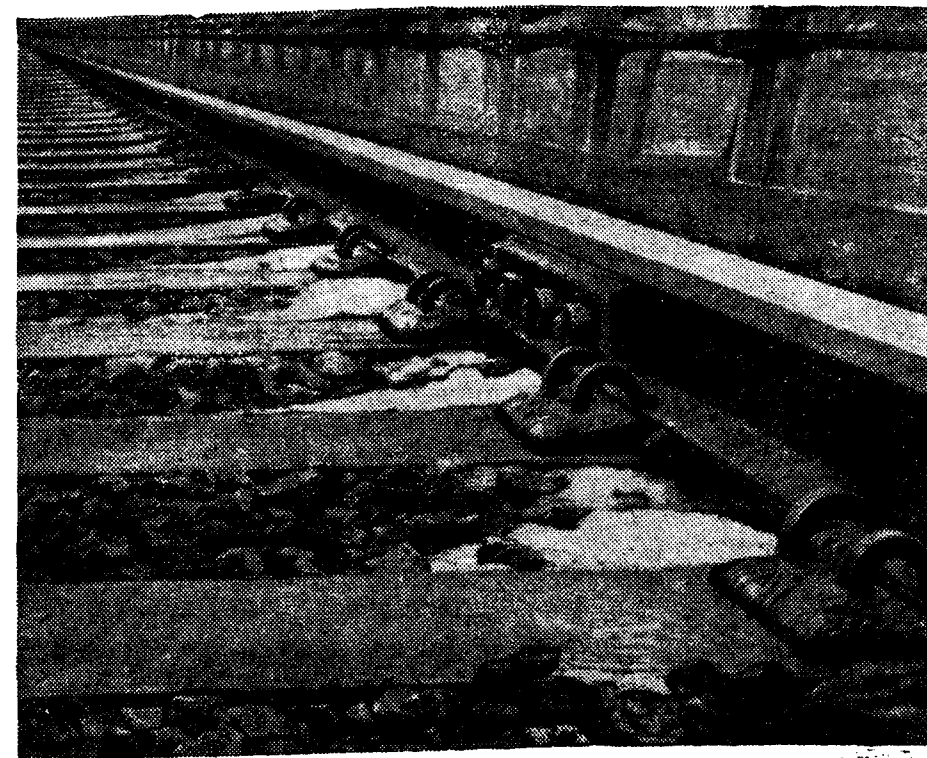
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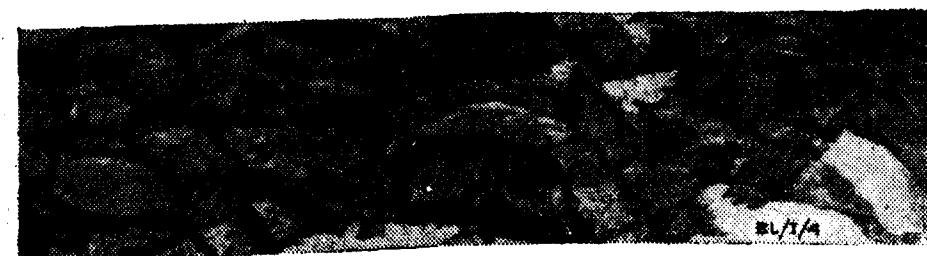
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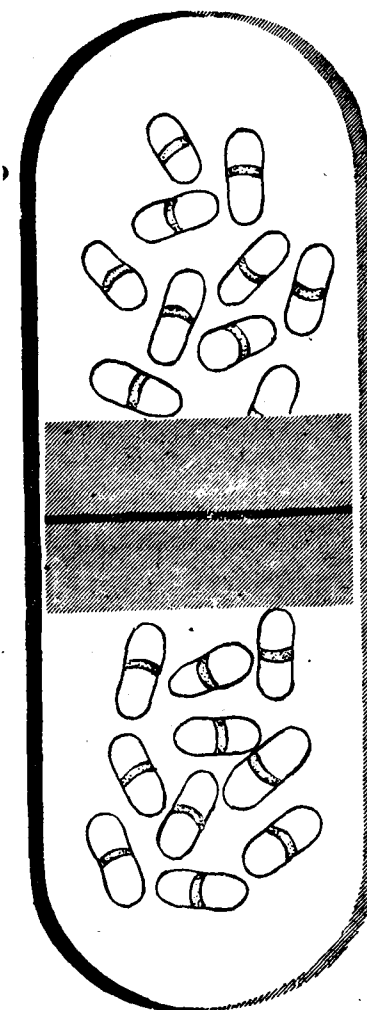
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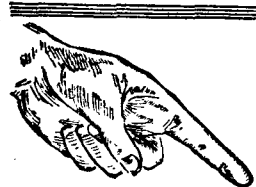
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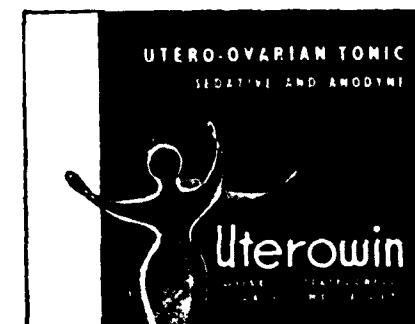
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Annual Subscription: Rs. 7-50 nP. Foreign—Rs. 10—Post Paid

Vol. 56

JANUARY, 1959

No. 1

Original Articles

RUPTURE OF THE BAG OF MEMBRANES ASSOCIATED WITH PRIMARY UTERINE INERTIA*

N. A. PURANDARE, M.D., F.R.C.S., F.R.C.O.G. (Eng.)

AND

V. N. PURANDARE, M.D., F.R.C.S. (Eng.), (Obst. & Gynæc.),

Obstetrician and Gynaecologist, K.E.M. Hosp. G.S.M. College, and Wadia Maternity, Hospital, Bombay

It is designed by nature that the cervical canal, which is almost a closed one, especially in a primigravida before labour pains begin, should during delivery in the course dilate so much as to allow the foetus to pass through it easily; this dilatation is brought about by creating another natural means, consisting of a bag of membranes, which contains a kind of fluid known as liquor amnii and the foetus, the latter being protected by the former. During labour from its onset the bag plays a very important part; it forms a projection in the initially opened internal os by the yielding of the circular muscular fibres surrounding it, the projection acting as fluid wedge and effecting further and further dilation till the canal is gently and fully opened. In the majority of cases this process is achieved with so much gentleness that the cervix escapes injury. This fact can be readily perceived when a speculum examination is made several months after normal delivery when the cervix could be seen to be almost normal. Nevertheless the advocates of the method of the artificial rupture for induction of labour doubt the necessity and even the efficiency of this nature's dilator of the cervix, some even advancing the view that the head chiefly aids in accomplishing the dilatation. It can be conceded that after the escape of waters, the uterine contractions may become

*Specially contributed to the ANTISEPTIC.

stronger and exert more powerful force on the contained ovum and this may also shorten the period of labour.

Patients seeking admission to a maternity home can be distinguished into three groups: the *first* includes those cases which may have normal delivery without any complications except perhaps perineal tear or with a small operation of episiotomy done as a prophylactic measure to forestall extensive lacerations. Episiotomy is especially required in a primigravida, particularly in one who is pregnant for the first time at an advanced age; the *second* group consists of those who are brought in because of rupture of the bag of waters, allowing escape of liquor amnii, either little or great in quantity; the rupture occurring few or many hours before; *third* group is made up of ante-partum hæmorrhages, either accidental or unavoidable. We are concerned with cases of the second group. Rupture of the membranes is much more likely to happen with primary uterine inertia. It is first necessary to make sure that there is leakage of liquor amnii and that inertia is co-existing. To ascertain the escape of liquor amnii, the patient must be made to lie in bed. Her clothes should be examined to see whether they are quite wet with liquor amnii and whether they smell of it. Then the labia should be separated and the patient made to cough, when, if the bag is ruptured, a stream of water would be observed to flow over the edge of the perineum. Sometimes a patient speaks of the water escaping though in reality it is not so, for what she imagines as water is merely a discharge from the cervical canal that has increased in quantity owing to the unusual activity of the cervical glands as labour has set in. This discharge is thick and sticky and little in quantity and never flows out as patient coughs. Sometimes we encounter patients who seriously maintain that they do pass water in large amount and have to change several pads. When they are examined by widely separating the labia and then by seeking them to cough, the urine may be observed to spurt out of the urethra, while her clothes may smell of urine. What other condition that misleads such patients is when the head has descended in the upper part of the vagina, and it comes further down with each contraction, the bladder sphincter being relaxed, the urine dribbles out with each pain and wets the clothes. This the patient regards as water from the ruptured bag. Besides, the clothes may have smell of the urine. These facts must always be borne in mind while ascertaining the real escape of liquor amnii.

As has been mentioned, uterine inertia may be associated with premature rupture of the bag. Why the bag should rupture, no definite cause can be assigned. In normal labour on full dilatation when all the conditions are normal, the membranes usually rupture. But for the premature rupture, any condition

or conditions that alter the normal mechanism of the first stage of labour, may be taken as the cause. The condition that may serve as the cause can be clinically obtained in a woman who has hypoplastic genital organs. Such a woman, though married several years ago, may suffer from primary sterility for a long time and even when she fortunately conceives it is often observed that her first one or two conceptions may end in abortions but the subsequent one may go on to term and then parturition may begin spontaneously. Yet unfortunately owing to inherent weakness of the uterine wall inertia may befall her just as it is noticed in patients with hydramnios or multiple pregnancy. Now it is not uncommon to see that the inertia may be implicated with premature rupture of the bag of waters. In classical books the proportion of premature rupture to inertia that has been mentioned, varies widely from 50 to 80 per cent and that it is most common in primigravidas. So the conditions which may dispose to this unusual incidence are: (a) age of the patient to some extent (b) hypoplasia of the genital organs leading to poor development of the uterine wall involving even the endometrium.

(C) Alteration of the mechanism of the first stage of labour.

(D) Nervousness of the patient, especially in a young primigravida.

(c) The mechanism of dilatation of the lower segment is affected as can be readily proved when a fibromyoma grows on it. It interferes with even dilatation of the lower segment all round as is required to form the parturient canal, and it also impairs the very strength of the musculature. We had very recently a case of this nature. A primigravida of the age of 30, began with weak labour pains and slight bleeding, and rupture of the membranes. The head was free at the pelvic brim, the anterior shoulder being $4\frac{1}{2}$ inches high. As no progress was noticed, the height of the anterior shoulder remaining the same, caesarean section was decided upon. On opening the abdomen and palpating the uterus for the head, a subserous fibromyoma of the size of an orange was felt in front of the lower part of the lower segment. To facilitate easy extraction of the child it was thought advisable to perform classical section. But the line of incision happened to be on the placenta which had to be hurriedly separated; the right hand was passed up, the hand of the foetus was laid hold of and raised up to bring the head in the uterine opening, that it can be coaxed out of it. The foetus was extracted. With all these difficulties, the child soon began to breathe. It was separated from the mother by securing the cord and handed to the nurse. This case conclusively proves that a fibromyoma at the lower segment, not

identified before opening the abdomen proved to be the cause of inertia and premature rupture of the membranes.

(d) Nervousness is of a factor which does exert influence in some cases and bring on inertia, which in turn predisposes to premature rupture of the membranes. This cause is apparent even in normal labour, when presence of the male doctor is enough to deaden the pains and thus to prolong labour or also temporarily to stop them; and on the medical man retiring from the confinement room, contractions begin to recur. This nervous influence is manifested in another way; it is usual for the patient with inertia to experience very little pain during the characteristic feeble contractions; but of these patients who suffer from pronounced dysmenorrhœa before pregnancy some may feel mild pains most severely and cry aloud and even shout violently thus exhibiting that power of endurance is very low.

Why should premature rupture of the membranes take place with primary uterine inertia? It is not so easy to ascribe a cause for the rupture as is for inertia. It has been established that in the thirteenth week of pregnancy, the whole of the enlarged cavity of the uterus is filled up by the ovum, the chorion coming into contact with the decidua vera and merging into it. If naturally the decidua is poorly formed as a result of hypoplastic development of the endometrium coalescence between the chorion of the bag and the decidua would be defective. Accordingly during the first stage, which is in general much prolonged in cases of inertia, while the membranes are separating from the walls of the lower segment, they are prone to give way at the weakest part quite early in the first stage. The actual time of premature rupture may, however, vary in various cases according to the amount of resistance offered by the membranes.

From the record of cases of delivery of the year 1957 and early months of this year, 62 cases of premature rupture of membranes with primary uterine inertia could be obtained. But for want of precise information, nearly half the number of the cases had to be discarded; thirty-five cases were available for conclusions. Of these 35 cases, 28 were primigravidas, 2 of second paras, 1 of fourth para, 3 of fifth paras and 1 of the sixth para. This shows that the primigravida is more subject to uterine inertia and prone to have rupture of the membranes prematurely.

Of the primigravidas, 18 were of the ages between 19 to 25, who suffered premature rupture of membranes associated with inertia, while from 26 to 30 there were four cases only and in the period between 31 and 44 were six. Several cases were admitted to the hospital with rupture of membranes at home, the actual time not being mentioned or not recorded.

Length of the 1st stage in the cases in question :

For convenience the cases are distinguished into three groups: In the *first* group, the period of which extended between 8 to 24 hours, were 12 cases, 8 out of these took 24 hours, while the remaining 4 from 8 to 13 hours, of which one was of 9 hours. In the *second* group the period extending between 24 to 48 hours (1 to 2 days) there were four cases. The *third* group, comprising 48 to 72 hours (2 to 3 days), there was only one case. It took 72 hours.

Length of the 2nd stage:—Of the first group comprising 12 to 17 hours there were eight cases, four of which were of twelve hours only. The second group consisting of hours between 7 to 12, had three cases. There were 7 cases of forceps and 1 of craniotomy and 1 of cesarean section.

Length of whole labour:—There were 9 cases in the period between 12 to 24 hours, that between 25 to 48 hours 17 cases, between 49 to 72 hours 6 cases and between 72 to 96 hours 3 cases, the total number being 35.

The *third stage* ran normally in all cases except four in which post partum hæmorrhage occurred. In two of these, the hæmorrhage was slight, both of them were cases of toxæmia of pregnancy; the bleeding was readily controlled by methergin injection. In the third it was moderate; but in the fourth, the placenta had to be manually removed, which caused much loss of blood. But it was checked by bimanual compression of the uterus.

Episiotomy was done in the great majority of cases especially when forceps was resorted to.

There was no maternal mortality.

There were three still-births: One was of anencephalic monster; the second was of a foetus born of a mother who suffered from toxæmia of pregnancy; the third was a foetus presenting by the breech, which was already dead before it was artificially extracted.

Still-births.—Case No. 180 : age 19. As is usual, the anencephalic monster was with hydramnios. Artificial rupture of membranes was done. Yet inertia of the uterus continued two days. Pitocin drip was given twice at the interval of 12 hours. The foetus was expelled normally in 51 hours 35 mins. It was still-born.

Case No. 135 : age 34. A case of toxæmia of pregnancy. B.P. 190/120. Albumin in the urine 2 plus; œdema 1 plus. She came to the hospital with the history of the bag rupturing at home four days before, and of having mild pains. F.H.S. could not be heard. Pitocin drip was given; it excited strong pains and the foetus was expelled in 57 minutes.

Case No. 99: age 25. A case of breech presentation. Membranes had ruptured at home 2 days before she was admitted. Foetal heart sounds had grown feeble and could not be heard after 12 hours. The external os was only two fingers dilated. Effosin was injected four times at the interval of one hour. Then pitocin drip was given. It was followed by glucose and calcium gluconate intravenously twice. It had good effect; the buttock could be seen lower down in the vagina on separating the labia. The child was extracted manually. It was still-born.

In a great number of cases of premature rupture of membranes with inertia, the labour ends normally; this report also proves it and adds that it was without maternal mortality but with three still-births. Still occasions arise when it is necessary to render artificial aid to effect delivery. On seven occasions forceps had to be used to help the foetus out; once even craniotomy had to be performed; and caesarean section was undertaken on one occasion. A case of aided breech delivery has been referred to under still-births.

Forceps.—Case No. 624: age 27, primi. Membranes ruptured 4 days before. Uterine inertia. Labour protracted (28 hrs. 53 mins.). Glucose and calcium gluconate injections were given intravenously. When the mother began to show signs of fatigue, forceps was employed; the head was in the midcavity, therefore extraction was rather difficult. The child however soon began to breathe and cry by oxygen inhalation and ephedrine injections. It was 8 lbs. and 8 ozs. in weight. There was a slight P.P.H. Episiotomy was done.

Case No. 804: age 26. Para 1.—Rupture at home. Inertia, the head was delayed on the pelvic floor; the pains grew weaker and infrequent; the F.H.S. became rather rapid. Forceps was applied and the child extracted with ease. Its weight was 5 lbs. 4 ozs. 3rd, stage normal. Episiotomy.

Case No. 973: age 24. Para 1.—Rupture 5 hours before admission; inertia; labour protracted; no progress on reaching the perineum. Low forceps—weight 6 lbs. 12 ozs. 3rd stage normal. Episiotomy. Labour 29 hours.

Case No. 976: age 22. Para 1.—Rupture 17 hours before, inertia; head delayed on the pelvic floor. Signs of exhaustion; forceps was applied; the child extracted without difficulty. Episiotomy. Weight 4 lbs. 15 ozs. Labour 30 hours and 57 mins. 3rd stage normal.

Case No. 1787: age 33. Para 1.—Rupture in the early stage, inertia; head delayed on the pelvic floor. Pains grew weak and infrequent; forceps was applied to bring about delivery. Labour had prolonged to 35 hours and 9 mins. Weight 6 lbs. 11 ozs. Episiotomy. 3rd stage normal.

Case No. 1038: age 33. Para 1.—Rupture before admission. Inertia. 1st and 2nd stages no progress on approaching the perineum; the pains occurring at long intervals. Maternal fatigue. Low forceps application was done. Labour protracted to 28 hours. Weight 4 lbs. 12 ozs. 3rd stage normal. Episiotomy.

Case No. 400: age 24. Para 1.—Rupture at home. Inertia. The head obstructed in the mid-cavity-outlet contraction. Symphysiotomy and forceps. Weight 7 lbs. 10 ozs. 2nd stage 30 hours 30 mins.

Craniotomy.—Case No. 701: age 25. The patient was admitted to the hospital with a history of labour pains, which had begun at home two days before, but because they were very weak she was not brought to the hospital. Liq. Amnii was already leaking. Foetal heart sounds were very rapid but soon they grew slow and suddenly stopped. The os was dilated only to admit two fingers. Effosin was injected every hour until four injections were made. When the os was three fourths dilated, craniotomy was performed. The ischial spines were prominently felt, indicating contraction of the obstetric outlet. The child was large, weighing 9 lbs. even without brain.

There were two cases of premature delivery (cases Nos. 141 498). In both there was premature rupture at home and inertia. In 141 the condition improved in the second stage; the contractions became stronger and delivery took place in 3 hours and 15 mins. 3rd stage normal and child's weight 4 lbs. In 498, the inertia continued in the second stage and the labour was prolonged and took 27 hours and 35 mins. 3rd stage normal and the weight of the child was also 4 lbs.

Period of labour in primigravidas:—Between 20—24 hours there were 5 cases; 24 to 28 hours, 15 cases; 48 to 72 hours 6 cases and 72 to 80 hours 2 cases. Labour was found prolonged in the greatest number in those cases which had gone on to between the second and the third day. Among these 28 cases of primigravida were 4 cases of P.P.H. two being with slight loss of blood. In one, the placenta had to be removed manually and was accompanied by a little more loss of blood. In all other remaining 24 cases, the 3rd stage ran normally, the placenta being expelled between 5—12 mins. Intravenous injection of methergin was useful in controlling bleeding.

Among *multiparas* there were 7 cases of premature labour with inertia, two of the second para, one of the fourth, three of the fifth and one of the sixth para.

In the second paras there were two cases, the numbers of which being 418 and 847. In No. 418, rupture of the membranes came about 8 hours before pains of the second stage started, delivery took 30 hrs. and 50 mins. The 3rd stage was normal.

In the 847 the delivery was premature, occurring one month and twenty days before the expected date. In it too the membranes had ruptured prematurely accompanied by inertia in the first stage which continued for 40 hrs. The progress in the second stage was nearly good; it lasted for 8 hrs. and 8 mins. the whole labour comprising 48 hrs. and 8 mins. The 3rd stage was normal and the child's weight 4 lbs. and 8 ozs.

In the fourth para, case No. being 1069, age 35, the rupture was premature, 14 hrs. before pains began, during which time inertia was noticed. During the second stage progress of labour was slow taking 10 hrs. 8 mins. The 3rd stage was normal and the child's weight 8 lbs. 6 ozs.

Of the fifth para there were three cases, bearing Nos. 177, 305 and 1140. No. 177. It is a case of premature delivery. The membranes ruptured prematurely 19 hrs. before pains began, they were feeble and infrequent owing to inertia. The second stage progressed favourably, delivery taking place in 5 hrs. and 50 mins. after the onset of pains, the whole labour taking 34 hrs. and 50 mins. The 3rd stage ended normally. The weight of the child was 3 lbs. 4 ozs, being premature.

No. 305, age 30. Premature rupture of the bag with inertia, continuing for 57 hrs. But the second stage was over in 4 hrs. 45 mins; the whole process lasted 61 hrs. 45 mins. The 3rd stage normal, weight 7 lbs. 4 ozs.

No. 1140. The patient was admitted with rupture of the membranes at home; associated with uterine inertia which remained for 50 hrs. Then the pains of the second stage began; they too were not strong; for it lasted 14 hrs. 26 mins. The whole labour occupied 64 hrs. 26 mins. The 3rd stage was normal, the weight of the child 5 lbs. 6 ozs.

Of the sixth para there was one case of inertia with premature rupture of membranes.

Case No. 1146: age 28.—Patient was admitted to the hospital on 15-12 at 11 p.m. with feeble pains at long intervals. The membranes ruptured on 16-12 at 2 a.m. Pains began on 17-12 at 6 p.m. Supposing the patient was brought to the hospital soon after she began to experience pains at home, the interval between the time of admission and that of the rupture is of 3 hrs. only. The pains of the second stage were observed to commence on 17-12 at 6 p.m., the interval between the rupture and the second stage pains being 28 hours. Evidently the rupture had come about at an early stage and was premature. Delivery took place on 18-12 at 5-58 p.m.; indicating that the second stage lasted 11 hrs. and 58 mins. and that it was prolonged. Thus the length of labour was Admission-Rup. (3) plus R.-Pains (28 hrs.) plus P-Del. (11 hrs. 58 mins.)—42 hrs. 58 mins. length of labour. 3rd stage normal—Foetal weight 6 lbs.

Discussion.—As has been mentioned before, among the patients coming to the maternal hospital for confinement most of them get normal delivery; while there are not a few who seek admission for escape of water but at the same time having but very mild pains. On ascertaining that it is the liquor amnii which is really leaking, treatment has to be adopted of a kind quite different from the usual. Since the bag has given way, it is of the utmost importance to prevent organism from getting entrance into the amniotic cavity. It can be done so by keeping the external parts clean and by placing on them sterilized pads which have to be changed whenever urine or motion is passed. If much time has passed, antibiotic treatment must be commenced at once. In this way efforts should be made to prevent the amniotic cavity from getting infected. If the leakage is going on, it is advisable to observe the size of the uterus every day by measuring the height of the fundus and the circumference of the abdomen at the level of the umbilicus to make sure that it is not rapidly reducing. At the same time how far the foetus can be moved in the uterus should be noticed. Above all the foetal heart sounds must be carefully listened to frequently and their rate recorded. The patient's strength has to be preserved by procuring for her sleep by administering hypnotics, by giving her intravenously glucose and calcium gluconate even twice a day and by allowing her easily digestible nutritious diet. This routine has to be carried on with scrupulous care because it is impossible to form a clear idea about how the uterus is going to behave, how long the inertia is to continue, whether it is to gain strength enough to expel the foetus itself or whether time has approached to render artificial aid promptly. In some cases and they are relatively a few, a sudden turn for the better takes place, the organ starts contracting strongly and in a few hours varying from 3 to 7, delivery occurs normally. But in the majority of cases the state of inertia continues long, lasting from one day to five days or even longer; the uterus acts erratically, the feeble pains even disappearing for hours together and then appearing again when the patient might sometimes feel the pains more acutely, that she might shout with pain though the uterine contraction may be noticed by the hand to be weak and lasting for a very short time. This condition may continue for a few hours and then subside. Tired of anxiously waiting without result, some patients insist on returning home, and they are not happy unless they are allowed to go, (more from monetary point of view); and they also assure that they would come back no sooner did the pains begin. It so at times happens that some of them do return with so strong contractions that within a short time a child is born to each. It is not always so happy an occurrence. Several of the cases of premature rupture have to be carefully watched; otherwise in the absence of close attention, grave

condition might supervene without being noticed in time, which incidence might endanger the life of either. In the report in question craniotomy had to be done (case No. 701). In case (No. 200) caesarean section was done and the child could be saved, but it had to be resuscitated. In seven cases forceps was employed when advance of the head was delayed and distress threatened thereby saving each child.

Summary.—(1) 34 cases of premature rupture of membranes with inertia could be obtained to which from the record of cases of the last year and early months of this year could give good information.

(2) In the majority of cases rupture came about at an early stage of labour that was characterized by inertia.

(3) Inertia may last in the prolonged first stage; the contractions may then improve and become strong and the case may terminate normally.

(4) The inertia may continue even from 48 to 76 hours. Towards the close the pains may even become stronger and labour may also end in a normal way.

(5) Instead of the organ recovering its natural strength and delivery taking place, the mother or child might begin to show signs of distress.

(6) Instead of waiting till then, artificial aid may be given in time; it should be of a kind of forceps application, internal rotation of the head as in occipito-posterior position when the head is arrested in the cavity (either in the oblique or transverse diameter), or caesarean section when the head is high up just at the brim or floating, indicating cephalo-pelvic disproportion.

(7) The 3rd stage ran a normal course in all except four cases, in which there was P.P.H., two of which had slight, one moderate and the remaining one had rather much, which occurred during manual removal of the placenta partially separated.

(8) There was no maternal mortality; there were only three still births; one was of anencephalic monster, the second of a foetus born of a case of toxæmia of pregnancy and the third was of a foetus with obstructed breech (the membranes having ruptured at home two days before admission and heart sounds were then already become slow and feeble).

(9) Episiotomy was resorted to in almost all protracted labours to save further compression of the head from rigid maternal tissues.

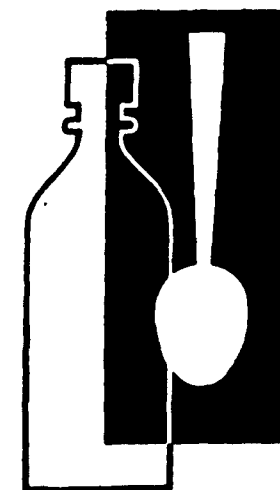
(10) In multipara all seven cases of early escape of liq. amnii have ended normally without any need of artificial aid and without mortality or P.P.H. except prolongation of initial inertia, which ultimately recovered giving place to strong contractions of the uterus and pretty rapid delivery.

CRAVINGS OF PREGNANCY

A series of 991 pregnant women with food cravings and of 193 with food aversions was analyzed by Harris and Hughes (*Brit. M. J.*, 2:39, 1958). Fruit was craved by 261 women. The commonest fruit craving was for apples (76 patients), and most of those with this craving wanted sour ones. The most interesting feature of the analysis was the list of cravings for substances other than food. This included coal (35), soap (17), disinfectant (15), toothpaste (14), tar (10), and cinders (4). The list of aversions included tea (78), smoking (24), coffee (22), and beer (4). —(J.A.M.A.).

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OPERATION FOR ANEURYSM OF THE ABDOMINAL AORTA*

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ANEURYSM of the abdominal aorta develops as a result of atherosclerosis in most of the cases. Ungel and Poppel (1936) in their analysis of 1500 cases found this to be true in more than 90% of them. The disease occurs in the elderly; more people are now living longer and so, the incidence of the disease is increasing.

Until recently no satisfactory treatment for this disease was available and most of the cases died within two years of diagnosis (Colt: 1927). Wiring of the aneurysm or wrapping it with sclerosing substances was performed with infrequent and incomplete success. The emergence of a new and logical treatment in recent years is the excision of the aneurysm and restoration of aortic continuity by a graft. The first successful operation of this nature was performed by Dubost in 1951. Efforts to excise portions of arteries and replace them by a graft had been going on for quite a long time. Lexer (1913) of Germany performed excision of an aneurysm of the femoral artery and replaced it with a graft from the saphenous vein. A few years prior to Lexer, Carrol (1907) had predicted that the treatment of aneurysm could be excision and grafting of a segment of a vessel taken from another human being. But his studies were restricted to animal experiments only.

It was Gross of Boston (1948) who used a homologous graft in a human being for the first time to bridge a gap in the aorta after excision for coarctation. He was followed by several others. In 1949 Swan excised an aneurysm of the arch of the aorta associated with coarctation and restored continuity by a homologous graft. On this background Dubost made his first success on the abdominal aorta. Julian (1952) closely followed Dubost and De Bakey *et al* performed 185 such operations by 1956. In England, Rob (1955) reported 35 cases of resection and grafting of the abdominal aorta. Other notables are Hufnagel and Blakemore. In India, Sen and Bhatt (1954) reported their experiences on the scope and fate of aortic homografts in dogs.

Further progress was made by the use of a tube made of plastic material to replace the excised segments of the aorta. Voorhees, Jaretzkin and Blakemore (1952) used Vinyon N for the purpose as prepared tubes of it were readily available. Orlon, Ivalon, Nylon, Dacron and Teflon have since been used for the same purpose.

*Specially contributed to the ANTISEPTIC.

Anatomical considerations.—The aorta enters the abdomen through the aortic hiatus of the diaphragm situated about the level of the lower border of the twelfth thoracic vertebra. As it runs downwards, it deviates slightly towards the left and ends at the level of the lower part of the fourth lumbar vertebra by dividing into its terminal branches, the two common iliac arteries. Blackemore (1953) pointed out that the abdominal aorta is well supported at its entrance and at its bifurcation. The middle portion which is relatively less supported is effected by the aneurysm. The branches arising from the anterior surface of the abdominal aorta are the coeliac, superior mesenteric, inferior mesenteric and spermatic arteries. The suprarenal arteries the renal and four pairs of lumbar arteries including the ilio-lumbar arise from the side of the aorta. The middle sacral artery arises from the posterior aspect of the aorta near its bifurcation. (See Fig. 1 below).

Aneurysm of the aorta occurs in the majority of cases below the renal arteries and only rarely above them. In a series of 183 cases De Bakey *et al* found the aneurysm above the renal arteries in only four cases, while in the rest a centimeter or so of the aorta below the renal arteries was the normal site; and this is also the experience of others and it is an important feature in resection and anastomosis. The inferior mesenteric artery is always involved in these aneurysms. It gets considerably narrowed and even completely obliterated. Collateral circu-

lation between the branches of the inferior mesenteric artery and the superior mesenteric artery is important since it is essential for the blood supply to the lower colon. Usually it is well developed by the time the patient comes for the operation, but sometimes it may not be adequate and bowel gangrene has been reported after the excision of the abdominal aorta.

In excising the aorta below the renal arteries the lumbar arteries are ligated but there is no danger of damaging the blood

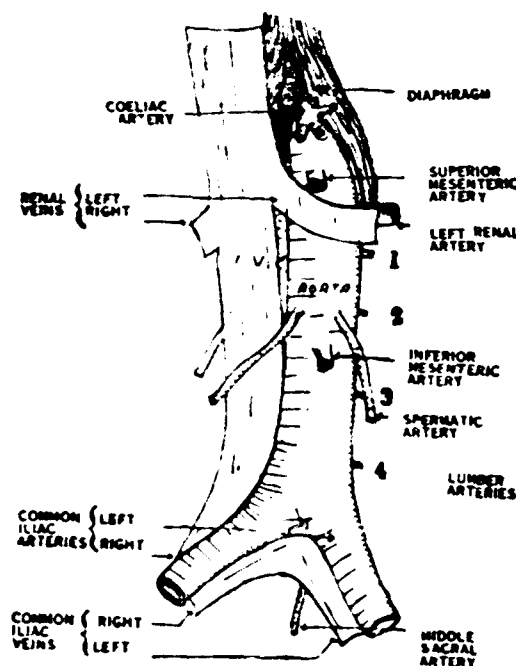


FIG. 1. Showing the relation of aorta with the veins. The various branches of the aorta are also shown.

supply of the spinal cord. Excision of the aorta above the renal arteries will include excision of the coeliac and superior mesenteric arteries besides the renal ones with consequent widespread damage to the abdominal viscera. Successful operations of this region were however, reported by De Bakey *et al* (1956) and others.

The inferior vena cava and the iliac veins are in intimate relation with the aorta and its bifurcation, and the left lumbar veins are closely applied to its posterior aspect. The left renal vein crosses the aorta anteriorly at its upper part. All these relations have their obvious importance at the time of dissection of the aneurysm.

The graft.—As already mentioned two types of graft can be used to bridge the gap left by excision of the aneurysm. One is the homologous aortic graft from another human being and the other is the tubular prosthesis made of some suitable inert water-repelling plastic material.

The homograft:—The homografts are taken from other human beings as soon as possible but not later than ten hours after death from a non-infective disease. Segments of the aorta are removed under aseptic precautions. Several methods have been adopted for their subsequent preservation.

Gross (1948) was the first to use the human aortic graft successfully preserved by storing them in a fluid medium, composed of 10: homologous serum in a balanced salt solution maintained at a fairly constant pH by means of a buffer. The balanced salt solution was the Tyrode's solution modified by Hanks. The stock solution for this is made up as under:

NaCl	...	20 g.
KCl	...	1 g.
MgSO ₄ 7H ₂ O	...	0.2 g.
MgCl ₂ 6H ₂ O	...	0.2 g.
CaCl ₂	...	3.35 g. (dissolved separately)
Na ₂ HPO ₄	...	0.15 g. (0.38 g. of Na ₂ HPO ₄ 12H ₂ O)
KHPO ₄	...	0.15 g.
Glucose	...	2.5 g.

0.4% phenol red 12.5 cc. for 250 cc.

The buffer used is 1.4% NaHCO₃.

The stock solution is stored at room temperature with 1 cc. chloroform added to it. The final solution is made by diluting the stock 1:10, autoclaving and adding 0.5 cc. buffer for every 20 cc. This is stored in cotton wool plugged flasks in the ice box; it has an equilibrium at about pH 7.6. The aortic segment obtained in a sterile manner is placed in a flask containing this solution. Penicillin and streptomycin are then added to the solution to make 50 units of each of these drugs per cc. The flask is kept at a

temperature of 1 to 4°C. Preserved in this way the graft can be used up to 35 days. Tissue culture studies have shown that the graft remains viable and shows fibroblastic proliferation for 35 to 40 days.

The other method of preserving the graft is by freezing which was introduced by Hufnagel (1947) in America and by Eastcott (1952) in England. Segments of aorta are removed within 8 hours of death under strict aseptic precautions. The aorta is cleaned down to the adventitia and branches are cut down to leave a stump of one cm. The vessels are washed in isotonic saline and placed in sterile pre-cooled tubes. They are then frozen rapidly using liquid nitrogen (-194°C). The arteries are then stored at -70°C. in a deep-freeze. Immediately before it is required, the graft is thawed rapidly by immersing in saline at 40°C. By this method the arteries can be stored for a long period. However, the method requires extensive deep-freeze apparatus and it is difficult to transport the graft from one place to another.

The third method of preserving the arteries has been by freeze-drying. Marrangoni and Cecchini (1949) were the first to use this method in which the arterial graft is first washed in saline solution containing 400 units of penicillin and streptomycin per cc. and then quickly freezing it in liquid nitrogen. It is then freeze-dried at a pressure of 100 to 200 microns of mercury. The tubes containing the graft are stored at room temperature. The method of freeze-drying has the great advantage that the graft is stored at room temperature and can be sent to distant places without elaborate precautions.

The sterilization of the grafts before preservation has also been studied. Penicillin and streptomycin solutions have largely been employed. High voltage cathode ray irradiation, contact with ethylene oxide gas and 1% solution of betapropiolactone are some of the agents which have been successfully tried.

Prosthesis.—The subject of vascular prosthesis has recently been exhaustively dealt with by Creech *et al* (1957) and by Crawford *et al* (1958). The advantages in prosthesis made of plastic material are their ready availability and the ease in storage and sterilization. The disadvantages are: that, being foreign bodies, they do not possess, elasticity; prosthesis cannot be used in places where branches have to be anastomosed to the side of the prosthesis such as in the excision of the upper abdominal aorta where the coeliac and the renal arteries will have to be anastomosed to it. Ivalon, Orlon, Nylon, Dacron and Teflon have all been used in the construction of the prosthesis.

Ivalon tubes have resulted in more failures than other types of prosthesis and so is now getting out of use.

Nylon, Orlon, Dacron and Teflon are manufactured in the form of fabric and are available commercially as cloth with taffeta braided, or knitted weave. They may be stitched in the form of a tube on a sewing machine or they may be woven into seamless tubes. Further these tubes can be hardened to remain non-collapsible by coating them with vinyl plastic or by treating them with formic acid. These tubes can also be crimped to avoid kinking at places where the tube is likely to get bent. Most centres engaged in this type of surgery are making their own prosthesis in conjunction with local textile industry. However, Edwards-Tapp type of nylon tubes are available commercially ready made and are being used widely. These tubes are chemically treated with formic acid so that they are non-collapsible and they have a silicone lining. The legs of bifurcated aortic tubes are crimped as well. (See Fig. 2 below).

The two disadvantages of the fabric tubes are: (1) a large amount of blood seeps through the meshes of the tube after the blood-flow has been restored through them; (2) their ends get frayed on cutting or when a needle is passed through them for stitching. The loss of blood through the tube is about twice the amount lost when a homologous graft is used. The oozing of blood can be minimized by soaking the prosthesis in the blood of the patient for sometime before actually stitching them in place. By this process which has been termed pre-clotting the fibrin gets deposited in the meshes of the fabric and the subsequent loss of blood is minimized. The seepage of blood through the prosthesis stops after two to three minutes even when pre-clotting has not been done.

To prevent the ends from fraying the cut end of the tube is heated with cautery at dull red heat. This gives a clean end without any fraying.

Nylon loses much of its tensile strength in a year or two. Dacron was therefore, preferred, and Teflon introduced recently is reported to be still better.

Selection of cases for operation.—Gliedman *et al* (1957) estimated that 34% of cases of aneurysm of the abdominal aorta were dead within one month of their diagnosis and 76% were dead within six months and 80% died within one year.

A small asymptomatic aneurysm may be left as such while a large and symptomatic one should be operated as early as possible. The younger the patient, the greater is the need for operation. A few who may be having obvious cardiac ischaemia or

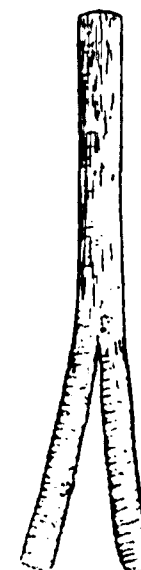


FIG. 2. Showing the Edwards-Tapp type of Nylon Prosthesis available commercially. It is bifurcated and crimped.

renal insufficiency, are excluded from the operation. A leaking aneurysm or one which has reached the stage of a dissecting aneurysm must be treated by an immediate operation. De Bakey *et al* (1958) reported four successful cases of arterio-venous fistula produced by a leakage of the aortic aneurysm into the inferior vena cava. Such cases can be dealt with only by an operation.

It is an advantage to know by aortography before operation whether the aneurysm is lying below the renal arteries and whether there is a fair degree of collateral anastomosis between the branches of the superior and inferior mesenteric arteries; information regarding occlusion or patency of the common iliac arteries will also then become available.

Aortography was first performed by Reynaldo dos Santos of France (1929), and has since been applied to over 1000 cases. In India, Nigam *et al* (1958) recently described their experience in 40 cases in whom they performed aortography. The technique of the procedure consists in laying the patient prone and introducing a needle through the skin just below the left 12th rib, four fingers from the midline. The needle 15 cm. long and of 16 swg. is directed forwards medially and upwards towards the body of the 12th thoracic vertebra, which it strikes; it is then withdrawn for about an inch and pushed again inclining a little in front of the previous position till it enters the aorta. Diodone 70% is then injected as rapidly as possible and within about four seconds 30 cc. of the dye solution is run into the aorta. The first skiagram is taken when 15 ccs. of the dye have gone in and the second when the last portion of the dye is being injected.

Preoperative preparation.—The patient is assessed as for any major abdominal operation and prepared on the same lines. No special preoperative preparation is required except that the patient should be brought in as good a renal and cardiac state as possible.

The operation.—Anaesthesia:—General anaesthesia with endotracheal tube is usually employed. Relaxants are given as indicated. Hypothermia is *not* needed for aneurysms below the renal arteries.

Position on the table:—The patient is laid flat as for an abdominal operation. Blood-pressure cuffs are applied around both the thighs as they have to be inflated in the later stages of the operation.

Incision:—A left paramedian incision is made extending from the subcostal margin to the pubis. A full length incision is necessary for a good exposure. A left oblique incision is made by some so as to facilitate dissection of the posterior aspect of the aneurysm. The bowels are packed aside and the aorta is

exposed. The pelvic colon, if adherent to the anterior aspect of the aneurysm area is separated carefully and packed away. An incision is now made in the peritoneum in front of the aorta from the ligament of Trietz down to the bifurcation, and is dissected away on either side. The inferior mesenteric artery will be encountered arising from the anterior surface of the aneurysm. It will be found to have been completely obliterated or considerably narrowed. It is ligated and divided as close to the aorta as possible.

Dissection of the aneurysm:—The dissection is commenced at the upper end. The duodenum is lifted upwards and to the right. Here the left renal vein will be found to be crossing the aorta anteriorly. It is gently separated and retracted bringing the healthy part of the aorta below the renal artery into view. It is cleaned all around by careful dissection. The inferior vena cava is about 1 cm. away to the right of the aorta at this level and there is no danger of injuring it. A pair of lumbar arteries

which arise from the aorta at this level, are safeguarded and a tape is passed around the aorta above the level of these arteries. These lumbar arteries are ligated and divided in the later stages of dissection just before transection of the aorta. Being thus satisfied that a length of healthy aorta is available for anastomosis, attention is now turned to the lower end. (See Fig. 3). The common iliac arteries are separated all round and tapes passed around them. In dissecting these vessels very great care should be exercised to prevent injury to the accompanying veins particularly to those on the right side. The ureters which also cross the vessels must be kept out of harm's way.

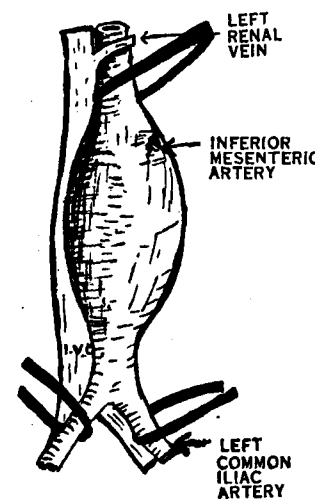


FIG. 3. Final stage of dissection. The upper end of the aorta and the iliac vessels have been secured on tapes, the inferior mesenteric artery has been ligated and divided and the aneurysm has been separated all round.

The posterior and lateral surfaces of the aneurysm are now dissected, which is done after clamping and dividing the iliac vessels and then lifting the proximal cut ends of these vessels upwards and forwards, and separating the aneurysm from its surrounding structures progressively as it is lifted up. This makes dissection easier but has the disadvantage that the flow of blood through the aorta will be stopped for a longer period. The other method is to separate the aorta all round and then clamp it on either end before removal. Whichever method is followed, the middle sacral and iliac lumbar arteries are dissected and ligated

before division. The inferior vena cava is then separated from the aneurysmal sac and this is perhaps the most difficult task. The two vessels may be intimately adherent. A number of enlarged lymph glands which are also present would add to the difficulty. The greatest possible care is to be exercised in separating the inferior vena cava from the aneurysm, and if it is impossible to do so, the dissection is made through the outer layers of the aneurysm which are left behind attached to the inferior vena cava.

On the posterior aspect the left lumbar veins will be found closely applied to the aneurysmal sac. They are separated without injury or may be tied on either side and removed with the sac. The aneurysm is now ready to be excised. A clamp is applied to the aorta below the renal arteries and it is divided distal to the clamp. The transection of the aorta must be done well below the clamp, even though the upper end of the aneurysm is left to be trimmed later (Adams and David, 1956). The iliac vessels are clamped and divided, if this has not been done so far. Heparin, 3500 units are injected into each iliac artery after applying clamp on it. A sufficient length of the iliac arteries should be left proximal to the site of the clamp on these vessels.

Anastomosis:—The cut ends of the aorta and the iliac arteries are now trimmed and any loose tags or plaques removed. The open ends of these vessels are syringed with saline to remove blood clots or fragments of intima. The adventitia of the aorta are not stripped as being helpful in holding the stitches. The clamps on the iliac arteries are released momentarily one at a time to confirm that there is a good back-flow and no obstruction is present in these vessels.

The upper anastomosis is performed first. The suturing is done with 0000 or 00000 arterial silk. The stitches employed are continuous everting and the posterior wall is stitched first. Two layers of sutures may be employed for greater security; the first layer consists of interrupted or short runs of everting arterial type of stitches and the second layer is an over and over continuous 00000 silk stitch passed through the flange produced by the previous layer.

The right common iliac is anastomosed first and here again the posterior wall is anastomosed first. A single layer of 0000 or 00000 arterial silk over and over sutures is enough. Care is taken that the graft is not twisted in its long axis. The anastomosis of the left iliac artery is then carried out.

The arterial graft or prosthesis should be under slight tension. If lax, it is likely to bulge or buckle up. There should be no excessive tension either.

Release of clamps:—This is an important step in the operation, important because after the release of clamps there will be a leakage of blood from the site of anastomosis and if a prosthesis is used there will be loss of blood through the pores of the fabric. One or two pints of blood may be lost in this way in a few minutes. Further the release of clamps lead to rush of blood into the lower extremities and a considerable amount of blood is lost in filling the vascular tree. Both these factors lead to a sudden lowering of blood-pressure. To counteract these effects the following procedure is adopted.

The blood-pressure cuffs on the thighs are inflated to an extent above the systolic blood-pressure. The blood-drip is speeded up and ten cc. of protamine sulphate (1%) solution is injected intravenously to counteract the effect of heparin that was injected into the iliac vessels.

The distal clamps are released first. One minute later, the aortic clamp is slowly released. Wet swabs are placed on the lines of anastomosis and gently pressed to give support to the suture line. In a few minutes all leakage of blood from the line of anastomosis or through the meshes of the prosthesis stops. An extra stitch is applied at the site of any major leakage in the line of anastomosis. During this time the blood pressure should get stabilized to 100 mm. systolic. If not, further time should be spent in raising the blood-pressure by additional blood transfusion. When the blood-pressure is steady the cuff on one of the thighs is released. This will lead to a fall in blood-pressure again and will take some time to steady up when the cuff on the other thigh is released.

Closure:—The peritoneal cavity is cleared of blood and the peritoneum of the posterior abdominal wall is now stitched in front of the aorta, the packs are removed and the abdomen is closed in layers.

Post-operative management.—In the post-operative period, blood-transfusion is continued to maintain an adequate blood-pressure-level. The blood-pressure and pulse are recorded frequently and suitable measures taken as indicated. Anticoagulants are avoided as they may lead to dangerous bleeding. Paralytic ileus is likely to be marked after the operation and is avoided by giving nothing by mouth for the first few days, gastric aspirations and intravenous feeding. Thrombosis in the graft is unusual and is indicated by loss of distal pulsations, and pain in the extremities. Rupture at the site of anastomosis will be indicated by sudden pain in the abdomen and back and sudden collapse.

Results.—*Mortality*:—The mortality rate in this operation has been variously reported from 30% or less. Lehr *et al* (1957) in a collected series of 146 cases of excision of the abdominal aorta

and replacement by homograft reported a mortality of 20%. De Bakey *et al* (1957) with their large experience of operating on these patients, reported a decrease in their mortality from 25% at the beginning to 2% in their later cases. In a series of 70 cases of aneurysm of the abdominal aorta treated by excision and restoration of continuity by the Edwards-Tapp type of tube, De Bakey (1958) reported a mortality of 10%. In the same publication they gave their mortality figure in the last 70 cases treated with homograft as *nil*. These results are of course brilliant, but the operation is likely to carry about 20% mortality in the hands of those who deal with such cases only occasionally. The mortality is due to shock, thrombosis in the graft and rupture or infection at the site of anastomosis.

Fate of the homograft and long term results.—Experimental studies regarding the fate of homografts have shown that the graft serves as an inert non-viable blood-carrying tube which undergoes gradual degeneration and replacement by fibrous tissue from the host. Studies on human grafts have shown similar changes. Muscle fibres of the graft degenerate earliest and collagen fibres persist for as long as one year. The elastic fibres survive longest and after a few years they show only a minor reduction in number. The strength of the homografts is therefore, dependent on the state of elastic fibres.

The homograft is likely to get dilated and develop aneurysm. Susman (1957) reported one such case and Jamplis *et al* (1958) reported another. Denmann *et al* (1958) reported three cases of aneurysmal dilatation of homograft 10, 24, and 27 months after implantation respectively. They also found atheromatous plaques in the homografts. Many other workers have reported similar experiences. Creech *et al* (1956) reported the occurrence of focal fragmentation of elastic fibres, cholesterol clefts and scattered calcification in homografts 14, 18 and 28 months after their implantation. The current literature has quite a number of case-reports in which the graft formed an aneurysm or ruptured and in many of them a successful operation was done and another graft or prosthesis implanted.

The long term results are difficult to assess at this stage. Dubost's first case was reported to be alive and well in 1955, four years after operation, and the first case of aortic graft performed by Gross in 1948 was reported to be alive and well in 1957. The reports on a long series of cases have been up to three years. Lehr *et al* (1957) in a collected series of 146 cases reported good results in 111 cases and poor in 5 cases. De Bakey *et al* (1957) stated that three-year follow-up results were gratifying.

Fate of prosthesis and long term results.—Experimental studies have shown that soon after the establishment of blood-flow through the prosthesis a layer of fibrin gets deposited along

its inner surface. At the end of about a week, a layer of granulation tissue surrounds the prosthesis. This layer is derived from the host tissues and is continuous with the adventitia of the recipient vessel. In about a month's time the granulation tissue organizes into fibrous tissue which gradually invades through the meshes of the fabric and reaches the inner lining. As time passes, the cells of the fibrous tissue on the inner surface become flattened resembling the endothelium (Creech *et al* 1957).

The tubes made of plastic material are also likely to disintegrate or form an aneurysmal sac. Ohara and Nakano (1958) reported one such case in which the prosthesis dilated into an aneurysmal sac and later on ruptured on its anterior wall. Creech *et al* (1957) reported 17 failures in a collected series of 256 cases in which a prosthesis had been employed for abdominal aortic aneurysm. The failures were due to the following causes: disruption in 3 cases, rupture in 1 case, thrombosis in 4 cases, hæmorrhage in 4, aneurysmal dilatation in 2, erosion into duodenum and ileum one case each, and infection in one case. Crawford *et al* (1958) reported a series of 175 cases in which prosthesis had been used by them in the abdominal aorta. Immediate results were stated to have been good in all cases except one and late failures were reported in 5 cases.

Judging from the reports the operation appears to have given good results in 60 to 80% cases. They have been slightly better where homologous graft was used. However with refinements in technique the use of prosthesis is likely to be equally good. Long term results are as yet difficult to assess. There are already quite a number of reports in the literature about the formation of aneurysm or atheromatous plaques and rupture of artificial tubes employed for the purpose. However, there is no doubt that this operation holds out better promise than other conservative treatments.

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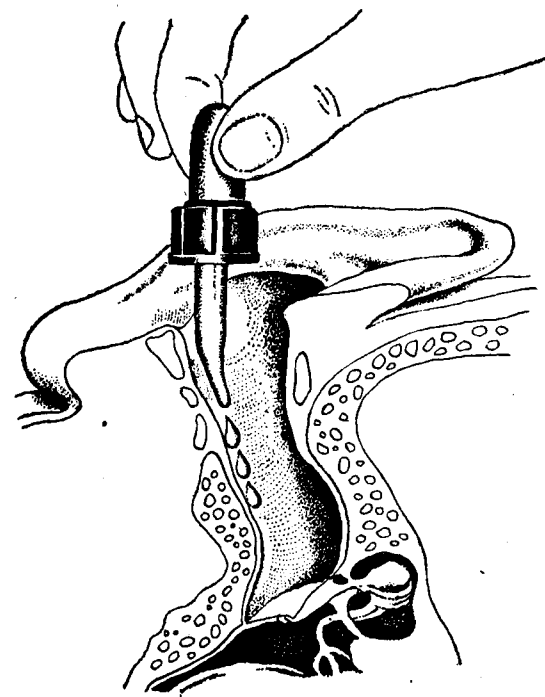
PREVENTION OF LUNG CANCER

Dr. A. J. Dalzell-Ward, Medical Director, Central Council for Health Education of London supporting Dr. E. R. Nye, *B.M. Journal*, August 9, p. 389) in his suggestion that a campaign should be especially directed to children and young adults says "With this end in view, the Central Council for Health Education has already distributed 171,800 leaflets to local authorities for use in schools as well as 84 sets of display material also designed to appeal to the older schoolchild, and over two million book-material also designed to appeal to the older schoolchild, and over two million bookmarks for use in public libraries. We have evidence of great interest in this topic in schools, and several meetings of head teachers have been organized, some of them being addressed by medical officers of health and others by a member of the Central Council for Health Education staff.

The subject of smoking is highly charged with emotion and involves an underlying motivation of some complexity. This means that fear of cancer alone will not necessarily cause a change of attitude towards the habit. These factors must be taken into account in the personal and direct educational efforts which are required to supplement the publicity already referred to. The fundamental questions are:—At what age do young people start smoking and why? The latter is answered in part by the tobacco advertisers themselves? The prestige motive, and personal identification with an admired figure, either real or fantasy, characterizes all such advertising to-day.

All this confirms the teenager in his belief that the non-smoker is the odd man out. Part of our task, therefore, is to create a public opinion which discounts the importance of smoking as a condition of social acceptability, as well as discrediting the popular assumptions that tobacco has a therapeutic effect. A good deal of research would be necessary before we can achieve this aim, but a promising start has been made in the U.S.A.

With reference to Dr. Nye's remarks about middle aged men who are "almost beyond redemption," it should be remembered that Doll and Bradford Hill showed, in a study of 40,000 medical men and women, that the mortality from lung cancer amongst smokers was three times that amongst men who had given up the habit more than 10 years previously. The average ages of these two groups were 44 and 42 respectively, which suggests that men in the late twenties and early thirties still have a chance of avoiding lung cancer during the next 10 years. This is additional justification for a campaign directed to the public at large, and we should not allow the idea to become prevalent that a number of middleaged men who have smoked heavily all their lives could not still benefit from the effect of giving it up."



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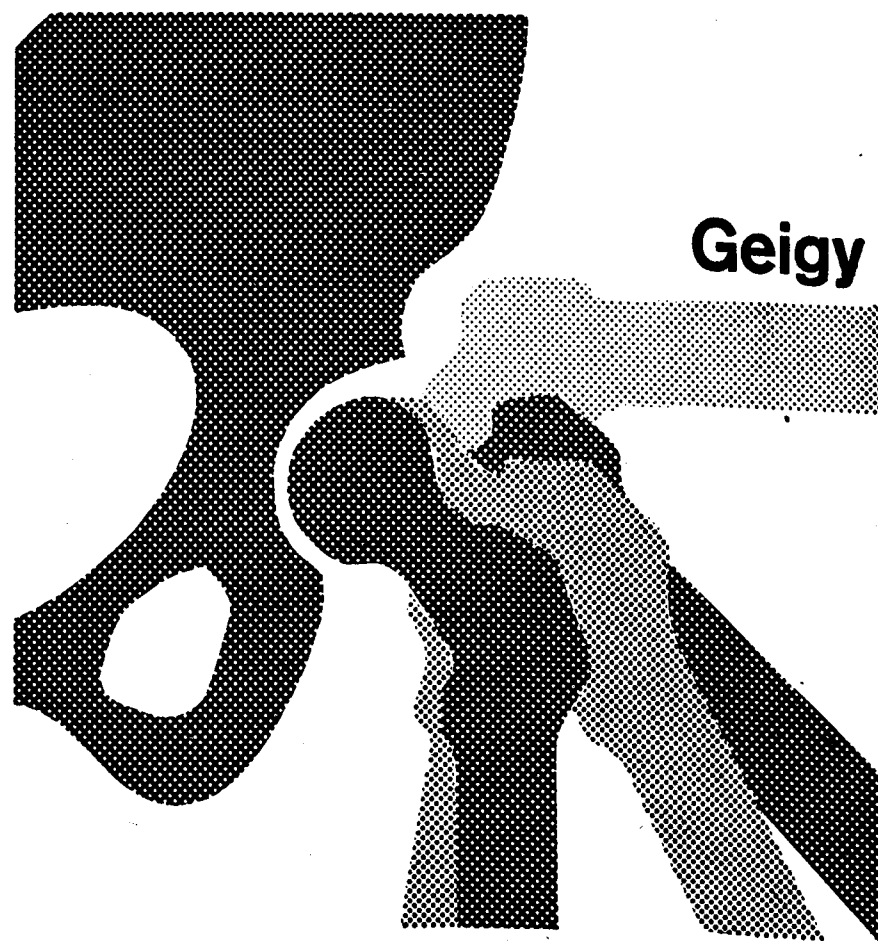
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ANÆMIA COMPLICATING PREGNANCY*

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ANÆMIA complicating pregnancy is one of the most common causes of maternal deaths in our country. In the Obstetric Department of the Patna Medical College Hospital, about 25% of maternal deaths are directly due to severe anæmia; also anæmia is a contributory cause in some of the deaths from puerperal sepsis.

There is a certain amount of hæmodilution during pregnancy due to the disproportionate increase of plasma over the red cells. It used to be taught that a Hb reading of 10 g. per 100 cc. was normal for pregnancy because of the hæmodilution. During the last 10 or 12 years however, various authors *e.g.*, Roscoe and Donaldson (1946) Benstead and Theobald (1952) Davis and Jammison (1954), have shown that an adequate intake of iron throughout pregnancy will maintain the Hb. level at a much higher level than 10 g. per 100 cc. Even though the increase in the volume of blood is very variable, the relative hydræmia is not sufficiently great in most cases to result in a Hb concentration of less than 80% (11.8 g. per 100 cc.); hence a woman with a Hb value of less than 80% should be considered as a case for treatment. Whitby and Britton give 81 to 105 per cent (12 to 15.5 g. per 100 cc.) as the normal range of hæmoglobin concentration for healthy adult women.

In a survey of total R.B.C. and Hb in pregnant women carried out by Dr. Sita Verma under my direction (*results not yet published*) in pregnant women attending one of the Patna Maternity Centres only 30 out of 333 pregnant women (9%) had a Hb. level of 75% or more at their first visit and 81 (34.4%) had a Hb. level below 60%.†

Most anæmias in our country have a multiple ætiology, such as malnutrition, intestinal parasitic infestation and malaria which are prevalent here. The most common type of anæmia found in pregnancy is the microcytic hypochromic anæmia caused by iron deficiency and the next common variety is the megaloblastic anæmia in pregnancy due to a deficiency of folic acid or nutritional (mainly protein) deficiency.

Iron deficiency anaemia.—Iron is absorbed from the food mainly by the mucous membrane in the proximal part of the duodenum. Iron is present in the body as hæmoglobin, 60 to 70 per cent, the rest is stored in the bone-marrow, liver and spleen, while a very small quantity is present in the serum as transport iron. In iron deficiency anæmia, the body store of iron is depleted to form hæmoglobin; this leads to a deposition of iron from

*Specially contributed to the ANTISEPTIC.

†This work was carried out with the help of a research grant from the Bihar Board of Medical Research.

the serum in the body stores but if, either due to a deficient iron-intake or poor absorption of iron, the body stores are not replenished, deficient hæmoglobin formation results. Normally the human body has a sufficient amount of iron stored to replace the loss of 2 to 3 pints of blood and this amount is variously stated to be from 600 to 1500 mg. of iron.

In healthy adult men, the loss of iron from the body is negligible, but in adult women iron is lost every month, in their menstrual flow, the actual amount lost varying widely; on an average the loss is estimated as 25 mg. per month. If this iron loss is not replaced through the diet, anæmia develops.

During pregnancy 800 to 900 mg. of iron is required for the foetus, placenta, and uterus to meet the increased blood volume. The amount of iron gained by the stoppage of menstruation is only about a fourth of what is required during pregnancy, the rest having to be made up from dietary iron. The occurrence of iron deficiency anæmia in pregnancy will also depend on the patient's iron balance at the onset of pregnancy, because if the storage of iron is adequate and good it will enable her to tide over her pregnancy even if there is a deficient iron-intake or absorption; but if the initial store of iron is already low or depleted, anæmia will readily develop.

Most of our women are either frankly anæmic or their body iron-store is deficient because (1) they often take a diet deficient in iron, owing to their poverty, ignorance or religious prejudices, (2) a deficient absorption is caused by intestinal disorders. Added to this is the fact that there is often impairment of appetite or distaste for certain types of food during pregnancy. It is also commonly believed that taking meat, fish and eggs is harmful during pregnancy. The result is that our hospitals have to admit a large number of pregnant women with Hb. levels of less than 30%. Severe anæmia causes the intra-uterine death of the foetus and premature labour often resulting in the death of the mother as well. If these women are kept in bed and properly treated for at least two weeks before they go into labour, the prognosis for the mother is much better even when the Hb level is well below 50%.

The symptoms are not pronounced except in severe cases, which show extreme pallor of the skin and mucous membranes; they are easily fatigued and dyspnoic, suffer from palpitation, edema of the feet and often general anasarca. They suffer from loss of appetite, diarrhoea and other digestive upsets.

Diagnosis is made by a blood examination, the packed cell volume is low; the mean corpuscular volume and mean corpuscular hæmoglobin concentration are both reduced and the colour index is less than one. Even if there are no facilities for carrying out a detailed blood examination, the examination of a blood film

alone will help in arriving at the diagnosis because of the characteristic central pallor of the erythrocytes indicating hypochromia.

TREATMENT:—Consists in supplying the iron which the patient lacks. Oral iron (both ferric and ferrous) has been used for treatment for many years with good results. Since it is known that iron is only absorbed in the ferrous state and ferric salts have to be reduced to the ferrous state by the gastric juice before it can be absorbed, ferrous salts are now being used increasingly. Ferrous sulphate 3 to 5 grains three times a day is the usual dose; ordinarily 12 grains per day would suffice. Both ferric and ferrous salts of iron may produce gastric upsets, which can often be prevented by starting the treatment with $\frac{1}{4}$ to $\frac{1}{2}$ the full dose and gradually increasing it to the full dose and giving it *after* meals. Ferrous gluconate (dose 4 to 5 grains three times a day) which contains 11.5% of ferrous iron is more easily absorbed than ferrous sulphate and does not appear to produce gastric upsets. Halperin (1952) estimated that 28% utilization is obtained with ferrous gluconate while, with ferrous sulphate not more than 14% is utilized. The absorption rate of ferrous succinate is given as 42%, but Cope *et al* (1956) in their comparative study of oral ferrous succinate, intravenous iron and intramuscular iron, found the absorption rate of ferrous succinate to be 35%. It is well tolerated and does not cause any side effects. The dose is 2 grains three times a day and the duration of treatment is also less than for ferrous sulphate, but ferrous sulphate is much cheaper than ferrous gluconate and ferrous succinate. Oral iron is efficacious in most cases and when given in full doses, produces a daily mean Hb. increase of 1 to 1.5%.

There are certain disadvantages in giving iron orally; in the liquid form it is unpleasant to take and stains the teeth and tongue. It also causes nausea and vomiting in some cases; in patients, with intestinal upsets, most of the iron passes out in the stool without being absorbed at all, as the intestinal contents pass rapidly through the intestines and the iron which is absorbed mainly by the upper duodenal mucous membrane does not remain there long enough to be absorbed. Provided the anæmia is not severe, the diagnosis is made at least 8 to 10 weeks before term, the patient will tolerate oral iron and also will nicely co-operate by taking the iron regularly, good results will be obtained with oral iron.

Where the anæmia is severe and the patient is nearing term or in those who cannot tolerate oral iron it will be necessary to give iron by the intravenous or intramuscular route.

Saccharated iron oxide (Ferrivenin or Iviron) can be given intravenously with good results. Most of the preparations

contain 100 mg. of elemental iron in 5 cc. ampoules. It is safer to give only 25 mg. on the 1st day, 50 mg. on the 2nd day and then 100 mg. daily or bi-weekly as may be necessary. Intravenous iron is utilized completely and rapidly, but there are certain disadvantages in its use, *e.g.*, thrombosis of the vein, occurrence of syncope in about 10% of cases and severe pain and cellulitis if any iron escapes into the subcutaneous tissue during injection. Intravenous iron 100 mg. raises the Hb by about 2%.

Intramuscular iron (Imferon 100 mg. elemental iron in 2 cc. ampoules or 500 mg. in 5 cc. ampoules) is active, efficient, relatively painless and is free from undesirable side-effects. This is an iron dextran complex and is very useful in pregnant women who are unable to tolerate oral iron or whose rapidity of response is important, and it can be given safely in the patient's homes.

Ascorbic acid is often given in iron deficiency anaemia as it is believed to aid absorption of iron by its reducing action but its influence on erythropoiesis is uncertain.

Pregnant women should be encouraged to take articles of food rich in iron such as leafy vegetables, green peas, beans, wheat, liver, meat and eggs.

Megaloblastic anaemia of pregnancy.—Megaloblastic anaemia of pregnancy is anaemia associated with megaloblastic erythropoiesis. This type of anaemia is fairly common in our country. It resembles Addisonian pernicious anaemia haematologically but there are certain very definite differences between the two. In megaloblastic anaemia of pregnancy there is no histamine-fast achlorhydria, it does not give rise to subacute combined degeneration of the spinal cord; it cures itself after the termination of pregnancy and it responds well to folic acid but shows poor response to Vit. B₁₂ and I.M. injection of liver extract.

Aetiology.—As far as we know normal formation of erythrocytes depends upon the bone marrow being supplied with a substance known as the haemopoietic principle which is normally formed in the stomach by the interaction of two substances known as extrinsic and intrinsic factors. The extrinsic factor is present in the protein constituents of food and the intrinsic factor is secreted by the gastric mucosa. It is believed that megaloblastic anaemia of pregnancy is caused by a lack in the diet of the extrinsic factor. In our women who often suffer from chronic malnutrition due to dietary deficiencies, particularly protein, the cause of megaloblastic anaemia is probably the defective diet.

Clinical features.—The onset is usually insidious and the symptoms appear in most cases during the last three months of pregnancy. Symptoms are more or less the same as in severe microcytic hypochromic anaemia; sore tongue and evidence of glossitis may be present in addition and also a moderate rise in

body-temperature. There are no clinical features characteristic of megaloblastic anaemia of pregnancy.

Diagnosis.—A blood-smear shows well-stained red cells and a typical macrocytic picture in severe cases, and megaloblasts may be found in the peripheral blood. A sternal puncture invariably shows megaloblastic erythropoiesis in untreated cases. Once treatment is started there is a rapid transformation of bone-marrow to the normoblastic erythropoiesis and in these cases sternal puncture will not be of much use in diagnosis.

TREATMENT:—These cases respond well to folic acid 15 to 20 mg. per day, but they are refractory to injections of liver extract and vitamin B₁₂. Proteolysed liver given orally is also very effective (Davis and Davidson, 1944); so is oral crude liver extract, the dose of either being $\frac{1}{2}$ oz. three times a day. In many of our cases there is also iron deficiency in the patients (dimorphic anaemia) and these should be given iron in addition to folic acid, crude liver or proteolysed liver. A high protein-diet appears to produce a more rapid improvement.

Blood transfusion may be necessary in either type of anaemia, but in my experience, if pregnant women with very severe anaemia are given either blood or packed cell (better than blood in three cases) transfusion even in small quantities they often go into labour resulting in the death of the mother in most cases as these women cannot stand any loss of blood. If they are kept in bed and treated with I.M. iron or folic acid as may be found necessary they do much better provided they do not go into labour for at least 10 to 14 days after admission. Blood transfusion is very useful after delivery and also in those cases that do not improve rapidly with medical treatment.

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VARICOCELE, AGE AND FERTILITY

In 1953 Russell drew attention to the greater frequency of varicocele in men whose semen was of poor quality. Further experience has strengthened Russell's (1957) view that persistence of varicocele reduces fertility. Of 650 men, the husbands of women referred to two infertility clinics, 48 had varicocele. An examination of the ages and fertility of these 48 men suggests that persistence of varicocele beyond the age of 30 considerably increases the likelihood of subfertility. Operation for varicocele might often prevent this misfortune.—(*Med. Ann.*, 1958).

SINUS ARRHYTHMIA AND SINO-ATRIAL BLOCK

E. Wyn Jones, M.D., F.R.C.P., Physician, Liverpool Royal Infirmary, Physician, Liverpool Regional Cardiac Centre, writes in *The Practitioner* for September 1958:—Sinus arrhythmia is undoubtedly the commonest variety of irregular heart action and it is essentially benign in its nature. As it has not infrequently been mistaken for non-benign forms of arrhythmia, it is important that its diagnosis should be beyond doubt.

The clinical diagnosis can usually be made with every confidence at the bedside, but if there is any doubt at all an electrocardiogram should be taken. This will reveal normal P waves followed by normal QRS complexes without any delay in conduction, with variation in the length of the diastolic period—the TP interval. In the vast majority of the patients there is no clinical, radioscopic or electrocardiographic evidence of disease.

Sino-atrial block is nearly always a harmless condition, apart from the exceptional cases already outlined; and no special treatment is called for once the diagnosis is established by electrocardiography. The most important point in the management of a case is to prevent the patient hearing the full diagnosis: the first part of the name will convey nothing to him but the ring of the second is unmistakably sinister. It may well prove to be the basis of a profound cardiac neurosis—a devil that many months of firm and repeated reassurance may fail to exorcise, especially as the patient may be aware that an 'infallible machine' discovered the 'block.'

Once the diagnosis is firmly settled no particular line of treatment is necessary and the patient should be reassured and encouraged to lead a full active life. The essential consideration is to make certain of the nature of the arrhythmia in any particular patient. One has known young people kept in bed for a long time 'hoping for the heart to settle down' and the dilemma is aggravated if there is an indefinite history of growing pains and a vague systolic bruit present. Only a comprehensive assessment—clinical, cardioscopic and electrocardiographic, together with erythrocyte sedimentation rate and anti-streptolysin O titre estimations—can furnish the answer. Whenever there is any doubt such an assessment should be undertaken *before* deciding to keep the young person in bed for months. The other difficulty presented by sinus arrhythmia is evidenced by patients being referred to clinics with 'auricular fibrillation' and they are often on digitalis already in one form or another. Their symptoms are rarely of cardiac origin, and most of their trouble is the result of digitalis intolerance. Beyond the adolescent stage it can be stated firmly that the main importance of sinus arrhythmia is that its misinterpretation may lead to the diagnosis of a serious pathological disturbance of cardiac rhythm, thus exposing the patient to the risk of an unjustifiable and perhaps prolonged period of 'ill health.'

ORCHIDOPEXY

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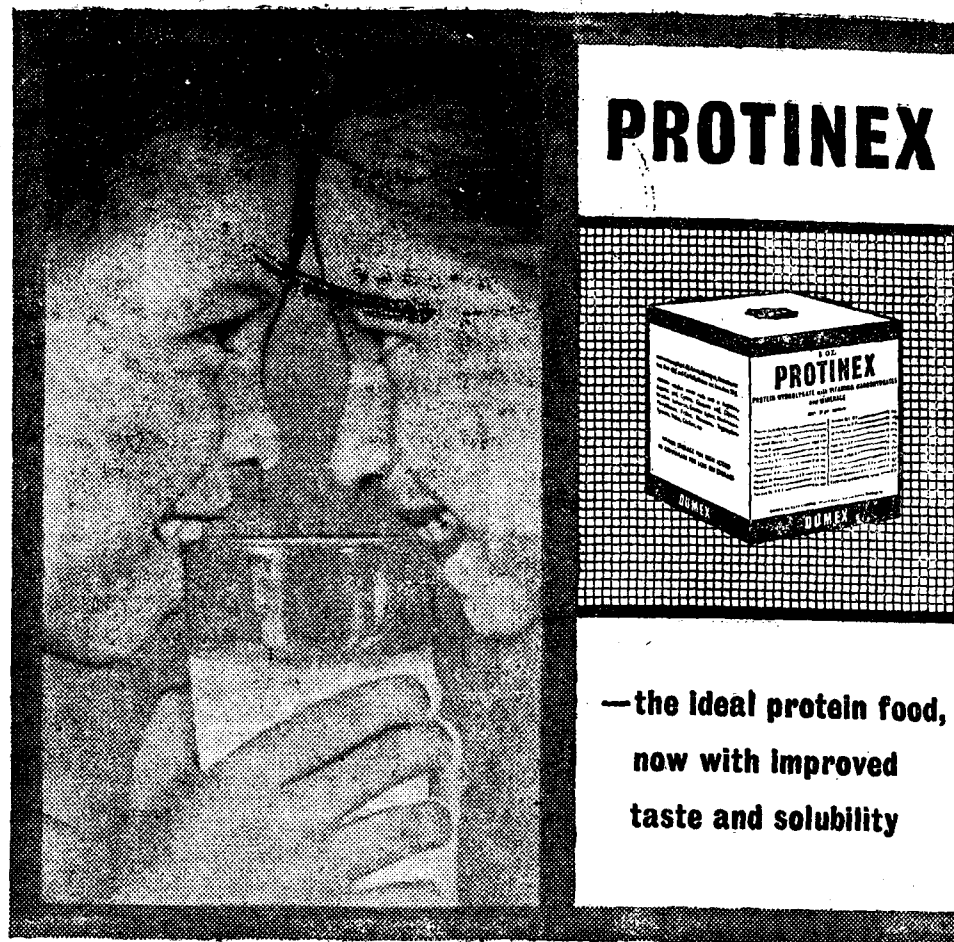
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DIFFUSE COLLAGEN DISEASES AND THEIR OCULAR MANIFESTATIONS*

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THE purpose of this communication is to present a brief review of the literature relating to the group of special systemic disorders known as "DIFFUSE COLLAGEN DISEASES."

The term "Collegen Disease" was first used by Klemperer in 1942 to describe a group of disorders having in common a general pathological disturbance of connective tissue. Stillerman stated that "the failure of pathologists to explain many clinical entities on the basis of single organ involvement or affections of such recognized tissue units as the hæmopoietic and reticulo-endothelial systems led to the concept of diffuse collagen diseases."

This disturbance of connective tissue structures involves particularly the extra-cellular components of connective tissue, the collagen fibres and the cement or ground substance. The recognized collagen diseases comprise the group known as (i) disseminated lupus erythematosus, (ii) periarteritis nodosa, (iii) anaphylactoid purpura, (iv) thrombo angiitis obliterans, (v) dermatomyositis, (vi) scleroderma, (vii) muco-cutaneous ocular syndrome, (viii) rheumatoid arthritis (ix) rheumatic fever, (x) serum sickness and (xi) temporal arteritis etc.

It is now known that all the members of this group of diseases which are of unknown ætiology and probably unrelated pathogenesis have various ocular manifestations, sharing as they do the common characteristic feature that their systemic and ocular manifestations arise from common pathological alterations of the connective tissues. The three basic components of connective tissues—the cellular, fibrous and inter-cellular elements—share the brunt of the attacks by the pathological processes. Fibrinoid degeneration is the typical connective tissue lesion that is found in these disease conditions. These conditions manifest in different degrees, changes in connective tissue including fibrinoid degeneration of collagen, excessive deposition of collagen, increase or alteration in ground tissue, proliferation of connective tissue with or without degenerative change and inflammatory cellular infiltration. These diseases have many common clinical and histological factors and there may be many cases which cannot be allocated to one or the other. Such cases present, a transitional picture between the various disorders. Again the common histopathological lesions do not presuppose the existence of a common ætiology. The pathogenesis in a large group is also not clearly understood and one may occasionally find

*Specially contributed to the ANTISEPTIC.

evidence in some of the diseases of an allergic reaction of metabolic disturbances; as such the pathogenesis in most instances is not clearly elucidated.

The association of inflammatory diseases of the eye as episcleritis, uveitis and optic neuritis etc., with a diseased and pathological condition of joints has long been known. In recent years, their association with lesions of the skin, other mucous membranes and blood vessels along with joint diseases has been noted. It will be worth while to discuss the ætiology, pathology, nature of the connective tissues, clinical disease entities and ocular manifestations as the collagen diseases.

It will also be interesting to review the ætiological hypotheses propounded by different observers from time to time. Klinge thought the fibrinoid change in the collagenous tissues and the myxomatous swelling of the ground substance in rheumatoid arthritis and rheumatic fever are due to a hypersensitive reaction. Masugi and Ya attributed fibrinoid vascular lesions in scleroderma to a sensitization phenomenon, while Jager and Rossle believed that fibrinoid degeneration of collagen is a constant and characteristic feature of allergic disease. Klemperer, Pollack and Baehr refuted this postulation, stating that such an alteration in the connective tissue elements is not necessarily due to allergy. While the majority of observers presume that the factor of hypersensitivity is the basis for all these affections, there are others who hold that hypersensitivity is not the only cause of collagen diseases. Slight mechanical trauma has been incriminated as the cause of fibrinoid alteration (Wie). Some authorities believe that toxic factors might induce collagen diseases. Klemperer observed that metabolic factors play a more important role in the pathogenesis of scleroderma and lupus wherein we find a basic disturbance in the nucleic acid metabolism.

Pathological considerations.—As stated before, the common factor in diffuse collagenous diseases is a fibrinoid degeneration or necrosis of the collagen of the fibrous tissue or as Duff observed, of all the elements of connective tissue.

Nature of connective tissue:—This is composed of (a) cellular elements (chiefly fibroblasts) and (b) fibrillar elements (consisting of collagen, elastin and reticulin) all of which are held together by a third element, known as the amorphous ground or cement substance. The latter is a colloid of unspecified origin, containing hyaluronic acid, a mucopolysaccharide which is virtually the substrate on which spreading factors such as hyaluronidase and other mucolytic enzymes act. Partly as a result of contact with mucolytic enzymes, œstrogenic, gonadotropic and pituitary, adrenocortical hormones and partly from alterations in hydration, fluctuation may occur in the ground-substance permeability and

response to various toxic agents. The intensity and virulence of an infection is conditioned not only by the intensity and infectivity of the attacking organisms, but mainly by the state of ground-substance reactivity. It is also to be noted that it is at the ground-substance level that the inflammation-blocking properties of cortisone, hydrocortisone and corticotropin are supposed to exert their therapeutic effect.

Of the fibrillar elements, collagen forms the main solid constituent of white fibrous tissue. The collagenous fibres form tendinous aponeurosis, fibrous matrix of dense and loose connective tissue and also form the basic structure of bone and cartilage. In the case of the eye, these connective tissue elements are to be seen in the sub-epithelial tissues of the conjunctiva, corneal stroma, sclera and the episcleral tissues, the extraocular muscle, sheaths and tendons, anterior chamber filtration, angle meshwork and also in the stroma of the iris, ciliary body and choroid. Collagenous components are also to be found in the septal system of the optic nerve and the dural, arachnoidal and pial sheaths. The walls of the blood vessels also contain these mesenchymal derivatives.

Physical and chemical properties.—Collagen fibres are wavy, branching threads, 1 to 12 microns in thickness with longitudinal striations. Collagen itself is present intracellularly in all the tissues. It is an albuminoid which yields gelatin on boiling. Chemically it is very resistant. It is a colloid very rich in hyaluronic acid. Its main function is to protect cells from all injurious substances. When attacked by toxic or traumatic agents, it undergoes fibrinoid degeneration and thereby becomes permeable. The degree of permeability varies as already stated: (i) with the action of enzymes *i.e.*, hyaluronidase, (ii) with alterations in hydration and (iii) from the effects of certain hormones, such as the œstrogenic, gonadotropic and adrenocortical. We can thus explain how the intensity of an infection would be influenced not only by the virulence of the invading organisms but also by the factors controlling the permeability of the ground-substance mentioned *supra*.

In considering the pathological process of fibrinoid degeneration of fibrous connective tissue, we have to refer to three principal aspects:—(i) *destructive*: swelling, loosening and disintegration and breaking down of collagen fibres, the fibroblasts and the elastic fibres forming a necrotic debris giving the staining reaction of fibrin hence called 'fibrinoid degeneration', (ii) *productive*: proliferation of fibroblasts not necessarily in the neighbourhood of the degeneration areas, but encroaching upon the necrotic mass when near, and (iii) *inflammatory* reaction to the primary connective tissue injury. It is to be noted that each of these pathological processes variously affects anatomically different

tissues leading to diverse manifestations of these collagen diseases.

A brief description will now be given of the different collagen diseases with their ocular complications. The grouping has been based on the predominant tissues in which the fibrinoid degeneration has taken place.

The following collagen diseases are due to fibrinous degeneration in the vessel-walls of the larger and smaller groups of vessels:—(a) serum sickness; (b) disseminated lupus erythematosus; (c) anaphylactoid purpura; (d) periarteritis nodosa and (e) thrombo-angiitis obliterans.

The following diseases are characterized by (a) areas of inflammation in the mucous membranes (buccal, genital and conjunctival) and, (b) lesions in the skin with or without pigmentation, and (c) inflammation and thickening of muscles:—(i) Dermatomyositis, (ii) scleroderma, and (iii) muco-cutaneous ocular syndromes.

Rheumatoid arthritis and rheumatic fever mainly affect the joints. Under rheumatoid arthritis Vail points out three age groups: (i) children chiefly girls (Stills' disease) characterized by polyarthritis without lasting damage to bone; (ii) between 20 and 40 (Marie Stumpe) wherein backache and iritis occur; and (iii) the adult type—in which there is œdema, inflammation of synovial membranes, destruction of cartilage, resorption of bone and ankylosis, subcutaneous nodules and lymphocytic infiltration in muscles.

The ocular manifestations are numerous in every collagen disease. Most of these lesions can be explained on the basis of the tissue affected and the nature of the lesion. For example, the fibrinoid degeneration of the walls of the blood-vessels will cause sub-conjunctival, intra-ocular or retinal hæmorrhages and retinopathies, depending upon the tissue in which these vessels are affected. They are more likely to be present in serum sickness, disseminated lupus erythematosus, anaphylactoid purpura, periarteritis nodosa and thrombo-angiitis obliterans. In the same way keratitis, scleritis, tenonitis, muscular palsies etc. are manifested when the collagen fibres of the cornea, sclera, Tenon's capsule or muscle tendons are expected to get affected with similar lesions elsewhere in the system, as in dermatomyositis, scleroderma and muco-cutaneous ocular syndromes. The commonest ocular manifestation in these diseases is the incidence of chronic non-granulomatous irido-cyclitis.

Besides the above, one would often find in a single case a combination of different ocular manifestations. It would therefore, not be feasible to correlate any particular ocular lesion with any particular type of diffuse collagen disease. The following ocular lesions in the different structures of the eye may be

expected either singly or in combination in the various collagen diseases:—

(1) *Lids*—Oedema, ptosis; (2) *Conjunctiva*—Chemosis, redness, conjunctivitis; (3) *Cornea*—Oedema and hæmorrhages—various types of keratitis; (4) *Sclera*—Scleromalacia perforans (seen in rheumatoid arthritis), scleritis and episcleritis; (5) *Iris*—Non-granulomatous iritis with hypopyon in some cases. (6) *Pupil*—Pupillomotor lesions; (7) *Lens*—Cataract; (8) *Vitreous*—Intraocular hæmorrhages; (9) *Retina and optic nerve*—Toxic and hypertensive retinopathies, perivasculitis, detachment, thrombosis, embolism and aneurysm of smaller vessels, neuritis and papilloedema; (10) *Visual pathway*—Thrombotic phenomena giving rise to hemianopsia; (11) *Tenon's capsule*—Tenonitis; and (12) *Muscles*—Extra-ocular palsies.

DIFFERENT DIFFUSE COLLAGEN DISEASES WITH THEIR SYMPTOMS AND OCULAR LESIONS:—(1) Acute disseminated lupus erythematosus.—This is a diffuse collagen disease characterized by various manifestations such as fever, increased sedimentation rate, symmetrical erythema, visceral lesions, hyperglobulinæmia, a specific serum factor which produces abnormal phagocytosis in leucocytosis and internal and external ocular complications.

Incidence:—Most observers find that 80 to 90 per cent of cases are women of child-bearing age; but before the onset of puberty, the sex incidence is equal.

Ætiology:—The ætiology is yet unspecified but diverse factors which may aggravate the disease suggest the presence of a bacterial or chemical hypersensitivity reaction. There may be certain elements in the diseased persons such as glomerular and arteriolar lesions in the kidney, polyarthritis and the episodic nature of the disease which may correlate it to other collagen diseases.

Pathology:—One would find widespread involvement of the connective tissues although it is difficult to define any specific histological lesion. Fibrinoid necrosis of the arterioles may be rampant in the viscera and there would be found fibrinoid change in collagen with an increase in the ground substance mainly in the serous membranes, synovial membrane endocardium, lymph glands, spleen and skin.

Ocular manifestations:—The external eye lesions include erythema and œdema of the eye-lids along with the butterfly rash. There may also be lid œdema when nephrotic complications supervene. There may be conjunctival phlyctenules.

Retinal changes would embrace patchy exudates near the posterior pole, peripapillary œdema, papilloedema and superficial retinal hæmorrhages, superficial hæmorrhages both in the macula and in the periphery, deep retinal and superficial choroidal exudates in conjunction with segmental periphlebitis, and complete vascular occlusion.

Symptoms:—Red, slightly raised eruptions affecting particularly exposed regions *i.e.*, the back of the hands, upper part of the front of the chest with a butterfly distribution on the face, a low grade irregular fever according to the severity of the disease. There may be tachycardia, wasting and progressive anaemia and also involvement of several joints (polyarthritides) resembling rheumatoid arthritis. Pericarditis may be present, endocarditis may be seen occasionally; effusion and pleuritic pain are commonly present. There may be lesions also in the abdominal viscera—the spleen is enlarged along with the superficial lymph glands; hepatitis may occur with abdominal pain, nausea and vomiting; diarrhoea and gastro-intestinal hæmorrhage may take place; albuminuria occurs, leading on to uræmia in extreme involvements. Psychotic changes are common and convulsions are reported.

Diagnosis:—This obviously depends upon the association of various clinical features already described along with the increased sedimentation rate, hyperglobulinæmia and the presence of the L. E. cell factor in the serum.

Course:—Most cases show remissions alternating with relapses and run a very chronic course. In extreme cases death may occur from toxæmia, infection and convulsions.

Prognosis:—This is generally favourable in mild involvement; while in extreme involvements with the onset of albuminuria, the prognosis is bad.

TREATMENT:—Hormonal drugs are very useful. Cortisone or corticotrophin alone offer a possibility of control. In the acute stage, cortisone in adequate doses is required to produce rapid fall in temperature, subjective amelioration, resolution of the rash and improvement in the joint signs and pulmonary symptoms. The therapeutic practice which is currently advocated is to raise the daily dose of cortisone rapidly (up to 400 mg. or more) until fever is controlled and then to reduce it gradually to the suitable maintenance level. The appearance of psychotic changes or convulsions is the warning signal to discontinue the drug. For the prevention of salt retention and hypo-potassæmia the physician should prescribe a low sodium diet along with potassium chloride. When, in spite of a low sodium intake, oedema develops, it should be treated by mercurial diuretics. One has to keep in mind that secondary infection during cortisone therapy is a very serious hazard, which must be promptly countered by suitable antibiotics (*not* sulphonamides) at the very first appearance of this complication.

Polyarteritis nodosa also called essential polyangiitis, periarteritis nodosa, is a collagen disease characterized by widespread necrosis occurring in the arteries and leading to a variety of functional disturbances involving the eye, the nervous system, heart, kidneys, lungs, blood and abdominal viscera.

Incidence:—This may occur at any age, more commonly between 20 and 30 years. Males are more affected than females.

Aetiology:—This is generally due to an allergic reaction or a hypersensitivity reaction to a bacterial antigen; and may also result from hypersensitivity to certain drugs (sulphonamides) and foreign proteins.

Pathology:—The arterial lesions consist of necrosis with an inflammatory reaction involving all coats of the arteries, and with much swelling in the intima; necrosis of the media occurs leading to the formation of aneurysms and ultimate rupture. Intense inflammatory reaction of the adventitia (periarteritis) occurs.

Obstruction of the lumen by thrombosis is common. Medium-sized and large vessels are particularly involved; arteriolar lesions may appear in the viscera. The vascular lesions are mainly focal; the common sites for arterial necrosis being the kidney, abdominal viscera (pancreas, intestines, spleen, liver, gall-bladder, testes, mesentery) peripheral vessels, coronary arteries, cerebral arteries and occasionally the pulmonary vessels. Organization of the inflamed parts results in the asymmetrical intimal thickening (endarteritis) with fibrosis in other arterial coats. Pathological changes in the tissue structures *i.e.*, infarction, hæmorrhage and peripheral nerve degeneration result from vascular necrosis or thrombosis. In the last phases, there would be severe anaemia and pulmonary oedema; also a diffuse glomerular nephritis.

Ocular manifestations occur in greater variety in this than in any other collagen disease. The pathological involvements are:—(1) Pathological lesions in the medium and smaller arteries and arterioles of the eye and orbit; (2) exudative lesions in the ocular connective tissue elements; (3) lesions in the cerebral vessels causing a degeneration of the cranial nerves 2 to 6, and (4) renal involvement with secondary hypertension and hypertensive retinopathy.

Pathological ocular lesions such as central or branch retinal artery occlusions may occur due to the involvements of ocular and orbital vessels. Lesions occurring from exudative reactions in the connective tissue elements, though uncommon, may include oedema of the eyelids, conjunctivæ and cornea. There may be scleral necrosis, uveitis, scleritis, tenonitis, and episcleritis. Ocular manifestations involving the central nervous system include:—extra-ocular muscle palsies, pupillomotor disturbances and homonymous hemianopic field defects. There may be papilloedema, ischaemic optic neuritis or hypertensive retinopathy. Regarding the pathological states occurring from renal lesions one may come across hypertensive retinopathy. The so-called retinopathy may occur from changes due to toxic factors.

Symptoms:—All systems being involved, the symptoms are protean. There would be (i) continued and irregular fever. The patients would complain of general malaise, loss of weight, progressive anaemia and muscle pains; (ii) either local or symmetrical polyneuritis; one would suspect polyarteritis nodosa in unexplained cases of wrist-drop or foot-drop present along with fever and anaemia; (iii) there may be eye symptoms described above; (iv) also paroxysmal attacks of bronchial asthma; and (v) the patient may occasionally report himself with hæmorrhage, either abdominal due to a rupture of aneurysm or cerebral or renal.

Signs:—Fever, tachycardia, wasting and anaemia are the cardinal signs. Signs of progressive depression, indisposition and miserable decubitus are prominently noticed in the later stages. Sub-cutaneous nodules may often be detected along the course of the small arteries in the limbs or the abdominal wall. Joints would show signs of swelling; there may be signs of pulmonary congestion and oedema. With the appearance of renal involvement, there may be hypertension. Heart failure is frequently a later complication. As for abdominal signs there may be hæmorrhage, perforation of the gut or involvement of the gall-bladder or the appendix from vascular lesions, while cerebral lesions like thrombosis or rupture of an aneurysm may lead to the appearance of focal paralysis. With kidney involvement there would be albuminuria and hæmaturia.

Blood examination will show a polymorphonuclear leucocytosis and eosinophilia; the sedimentation rate will be raised.

Diagnosis:—If a subcutaneous nodule has been detected, it should be removed for histological examination, failing which one has to do a diagnostic muscle biopsy by removing a sufficiently large piece of muscle. This technique would show typical arterial necrosis.

Differential diagnosis:—Cases of obscure fever; nephritis, malignant hypertension, cerebro-vascular disorders and other collagen diseases. Diagnosis is finally established on the demonstration of the typical acute and chronic pathological changes in the arteries.

COURSE:—There may be alternate phases of activity followed by remissions. With prompt treatment some cases recover satisfactorily; otherwise many patients run a progressively deteriorating course due to absence of treatment.

TREATMENT:—Cortisone or corticotrophin is the sheet anchor, as it brings about a prompt remission of fever with amelioration of symptoms, and recovery from anaemia; there would also be an amelioration and gradual arrest of the renal, cardiac or neurological lesions; but the condition of vascular necrosis is unfortunately irreversible.

Cortisone may have to be used continuously in full doses *i.e.*, 100 to 300 mg. daily by mouth. This may be discontinued when remission takes place and resumed whenever there is a relapse.

Rheumatoid arthritis:—This is a generally progressive disease characterized by an insidious onset with malaise, fever, general debility, loss of weight, muscular stiffness, polyarthritides and nodules in the subcutaneous and synovial tissues.

The chief pathological change in the blood is an increase in the sedimentation rate of the R.B.C's, which is an important index of activity.

The general pathological processes are inflammatory in nature, the soft tissues and the white fibrous structures around the joints being the first to become involved. The inflammatory process gradually invades the capsule and synovium with the deposition of granulation tissue in the angle made by the articular cartilage with the synovium.

Atrophic changes involve the skin, subcutaneous tissues, muscles, ligaments, joints and bones.

Ocular manifestations:—These arise mainly from inflammatory exudative lesions in the connective tissue structures. These are:—(1) acute attacks of serous-iritis and iridocyclitis from the most commonly found clinical ocular lesions; (2) granulomatous uveitis complicating cataract formation and secondary glaucoma; (3) scleritis and nodular or diffuse episcleritis may occur. These scleritides known as 'brawny' scleritis may lead to great loss of visual acuity; (4) band-shaped opacity of the cornea may occur in long standing cases; at times disciform keratitis is seen; and (5) sclero-malacia perforans is now known to be intimately associated with rheumatoid arthritis. One would come across raised rheumatic nodules in the sclera between the limbus and the equator. There may be posterior synechiæ, atrophy of the iris or cataract-formation in the later stages. On histological examination, the scleral nodules would be found similar to the subcutaneous nodules of rheumatoid arthritis.

Prognosis:—If a planned therapeutic programme is pursued the percentage of recovery is good with modern methods of treatment; gross limbal deformity would seldom occur.

TREATMENT:—Very favourable results would be obtained provided therapeutic measures are instituted early and a judicious selection and combination of therapeutic methods suited to the particular case are promptly administered. The therapeutic measures would include (a) physical therapy; (b) drug therapy; (c) vaccine therapy; (d) protein-shock therapy; (e) treatment of septic foci and (f) steroid hormone therapy. Besides these, dietetic measures and rest therapy for rehabilitation of the patient should be judiciously prescribed.

Physical therapy.—In the acute phase of the disease this may be limited to sedative application followed by gentle movements. To increase the power of the patient's resistance progressively graded ultraviolet rays should be applied as also massage and heat applications. Splints have to be used at all stages to prevent deformity of the limbs and to maintain movement of the affected joints.

Drug therapy.—Butazolidin (Phenylbutazone) has a very potent analgesic action in arthritis. The dosage must not exceed 200 mg. three times a day; otherwise toxic effects like nausea, vomiting, stomatitis, oedema, hæmorrhages or skin eruptions may ensue. For long-term therapy, gold medication is considered to be most valuable. It brings about a remission in a large number of cases when the onset is recent and the sedimentation rate is high. One has to keep in mind that gold therapy is contraindicated in cases with renal or hepatic damage, diabetes mellitus, eczema, severe anæmia, colitis, pregnancy, hæmophilia, or purpura. To guide the treatment, one should make a complete blood count, blood sedimentation rate and examination of urine, particularly for albumin. The gold preparations are best used intramuscularly in suitable doses starting with 0.01 g. and increasing gradually to 0.02 and 0.05 g. in the subsequent doses. A complete blood-count, blood-sedimentation rate and urine examination for albumin should invariably be done and repeated during the course of treatment. Injections should be discontinued immediately when toxic effects appear; these are purpura, exfoliative dermatitis, gastro-enteritis, stomatitis, nephritis and aplastic anæmia.

Vaccine therapy.—This is reported to be favourable in influencing the course of the disease, especially when focal sepsis is an important factor in the causation.

Protein-shock therapy.—This is a non-specific measure designed to mobilize the patients' defensive mechanism by clinically raising the patients' temperature which would eventually benefit the diseased state. Such therapeutic measures should never be resorted to during the active phase of the disease. Protein-shock is generally given in the form of intravenous T.A.B. vaccine injections, three to five of which are considered sufficient.

Blood-transfusion.—Repeated blood transfusions are reported to be of value in arresting the progress of the disease. This therapy has also an ameliorating effect on the anæmia.

Focal sepsis.—Foci of infection which are most important in the ætiology should always be investigated particularly with reference to tonsils, nasal sinuses, teeth, colon, appendix, gall-bladder, cervix, prostate and bladder. It is always a wise procedure not to embark upon operative procedures when the patient is too very debilitated or while the disease is running an acute febrile course with predominant joint-pain and swelling.

Hormone therapy.—For long-term therapy cortisone and corticotrophin (A.C.T.H.) have been found to be not as valuable as originally claimed. Most observers report that the amelioration of the disease occurs in most cases during the treatment but when treatment is withdrawn, relapse invariably follows. Selected cases with a rapidly deteriorating clinical condition often need a lengthy course of treatment; in such cases cortisone administered by mouth is the remedy of choice. An initial dose of 100 mg. daily in three divided doses is gradually reduced to 25 to 75 mg. daily over a period of 2 weeks. For prolonged therapy, corticotrophin should be given intramuscularly once daily in doses of 30 to 60 mg. initially and ultimately reduced to a maintenance dose of 20 mg. Experienced therapists report that complete suppression of symptoms cannot always be achieved without the appearance of some side-effect or other, like rounding of the face, obesity, oedema, disorders of menstruation in women, tachycardia and hypertension. Patients undergoing steroid hormone therapy should invariably be under the direct observation of the physician.

Rheumatic fever.—This is an acute infectious disease characterized by fever, arthritis and a special tendency to carditis. It is an affection of connective tissue, while its pathological lesions are scattered throughout the body, particularly involving the heart, joints, subcutaneous tissues arteries and serous membranes. The heart is most affected and is seriously involved in all fatal cases.

From the ophthalmologists' point of view the following ocular manifestations are noted:—(i) Typical petechial hæmorrhages with white centres in the retina and conjunctiva; (ii) embolic occlusion of the central retinal artery or its branches; (iii) iritis, iridocyclitis occasionally; and (iv) amaurosis fugax—an embolic phenomenon of the retinal arterioles in healed rheumatic endocarditis.

TREATMENT:—The use of antibiotics and chemotherapy when indicated is the most satisfactory method.

Stills' disease.—This is otherwise known clinically as multiple rheumatoid arthritis. It affects mainly children who become affected with a chronic form of rheumatoid polyarthritis associated with enlargement of the spleen and liver.

Ocular manifestations present a low-grade indolent iridocyclitis with the development of a characteristic band-shaped opacity in established cases.

Serum sickness.—This is a delayed and comparatively less serious effect of the systemic administration of foreign serum and is believed to be due mainly to a reaction between its antibody formed and the small amount of foreign protein still circulating at this stage. One would always elicit the history of the

patients having received one or more injections of serum by about the eighth day, after which there would be the clinical features of fever, urticaria, joint pains and malaise. There would be oedema of the hands, feet and also of the eyelids.

Pathology:—One would find the pathogenetic relationship much more clearly defined in serum sickness than in other collagen diseases. The hypersensitive reactivity of the mesenchymal derivatives to an antigen would always be elicited. Pathological histology would show proliferation of the endothelial lining of the heart and blood vessels with a fibrinoid degeneration of the walls of the blood vessels and monocyctic perivascular infiltration. Generalized adenopathy may be present; and albuminuria and cylindruria may appear; in advanced cases signs of involvement of the central nervous system such as brachial plexus neuritis, aphasia, hemiplegia and hæmianopsia will be seen.

Ocular manifestations are:—(1) oedema of the eyelids and conjunctivæ, (2) corneal epithelial oedema occasionally, (3) toxic retinopathy characterized by superficial white patches and by retinal and optic nerve oedema, (4) extra-ocular muscle palsies and (5) development of cataract after the administration of anti-scarlatinal serum.

TREATMENT:—Only symptomatic treatment is necessary.

Thrombo angiitis obliterans: Burger's disease.—This is characterized by acute inflammation with thrombosis equally affecting both arteries and veins.

Pathology:—Although any vessel may be affected, generally the medium-sized arteries and veins of the lower limbs are largely involved, the earliest change being a proliferation of the intima with infiltration of small round cells. After thrombosis supervenes there is a marked intimal proliferation with a few foci of lymphocytes. The ocular lesions would be (1) hæmorrhages in the retina and vitreous sufficiently grave to bring about blindness, (2) partial occlusion of the retinal artery and vein, (3) dilatation and tortuosity of the retinal vessels without retinopathy, (4) papilloedema, exudation and hæmorrhage, and (5) inflammatory changes in the vessels of the iris, ciliary body and retina.

Dermatomyositis.—This is essentially a connective tissue disorder, characterized by muscle necrosis, with increased collagen of the skin, joints and viscera.

Ætiology and pathology:—It is difficult to draw the line between scleroderma and dermatomyositis as both may be variants of the same collagen disease.

Histopathologically, one would find a great increase and thickening of collagen fibres with slight fibrinoid changes in the skin, joints and heart. The affected skeletal muscles generally show signs of severe necrosis with inflammatory cell-infiltration.

Symptoms:—The disease may present either suddenly or insidiously. It may either be rapidly fatal or run a chronic course. Fever is present only in the acute phases; other symptoms noted are weakness, malaise, stiffness and aching muscular pains. Muscular atrophy and contractures occur in the later stages. The muscles of the larynx and pharynx may be involved, when there would be difficulty in talking and coughing, also dysphagia and nasal regurgitation. There may be weakness of the diaphragm and intercostal muscles, also joint changes with stiffness and periarticular swelling, particularly affecting the fingers. The skin develops thickness, telangiectasis, atrophy and pigmentation; cardiac involvement is unusual. The disease is characterized by exacerbations and remissions.

Blood-examination:—High polymorphonuclear leucocytosis would be seen in the acute stage, and there would be an elevation in the sedimentation rate. Urine examination would show albumin and an excess of creatine.

The eye-symptoms commonly met with are:—(1) Periorbital oedema with the presence of a reddish blue-brown erythema of the lids—the so-called 'heliotrope eyelids'; (2) toxic retinopathy; (3) extra-ocular muscle palsy, ptosis, lateral nystagmus; (4) conjunctivitis, episcleritis, tenonitis and (5) less frequently exophthalmos.

Diagnosis:—Muscle biopsy would reveal diagnostic changes in the form of muscle necrosis and inflammatory cell reaction.

TREATMENT:—Cortisone or corticotrophin yields good results in the acute stage by bringing about a prompt and sustained remission.

Scleroderma.—This is a wide-spread disorder of the connective tissue and blood-vessels with the production of a progressive thickening of the skin and subcutaneous tissues. The disease attacks the heart, lungs, kidneys and other viscera.

Ætiology and pathology:—Women suffer from the disease more than men. No definite cause of any special precipitating factor has yet been recognized.

Histopathologically there is a great increase and thickening of the collagen fibres, with a slight fibrinoid change affecting the skin joints, lungs, heart and gastro-intestinal tract. Endarteritis obliterans occurs in the affected organs and the onset of severe fibrinoid necrosis of the glomerular arterioles may lead to renal failure.

Eye manifestations:—(1) Thickening and pigmentation of the eyelids; (2) peripapillary folds and yellowish bodies (Drusen) in the deep retinal layers; (3) cataract formation; (4) conjunctivitis, episcleritis, tenonitis and (5) less frequently exophthalmos.

Diagnosis:—Muscle biopsy will reveal diagnostic changes in the form of muscle necrosis and inflammatory cell reaction.

TREATMENT:—Cortisone or corticotrophin produces good results in the acute stage by bringing about a prompt and sustained remission.

Erythema nodosum.—This is characterized by an outbreak of nodules on the legs and sometimes on the forearms, which in their healing stages have the appearance of bruises (erythema contusiforme).

Aetiology and pathology:—The ætiological factor is apparently a hypersensitivity reaction in the subcutaneous vessels of the limbs, bringing about an inflammatory reaction in and around the vessel walls. Even though hypersensitivity has been incriminated as the basic ætiology of this disease, the sensitizing factors are tubercle bacilli, streptococci, and occasionally meningococci, also other infectious including coccidioidomycosis. The lesions may also develop after the use of iodides and also when chemotherapeutic and antibiotic drugs release organismal products, to which the patient becomes susceptible.

Histologically one finds a focal dense filtrate of neutrophil leucocytes and lymphocytes in the more superficial hypoderm. The vessel walls are invaded by the infiltrates resulting in endothelial proliferation and thrombosis.

Symptomatology:—Usually after a sore throat or an upper respiratory infection the patient who is usually a young adult would complain of tender swelling on the front surfaces of the legs or of the forearms. The natural course of the lesions is to undergo slow and gradual resolution, ultimately to disappear without visible permanent change.

Ocular manifestations are:—(1) Nodules in the bulbar conjunctiva; (2) nodular episcleritis and scleritis, (3) corneal ulceration and (4) uveitis.

TREATMENT:—Symptomatic treatment is the best and safest.

Erythema multiforme.—This is a multiple eruption with marked tendency to recurrence of well-defined reddened areas of skin involving mostly the extremities.

Aetiology and pathology:—This is usually caused by a hypersensitivity reaction due to a variety of known or suspected causes, particularly virus and bacterial infections and drug intoxications.

Histological features include dilatation of the dermal blood-vessels with a cellular, mainly lymphocytic, infiltrate around them with some serous exudation.

Symptomatology:—The lesions are usually polymorphic. The different varieties are maculo-erythematosus, papulo-vesicular, bullous and hæmorrhagic.

The Stevens-Johnson syndrome is a severe variant of this disease with exudative, bullous and erosive cutaneous lesions with extensive and painful involvement of the mouth. There

are also lesions in the cornea leading to pannus formation and the ultimate onset of blindness.

The other ocular lesions are:—(1) purulent and membranous conjunctivitis; (2) corneal ulceration with perforation and panophthalmitis; (3) kerato-conjunctivitis sicca and (4) symblepharon.

Hænoch's purpura.—Is otherwise known as Schonlein-Henoch purpura, hæmorrhagic capillary toxicosis, anaphylactoid purpura:—This disease is characterized by purpura, colic and gastrointestinal lesions. This includes also a group of non-thrombocytopenic purpuras, of obscure origin which may be accompanied by urticaria, œdema, swollen joints and various visceral manifestations.

Aetiology and pathology:—This disease is related to allergic conditions, the lesions resulting from an abnormal permeability of the capillaries which allow exudation of plasma and blood through their walls. The subjects are mainly children and adolescents.

Being a generalized hæmorrhagic disease with arteriolitis and arteritis, there would be cutaneous purpura, fever, malaise, general bodily pain, joint-swelling, intestinal hæmorrhage and colic.

Ocular manifestations may be hæmorrhages into the retina, vitreous and optic nerve. There may be chronic iritis and plastic uveitis.

TREATMENT:—Is symptomatic as there is no specific treatment.

Reiter's syndrome.—This is a disease of undetermined causation and is characterized by polyarthritides in conjunction with non-venereal urethritis and conjunctivitis. Attention was drawn to this syndrome by Reiter during the campaign in the Middle East. By some authorities it is thought to be a variant of rheumatoid arthritis in which the triad of urethritis, conjunctivitis and arthritis is present.

Besides conjunctivitis, there may be a manifestation of keratitis and iritis in the late stages. Some authorities place this affection in the category of virus diseases of the eye.

MUCO-CUTANEOUS OCULAR SYNDROMES:—These syndromes comprise mostly Behcet's disease, Stevens-Johnson disease and Ectodermosis erosiva pluriorificialis. Most clinicians place these diseases in the category of collagen disorders, while some consider them to be of viral origin.

Behcet's syndrome.—This syndrome is characterized by three cardinal symptoms of iridocyclitis with hypopyon, aphthous ulcers in the mouth and ulceration of the genitalia.

The onset of Behcet's disease is insidious and it usually attacks persons before the age of 40, the majority of whom are males.

TREATMENT:—There is no specific treatment. Sulphonamides and antibiotics are reported to be of no use. Cortisone may be tried for its anti-inflammatory action.

Stevens-Johnson's disease.—This is a disease entity characterized by a new eruptive fever associated with stomatitis and ophthalmia.

Ectodermosis erosiva pluriorificialis.—This syndrome was reported by Rendu in 1926. It usually involves the skin and mucous membranes.

The *ocular manifestations* of this syndrome are mucopurulent conjunctivitis and membranous conjunctivitis.

Temporal arteritis:—This is a disease characterized by a collagen disturbance and necrotising arteritis.

Temporal arteritis is of special ophthalmic importance as the arteries of the optic nerve are involved in over half the cases causing rapid visual loss. There may also be central artery occlusion, papilloedema, and optic atrophy.

TREATMENT:—The best and most satisfactory therapy consists in the oral or intramuscular use of cortisone.

Summary.—The aetiology, pathology and ocular manifestations of diffuse collagen diseases have been briefly described. With the advances made in our knowledge relating to the ground-substance, chemistry and reactivity to enzymes as well as the role of hormones, the ophthalmologist is in a better position and can learn much more about the pathological physiology of ocular diseases so that he may be able to determine the precise method and mode of action of pituitary and adrenocortical hormones in the field of ocular therapeutics.

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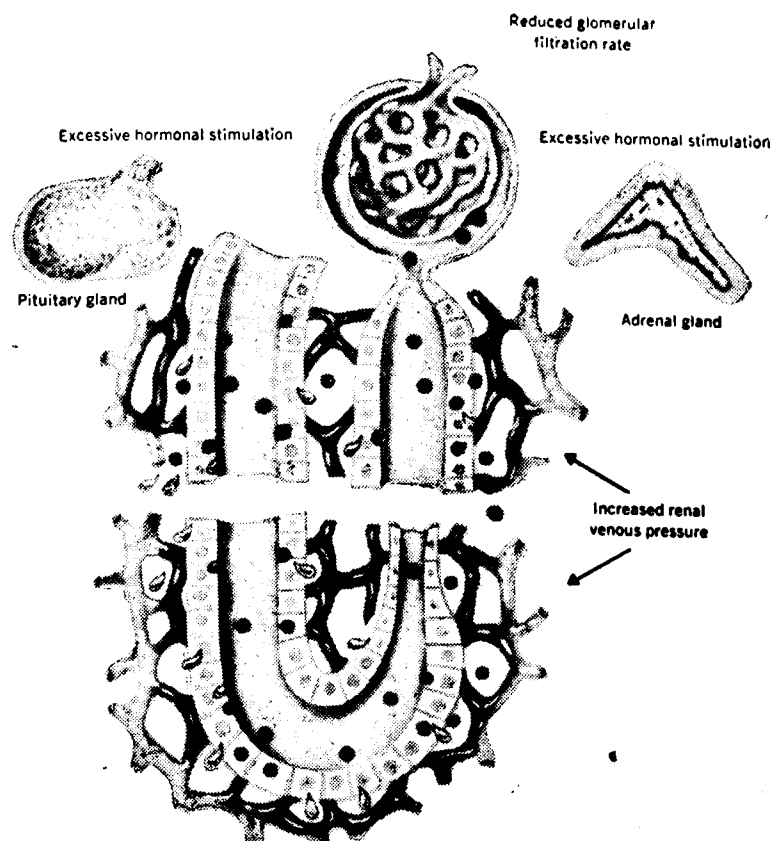
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“saluretic” action brings to the therapy of Edema and Hypertension advantages never before possible with a single agent

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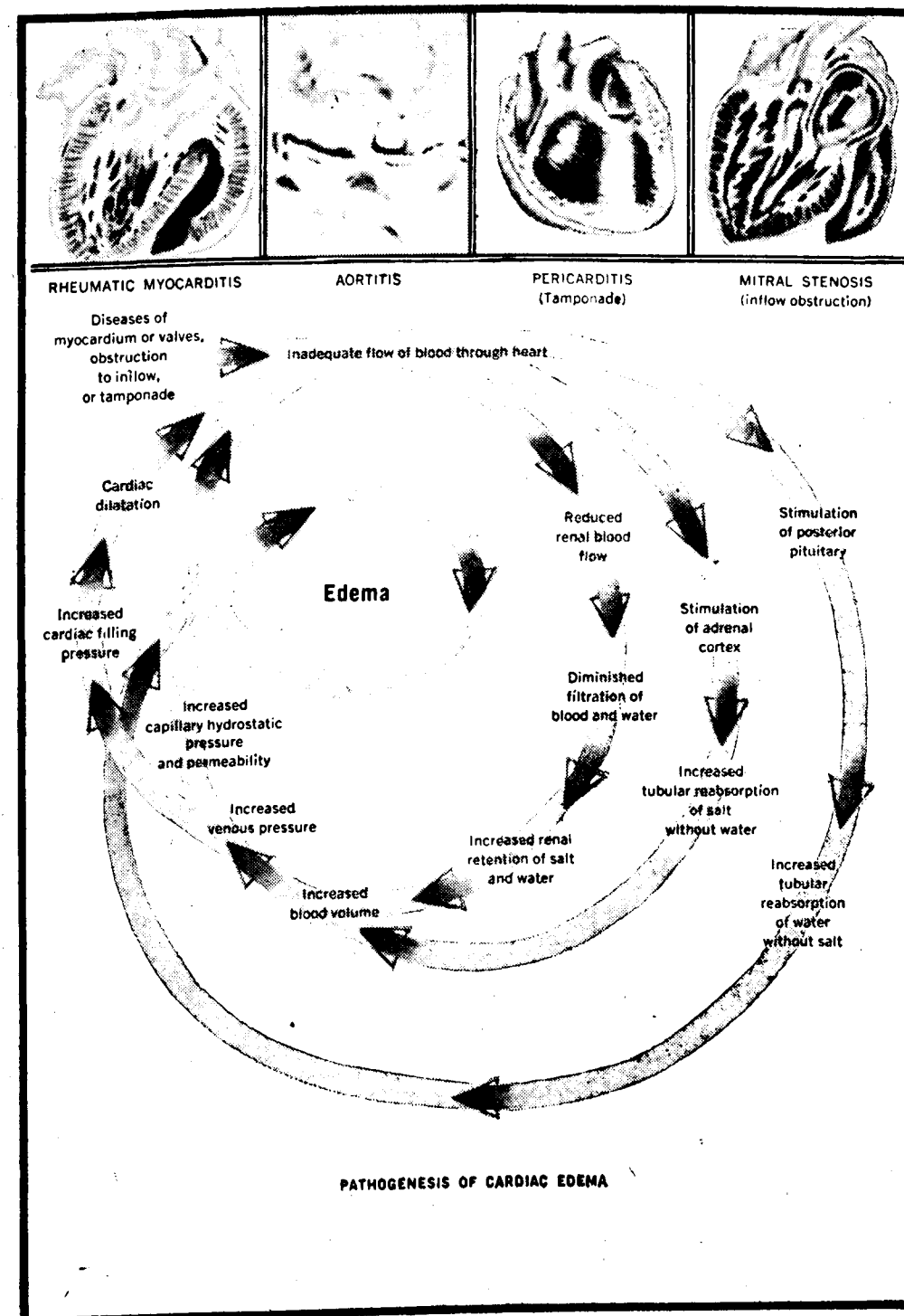


PHYSIOLOGIC FACTORS CONCERNED WITH SALT AND WATER RETENTION BY RENAL TUBULES



Renal retention of salt (sodium chloride) constitutes a major factor in edema formation. Blood plasma passing through the glomerulus of the kidney is filtered through this organ, and an ultrafiltrate of plasma is formed in the renal tubule. This ultrafiltrate contains the crystalloids commonly present in the blood but none of the protein or cellular constituents. As the glomeruli filtrate passes along the renal tubules, approximately 99% of the filtrate, including water and salt, is reabsorbed and returned to the blood stream. The 1% which is not absorbed, together with certain excretory products of tubular cells, constitutes the final urine that appears in the bladder.

Three physiological factors are now recognized as being closely related to excessive resorption of salt and water by the renal tubules: 1. Reduced rate of formation of the glomerular filtrate. This may be due to decrease in blood volume passing through the glomerulus, to a decreased hydrostatic pressure within glomerular capillaries, and to a reduction in the number of functioning glomeruli or excessive back pressure from structures around the renal tubules which strain the glomeruli filtrate to the outside. 2. Elevated pressure in the renal veins. Such pressure may decrease blood flow through the kidneys, providing additional opportunities for salt and water retention, and may also increase pressure on the renal tubules. 3. Excessive secretion of hormones promoting the retention of sodium, primarily those of the adrenal cortex.



CHLOTRIDE—INDICATED WHENEVER THERE IS AN INDICATION FOR DIURESIS

In edema of congestive cardiac failure: All types and grades of severity in which diuretic therapy is required. As a result of the potent saluretic action, copious water diuresis occurs and there is a rapid loss of weight. Dramatic improvement is noted in peripheral and pulmonary edema, dyspnea, orthopnea, cough, ascites, and pleural effusion. CHLOTRIDE is the only diuretic that is suitable for both initial and maintenance therapy in congestive cardiac failure. With regard to mercurials, their "oral use can supplant injections in only a very small number of cases..."⁶ Classic carbonic anhydrase inhibitors cannot often be used for initial diuresis because of insufficient potency, or for maintenance because of the frequent development of refractoriness.

In renal edema: CHLOTRIDE—has produced significant diuresis in both nephrosis and the nephrotic syndrome.² It has been described as "...a significantly more effective answer" to the question of active renal disease, considered by many clinicians to be a prime contraindication to the use of mercurial diuretics.⁸ Alone, the drug "was able to effect massive diuresis in nephrotic patients not receiving ACTH or steroids and to produce significant weight losses even in the presence of a steroid-induced antidiuresis."⁸ In addition CHLOTRIDE has been used with unqualified success in a case of acute glomerulonephritis, and may prove the "ideal agent" in renal hyperchloremic acidosis.⁸

In hepatic edema: CHLOTRIDE is fully effective even in severe cases previously requiring frequent paracenteses.² In hepatic cirrhosis CHLOTRIDE is "convenient to use and patients prefer it to mercurials."⁹ It has led to complete removal of ascites even after other diuretics had proved ineffective—and even in certain patients "who had previously required frequent paracenteses."² In concomitant administration of CHLOTRIDE and adrenocortical steroids, striking diuresis has occurred upon withdrawal of steroids.⁹ NOTE: In some cases requiring intensive therapy, potassium chloride or citrate should be given to prevent hypokalemia.

In edema of pregnancy and toxemia: CHLOTRIDE—may be administered throughout pregnancy if necessary. Convenience and safety point to the routine selection of CHLOTRIDE in edema of pregnancy. In one study of 144 pregnant patients with edema, hypertension or toxemia, "...the unusually excellent response coupled with the absence of significant toxicity and lack of development of drug resistance makes chlorothiazide (CHLOTRIDE) ideal for the prevention and treatment of toxemia."⁷

In edema of premenstrual tension: CHLOTRIDE—"...both potent and free from adverse electrolyte actions."¹⁰ Since the saluretic action of CHLOTRIDE is so rapid, therapy may be initiated at the onset of symptoms and discontinued at the onset of the menses. Relief of symptoms is frequently striking, as manifested by decrease in mammary and abdominal congestion, and a rapid loss of the temporary weight gain resulting from edema.

Drug-induced edema: CHLOTRIDE—diuresis with minimal side effects: In drug-induced edema and edema caused by the administration of corticotropin, certain adrenocortical steroids or estrogens, CHLOTRIDE has proved valuable in causing rapid salt and water loss. In prolonged therapy with salt-retaining steroids it is also valuable as a preventive measure. This is especially true in nephrotic patients who usually must receive steroids for prolonged periods before a withdrawal diuresis can be achieved.⁸

In obesity: CHLOTRIDE—effective in the fluid-retention phase: In obese patients in whom fluid retention is a complicating factor, CHLOTRIDE may be used effectively to bring about initial loss of fluid.

CHLOTRIDE OFFERS A NEW AND SAFER APPROACH TO THE MANAGEMENT OF ARTERIAL HYPERTENSION

"The use of this agent may stand the test of time as the most vital and specific weapon in the treatment of a relatively non-specific disease in which the only specific abnormality known is one of sodium metabolism."⁴

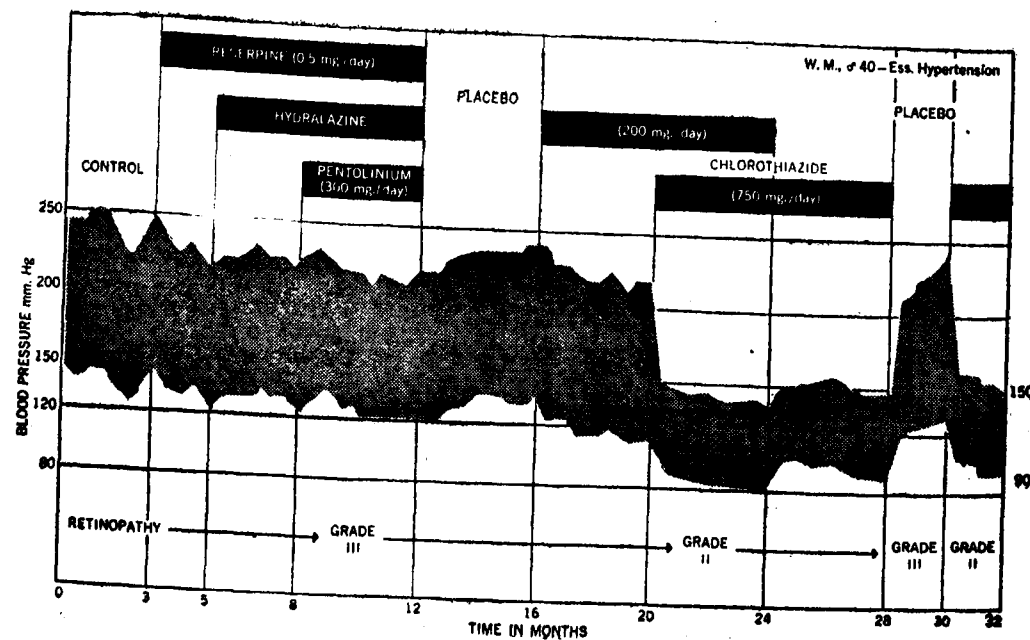
CHLOTRIDE is a valuable addition to the physician's armamentarium for treating arterial hypertension. In some cases of hypertension the drug is markedly hypotensive when given alone, but its main action appears to be potentiation of such hypotensive agents as reserpine, Veratrum alkaloids, hydralazine and ganglionic blocking agents (e.g., MEVASINE*). When the dosage of these drugs is reduced, certain undesirable side effects, including those caused by ganglionic blockade, may be reduced or even eliminated. The hypotensive effects of surgical sympathectomy are also enhanced with CHLOTRIDE.

In addition to the marked potentiation of antihypertensive effect produced by CHLOTRIDE, other favorable results may be anticipated. These include improvement in well-being and smoother control of fluctuations in blood pressure.

Because of its potent saluretic action, CHLOTRIDE may obviate the need for strict attention to the intake of sodium during the treatment of some hypertensive patients.

CHLOTRIDE POTENTIATES THE ACTION OF OTHER HYPOTENSIVE AGENTS

In one series of 23 patients treated with reserpine, hydralazine, Veratrum alkaloids, and several ganglionic blocking agents, the addition of CHLOTRIDE to the dosage regimen caused a further average reduction in blood pressure in 32 systolic/21 diastolic.¹²



Chlotride is safer—by allowing lower dosage of potent hypotensive agents, it reduces the possibility of untoward side reactions.

Chlotride is more practical—it does not require the total elimination of salt from the patient's diet.

Chlotride gives added advantages to any hypotensive therapy: smooths out blood pressure fluctuation / enhances the value of the milder, better tolerated agents / promotes a sense of well-being / induces loss of weight in cases complicated by fluid retention.

DOSAGE AND ADMINISTRATION

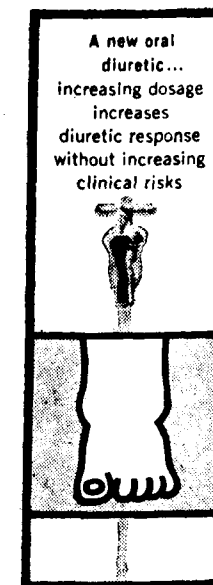
In Edema—For optimal therapy the dosage of CHLOTRIDE must be adjusted to meet the changing needs of each patient. In mild and responsive conditions the suggested dosage is 0.5 Gm. (1 tablet) once or twice a day. In moderately edematous and moderately responsive patients 0.5 to 0.75 Gm. (1 to 1½ tablets) may be given twice a day. Severe conditions may require 0.75 to 1 Gm. (1½ to 2 tablets) twice daily. Most patients will respond adequately to intermittent therapy given on alternate days, or three to five days a week.

In Hypertension—Initiate therapy with CHLOTRIDE: Dosage may range from 0.25 Gm. (½ tablet) twice daily to 0.5 Gm. (1 tablet) three times a day. 2. *Adjust dosage of other agents.* If the patient is being treated with ganglionic blocking agents (e.g., MEVASINE*) therapy should be continued, although the dosage should be reduced immediately from 25 to 50% in order to keep to a minimum severe and frequent side effects due to ganglionic blockade. Dosage should be readjusted in accordance with the response observed in the patient. 3. *Adjust dosage of all medication:* the patient must be observed regularly and careful adjustment of all agents made to determine the optimal maintenance dosage.

In premenstrual tension—0.5 Gm. (1 tablet) once a day, increase the dose if necessary.

Supplied: Tablets CHLOTRIDE (chlorothiazide) 0.5 Gm. each, in bottles of 25, 100 and 500.

*Trademark for mecamylamine hydrochloride



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Cases and Comments

MULTIPLE ANEURYSMS

M. G. VARADARAJAN,

Tutor in Radiology, Stanley Medical College, Madras

CASE:—Mr. T., aged 37, married, electric-welder by occupation came under observation on 2-8-'57, with the complaints of pain in the small of the back on the left side, since April, 1953; cough with expectoration for one and half years; pain in the right side of chest for nine months; and marked loss of weight since six months.

Family history.—Patient got married seven years ago; had one daughter who died of diarrhoea, when two and half years old; his wife had no abortions or miscarriages. Mother is alive; father died due to chest pain, when he was fifty years old.

Personal history.—Patient earned his livelihood as an electric-welder and this did not involve heavy manual labour. He was a non-vegetarian; smoked beedies and only occasionally drank toddy.

Previous illness:—He had white discharge per urethra due to extra marital intercourse thirteen years ago; had sore penis twelve years ago; had also secondary rash all over the body due to venereal disease and had no regular treatment for the same.

Present illness:—This started in April 1953, when patient had pain of a pricking nature, starting in the small of the back on the left side. The pain used to come in spasms; the duration varied from a second to half-an-hour and was radiating to the right side of the back in the lumbar area and also frequently to the hip-joints. He tried indigenous treatment for about ten days, and finding no improvement reported to hospital for treatment. He was kept in the ward for a day, X-ray pictures were taken of the painful areas, and he was discharged on the next day. The pain was not relieved and he got himself relieved of his pain to some extent, through private treatment at the hands of an allopathic medical practitioner. From that time onwards the pain was of a dull bearable nature, localized to the small of the back. While he was carrying on in this fashion, he noticed cough in February 1956 attended with slight mucoid expectoration and had hæmoptysis for two days. He had also pain in the abdomen localized to the umbilical region for three days, not related to food and not constant in nature. An X-ray picture of the chest was taken, sputum was examined, tuberculosis of lungs was diagnosed and streptomycin was given; he had thirty-five injections of the same. Cough got diminished in extent and pain in the abdomen also disappeared but the dull pain in the small of

lumbar vertebræ, showed erosion of anterior borders of vertebral bodies of the tenth, eleventh and twelfth dorsal vertebræ.

Angiocardiography was done with a view to knowing more about the soft tissue masses 'in the arch of aorta area' and in the 'left pulmonary artery area.' The masses in these areas got filled with the contrast medium. A diagnosis of aneurysm involving the arch of the aorta with involvement of innominate artery and aneurysm of the pulmonary artery with involvement of the left pulmonary artery was made on the basis of the findings from this procedure.



FIGURE III. Taken for lateral view of thoracic vertebræ showing erosion of anterior borders of tenth to twelfth dorsal vertebræ, both inclusive.

area also got filled with the dye and pointed to an aneurysm involving the lower-third of the descending thoracic aorta.

Retrograde femoral aortography through the right femoral artery was done and the aneurysmal sac in the lower-third of the descending thoracic aorta got filled with the contrast agent. *Mantoux test* was negative. Electro-cardiography was not done in this case.

DIAGNOSIS:—A diagnosis of aneurysms, involving the pulmonary artery, arch of the aorta with involvement of the innominate and lower-third of the descending thoracic aorta was made.

Discussion.—Certain points which need emphasis are:—Great importance should be attached to the presence of tracheal tug. When the aneurysm is adherent to the trachea, the latter,

The mass in the lower-third of the descending thoracic aortic



FIGURE IV. The last picture in the angiocardiographic series showing three saccular dilatations involving the arch of aorta, pulmonary artery and lower-third of the descending thoracic aorta.

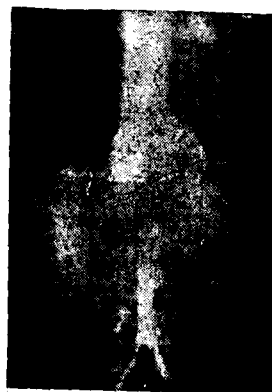


FIGURE V. Aortogram through the femoral artery showing the aneurysm of the lower-third of the descending thoracic aorta.

is drawn downward with each pulsation and transmits a downward tug to the larynx. The sign is commonly missed owing to carelessness in its elicitation. The tracheal tug may be detected in three ways:—(1) occasionally, it can be seen; (2) more often, it is felt by placing the index finger over the Adam's apple; and (3) sometimes, it is necessary to exert upward pressure with the thumb and forefinger on the cricoid cartilage with the patient's chin elevated. This is a valuable sign and should be searched for carefully because of the frequency with which it is present in aneurysms of the aortic arch and the rarity with which it occurs with other mediastinal tumours. Tracheal tug would be expected to be produced more often by sacs of the transverse and descending segments but also by ascending arch sacs also. This is true because at times sacs appear on the lesser curvature of the arch and also because they may occasionally point to the left.

Ever since Oliver noted this phenomenon, the literature has had several reports about this sign. It is positive when the aneurysm presses upon the left bronchus or the trachea near the left bronchus and is most marked during inspiration.

A few authors especially Sewall have pointed out that slight degrees of this phenomenon may occur also in other conditions; as for example, in solid mediastinal neoplasms, in cases of tracheobronchial lymphadenopathy; and it is not at all rare in pulmonary tuberculosis or left pleural involvement. Any condition anchoring the left bronchus to the aorta may produce this sign. Attention has been directed to the presence of this sign even in enteroptosis. Briefly stated, this symptom is absent in over one-half of the cases and may be present in slight degree in other conditions.

Inequality of the radial pulse and difference in blood-pressure readings. A difference of less than fifteen mm. in blood-pressure readings need not be considered significant. Pulse inequalities and difference in blood-pressure in the two arms may be explained either on the basis of pressure by the sac upon vessels as they leave the arch or by loss of pressure in the arteries arising from an aneurysmal sac. In the expansion of the sac, some pressure is lost.

Inequality of the radial pulse is a common feature of aneurysm of the arch. It does not occur when the sac is in the ascending aorta proximal to the opening of the innominate artery. The inequality is due to a difference in volume or to an actual delay in the time the impulse reaches the wrist. Occasionally one pulse is completely obliterated. A few cases have been reported of bilateral absence of the radial pulse due to aneurysm. The right pulse is more often affected. Involvement of the innominate artery occurs in one of two ways—either with a narrowing of the mouth of the artery or by actual aneurysmal dilatation

erosions which are deepest in the midportions of the invaded vertebræ. Such changes are more common in the lower thoracic vertebræ but may occur at any level associated with aortic vertebral compression. They are usually multiple. The intravertebral discs being avascular and relatively resilient, are not affected.

The changes may be identified roentgenologically on antero-posterior, oblique and lateral films. In the early stage the faint scalloping may be better seen on oblique films. The diagnosis may be facilitated by the identification of a soft tissue paravertebral mass within which a linear calcification concave towards the spine may appear.

Angiocardiography, is a procedure in which a radio-opaque substance is injected into the systemic venous side of the circulation so that its passage through the heart and great vessels can be followed by means of serially exposed X-ray films. When the contrast substance is injected through a cardiac catheter, the tip of which has been placed (1) in the superior vena cava; (2) the right atrium or ventricle; or (3) the pulmonary artery, the procedure is known as "selective angiocardiography." The method has proved to be of great aid in the diagnosis of a variety of congenital and acquired cardiac defects as well as in the study of the neoplastic and infective diseases of the chest. If angiocardiography as it is known and conducted to-day can be attributed to the efforts of any one individual or group, it should be credited to the physiologic studies of Robb and to the pioneer animal and clinical investigations of Robb and Steinberg in 1935, 1936 and 1937.

Before the advent of angiocardiography, despite the obvious importance of the roentgenology of the heart, the roentgen ray still gives an incomplete picture of the cardiovascular system, for the four separate chambers of the heart are represented on the conventional roentgenogram and fluoroscopic screen by one undifferentiated shadow and the great blood vessels can be seen indistinctly, if at all. As a result, the roentgenologic diagnosis of cardiovascular diseases has been forced to rely on indirect evidence such as enlargement of the cardiac shadow, deformity of the one or other segment of the cardiac silhouette, change in cardiovascular pulsation and displacement and distortion of the neighbouring œsophagus, trachea and bronchi based upon the knowledge provided by text-books of anatomy, pathology and postmortem study. Direct confirmation by necropsy is rarely possible in all cases. Before the introduction of this procedure, there was no method of visualizing the left chambers of the heart, the pulmonary circulation and the thoracic aorta in man. Gross changes in size and shape have been detectable by roentgen examination but precise information concerning the individual chambers of the heart, pulmonary artery, vena cava and aorta could not be obtained.

Conventional methods of diagnosis are often indecisive when making the differential diagnosis between aneurysms and other mediastinal masses. Tumours and aneurysms of the mediastinum may produce identical symptoms and physical signs by virtue of their space-occupying nature. Although aneurysms are usually pulsatile, a lesion which 'pulsates' on palpation, fluoroscopy, or roentgen kymography may actually be a solid or cystic tumour which transmits impulses from the adjacent heart or great blood vessels. The role of electrokymography in this respect has not been clarified; it may prove to be a diagnostic aid of value in differentiating between transmitted and intrinsic expansile pulsation. Aneurysms that are lined with laminated thrombi may not pulsate.

Angiocardiography has proved to be of great value in connection with the diagnosis of space-occupying lesions of the thorax. During the past exploratory thoracotomy was not uncommonly necessary to establish the diagnosis of aneurysm. Surgical measures for the management of aneurysms of the great blood vessels have been devised and there is considerable difference in the actual technique of the surgical removal of a mediastinal tumour and the obliteration of an aneurysm and accurate pre-operative diagnosis in thoracic surgery is therefore, imperative. Roentgenographic examination is limited by super-imposition of a shadow in a two-dimensional image while multiple projections and stereoscope roentgenography fail to distinguish between parts of an apparently homogeneous whole such as the human and fail utterly to distinguish between vascular and non-vascular structures.

The diagnosis of mediastinal tumours including aneurysm has gone through four stages: clinical, the roentgenographic, angiocardiography, and the latest is bi-axial roentgen kymography. In the past, the best available means of diagnosing cardiovascular syphilis was history-taking, physical examination and chest roentgenography. Since it is most essential to establish the diagnosis early, it is unfortunate that early cardiovascular syphilis, *i.e.* uncomplicated aortitis, small aneurysms of the innominate artery and aorta, is fundamentally symptom-free without signs and not apparent in chest X-rays. Thus this procedure by making the study of otherwise obscure cardiovascular changes possible, fills a real need in the accurate early diagnosis of cardiovascular syphilis.

Angiocardiography provides the following data for diagnosing thoracic aortic aneurysm:—(1) Delay of the circulation time up to 14 seconds from a normal of six or seven seconds when the aneurysm is located before the aorta gives off its branches to the head and upper extremities. (2) Interruption of the parallelism of the aortic walls: both walls in fusiform aneurysm and one in saccular aneurysm. (3) Escape from the aorta of the

substance used for opacification. (4) Shadow super-imposed on that cast by the aorta with an increase in density due to the sum of both shadows projected in the same plane. (5) In opacifying an aneurysm, one of two things may occur; the opaque medium may be well distributed up to the periphery so that the limits are well marked or it may not reach the periphery and thus the image will be that of a central shadow with a hole. The appearance of this halo is due to the presence of clots located in the periphery of the aneurysmal sac which cannot be reached by the opaque substance. (6) To diagnose an aortic aneurysm it is essential that the shadow produced by the mediastinal process be of the same degree as the one produced by the aorta in the angiogram and greater than the shadows cast by neighbouring non-vascular structures. (7) This might aid in establishing the diagnosis of perforation of an aneurysm of the ascending aorta into the right pulmonary artery or superior vena cava—situations which are compatible with life for a short time.

The actual thickness of aneurysmal walls may be demonstrated angiographically and thick-walled, non-pulsating aneurysms present no specific diagnostic problems from the angiographic point of view. Rarely aneurysms with completely clotted lumina or narrowed channels may not opacify. In such cases the angiographic demonstration of collateral evidence of aortic abnormality may aid in reaching the correct diagnosis. Extremely large aneurysms often opacify poorly because of dilution of the contrast substance with blood and because of the usually associated aortic insufficiency. In such instances the diagnosis may be established by the angiographic demonstration of a double contour along the border of the mass, even though the overall density is not decisively altered from that of the control films.

Aneurysms of the sinuses of valsalva are readily recognized and best demonstrated in the left anterior oblique projection. Aneurysms of the innominate or other brachicephalic arteries are best studied in the frontal projection and may be missed in the lateral or left oblique projections. If aneurysms of the arch or descending aorta is suspected, the left anterior oblique projection should be employed. Occasionally, aneurysms of the ascending aorta are best studied in the frontal projection and in rare cases multiple projections will be necessary to delineate the point of origin of saccular aneurysms of the aorta.

In the case under report, angiography was taken only frontal projection and aneurysms in the arch of the aorta, in the region of the pulmonary artery and descending third of the thoracic aorta have been clearly made out. A question may be posed as to whether a thoracic aortography is also indicated to bring out more clearly the soft tissue masses connected with the aorta in the region of the arch of the aorta?

Thoracic aortic aneurysm is one of the indications for this procedure where even angiography has been insufficient or has not been attempted for other reasons. This procedure is desirable because it will provide the surgeon with a knowledge of the exact anatomy and enable him to plan his surgical attack in advance. Conversely it may enable the surgeon to decide against intervention and so prevent an infructuous operation.

As Cooley and De Bakey (1955) write "the inevitably fatal nature of aortic aneurysms justifies an aggressive approach to such lesions directed towards removal of the irreparably damaged tissue or restoration of aortic continuity." In this case, since no operative procedure is contemplated, thoracic aortography was not done.

Aneurysm of the pulmonary artery.—Congenital and acquired heart diseases as well as pulmonary disease produce significant changes in the size and configuration of the pulmonary artery and its branches. The various causes of dilatation of the pulmonary artery are classified as follows:—

1. CONGENITAL CARDIOVASCULAR ANOMALIES:—(a) Simple interauricular septal defects; (b) patent ductus arteriosus; (c) unequal division of the truncus arteriosus communis; (d) Lutembacher's syndrome; (e) Eisenmenger's complex of the tetralogy of Fallot; or (f) congenital malformation of the arterial wall.

2. ACQUIRED PULMONARY HYPERTENSION:—(a) Extravascular: (i) pulmonary fibrosis; (ii) infarction; (iii) emphysema; (iv) benign and malignant tumours of lung or mediastinum; (v) mediastinal lymphadenopathy; and (vi) pressure from aortic aneurysm. (b) Intravascular:—(i) mitral stenosis; (ii) primary pulmonary arteriosclerosis (ayenza); (iii) obliterative pulmonary arteriosclerosis; (iv) aorto-pulmonary fistula; (v) peripheral and pulmonary arterio-venous fistula and (vi) pulmonary embolism.

3. DESTRUCTION PROCESSES OF THE ARTERIAL WALL:—(a) Syphilitic; (b) tuberculous (Rasmussen); (c) mycotic; (d) atheromatosis and (e) traumatic.

4. IDIOPATHIC:—Because of the intimate relation of the artery to the heart and mediastinal structures, recognition of these changes in a roentgenological study of the pulmonary artery was difficult in the pre-angiography era. With the presentation in 1938 by Robb and Steinberg of a practical method of visualization of the cardiovascular system with the contrast medium, the entire bed of the pulmonary artery became readily accessible to roentgenological examination. Angiography is of definite value in pulmonary heart disease in demonstrating dilatation of the pulmonary artery and gross enlargement of the right ventricle. This study of the pulmonary artery has allowed for accurate measurements of that vessel during life and has established the normal variations of calibre from which may be

determined the presence of dilatation. Thus angiocardiology has indicated a wide variety of pathological states which are manifested in part in abnormalities of the pulmonary artery.

Aneurysm of the pulmonary artery is rather rare, especially due to syphilis. Aneurysm of the aorta occurs 250 times more frequently. Syphilis of the pulmonary artery is similarly less common than and is generally accompanied by syphilis of the aorta. The disease may affect the major pulmonary arteries in the form of arteritis not unlike that of the aorta with intimal thickening and destruction of the elastics. Syphilitic endarteritis of the lesser branches of the pulmonary artery does occur.

Clinically and roentgenographically syphilis of the pulmonary artery is usually manifested in the form of an aneurysm.

The combined series of Boyd and McGavack and of Deterling and Clagett, totalling 147 cases have shown that about one-third of them are due to syphilis. Angiocardiology investigation of every case of syphilitic aortitis and aneurysm may possibly reveal more cases of involvement of the pulmonary artery also, than is now usually recognized.

In this case the clinical picture has been clouded by other concomitant lesions and hence angiocardiology has been of immense value in detecting the aneurysmal dilatation of the pulmonary artery due to syphilis.

An electrocardiogram was not taken in this case. The E.C.G. in most instances reveals the strain of pulmonary aneurysm on the right ventricle by showing a right axis deviation of significant degree. Normal tracings have been reported. Occasionally bundle-branch block either right or left may be present. With other associated anomalies or lesions, as in this case, the tracing will be considerably modified.

The method of venous catheterization serves admirably well as an aid in the diagnosis of aneurysm of the pulmonary artery. It has been found by catheter study that there is a significant drop between the systolic pressure in the right ventricle and that in the dilated pulmonary artery. This drop in pressure is attributed to a dissipation which results from abnormal deformability (*sic*) of the pulmonary artery and its branches owing to dilatation, the thinness of the wall *plus* the turbulent flow.

In conclusion, it may be pointed out what the bi-axial roentgen kymography has to offer in solving the complex problem of differentiation of mediastinal tumour and intrathoracic aneurysm. It is surmised that the essential difference between the expansile pulsation of a vascular mass and the transmitted pulsation of a solid mass lay in the inability of the transmitted pulsation to occur in more than one direction at any one time. Thus to simplify this difference, we may consider a mass which on

roentgenograms and during fluoroscopy is seen to lie immediately adjacent to the aorta. If it is an aneurysm it will show pulsation horizontally and vertically at its margins simultaneously. Expansion and contraction should be demonstrable in any other chosen planes simultaneously. If however, the mass is solid it should exhibit its transmitted pulsations in one direction only and almost surely not at right angles to that direction. It follows that if two kymograms are made, one with the grid horizontal, and the other with the slits vertical, expansile vascular wave forms should be seen in only one of the two film records.

It is essential to choose that position of the patient which will best show the mass in question against the adjacent radiant lung field and this position is determined during fluoroscopic examination and is used thereafter for kymography with the grid slits in vertical and horizontal axes.

Contrast angiography is of value in solving these problems in most cases but may be misleading if an aneurysm has too small a neck to permit an adequate amount of contrast medium to enter or if its entrance is obstructed by a thrombus. One must also consider the need for a serial filming device and the slight but definite morbidity associated with the use of the contrast media now available. Thus a bi-axial kymographic examination can be tried as a supplement in the differential diagnosis of thoracic aneurysm and mediastinal tumour. Although not infallible this method offers assistance in differentiating transmitted from expansile pulsations.

Six illustrative cases have been recorded by Schneider and Ceballos (1956) using bi-axial roentgen kymography.

The principal differential diagnoses include aneurysm of the aorta, mediastinal lymphoblastoma (Hodgkins, lymphosarcoma), bronchogenic neoplasm, mediastinal cyst, teratoid tumour and substernal thyroid gland. With the present aids in roentgenographic diagnosis the correct diagnosis should be possible in almost all the cases. Nevertheless considerable uncertainty is bound to remain in some instances.

Abdominal aortography.—This consists of the introduction of a radiopaque medium into the lumen of the abdominal aorta and the recording of its image by roentgenographic means. Dos Santos, Lamas and Caldas are generally credited with having been the first to describe the procedure in an article published in 1929. Only during the past decade however, abdominal aortography has gained widespread acceptance and popularity. The various indications for the procedure are still being explored and a final evaluation will have to await the test of time. To date, it has proved of the greatest value as a means of demonstrating intrinsic vascular abnormalities involving the aorta and its larger

parietal and visceral branches. With the exception of kidneys and to a lesser extent the liver, spleen, adrenals and uterus, it has not shown itself to have great usefulness as a means of demonstrating pathological processes within the abdominal viscera themselves.

Methods of introducing opaque medium into aortic lumen.—Various methods have been devised for introducing the opaque medium into the lumen of the abdominal aorta. The intravenous, translumbar and retrograde femoral routes are the only ones of importance.

The *intravenous route* is rarely used, in practice. In the intravenous technique the opaque medium is rapidly introduced into the body *via* one of the systemic veins following the method outlined by Robb and Steinberg (1939) for angiocardiology. The *percutaneous translumbar injection* technique is probably the most widely used for introducing the contrast substance into the aortic lumen. The technique is relatively simple. Today it is used extensively as a valuable diagnostic adjunct for the investigation of pathological conditions of the kidneys, retroperitoneal structures and major arteries.

The incidence of injury attendant on translumbar aortography is small but complications subsequent to the procedure when they occur may result in permanent disability or even death. The steadily increasing application of this diagnostic aid accompanying the current progress in surgical operations in the aorta and its vessels makes mandatory a keen awareness of the hazards involved in the procedure. The various complications of aortography have been recently reviewed by Crawford and his associates (1957). One of the rarest but nevertheless dreaded sequelæ of translumbar aortography is mesenteric arterial thrombosis. A case of gangrene of the lower half of the large intestine and of the ovaries consequent on translumbar aortography and recovery after operation has been recorded by Charles Fernberg (1958). This is the first report of concomitant thrombosis of mesenteric and ovarian vessels following aortography.

Retrograde aortography (by *percutaneous femoral catheterization*). This is the technique adopted in this case and this has been described by Dr. K. M. Pillai in detail (1958), Castellanos and Pereiras claim to have performed the first retrograde aortography in 1937. The basic procedure has been known for some time but in recent years Pierce (1951), Smith (1952), and Lindren (1953) have contributed extensively to this subject. Dr. K. M. Pillai (1958) has done 150 aortograms by this route in the Barnard Institute of Radiology, Madras and he is of opinion that the retrograde method is the more ideal method of choice, practically with no complications. In this case, the aortography was

done by him for the confirmation of aneurysms of lower-third of the descending thoracic-aorta. The contra-indications are:—hypersensitivity to the contrast medium and impaired kidney function.

Multiple aortic aneurysms.—These with unusual locations are relatively seldom observed. Multiple aneurysms numbering six out of 339 cases of intrathoracic aneurysms have been recorded by Mills and Horton (1938) but the exact sites of the aneurysmal sacs have not been mentioned by him. Multiple aneurysms are usually recorded in the ascending arch of the aorta as in the series of Barrie and Selwyn (1950); out of twenty seven cases recorded, twenty are in the ascending aorta and in Vakil's series (1951) out of seventy-three cases recorded, forty-six cases are stated to be aneurysms involving the ascending and arch of aorta but these authors have not described them as multiple aneurysms. Richard Haubrich (1951) has recorded multiple aneurysms found in the literature as occurring in the following situations; ascending aorta and arch, occasionally seen in the ascending aorta, arch and descending aorta and rarely in the arch and descending aorta. I have recorded double aneurysms of the sinus of valsalva; (2) ventral sinus of valsalva and aneurysms of the arch of the aorta; and (3) aortic arch aneurysm and descending portion of the thoracic aorta.

Recently I came across a case of double aneurysm involving the aortic arch and the descending third of the thoracic aorta, in a male aged 55.

With the introduction of angiocardiology, multiple aneurysms involving the sinuses of valsalva have ceased to be a rarity and to a less extent in the thoracic aorta. Double aneurysms on the basis of trauma may develop. Multiple aneurysms show a difference in size, the smaller being regarded as "daughter aneurysms." In a series of 1749 autopsies done in the University of California service of San Francisco Hospital (1935—1940), 66 cases of syphilitic aortitis were seen; and among these were sixteen aneurysms and only one showed daughter aneurysms. J.L. Carr estimates the incidence of 'daughter aneurysms' as ten per cent of aneurysms found at autopsy.

Summary.—A case of multiple aneurysm involving the aortic arch, pulmonary artery, and the lower-third of the descending thoracic-aorta associated with pulmonary tuberculosis is described.

The importance of tracheal tug, inequality of the radial pulses and difference in blood-pressure readings, oesophogram and vertebral erosion, is evaluated.

The importance of angiocardiology in the diagnosis of this case and its usefulness and its limitations in the diagnosis of intra-thoracic aneurysms have been discussed in detail.

The place of bi-axial roentgen kymography as an aid in the differential diagnosis of solid mediastinal tumour and aneurysm is mentioned.

Lumbar aortography is generally used to investigate the appearance of the aorta and its branches in vascular diseases and to examine the vascularization in different abdominal organs in order to determine whether a possible expanding process exists and if such is the case to obtain information also as to the type of the process. For the former process no other method of examination is available. For the latter, on the other hand, there are many different methods of determining whether or not a possible tumour in the abdomen exists, methods which usually gives an exact answer to the question. We are not concerned with the second problem now. The extent of an inflammatory process can be determined with considerably greater exactitude by means of aortography than with any other radiological method.

Technique.—It is usually performed in two ways; the contrast medium is injected either according to the method presented by Dos Santos (1934) with direct puncture of the aorta from the dorsal side or by means of a catheter passed through the femoral (retrograde abdominal aortography) or the radial artery. In the femoral artery, the catheter can be introduced after the exposure of the artery (Farinas, 1946) or by means of a percutaneously introduced trocar as was done in the case reported here.

Complications of translumbar aortography have been emphasized. The retrograde method has a few complications mainly due to iodine sensitivity and reactions to large doses of the contrast medium but these are preventable. Pressure must be applied to the site of the puncture for a few minutes after the removal of the trocar to avoid hæmatomas. Secondary hæmorrhages have not been observed. Thus in retrograde femoral aortography by the percutaneous route, there is a safe technique to study in detail, the indications for aortography.

Acknowledgement.—I am highly thankful to Dr. R. Subramaniam, B.Sc., M.D., M.R.C.P. (Lond.), Professor of Medicine, Madras Medical College and Physician, Government General Hospital, Madras, for permitting me to report this case. My thanks are also due to Dr. Janakaratnam, M.B., B.S., Tutor in Medicine, Madras Medical College and Assistant Physician, Government General Hospital, Madras for his help.

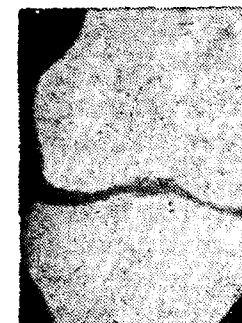
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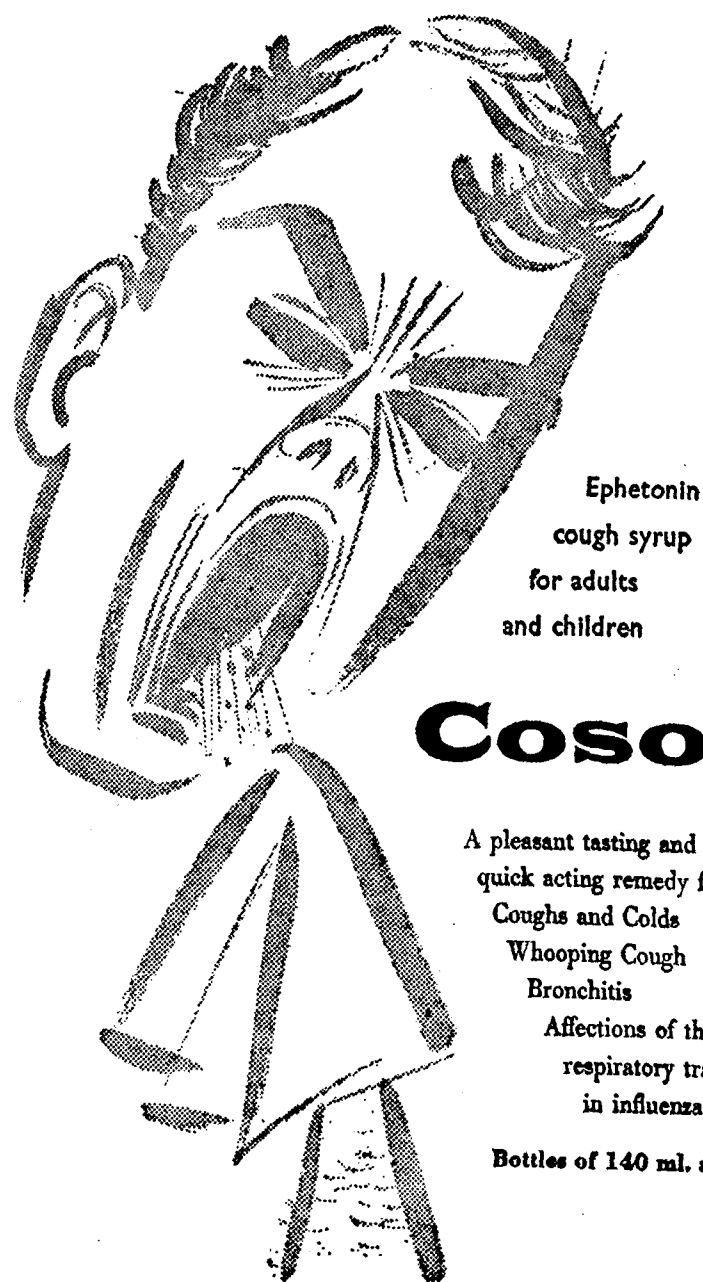


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EHY-12

CLINICAL OBSERVATIONS ON THE USE OF THE ANTIBIOTIC—"KEMECITINE-SUCCINATE" IN SURGICAL CONDITIONS

K. P. SEN GUPTA, M.S.

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THE advent of antibiotics has revolutionized modern surgery and helped in preventing the post-operative sepsis which was once a bugbear to surgeons who had to delay operations until they became absolutely necessary. I distinctly remember the days when many major operations like Cholecystectomy, Appendectomy and Gastrojejunostomy proved fatal as a result of peritonitis, paralytic ileus etc. resulting from post-operative sepsis. There was no certainty of survival of patients in pre-antibiotic days after many major operations. "The operation was successful but the patient died" was a popular slogan in those days. But a new era opened up after the second world war when various antibiotics came into use, the most recent ones being those, with a broad spectrum, which are effective against gram negative and gram positive organisms. First came chloro-tetracyclin (aureomycin), then came oxytetracyclin (terramycin), and next came tetracyclin (achromycin). These broad spectrum antibiotics exert a bacteriostatic effect on different organisms; but they cannot maintain an optimum blood concentration to produce and maintain the desired effect. Some are unable to pass the blood-brain barrier and exert any therapeutic effect through the cerebrospinal fluid. Penicillin, terramycin, aureomycin were all tried in cases after operations in septic abortions, compound fractures, in peritonitis etc. but the result was not uniformly good. In a small percentage of cases post-operative fever, mild sepsis at the site of incision or stitches were not infrequent, and in some cases more than one antibiotic had to be used to control the sepsis.

Chloramphenicol (chloromycetin), also a broad-spectrum antibiotic, came out much earlier though its use for a pretty long time remained restricted to enteric cases only. Chloramphenicol although specifically effective against typhoid and paratyphoid organisms, is not inferior to the tetracyclin group in combating the wide group of gram-positive and gram-negative organisms. Chloramphenicol is rapidly absorbed from the intestines, residual faecal concentration being less than with the tetracyclin group and a correspondingly higher peak plasma level being attained. A special advantage is its fairly ready passage into the C.S. fluid. Till recently the extensive use of chloramphenicol was hindered due to its insolubility in water. This difficulty was somewhat overcome in the availability of chloramphenicol soluble in glycol, glycine, alcohol etc. but these had their limitations for application on delicate mucous tissues, serous cavities etc. The

discovery of water-soluble chloramphenicol in the name of "Kemicitine succinate" by the Carlo Erba Therapeutic Research Institute at Milano, Italy, opened up the greater possibility of chloramphenicol therapy in a wider range of infections hitherto restricted. Kemicitine succinate suitably dissolved can also be used intravenously in selected cases. It is also becoming popular as topical therapy as its solution does not require refrigeration and can be kept for one month at room temperature without losing potency.

Kemicitine succinate was tried by me in a series of cases after operation and the result proved to be very satisfactory. The drug was administered intramuscularly in doses of 1200 mg. per day divided into six doses, 200 mg. being injected every four hours for ten days. No pain, inflammation or other discomfort at the site of injection was noted. Side-effects were observed only to a negligible extent during the course of antibiotic treatment in the form of mild diarrhoea in a few cases. No allergic

TABLE I

Serial No.	Disease	No. of Cases	Nature of operation	Result
1.	Beurger's disease	6	Lumbar sympathectomy	No fever. No sepsis. Drug stopped on the 10th day
2.	Peptic ulcer	40	Vagotomy with gastro-enterostomy	Three cases developed diarrhoea, which was controlled in 3-4 days. Recovery complete in 15 days.
3.	Hernia	50	Herniorrhaphy	Two cases had rise of temperature from 3rd day which lasted for 3 days only.
4.	Ovarian cyst	5	Ovariectomy	Recovery uneventful.
5.	Uterine fibroid	4	Total hysterectomy	No complication.
6.	Septic abortion	15	D & C	These cases came with fever which was controlled in a week's time.
7.	Gall stone	4	Cholecystectomy	Good
8.	Acute appendicitis	10	Appendectomy	One case developed a diffuse lump in the right iliac region which did not suppurate. A course of milk with iodine was injected and the lump disappeared.

reaction at the site of injection or generalized allergic manifestation was noted. Severe disturbance in the bacterial flora of the intestine was not observed in my series of cases where antibiotics were administered parenterally (not by oral route). To obviate even the slightest chance of such disturbance, all patients were given vitamin B-complex in adequate doses. The parenteral use of the drug along with vitamins orally might be the reason why *only a very few cases* (3 cases) developed a mild form of diarrhoea. In my series of cases (*vide Table I*, p. 62) patients recovered uneventfully and after the usual period of stay in hospital they were discharged cured.

Acknowledgement.—My grateful thanks are due to Messrs. A. K. Distributors, Calcutta, for the liberal supply of "Kemicitine succinate" used in this trial. Thanks are also due to Dr. H. K. Chakravarty, M.B., M.O., Polytechnique Institute, Asansol, for his active co-operation in preparing this paper.

ONE THOUSAND CASES OF LATE ONSET EPILEPSY

All the patients in this series of 1,000 patients, comprising 632 males and 368 females, who experienced their first attack of unconsciousness at or after the age of 20 years, have been followed up for periods varying from 6 months to 10 years. Sixty of the patients when first seen had had only 1 epileptic attack; the remaining 940 had had 2 or more attacks. The age-range for the entire group extended from 20 to 76 years. In 24 of these patients a history of epileptiform disturbance in some member of the family was elicited. An air encephalogram or a cerebral arteriogram or both were obtained in 950 patients.

Of the patients studied, all those with rapidly growing and highly anaplastic cerebral gliomas were dead within 6 to 15 months of their first seizure. Excluding those who died of primary or secondary neoplastic processes, 11 patients died as a result of coronary thrombosis, 1 was a suicide, and 2 died in nonconnected accidents. Seventeen patients whose clinical state was that of presenile dementia died within 5 years of hospital admittance for investigation of seizures. There were 106 patients (10.6%) with primary cerebral tumour in this series, 74 of whom were male. Primary bronchogenic carcinoma with metastatic spread accounted for 24 of the 33 patients who had seizures due to metastases. The patients in the cerebral arterio-sclerotic and hypertension group numbered 71, and those in the carotid thrombosis and stenosis group totalled 15. The cases of 3 patients, all male and in their early 50's, with middle cerebral artery thrombosis were confirmed angiographically. The association of migraine and epilepsy was noted in 109 patients; many in this group had had migraine headaches for years before they had an attack of unconsciousness. The number of patients in the post-traumatic group reached 73, 60% of their attacks having commenced within 6 to 9 months after injury, which was most commonly a closed head injury. The neurosyphilis component was comprised of 17 males and 10 females, all of whom had acquired syphilis and were in the secondary and tertiary stages of the disease with the exception of 3 with congenital syphilis. Disseminated sclerosis was seen in 25 patients in association with fits. Three patients with congenital hemiplegia, which included 2 instances of agenesis of the corpus callosum and 1 of toxoplasmosis, developed focal seizures in their 20's, and 2 had abnormal air encephalograms showing porencephaly and ventricular dilatation on the side of the brain affected. One of the 5 alcoholics had hypertension, arteriosclerosis, and Korsakoff's psychosis;

2 others had a Wernicke type of encephalopathy from which they made a good recovery. There were 3 patients with brain abscesses, 2 secondary to chest infection and 1 to mastoid infection.

Five patients, ranging in age from 20 to 35 years, experienced their first epileptic attacks during their first pregnancies, 4 other patients having had their attacks during their second and third pregnancies. In no case was there any evidence of albuminuria or hypertension or other factors that could be attributed to toxæmia of pregnancy. Other ætiological factors that accounted for the attacks were as follows: diabetes mellitus, 2; hyperinsulinism, 1; subdural hæmatoma, 2; idiopathic hypoparathyroidism, 1; subacute bacterial endocarditis, 3; sarcoidosis, 1; leukæmia, 2; internal hydrocephalus, 3; pernicious anæmia, 1; excessive beer consumption, 3; and superimposed chest infection, 5. An ætiological factor has been established in 552 cases (55%), and of these primary and secondary tumours constituted 139 (25%).

The last group (idiopathic epilepsy) was composed of the remaining 440 patients (44%) in whom no specific ætiological factor had been demonstrated at the time of investigation. In this group 50 patients, none of whom had less than 3 verified grand mal attacks, had discontinued treatment of their own accord without any recurrence of their attacks. The most common medicament employed in this group was phenytoin sodium and/or phenobarbitone. Primidone (Mysoline) has been used to some extent, but the incidence of toxic effects and intolerance has proved to be high. A new glutonamide derivative known as Preparation 16038, which is the 9-(*p*-aminophenyl)- α -ethyl glutonamide, has been on trial either on its own or with other anti-convulsants. The preparation, which has been shown to be helpful in patients in whom no other combination of treatment had been effective thus far, appears to be relatively nontoxic, and no blood dyscrasias have been noted as a result of its use.—(S. Sheehan, *Irish J. M. Sc.*, 6: 261-272, 1958, Dublin, via *J. of Am. Med. Assoc.*).

GENITAL TUBERCULOSIS TREATMENT

The advent of chemotherapy has altered the management of genital lesions just as it has the management of renal infections. At present, Veenema and Lattimer recommend combined therapy with isoniazid, 100 mg. t.i.d. and sodium PAS 5 g. t.i.d., given together for a period of two years. The plan is similar to that used routinely for renal tuberculosis. Those authors find that lower urinary tract symptoms are greatly relieved by the use of chemotherapy. Radical prostatovesiculectomy is advised only in rare cases with intractable pain. Epididymectomy is employed only for lesions which show intractable secondary infections or sloughing, and the operation is followed by one year of combined chemotherapy.—(*Med. Ann.*, 1958).

HÆMATOSPERMIA

A significant contribution to this difficult subject is made by Magid and Jejtmanick (*J. Urol.*, 78: 82, 1957). A direct communication between the venous system and the seminal vesicle lumen is offered as a cause for hæmatospermia. It is demonstrable by vesiculograms. In fact, it was the accidental taking of the radiographs while injecting the medium, rather than at the termination, that led to this anatomical discovery. The exact mechanism of the anastomosis between the lumen of the seminal vesicles and the blood vessels is not understood. This probably exists as a thinning of the vesicular walls, probably due to ulceration with direct erosion into thin-walled veins.—(*Med. Ann.*, 1958).

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moral or social value, it is most needed in rural areas. He very properly emphasized the need to create the proper atmosphere, so that young doctors would spend at least the first few years of their professional life in rural areas and he appealed for "the doctors' whole-hearted co-operation in implementing the successive Five-Year Plans, in so far as they related to the health problems of the nation and in the efforts to usher in a Welfare State by bringing the fight which had already been launched against disease and squalor to a successful conclusion."

Shri M. A. MANICKAVELU, the State's Health Minister, inaugurated this Conference which was attended by a large number of medical practitioners hailing from the 18 branches of the Association in the State. An exhibition of medical instruments and drugs, organized in connection with the Conference, was declared open by Dr. P. V. CHERIAN, Chairman of the Legislative Council, who stressed the need for the country to attain self-sufficiency in the production of drugs and instruments.

In his inaugural address, the Health Minister referred to the contribution of medical men to the progress of the curative and preventive sides of medicine, and said that their services were vital to the nation. He was obviously not unaware of the fact that the status, pay and emoluments and opportunities for obtaining better qualifications and advancement in life were not at all bright. "My only answer is", he said, "great achievements in any human sphere of activity are not equated to material return and satisfaction." He, however, agreed that the Government and the public should do their best to elevate their status and meet their material requirements. In their deliberations over this question, he would ask them to bear in mind the financial and other limitations owing to the present social and economic condition of the country. As regards the Ayurvedic and other indigenous systems of medicine he conceded that it is necessary to place these systems of medicine on a scientific basis, subject them to research, and help them to progress along sound lines.

Shri Dr. T. V. SIVANANDAM, the newly elected President of State Branch, in his presidential address referred pointedly to the inadequacy of the emoluments and facilities given to the medical men in Government service and pleaded for a sufficient increase in remuneration so that they may be debarred from private practice. Honorary medical officers were doing splendid work and he requested the Government to extend and expand the honorary system and to see that a minimum number of paid officers were posted at district levels.

He pleaded for the upgrading of the special departments at the district hospitals, the starting of hospitals for labourers at every district headquarters, and the prohibition of men applying

for training as nurses. In view of the increase in industrial accidents, he appealed to the Government to open an Orthopædic Unit with trained personnel and good equipment in every district headquarters hospital to tackle industrial surgery. We ourselves pointed out in a recent editorial that this was becoming increasingly urgent in view of the rapid advances in industrial progress.

Shri DR. A. LAKSHMANASWAMI MUDALIAR, Vice-Chancellor of the Madras University, inaugurated the Scientific Session of the Conference and referred to the importance of post-graduate medical education and research. He said that any centre of post-graduate medical education could thrive only to the extent to which the members were fully endowed with the spirit of unceasing loyalty to the cause of medicine and unfailing adherence to scientific principles at all costs.

Dr. MUDALIAR, then said that it had been found that unless there was a certain amount of concentrated attention bestowed upon post-graduate education and research, the level of such education and research would suffer. Research should be automatically one of the passions of medical men, in whatever sphere of activity they might be engrossed. There are some fields of research where no doubt, specialized equipment and specialized facilities are necessary; but there are still many other fields of research where the God-given gifts of observation and inference might go a long way to highlight a new discovery and its potentialities. He hoped that no one would be of the impression that research was something far from his ken and that some specialized knowledge and specialized methods had to be evolved to become a research worker.

We commend to all our readers these words of wisdom born of ripe experience and we hopefully look forward to their profiting themselves and the country by taking to research work in their spare time and thereby enriching medical science.

OCCUPATIONAL HEALTH

Two important Conferences on Occupational Health were held at Calcutta on the 15th and 25th November 1958 respectively. Over one hundred and fifty delegates including thirty delegates from foreign countries attended the Second Asian Conference on Occupational Health which began its one-week session on 15-11-58.

Sir JEHANGIR GHANDY, Chairman of the Reception Committee for the Second Asian Conference of Occupational Health, in his address welcoming the delegates, said that one problem arising from industrialization that India faced in common with other Asian countries was rapid, unplanned urbanization. His address



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2. Gillhespy, R. O.: Lancet 2:1393, 1955.
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and other measures available in the sphere of industrial health and safety. The emerging problems have to be tackled in an intensive fashion if we are to get full collaboration from the workers and the maximum results from the process of industrialization."

In countries in the west, where industrialization has progressed at a steady pace over the last two centuries, the connected problems of industrial health, safety and other protective measures for the industrial workers have also proceeded at an equally steady pace. If under-developed countries have entered the field rather late, this will also give them a slight advantage provided they make proper use of what is made available to them. Many technological advances have been made in the industrially advanced countries and such technology is being freely made use of, by the less developed countries in connexion with their major projects of industrialization.

What needs equal emphasis is that in occupational health also the knowledge of the advanced countries should be shared by the people of Asia. The existence of rigid regulations and even of suitable machinery for inspection of enforcement will not amount to much, unless there was available in the countries concerned properly trained staff to see to the maintenance of occupational health. All possible efforts should, in our opinion, be made to educate the workers and the management, who are the two most important interests virtually and more directly concerned in industrial safety, in this regard.

There can be no excuse for not providing, on grounds of cost, necessary protective equipment to workers in hazardous occupations; and there is no justification for uprooting people from rural areas and putting them to work on machines or in plants where hazards exist, without ensuring that all possible preventive measures are provided. Besides, no one can get efficient work leading to high productivity if the worker is constantly exposed to risks which can be avoided or worse still, if fully trained workers lose their life or limbs as a result of inadequate protection against such hazards. We heartily therefore endorse what Mr. NANDA said, "Our problem mainly is the full implementation of whatever laws there already are and I frankly admit that due to an inadequate inspectorate and for other similar reasons, the implementation has not been as adequate as I would have liked."

The problems of South-East Asia in this regard are indeed numerous and we have no illusions that these would be easily solved. We hope, as did Mr. MARCEL ROBERT, Chief of the Occupational Safety and Health Division of I.L.O., that as a result of exchange of ideas at Conferences like these, it would be possible to visualize and meet the needs of the region in this respect.

One of the resolutions passed at the open session of the XIII Madras State Medical Conference held early last month at Madras requested the Madras State Government to create a separate department for Occupational Health Services as well as a Directorate of Occupational Health Services for the Madras State. This suggestion deserves the sympathetic consideration of all State Governments, in view of the rapid and steadily increasing advances in industrialization that are taking place in the Country and in the light of the decisions taken at the symposia during the recent Calcutta conferences.

THE MEDICAL CONFERENCES AT INDORE AND AMRITSAR

SHRI H. V. PATASKAR, Governor of Madhya Pradesh, inaugurated the IX Annual Conference of the Indian Association of Pathologists at Indore on the 20th of November 1958. RANI PADMAVATHI DEVI, the State Health Minister, attended the conference. Shri PATASKAR said that in the science of medicine, the position of the pathologists was remarkable. Their reports became almost indispensable for a physician to commence treatment or the surgeon to perform an operation. Stressing the need for autopsy, he said the prejudice against it stood in the way of discovering the root cause of a new disease and in this respect we should copy the attitude of the western nations, who did not object to autopsy when required for scientific purposes. Dr. GOVINDA REDDY, President of the Indian Association of Pathologists in his Presidential address recounted the many duties and functions a pathologist is called upon to undertake and regretted that he was denied the privileges of the clinical teacher, for he had no place in the wards and he was debarred from practice. He had no vacation, which his colleagues in the departments of anatomy and physiology enjoyed. They never wanted to practise, but what was needed was that they should be remunerated adequately for their work. We believe that this and other similar grievances of the Government Medical Officers have been thoroughly investigated and suitable recommendations were embodied in the memorandum submitted by the I.M.A. (Centre) to the Pay Commission. It is gratifying to know that the Union Health Ministry has since decided to assist the State Governments in the establishment of full-time teaching units in non-clinical and clinical departments of medical colleges under their control.

According to a Press release dated 29-11-'58 the Union Government will pay, to the State Government and statutory Universities maintaining medical colleges, 100% of the extra recurring cost in implementing the schemes, which will entail revision

of salaries to attract talent for post-graduate medical education and research.

The State Governments have been asked to send their proposals so that they may get going during the financial year. The aid for the present will be limited to the remaining period of the Second Plan.

This decision has been taken following the recommendation of the Medical Education Conference held in New Delhi early this year. The Conference felt that one of the reasons for the shortage of teachers, specially in non-clinical subjects was the low scale of salaries and urged that these should be such as could attract suitable persons for a teaching and research career.

To prevent teachers from migrating from one college to another, the Conference thought that the scales of pay suggested by it should be adopted uniformly in all the States. It is gratifying to learn that the Health Ministry has accepted the suggestions made by the Conference regarding the pay scales. So far most of the Medical Colleges in India were staffed by teachers who were permitted private practice. This condition, it was felt, was an important reason for the low standard of teaching and for the little attention being paid to medical research. As a remedy, the Medical Council of India has recommended that every department of a Medical College should have full time non-practising units each consisting of a professor and other teachers.

In his address to the annual meeting of the Indian Council of Medical Research as its President, (which was read in his absence by the Secretary to the Health Ministry) Mr. D. P. KARMARKAR referred to the increasing recognition of the research work of the Indian scientist from other scientists and learned societies in and outside the country. Many Indian scientists were now being invited to present their work before national and international organizations. It would indeed be very unfortunate if, just when the Indian Council of Medical Research had succeeded in some measure in creating interest in research in several medical colleges during the last few years and when more and more research workers were coming forward to engage themselves in research, it should become necessary to consider the steps to curtail research for want of financial resources.

The Health Ministry had now to consider assistance to 280 existing projects, and requests for assistance to 250 new schemes were pending consideration, the vast majority of them being from medical colleges.

Tuberculosis, was now India's Enemy No. 1, after the control of malaria. "While paying attention to the development of techniques for home treatment of tuberculosis patients," he said, "a dietary investigation has also been undertaken to ascertain how important a part diet played in the attainment of quiescence

when the treatment was given with modern anti-bacterial drugs. While the general incidence of tuberculosis was about two per cent in both urban and rural areas, it was as high as five per cent in some places.

The Trachoma Pilot Project, initiated at Aligarh about two years ago is nearing completion. Trachoma is a very important public health problem now, and in certain regions, over 80% of the population was affected by it. Attempts are therefore, being made to study the incidence of trachoma in different parts of the country.

Nutrition surveys conducted during the year in Andhra Pradesh, West Bengal, Kerala and some parts of the Bombay State have confirmed the previous findings that protein malnutrition existed on a very wide scale all over the country.

The problem of mental disorders was widespread. In the population studied in the Bangalore Mental Diseases Survey the figures recorded were five cases of epilepsy, nine mentally defective cases not requiring hospitalization, and two mentally defective cases requiring hospitalization in every thousand. The result of investigation of the connected socio-economic problem is still awaited.

Presiding over the 28th session of the Punjab Medical Conference held under the auspices of the Indian Medical Association at Amritsar on the 29th November 1958, Capt. Dr. MAHATMA SINGH of Ahmedgarh said that "the I.M.A. which is the national organization and the spokesman of the medical profession in India and which aims at the good of the community first and puts profession next, does not find its proper place at the Government level," as its proffered services are not properly utilized by the Central and State Governments.....The Five-Year Plans, the Community Projects, Development Boards, the framing of regulations affecting the health and sanitation of the public, medical education, family planning etc., are really matters where the I.M.A. can always valuably advise the Government, "I venture to assert," said he, "that the State cannot possibly succeed in carrying out these plans without the co-operation and assistance of the medical profession and the I.M.A. in particular." Dealing with the knotty problem of rural medical relief he counselled a realistic and determined approach for obtaining a solution. Any scheme of compulsory posting of new or matured medical men to rural areas will not succeed unless the emoluments are increased and the environmental conditions in which they have to work are made attractive and suitable to them. Every one will agree that such a personnel should be amply compensated for the lack in rural areas of educational facilities to their children and other amenities such as good houses, roads, and recreation facilities."

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Consulting Editor: U. KRISHNA RAU, M.B., B.S., M.L.A.,

Editor: U. VASUDEVA RAU, M.B., B.S.

Editorial & Publishing Office: 323-24, Thambu Chetty St., Madras-1

Annual Subscription: Rs. 7-50 nP. Foreign—Rs. 10—Post Paid

Vol. 56

JANUARY, 1959

No. 1

Editorials

THE NEW YEAR 1959

THE Year 1958 has been a very momentous one from every point of view. Wonderful feats have been performed below and above the stratosphere by Sputniks and strenuous attempts are still being made to reach other planets. In the field of medicine and public health, concerted efforts have been and are being made to eliminate incapacitating and death-dealing diseases from the world, inspite of the cold war which is still on, but which has not been able yet to raise its ugly head, thanks to the untiring efforts of peace-minded persons in power.

The ANTISEPTIC has been keeping pace with the scientific advances to the extent necessary to keep its readers and constituents informed of all the important happenings in the medical world during the year.

We offer our sincere greetings and good wishes for a happy and prosperous NEW YEAR to all our readers, contributors, advertisers and well-wishers who have made the continued and regular publication of the ANTISEPTIC possible during 55 long years and we look forward to their continued patronage and hearty co-operation in our mission to serve them. JAI HIND!

THE XIII MADRAS STATE MEDICAL CONFERENCE

ADDRESSING the above Conference at the Madras Medical College on the 29th of November 1958, Shri BISHNURAM MEDHI, Governor of Madras, said that medical aid was one of the primary necessities of the rural population of India, and if the noble profession of healing and prevention of disease was to have any

was read out in his absence by Dr. C. K. RAMACHANDER, President of the Indian Society for the Advancement of Industrial Medicine. The address drew pointed attention to the tendency for municipal services and environmental hygiene to lag behind the rate at which urban populations expand. Study of occupational health, therefore, had to accept a broader orientation and view its problems in the context of social and environmental factors. It is necessary to concentrate on the fusion of all techniques of medicine, psychology, engineering, and social sciences to tackle problems of industrial health. The industrialization of under-developed countries poses the greatest challenge to the world. One of the things to be considered is rapid urbanization. Calling for an integrated approach to occupational health, Sir JEHAN-GIR said, "we were short by at least 2.5 million houses in 1951. Terrible housing conditions in slums, coupled with the physical problem of finding space, has given rise to all manners of undesirable side-effects. Therefore, a study of the socio-medical aspect of urbanization is essential."

Referring to the Employees' State Insurance Scheme introduced in India in 1955, he said that the progressive improvement in its working warranted confidence in its future. The scheme already covered more than 1.3 million workers in 64 centres, and it was hoped to cover 2.2 million workers by the end of the Second Plan period. The scope of benefits has also been progressively extended, and the cost of medical aid to-day is estimated at Rs. 16 per head compared to the original modest provision of Rs. 6; including workers' families who were now being included within the scheme, the cost would come up to Rs. 40 per family unit.

Dr. M. N. GUPTA, Deputy Chief Adviser to the Union Ministry of Labour, told the Scientific session of the Conference that Asian countries should be prepared to learn the socio-medical problem of large-scale urbanization, and plan effective remedies, as otherwise, they will not be able to tackle the problems of industrial workers.

Mr. LEO NOVO, Vice-President of the Permanent Committee of International Association of Occupational Health, who inaugurated the session, said that a comprehensive modern institute with special departments in occupational medicine and other branches of medical science is absolutely necessary today if adequate improvements are to be made in occupational health.

Addressing the other Conference held on 25th November 1958 at Calcutta, under the joint auspices of the I.L.O. and the W.H.O., Sri G. L. NANDA, the Union Minister for Labour and Employment said that "under the existing conditions in Asian countries, there is a risk that the rising tempo of industrial development might quickly outgrow the organization and facilities

We are glad to learn that the Amritsar Branch of the I.M.A. has taken up the matter of rural medical relief in its hands, and teams of specialists, physicians etc., go to rural areas regularly and give free consultation and medical aid. All State Governments should encourage such voluntary services by providing at State cost transport facilities, medical and surgical equipments and supply of milk and other amenities as and when required. Dr. SINGH then referred to the problems of medical men, such as the continuance of the condensed courses for M.B., B.S., to benefit the licentiates, the immediate stopping of the 'manufacture' of more licentiates, the pressing need to amend the Drug Rules in consultation with I.M.A., so as to remove the present hardships and the tightening up of legal enactments for combating adulteration of foods and drugs effectively. These certainly require to be promptly and favourably considered by Government.

TREATMENT OF TONSILLITIS

The treatment of acute sore throat is still a matter for discussion. Most of the therapeutic trials which have been recorded on this subject have been concerned with sporadic cases collected over a period of months.

Penicillin V has recently become accepted as a valuable addition to the therapeutic armamentarium, achieving its success by the ease of its administration: a point of great importance in large-scale treatment. This paper describes an epidemic of 116 cases of food-borne streptococcal tonsillitis in which a controlled trial of "sulphatriad" and phenoxymethylpenicillin was made.

The present trial has shown that neither sulpha-triad nor oral penicillin reduced the duration of soreness of the throat. The only positive finding was the fact that they both reduced the number of positive throat swabs following treatment. In what is perhaps the most important assessment—namely, the duration of the illness as a whole—the results showed only a slight but significant reduction with the use of oral penicillin. The duration of fever was slightly less in those patients on penicillin, although the difference was not statistically significant. The length of the illness is usually the resultant of three factors: cessation of fever, the disappearance of pain, and in all patients under medical supervision, a reasonably normal appearance of the throat. We have shown that the first two factors are independent of treatment. It is well recognized that, in cases of sore throat, people with tonsils have more visible exudate. The results suggest that oral penicillin has no beneficial effect on the soreness of the throat but speeds the recovery of the normal appearance of the throat, the lowering of temperature, and the duration of illness.—(B.M.J., 30.8.1958).

EPILEPSY AND MENSTRUATION

Ansell and Clarke investigated the recurrence of epilepsy in relation to the menstrual cycle in 42 women, and they find that there is a direct relationship between epileptic fits and menstruation; 63 per cent of the patients had more fits during menstruation or the preceding 24 hours. There was no correlation however, between premenstrual symptoms and the incidence of fits. Klein and Carey found that increased sodium retention had no relationship to the development of premenstrual tension symptoms. It is suggested that progesterone may have an anticonvulsive action.—(Med. Ann., 76: 213, 1958).

GLEANINGS FROM THE MEDICAL PRESS

MEDICINE & THERAPEUTICS

Emotions and alopecia areata.—(*B.M.J.*, 16th Aug., 1958).

Alopecia areata is a disease characterized by circumscribed bald areas affecting any hairy part of the body, but usually confined to the scalp. Single patches are not uncommon, but more often a number of lesions appear after a few weeks, and rarely all the scalp or body surface is affected—alopecia totalis and universalis. The disease occurs in both sexes and at all ages, but is commonest in young adults. The hair usually grows again within a few months, but occasionally the bald areas persist for years or a permanent alopecia totalis or universalis is the result. Though the majority recover, even without treatment, the disease often tends to recur at intervals. A familial tendency was stressed by R. Sabouraud, but without the knowledge of the incidence of the disease in the population as a whole it is difficult to assess the significance of a positive family history. Though this is primarily a disease of hair follicles, it is interesting to note that nail changes are not uncommon in severe cases, and some observers claim there is an association with leucoderma.

Many different views have been expressed and theories advanced to account for the condition and its behaviour. Unknown toxins, focal sepsis, endocrine upsets, eye strain, and disturbed function of autonomic nerves have all had their exponents. The one belief which has persisted is that the condition is a psychosomatic manifestation. The percentage of mentally disturbed patients would appear, at first sight, to support the popular belief that alopecia areata is a psychosomatic manifestation, but a study of the periods of mental stress revealed no correlation with the attacks of alopecia. A larger percentage of patients suffering from alopecia totalis were mentally disturbed, but a study of the duration of the attack of

alopecia and of previous attacks led to the conclusion that this was due to chance, or to the effect of the disease on the mind.

Anticoagulant therapy in acute myocardial infarction.—(*Scottish M.J.*, 3:235-244, June 1958, via *J.A.M.A.*).

Many workers have suggested that anticoagulant therapy can effect a significant reduction in the mortality rate in the weeks immediately after an acute myocardial infarction, and that it can also lower appreciably the number of clinically detectable but non-fatal thromboembolic complications. There have been few reports in which the effects of anticoagulant therapy upon the over all mortality rate from myocardial infarction in hospital or in a single medical unit have been studied. The author reports the results which have followed the introduction of this therapy. The clinical material consisted of patients with acute myocardial infarction admitted to the medical unit at the Western Infirmary, Glasgow, during the years from 1949 to 1956. It included not only those patients in whom the primary diagnosis was myocardial infarction but also those patients who experienced an infarction after admission for some other condition. The diagnosis was confirmed in all cases either by electrocardiography or at autopsy.

Over a period of 13 years (1944-1956) the death rate from acute myocardial infarction remained remarkably constant; about a third of the patients died in the hospital in the first few weeks. The introduction of anticoagulant therapy was not followed by a significant alteration in the mortality figures. The present series is comparable with others in respect of the incidence of thromboembolic and hemorrhagic complications. It is pointed out that, even when a policy of giving anticoagulants to all patients with acute myocardial infarction is adopted, there will always be a proportion of patients who cannot

be so treated. The reasons for the high death rate and for the failure of anticoagulants to influence this are the large number of patients who die soon after admission (one third of all deaths) and a high mortality rate in patients who, for one reason or another, cannot be given anticoagulants. The author suggests that, in some other reported series of patients treated with anticoagulants, methods of case selection may have influenced the results. To obtain convincing proof of the beneficial effects of anticoagulant therapy in acute myocardial infarction, a reduction in the over-all hospital mortality rate should be demonstrable. The present investigation has not provided the evidence necessary to support this opinion.

Some aetiological aspects of coronary heart disease.—(An Indian Point of view based on a study of 867 cases seen during 1948 to 1955, *B.M.J.*, 30-8-1958).

Drs. Malhotra and Pathania, Cardiologists of Amritsar Victoria Jubilee Hospital, have presented data which show that coronary disease forms a big group in the cardiac population of this part of India, and, whereas several of the aetiological factors observed run true to descriptions by Western authors, there are some local factors that may provide material for further thought.

The series consists of 867 cases of coronary disease that occurred during a period of seven years (1948-55) amongst a total of 3,054 cardiac patients seen by us. These cases, include patients admitted to general and private wards as well as those examined in the cardiology clinic. Private cases seen in his consulting-room by the senior author (R.P.M.) are also included. Thus it is a fair cross-section of all classes of patients.

Observations as regards age (including the younger age groups), profession, family history, body build in general, and association with diabetes and hypertension do not in any way differ from those of Western writers.

The sex-ratio is more or less the

same as that described by Western authors. In other words, the degree of relative feminine immunity from coronary disease enjoyed by women-folk here is no greater than in the West in spite of the fact that they lead a comparatively much more sheltered and indoor type of life, that they are mostly vegetarian, and that addiction to tobacco or alcohol is practically unknown among them.

The role of the fat content of diet in the aetiology of coronary disease is a controversial point. It may be of some significance to mention that the fat content of diet taken by the vast majority of our cases is poor as compared with European standards. Consequently we find it difficult to believe that dietary fat can play any significant part in the causation of coronary disease. Our observations show that vegetarians are no less prone to develop coronary disease, and the same is true of non-smokers. No less than one-half of our cases belonged to the Sikh community, whose religion forbids smoking.

Obesity has long been recognized as an important pre-disposing factor. We find it much more true in the case of females.

After a long search in the necropsy room and biochemical laboratories we are now advised that the answer to the cause of coronary disease may come from an epidemiological survey. It will not be out of place to quote the *Lancet* (1955): "In the golden period of discovery, the causes of the great fevers were elucidated largely by epidemiological methods. To-day we have come to recognize that these methods are equally applicable to non-infectious disorders, and we are hoping that they will reveal the origins of some of the other major sources of morbidity and mortality. More and more attention is being paid, for example, to the epidemiology of coronary artery disease."

Coronary disease is a major cause of mortality in countries that are materially more advanced. We in India at present have to continue to think in terms of more important problems,

such as those in infant mortality, infectious diseases, nutritional disorders, over-population, and a host of other public health problems. All the same, when we glance through the medical literature we come across views of writers abroad, every now and then, that coronary disease is uncommon amongst Asiatics. With the present standard of our vital statistics it is difficult to give the true incidence of coronary disease in this part of the world. But with coronary disease accounting for 28.4 per cent. of our 3,054 cardiac cases we obviously find it difficult to share the view held by some Western writers about coronary disease being uncommon in materially less favoured countries. With this background, some of our observations on local factors may provide material for further investigation into the ætiology of coronary disease.

Serum mucoproteins in rheumatoid arthritis.—(*Med. J. of Australia*, June, 1958).

Dr. R. G. Robinson of New South Wales in his paper entitled "Serum Mucoproteins in Rheumatoid Arthritis", based on chemical and electrophoretic studies of the serum of a number of patients suffering from rheumatoid disease in all phases, both in the natural state and under the influence of various forms of treatment said that attempts had been made to relate the changes found to the clinical condition, to the type of disease, to the erythrocyte sedimentation rate, to the progress or retrogression of the disease and to the reaction of the host to the disease. Chemical analysis and flocculation tests had soon been discarded as being too unreliable, and investigation proceeded with the use of electrophoretic methods, to ascertain their value as a diagnostic and prognostic tool. Dr. Robinson discussed the investigation in detail, and stated his conclusions in the following terms:—From serum electrophoretograms, an increase in serum mucoproteins was demonstrable as a consistent feature of rheumatoid disease activity. A more specific and more accurate measurement was obtained by estimating

in the serum the level of sialic acid, a breakdown product of mucoprotein. The results of that test and their relation to erythrocyte sedimentation rate and to activity of the disease, suggested that clinical activity might occur in two forms according to the pattern and stage of the disease. The first was a general inflammatory reaction and the second a more local synovial reaction. The latter might be of the nature of an allergy or auto-sensitization. Dr. Robinson had the impression that salicylates were more effective in the second group. He went on to say that with effective therapy, the level of sialic acid fell along a course parallel with that of the erythrocyte sedimentation rate. He pointed out the value of the sialic acid test, which could not replace the estimation of erythrocyte sedimentation rate, but afforded an interesting study of the effects on the host of the reaction to the rheumatoid process.

SURGERY

Pain in the foot.—(*Med. Jour. Australia*, 28-6-'58).

In his paper entitled "Some Aspects of Pain felt in the Foot," Dr. Drew discussed two common painful foot conditions. The first of these was pain felt in the forefoot associated with tenderness of the second metatarsophalangeal joint in the absence of generalized arthritic disease. He pointed out that in approximately 50% of individuals the second metatarsal was as long as, or longer than, the first, and that whether short or long, the head of the second metatarsal accepted an important proportion of the take-off weight in normal walking. While most individuals with long second metatarsals did not experience any inconvenience, a majority of patients with pain in the forefoot fell into this category. Other contributing factors suggested were age, impaired muscular control, and stresses caused by high heels and a steeply inclined foot. Pain could be relieved by wearing cork insoles, three-sixteenths of an inch thick, notched so as to leave a

well under the head of the second metatarsal, thus eliminating any pressure at this joint.

The second condition discussed by Dr. Drew was pain in the heel, usually associated with a tender spot either on the medial side of the plantar aspect of the calcaneus directly below the medial malleolus, or at the inner and upper aspect of the insertion of the *Tendo Achilles*. He pointed out that former spot corresponded to the calcaneal attachment of the plantar fascia, and that tenderness there was frequently associated with a calcaneal spur. Calcification in the neighbourhood of any ligamentous attachment to bone was regarded as evidence of periostitis—in this case caused by undue tension due to partial failure of other supporting structures. The calcaneal spur was therefore, a product of an underlying pathological condition, and removal of the spur would not influence the underlying nerve. The nature of the pain, its periodicity and the associated raised erythrocyte sedimentation rate which was frequently found suggested an inflammatory basis.

Dr. Drew then referred to a type of organism known as the "L" form which had been extensively investigated by Professor Brown of Washington University. He believed the organisms to be an aetiological factor in rheumatoid disease. They were filter-passing, intracellular organisms. Dr. Drew suggested that these minute organisms, which were relatively immune to the natural defence mechanisms, might be circulated in the blood stream, and would tend to settle in tissues traumatized by any cause. The invasion might result in an inflammatory reaction. This mechanism offered an explanation of the relationship between the toxic focus and non-specific inflammatory disease of bones, ligaments and related tissues.

Dr. Drew based his treatment of the condition on physical aids to relieve strain on the ligamentous insertions involved, thus minimizing trauma, on elimination of septic foci and on attempts to combat the "L" form

organisms. For the last, he suggested small doses of "Terramycin" or "Achromycin" every fifth day, or antimalarial drugs such as "Nivaquin" or "Amodiaquine."

Fractures of the tibial shaft.—(*Med. Jour. of Australia*).

H. Ellis (*J. Bone and Joint Surg.*, February, 1958) states that there have been very few controlled studies of the rate of fracture healing. His present study is to investigate the effect of severity of injury, skeletal traction, and distraction on fracture healing. This investigation covered a consecutive series of 576 tibial shaft fractures seen at the Royal Infirmary, Sheffield. Children under the age of 16 years were excluded, as they all healed rapidly, and the adult group of 343 was investigated. The most important factors were those which emphasized the severity of the original injury, such as severe open wounding, gross comminution and complete displacement of the fracture. He also found that distraction, that is separation of the fracture end by a gap of one-sixteenth of an inch or more, was another factor in the delay of healing. Five weeks extra were required on an average. Traction alone produced no significant difference, nor did the presence of infection, which occurred in only five of the open wounds. He found that the site of the fracture was also of little significance. In fractures below the tibial condyles union occurred in every case. In the remaining part of the shaft the site had no effect in itself.

Tuberculosis of the spine.—(*Med. Jour. of Australia*).

R. Roaf (*J. Bone and Joint Surg.*, February, 1958), in his editorial, states that most orthopaedic surgeons in England have been brought up to believe that it was wicked to perform planned operative exposure of uncontaminated tuberculous foci. He points out that in the last decade many surgeons have operated on paravertebral abscesses and tuberculous foci in

the spine. From these surgeons we have learnt four things: (a) that there was dramatic relief of pain and improvement of the patient's general condition; (b) that in the abscess much material was found that would be considered a bar to healing in non-specific osteomyelitis; (c) that living organisms are present, hidden in avascular areas impervious to systemic chemotherapy; (d) that X ray diagnosis is deceptive, and that lesions that appear healed are in reality often active. The author reminds the reader that there are still many unknowns. When should the surgeon intervene? How long should conservative treatment be persisted in before there is surgery? He also remarks that there is considerable difference of opinion as to the various techniques of access, particularly to the cervical and upper thoracic regions. When the surgeon has opened, there is again a variety of opinions as to what should be done. Some only drain. Others completely excise the abscess and its wall. Others carefully cleanse out the bone cavity. Others go further and fill the cavity with bone chips. There is a difference of opinion as to the value of local instillation of streptomycin. Some advocate it, others abhor it. He points out that there are also a number of people who consider that tuberculosis is being eliminated and that it really does not present a great problem at present, particularly where a welfare state cares for the patient and supplies antibiotics without cost. However, this is not so in primitive countries, and it is important to know the best and most economical method of handling the condition. The author also points out that bone tuberculosis is a local manifestation of a systemic disease.

Clinical patterns of peptic ulcer after sixty.—(*Surg. Gynaec. and Obst.*, 107: 23-30, July 1958, via J.A.M.A.).

While peptic ulcer develops most frequently in patients in the active middle years of life, a considerable number of patients seek relief from the distress of gastric and duodenal ulcers and their complications after

the age of 60 years. This was exemplified by the fact that 430 of 3,049 patients with peptic ulcer whose cases were recorded at the Roosevelt Hospital in New York during the 16 years from 1940 through 1955 were hospitalized after they were 60 years old. This group included 319 men and 111 women. Duodenal ulcer existed in 286 patients, gastric ulcer in 126, marginal ulcer in 10, and both duodenal and gastric ulcers in 8. During the same period 176 patients past 60 years of age were admitted for cancer of the stomach. The incidence of malignant neoplasm was 41% higher than that of gastric ulcer. The gastric ulcers were localized on the lesser curvature in 121 patients and on the greater curvature in 5. Of the duodenal ulcers, 34 were deep, penetrating the intestinal wall, and in 6 instances they invaded other organs. The presence of arteriosclerosis was recorded in 186 (or 43%) of the patients. Relatively few ulcers developed for the first time after the age of 60, and these often manifested themselves by severe hæmorrhage or by perforation sometimes without premonitory complaint.

The most frequent of the complications of ulcer creating a true emergency was hæmorrhage, and in a fair proportion of cases bleeding had occurred before, perhaps periodically, over a period of years. Cases in which bleeding was the first ulcer-symptom occurring after the age of 60 were likely to be particularly severe. Perforation of the stomach or duodenum was the second serious emergency in point of numbers, and it usually occurred in old and chronic cases of ulcer and less frequently as the result of late-developing ulceration. Obstruction of the stomach, while a less acute emergency, still demanded active treatment. These patients had long standing ulcer complaints. There was a larger group of patients with symptoms of many years' duration whose tolerance had been exhausted and who sought relief from the intractability of the ulcer.

Hæmorrhage, especially if massive or recurrent, demanded surgical intervention. Subtotal gastrectomy was justifiable and safer than permitting

continuance of bleeding, and in the great majority of such cases it was successful. In perforation of the stomach or duodenum, simple closure was the safest operation. In obstruction and intractability, unless the patient's status was favourable and there was reasonable assurance of the safety of subtotal gastrectomy in the individual case, it seemed best to be content with the employment of a less hazardous, if less ideal, procedure except when cancer was suspected. In hæmorrhage, unless massive and continuing or recurrent, in obstruction of moderate degree, and in many cases of intractability—except perforation—the results of medical therapy, as distinct from surgery, were often adequate.

OBSTETRICS & GYNÆCOLOGY

Tuberculous salpingitis.—(*Am. J. Obst. and Gynaec.* via *Med. Jour. of Australia*, March 1958).

M. Haines, in the Joseph Price Oration, discusses tuberculous salpingitis. Tuberculosis of the female genital tract attacks the tubes in nearly every case, but the uterus in about only half. The tubes might be tuberculous in not less than 10 per cent of cases of infertility. Of women found to have genital tuberculosis, 80 per cent. are between the ages of 20 and 40 years. Lesions of the tube may be classified as (i) normal in macroscopic appearance, (ii) exudative, (iii) adhesive, (iv) nodular. Pregnancy may occur in the tube either before the diagnosis is suspected or after treatment. Figures indicating the frequency of tubal pregnancy in tuberculous salpingitis vary from no case of tubal pregnancy in 200 cases of tuberculous salpingitis to three cases of tuberculous salpingitis in 302 tubal pregnancies. The differential diagnosis includes sarcoid, foreign body, leprosy, actinomycosis, bilharziasis, infestation with *Enterobius vermicularis*. The route of infection is generally hæmatogenous, and tubal function is generally impaired. Surgery to-day can be modified by the employment of specific drugs, which in some cases

offer a hope of cure and in others make operation safer, but the advisability of performing plastic operations on tuberculous tubes has been questioned. Specific drug treatment must be maintained for a long time, pre-operatively for three to 12 months and for at least 12 months after operation. At all times it must be remembered that the patient has tuberculosis, rather than that she should be treated as merely suffering from infertility, a blocked tube, or a tubo-ovarian mass. Tuberculous salpingitis, like endometriosis, is hard to recognize, and an awareness of it is imperative, especially in cases of sterility. Endometrial curetting may help in the diagnosis, but many tubes which at operation appear normal or show mild inflammation turn out to be tuberculous if examined microscopically. Pregnancy, though attended by hazards, may be hoped for, after therapy.

The incompetent cervix.—(*Am. J. Obst. and Gynaec.* via *Med. Jour. of Australia*, March, 1958).

R. H. Barter, *et al* discuss the surgical treatment of late abortion or premature labour occurring after the sixteenth week of gestation as a result of cervical incompetence. The clinical picture is sudden loss of amniotic fluid between the sixteenth and twenty-eighth weeks of pregnancy, not preceded by painful contractions, and rarely occurring in a first gestation. These patients usually have had damage to cervix from a dilatation and curettage, from cervical lacerations in a previous delivery, or as a result of surgical amputation done at the time of a previous gynaecological operation. The incompetent cervix becomes effaced and dilated between the fourteenth and twenty-sixth weeks of gestation. The process may be slow or rapid, but when it occurs the membranes can be seen bulging at the level of the external os or projecting into the vagina through the partially dilated cervix. In a completely typical case, the fetal membranes are under no apparent tension, the uterus is not irritable, and the dilatation appears to be a passive process. The authors state that the

purse-string operation for the correction of an incompetent cervix seems to be the most physiological of the procedures described to-date. The best results have been obtained when the operation is done between the fourteenth and eighteenth weeks, before the cervix has begun to dilate and before amnionitis has developed. A purse-string suture is inserted in the tissues of the cervix at the level of the internal os. The suture material used has been fascial graft, but the authors are now using a synthetic dacron mesh. The patient is kept in bed for 10 days, after which ambulation is gradually resumed. Most of the authors' patients have also been treated with large doses of progesterone. After full activity has been resumed, the cervix is examined under sterile conditions every two weeks. In successful cases Caesarean section is performed at the thirty-eighth week. It is thought that by this procedure a single cervical operation may suffice for more than one gestation.

Contraception by inhibition of ovulation. Is it safe?—(Letter in *British Med. Jour.*, Aug. 2nd, 1958, p. 297).

An annotation reports favourably on the use of "Enavid" as an oral contraceptive, hailing this as "a remarkable step forward." The annotation makes no mention of harm to the foetus should pregnancy result despite the tablet. It is known (Thiersch) that "aminopterin," a drug which has been experimented with as a contraceptive, has in fact produced malformed foetuses. Further, your annotation (*Journal*, July 26th, p. 218) refers to foetal malformations produced by progesterone, the substance which was the starting point for the use of *enavid* and which presumably has a similar action.

Although the compound is described as harmless and "various clinico-pathological investigations brought no undesirable effects to light," it is surely unwise to permit the marketing and widespread use of such potent compounds for this purpose. Careful studies of the effects of doses which fail to prevent pregnancy on the foetus and of the long term effect of repeated

dosage over the several years on experimental animals may yet reveal serious ill effects. The use of these tablets in a field trial is not a therapeutic measure although the participants are described as "patients." Such an innovation has very important social implications. Doubts which may be felt as to its permissibility are reinforced by the choice of Puerto Rico as a site for the trial. A contraceptive "pill" should not be regarded as a cheap substitute for the radical and costly improvement of the standard of living of the underdeveloped countries which is essential for the health of the new generation.

RADIOLOGY

Radiological aspects of congenital heart disease.—(*Med. J. Austral.*, 28-6-1958).

H. G. Hiller stated before the Austral. Med. Congress held in March 1958 that in children the cardiac contour was variable, and little or no reliance could be placed on it as an aid to diagnosis. Simple cardiac enlargement could of course be demonstrated, and it was sometimes possible to distinguish right from left ventricular enlargement. However, he considered that most information could be obtained from a close examination of the appearance of the pulmonary vasculature and of the aorta.

He demonstrated films of the commoner congenital heart lesions but excluding vascular ring lesions. Occasional angiocardiographic and cardiac catheterization studies were shown where those helped in the interpretation of the straight films. He dealt first with those conditions in which a study of the aorta might be helpful. In cases of valvular aortic stenosis the prominence and excessive pulsation of the ascending aorta, due to the post-stenotic dilatation of the vessel, might be a diagnostic feature. In cases of coarctation of the aorta rib-notching was uncommon before the age of 10 years but absence of the aortic knuckle might be a guide, and an even more important sign was an indentation of the descending aorta at the coarctation site.

Turning to consider the pulmonary artery and its branches he pointed out that there was a group of conditions in which a left-to-right shunt produced a similar picture of enlargement of the pulmonary artery with engaged branches. The conditions included arterial and ventricular septal defects, patent *ductus arteriosus*, and partial anomalous pulmonary venous return. On screening, marked pulsation of the pulmonary arterial branches could often be seen, especially in the case of the septal defects. It was virtually impossible to distinguish between the conditions radiographically. In cases of partial anomalous venous return, cardiac catheterization was necessary to establish the diagnosis. If pulmonary hypertension developed in any of these conditions the radiological picture changed with, diminution in the vascular markings of the peripheral lung fields, and some tortuosity and further enlargement of the larger branches. A similar picture was seen in the Eisenmenger complex and in transposition of the great vessels, but in those conditions antero-posterior films showed a narrow base to the heart compared with the wide base seen in oblique views. The appearances were well demonstrated by angiocardiology.

In cases of valvular pulmonary stenosis the opposite appearances might be expected, but there too the main pulmonary artery was dilated, because of post-stenotic dilatation, but the main branches were as a rule normal in appearance. Cardiac enlargement in cases of pulmonary stenosis could be demonstrated only when failure was imminent.

Patients with the tetrad of Fallot and with infundibular pulmonary stenosis also showed normal lung fields, and as the stenosis was infundibular, there was no post-stenotic dilatation of the pulmonary artery to be seen, the main pulmonary artery appearing narrowed. Radiographs of patients with these conditions usually appeared virtually normal, but might show the characteristic boot-shaped heart, or the appearance of a right aortic arch.

In cases of pseudotruncus (ducto-pulmonary atresia) there was a distinctive appearance due to the absence of the main pulmonary artery with moderate congestion in the lung fields. About 70 per cent. of patients had a right aortic arch as well.

Finally, in cases of complete anomalous pulmonary venous return, the appearance of the so-called left vertical vein to the left of the superior mediastinum, combined with the dilated *superior vena cava* shadow to the right, produced a picture characteristic of the condition.

Plain film survey of the abdomen.—(*Med. Jour. Austral.*, 28-6-58).

Dr. Waugh, Medical Radiologist of New South Wales, in a paper presented to the Australasian Medical Congress held at Hobart in March 1958, discussed the subject under six headings: calcification, soft tissue tumours, collections of fluid, abnormal gas patterns, traumatic lesions, foreign bodies. He said that calcification was usually visible unless it overlay bony structures, and mentioned briefly the various structures in which calcification might occur. Soft tissue tumours might be regarded as areas of homogeneous density displacing normal structures, but it was not usually possible to determine their routine, though their situation might provide a clue. Collections of fluid in the peritoneal cavity if small were most easily detected in the pelvis, with the patient in an upright position; in the case of massive effusion the position of the right border of the liver was a useful diagnostic sign. In discussing abnormal gas patterns, Dr. Waugh said that the study of gas patterns was important in patients with an acute abdominal condition, and in cases of congenital abnormalities in children. He discussed the significance of fluid levels in different types of intestinal obstruction. A characteristic feature sometimes seen in volvulus of the colon was the convergence of three lines to the point of torsion. In cases of obstruction caused by a gall stone,

gas might be present in the biliary tree. In cases of ruptured viscus, a chest X ray film was valuable in demonstrating the presence of gas under the diaphragm. Referring to traumatic lesions, Dr. Waugh mentioned some signs suggestive of ruptured spleen or ruptured liver; an extra-peritoneal hæmatoma might be evident as a broad band along the flank, which did not alter with the patient's position. Opaque foreign bodies usually presented no problem.

In conclusion, Dr. Waugh remarked that there were limitations to the study of the plain X-ray film of the abdomen. Usually it was a preliminary to further investigation, but for the acute abdominal condition it was the only radiological investigation permitted. He recommended close co-operation between the radiologist and the clinician at all times.

H. Masel (Queensland) emphasized the value of the lateral recumbent view.

K. H. Hallam (Victoria) pointed out that fluid levels in the bowel were not always indicative of obstruction, but might be due to enemata.

K. Friend (Tasmania) said that he was not convinced that the "cut off" sign was diagnostic of acute pancreatitis.

M.G.F. Donnan (Western Australia) asked how often the "cut-off" sign was seen in the absence of acute pancreatitis.

Dr. Waugh thought that the sign was often useful.

NEUROLOGY

Involuntary laughter.—(*The Practitioner*, September, 1958).

Involuntary laughter is one of the curiosities of neurology which has aroused considerable interest in recent years. In reporting a case in a young man which was cured by removal of a neurofibroma of the fifth cranial nerve,

M. W. Wood and his colleagues (*Proc. Mayo Clin.*, 1958, 33 : 266) provide a useful summary of the available information on the subject. They classify it into two main forms:—one associated with epilepsy and the other occurring without associated effect in a setting of intact consciousness. It can result from varied lesions, ranging from 'the limbic system at the cortical level through hypothalamic centres to the bulbar systems.' In other words, there is no evidence to suggest the existence of a 'laughter' centre and the precise cause in the individual can only be determined by careful investigation. The condition is quite distinct from emotional lability or emotional incontinence. The latter is merely a difference of degree, rather than kind, whereas the patient with involuntary laughter is the 'dispassionate witness to a complex motor act which normally would be the external manifestation of an inner affective state.'

One of the most interesting recorded cases is that of the patient undergoing removal of a papilloma of the choroid plexus under local anaesthesia. Every time blood was swabbed from the floor of the third ventricle 'the patient suddenly laughed, whistled and made obscene remarks. At necropsy the third ventricle was found to be filled with blood. One case has been recorded of sustained hilarity in a 58-year-old woman terminating in death. Here again the third ventricle was found filled with blood, which had apparently originated from a branch of the posterior communicating artery. The hæmorrhage had extended into the basal ganglia and both thalami. Yet another case worthy of note is that of the 75-year-old man who was seized by an attack of uncontrollable laughter while attending his mother's funeral. He had three such attacks and later died suddenly. Necropsy revealed a large ruptured aneurysm at the bifurcation of the basilar artery. This extended into the interpeduncular space, compressed the corpora mammillaria, and elevated the anterior part of the floor of the third ventricle.

REVIEWS OF BOOKS

ey Groves' A Synopsis of Surgery—Edited by Sir CECIL P.G. WAKELEY. 15th Edition. Illustrated. 658 Pages, 190 illustrations. 13 plates in colour. John Wright & Sons Ltd. Bristol. Price 37 s. 6 d.

This well-known Synopsis of Surgery is now in its 15th edition. The popularity of this book is evident from the fact that only four years have elapsed since the last edition appeared in 1954. In a book which is uniformly well written, it is difficult to pick out special chapters, but still the chapters on Shock and Syncope, Hæmorrhage, Aneurysm, Affections of the Special Nerves, Fractures, Dislocations, Diseases of the Hip Joint, Tubercular Diseases of the Spine, Acute Appendicitis, Head Injuries, Goitre, Gastric and Duodenal Ulcer, Gallstones, Renal Calculi deserves special mention. The chapter on Surface marking is very useful. There is a very detailed index and the illustrations are very fine. The book incorporates all the newer and later aspects of surgery. It is a book which should be in the hands of every student of surgery.

The New Mysore Medical and Pharmaceutical Directory 1958—(New Mysore Publishers, Line Bazaar, Dharwar) 440 pages. Price Rs. 10-50.

This Directory has been compiled under the direction and supervision of a very influential editorial

board. Dr. D. V. Venkappa, President of the Indian Medical Association has written a Foreword to it. The book is divided into 8 sections. The first section gives the geography and history of the new Mysore State (Karnataka). The next section deals with the ancient Indian Medicine (Ayurvedic system). The third section deals with Modern Medical Science. This section contains information about the first Medical School, the first Medical College and lists of Medical Colleges, Medical Journals, and Medical Research Institutes and Laboratories in India and also deals with the growth of medical literature and medical journalism in India. There is also a short note about the World Medical Association and the World Health Organisation. The fourth section deals with Medicine in Mysore and contains a description of the Universities and Medical and Research Institutes in that State. The fifth section deals with Dental Science and the Sixth section deals with Pharmacy and Pharmaceuticals. The next section deals with Medical institutions and hospitals in the State. The last section contains a Directory giving the list of Medical Institutions, Hospitals and Dispensaries in the State and also a list of registered medical practitioners in the State. The book gives very useful information. We congratulate Mr. B. Subba Rao and Mr. K. Ananda Rao on the great care and pains they have taken in compiling this directory.

BOOKS RECEIVED

The Indian Year Book of Medical Sciences—1958 Edition. 483 pages. Published by Current Technical Literature Co. Pr. Ltd., P.O. Box 1274, Bombay 1.

[Price Rs. 32-50 net.]

Radiology for Medical Students—(3rd edition) By FRED JENNER HODGES, ISADORE LAMPE, JOHN FLOYD HOLT. Pp. 450. (The Year Book Publishers Inc. 200 East Illinois St., Chicago). [Price \$ 8-50.]

Principles of Medicine and Medical Nursing—By J. C. Houston and

MARION STOCKDALE. Pp. 198. The English Universities Press Ltd, 102, Newgate Street, London, E.C. 1. Sole Distributors in India, Messrs. Orient Longmans Private Ltd., 36-A Mount Road, Madras 2. [Price 15s. net.]

Mental Health Aspects of the Peaceful Uses of Atomic Surgery—Report of a Study Group—(World Health Organization Technical Report Series No. 151). 53 pages. Published by the World Health Organization Palais Des Nations, Geneva.

[Price 3.6. \$0-60, Sw. 2.]

PREPARATIONS AND INVENTIONS

'Streptotriad'

May & Baker (India) Private Ltd., announce the introduction of 'Streptotriad' brand of streptomycin trisulphonamides. 'Streptotriad' is an association stated to contain streptomycin 65 mg. (in the form of the sulphate), and the three sulphonamides used in 'Sulphatriad,' namely, sulphathiazole 100 mg., sulphadiazine 100 mg., and sulphamerazine 65 mg.

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luria. The highly active antibiotic, streptomycin, acts solely within the intestinal lumen after oral administration. 'Streptotriad' is stated to be indicated in the treatment of bacillary dysentery, for use both in the acute phase, and to prevent the patient from becoming a carrier. It may also be tried for the treatment of symptomless carriers, in which most forms of treatment hitherto used have been largely ineffective, and for prophylaxis in those unduly exposed to infection. 'Streptotriad' is supplied as pink uncoated tablets in containers of 10 tablets, ten such containers being packed in a cardboard outer.

NEWS AND NOTES

The Indian Institute of Science founded in 1909 will be celebrating its Golden Jubilee in 1959 commencing from 2nd February 1959. The President of the Republic of India, who is also the Visitor of the Institute will inaugurate the function. Many dignitaries from India and abroad are expected to participate in the celebrations.

The Institute, the first of its kind to be established in India has been a pioneer in advanced instruction and research in pure as well as applied sciences and has contributed substantially towards the promotion of national economy of the country. The growth of this institution and the work it is doing are mentioned in a brochure

which the Indian Institute of Science, Bangalore has brought out for the occasion.

We understand that the Sixth Conference of International Planned Parenthood Federation and the Silver Jubilee of the Medical Council of India will both be inaugurated by the Prime Minister of India, at New Delhi in the second week of February 1959. In this connection the Dhiman Press of India, "Dhiman Bhawan", Ludhiana, Punjab, are bringing out a souvenir. This souvenir we are told will contain valuable and informative articles from eminent research scientists, medical men and others in India and abroad on important subjects.

THE VALUE OF SYSTEMATIC EXAMINATION OF THE FUNDUS IN THE TUBERCULAR CHILD

Since the optic nerve is the only one surrounded by meninges, and the retina is an outpouching of the cerebral cortex, it has become routine to examine the fundus in patients with meningitis or miliary tuberculosis. Funduscopy is a valuable means of detecting an insidious form of infantile tuberculosis different from the acute and subacute varieties. There are chronic forms localized in a small area and developing slowly, but capable of a sudden violent explosion.

Twelve case histories are given of tubercular children in whom funduscopy revealed the chief symptom — pallor of the optic nerve, and in some instances oedema of the disc, pepper-and-salt pigmentation of the retina, or choroiditis of the macular area. These indications serve to disclose a tubercular condition when other signs are negative or hard to evaluate. Finding the insidious type of infantile tuberculosis in its early stages makes its arrest possible with antibiotic therapy.—(*Arch. of Ophthalm.*, 17: 445, 1958).

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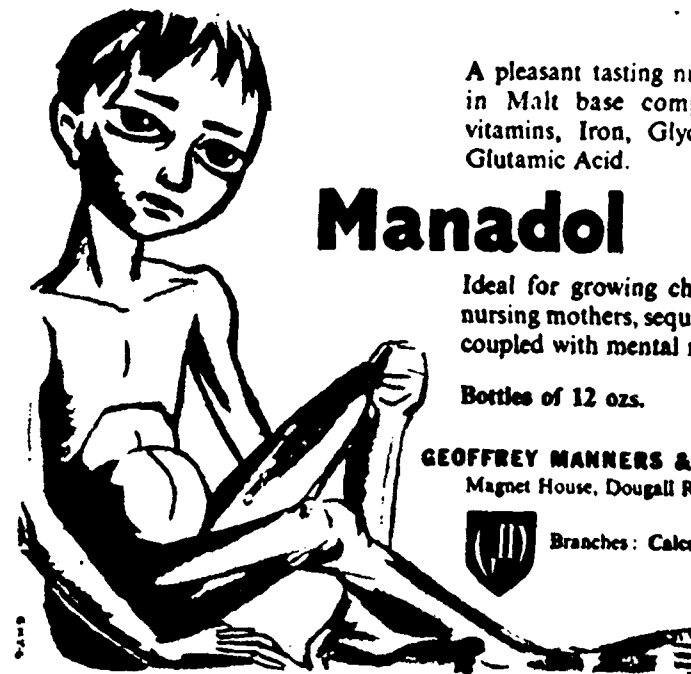
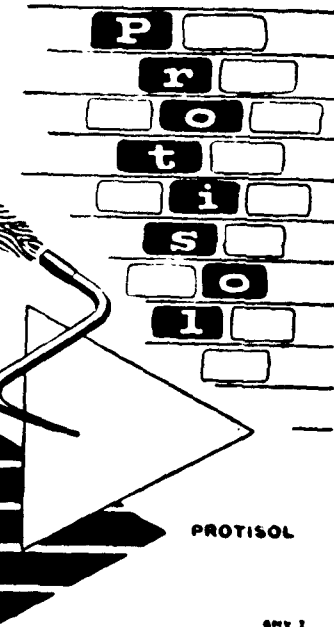
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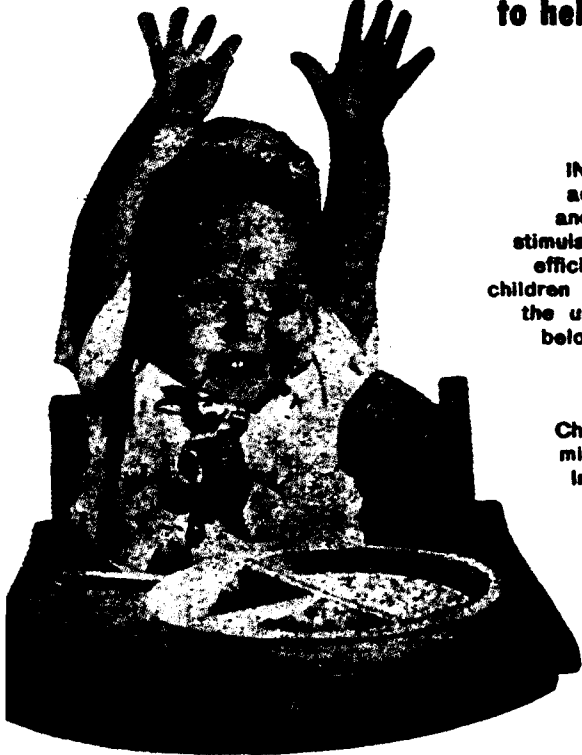
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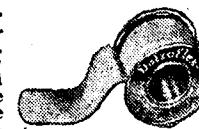
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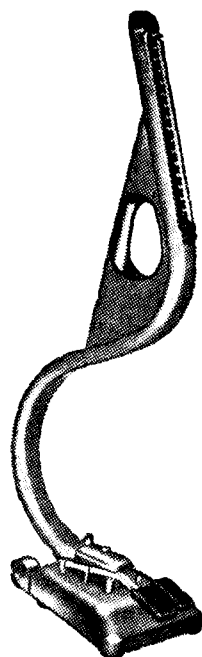
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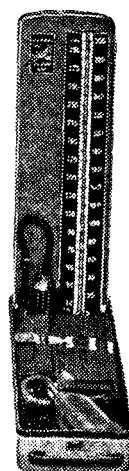
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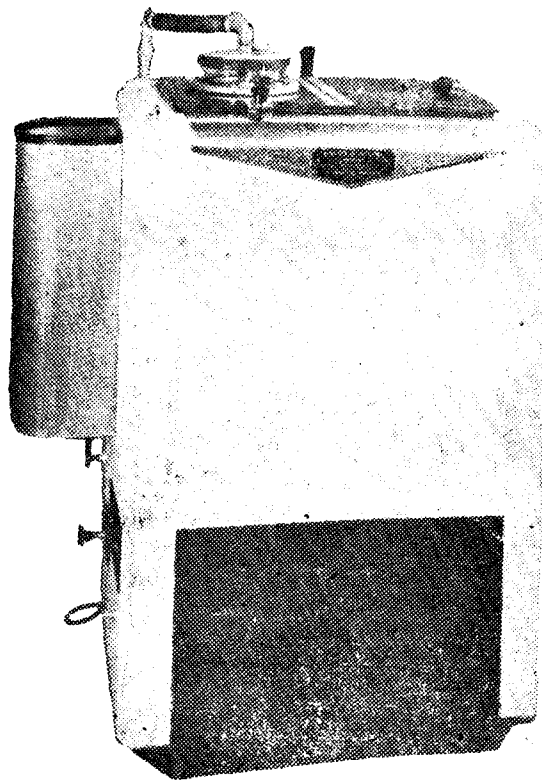
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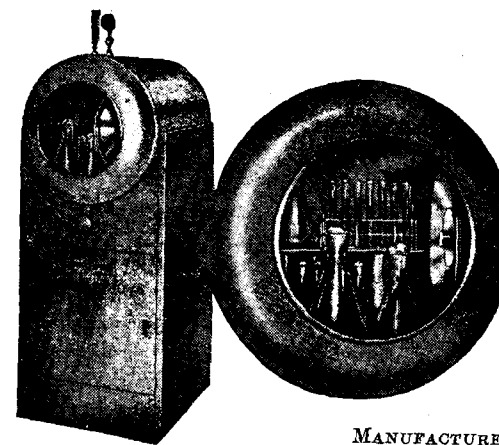
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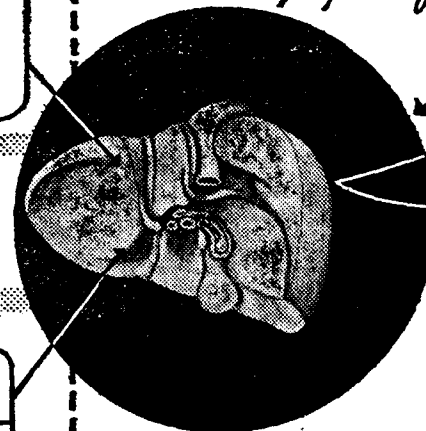


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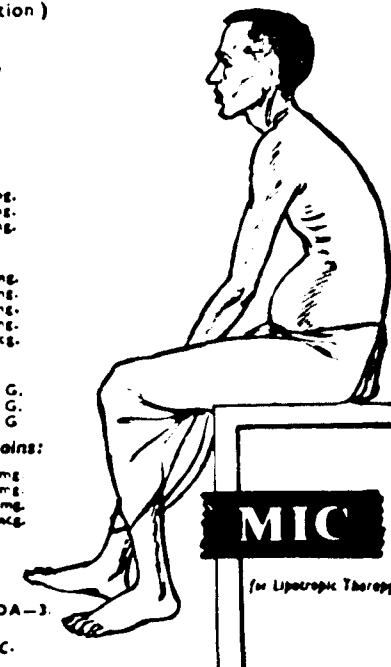
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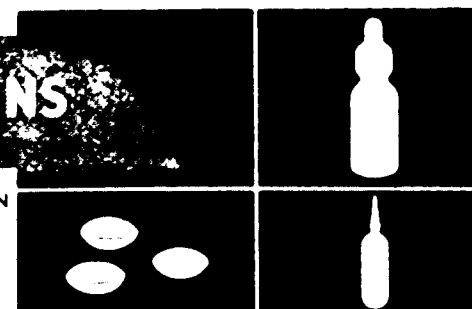
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ALUCINOL is the trademark for a combination in tablet form of Aluminium Hydroxide Gel and Aluminium Glycinate. This synergistic combination has been adopted for immediate and delayed action.

THE GREAT ADVANTAGE of ALUCINOL is that the tablets dissolve within seconds in a glass of water to make a milky solution with a peppermint taste, thus increasing 10,000 times the surface of absorption.

INDICATIONS

- Hyperacidity
- Gastro-intestinal ulcers
- Gastritis
- Hyperchlorhydric dyspepsia

PRESENTATION

Vial of 20 tablets
containing each 300 mg.
of Aluminium Glycinate,
and 300 mg. of
Aluminium Hydroxide gel.

DOSAGE

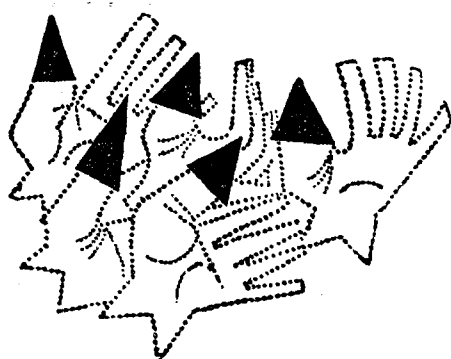
One tablet twice a
day after meals in half
a glass of water or as
required.

Literature from;

FRANCO-INDIAN UNITED LABORATORIES,
Bapnu Ghar, Hornby Vellard, BOMBAY 18.



BLACK AND WHITE MAGIC



There is no magic about modern surgery. The means of inducing anesthesia are so highly developed and effective that the surgeon can coolly prosecute his work varying it to suit any exigency. In processing aether anesthetic for the country's hospitals, surgical clinics and maternity homes, we are conscious of our grave responsibility. Strict and continuous laboratory and chemical control in our modern plant, ensure the high quality of our product. Always processed to BP standards.


AETHER
for anesthesia

Available in 1 lb &
8 oz Bottles

Manufactured by
HYDERABAD CHEMICAL AND PHARMACEUTICAL WORKS LIMITED
HYDERABAD DN.
India's largest producer of Aether Anesthetics and Aether Solvents



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NPH Insulin, Lilly

Moderately long-acting

Carefully standardized

For Intermediate Effect : (affords best control for most patients) NPH Insulin, Lilly, U-40 and U-80

For Rapid Effect : Insulin, Lilly, U-40, and U-80. Insulin, Lilly, made from Zinc-Insulin Crystals, U-40 and U-80

For Prolonged Effect : Protamine Zinc Insulin, Lilly, 40 units and 80 units

.....in 10 cc. vials.

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P. O. Box 1971, BOMBAY 1.

T.C.F. VITAMIN B-COMPLEX FORTE CAPSULES



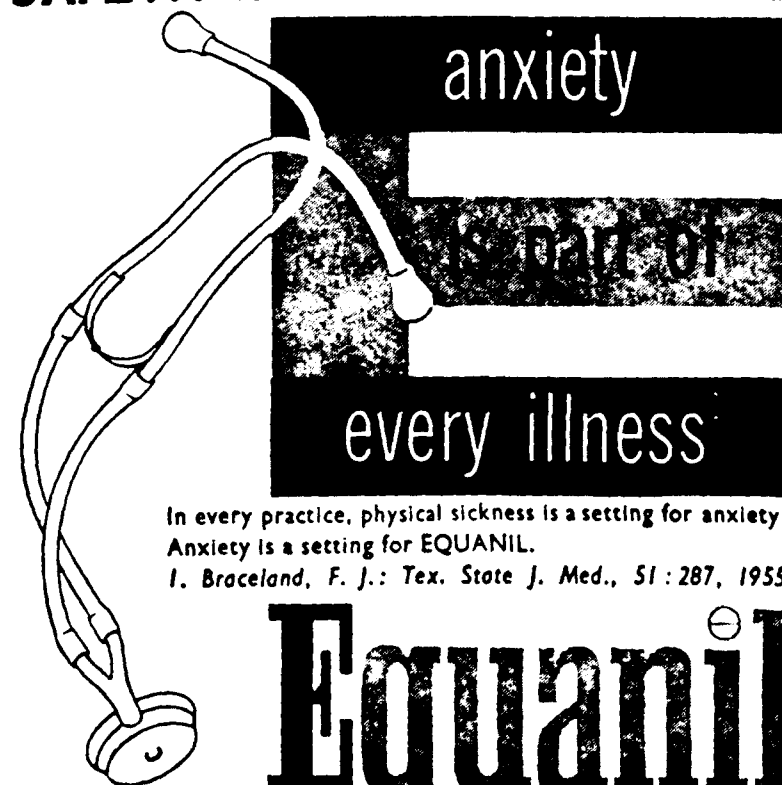
A concentrated vitamin preparation especially useful in the early treatment of avitaminosis-B, where initial massive dosage will bring about quick improvement.

PACKING: Bottles of 30 and 100;
also tin of 500

A Product of
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In every practice, physical sickness is a setting for anxiety.
Anxiety is a setting for EQUANIL.

I. Braceland, F. J.: Tex. State J. Med., 51:287, 1955.

Equanil[⊖]*

TABLETS

Indications

Prim. Anx. States	Anx. Accom. Surg. or Clin. Procedures	Anx. Accom. Clinical Conditions	Convulsive Disorders	Muscle Spasm
Anxiety & Tension	Major surgery	Peptic Ulcer	Epilepsy	Arthritis
Apprehension	Post-operative Care	Mucous colitis	Tetanus	Bursitis
Insomnia	Medical Dentistry	Menstrual Disorders	B. C. T.	Low Back Pain
Pre-menstrual Tension	Psychotherapy	Tension Headache		Spondylitis
Pregnancy Anxiety		Hypertension		Osteoarthritis
Alcoholism		Myocardial Infarction		
Behaviour problem		Neurodermatitis		Lumbago
Neurosis		Allergy		Wry-neck
Schizophrenia		Asthma		Fibrositis
		Cancer		Cerebral palsy
		Chronic Disease		Hemiplegia
				Paraplegia

SUPPLIED: Bottles of 20 x 400 mg., 100 x 400 mg. and 20 x 200 mg. tablets

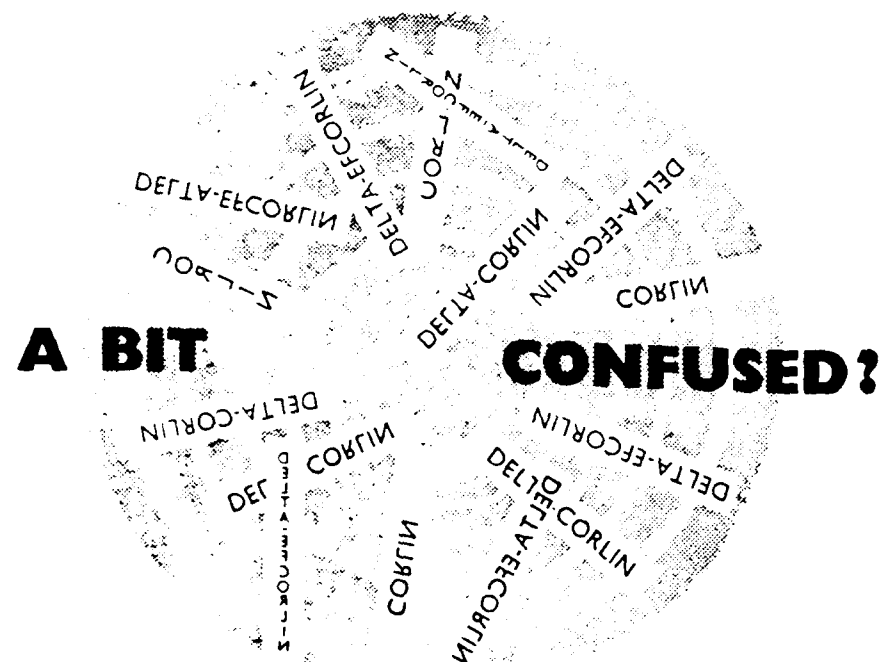


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(Incorporated in England with Limited Liability)

Steelcrete House, Dinshaw Wacha Road, Bombay 1

* Trade Mark



Let us sort it out



CORLIN
(CORTISONE 'GLAXO')

has identical therapeutic effect as prednisone or prednisolone. Corlin permits better adjustment of dosage and is unlikely to cause gastric upset.

CORLIN IS BEST FOR SHORT-TERM THERAPY.

Tablets: 5 mg. and 25 mg. in foil packs of 20.
Injection: 25 mg./cc. in 10 cc. vials.



DELTA-CORLIN
(PREDNISONE 'GLAXO')

There is no difference between prednisone and prednisolone. Weight for weight both are four to five times more active than cortisone. However, they have much less risk of causing sodium and water retention and potassium depletion but may cause gastric upset.



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(PREDNISOLONE 'GLAXO')

DELTA-CORLIN AND DELTA-EFCORLIN ARE MORE SUITABLE FOR PROLONGED ADMINISTRATION PARTICULARLY TO PATIENTS WITH HYPERTENSION OR INCIPIENT HEART FAILURE.

Tablets: 5 mg. in foil packs of 10.
Also Delta-Corlin in foil packs of 30.

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Introducing
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PENIVORAL Tablets introduce an acid stable form of Penicillin which puts oral Penicillin therapy on par with parenteral administration.

PENIVORAL is the trademark for Phenoxymethyl Penicillin or Penicillin V, a new form of Penicillin absolutely stable and unaffected by gastric acid.

It extends the use of oral Penicillin therapy to a large number of serious infections.

- * PENIVORAL: 12 scored tablets of 100,000 I. U. of Penicillin V.
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- * PENIVORAL-TRISULFAS: 100,000 I. U. Penicillin V and 150 mg. Sulfadiazine 150 mg. Sulfamerazine 150 mg. Sulfathiazole

- * Stable in Acids—in the stomach.
- * Completely absorbed by the duodenum.
- * Perfectly tolerated.
- * Same activity as parenteral Penicillin therapy.

Literature from:
FRANCO-INDIAN UNITED LABORATORIES.
Bapnu Ghar, Hornby Vellard, BOMBAY 18.

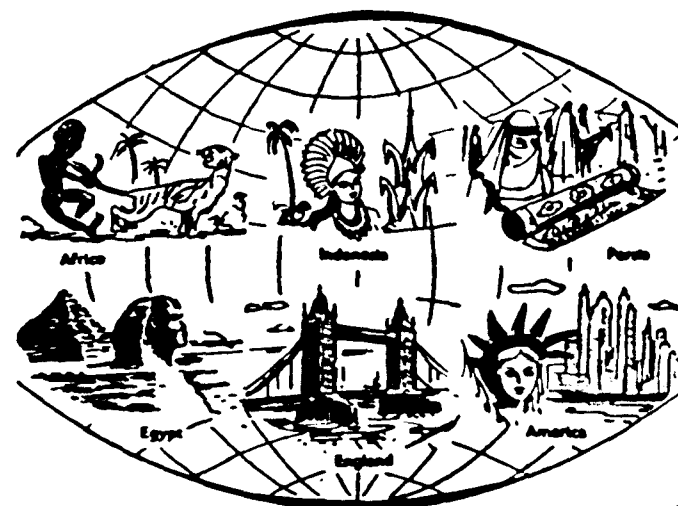
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 containing glycerophosphates,
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 calcium and lecithin.



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TABLETS

Isonizid 50 mg. in each tablet with high concentration of multiple vitamins Di-Cal. Phos. and Iron. Specific drug and tonic value in one and the same tablet.

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INJECTABLE &
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Multiple vitamins in pleasant tasting liquid and painless Injectable. Vimix Liquid provides Vitamin B12 and Folic Acid also for the first time in a multivitamin preparation.



"Thank you, Doctor!"

There's a world of feeling in those three words. They speak of confidence in your quiet competence, and express gratitude for your healing technique. They acknowledge a favour, a debt at restoring to new life a husband or wife, a father or mother, a son or daughter, a brother or a sister. They speak, above all, of your amiability, your warm kindness. There's reverence in those words, and an undertaking, a pledge to do as you say!

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Where selective essential and adequate nourishing requirements are indicated for overcoming debility, malnutrition, deficiencies and in convalescence, Alembic SHARKOFERROL is the rational choice.

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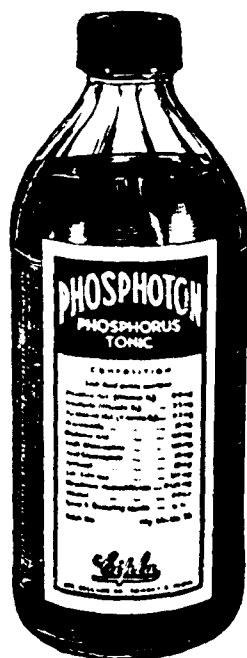
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after day's tiring work..

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Tonic Restorative

- **REFRESHING**
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PACKAGES
16 oz., 8 oz. & 4 oz.
BOTTLES.

Phosphoton is an excellent combination of Vitamins, Glycerophosphates, the stimulating nerve tonic Kola, the appetite giving Nux-Vomica and Glutamic Acid in a very palatable form.

Phosphoton removes fatigue and is refreshing, invigorating and appetising. Phosphoton can be taken either alone or diluted with water.

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Ritalin[®]

a mild stimulant

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For
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... from CONJUNCTIVITIS TO TRACHOMA ...

Supplied in : 1% Enteromycetin
Ophthalmic Ointment
in 3.5 gm. (1/8 oz.) tubes.

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HEADACHE
COLD
TOOTHACHE
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WILL NOT UPSET
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DOES NOT HARM
THE HEART

'ANACIN'

is a combination of 4 medically
proven active ingredients

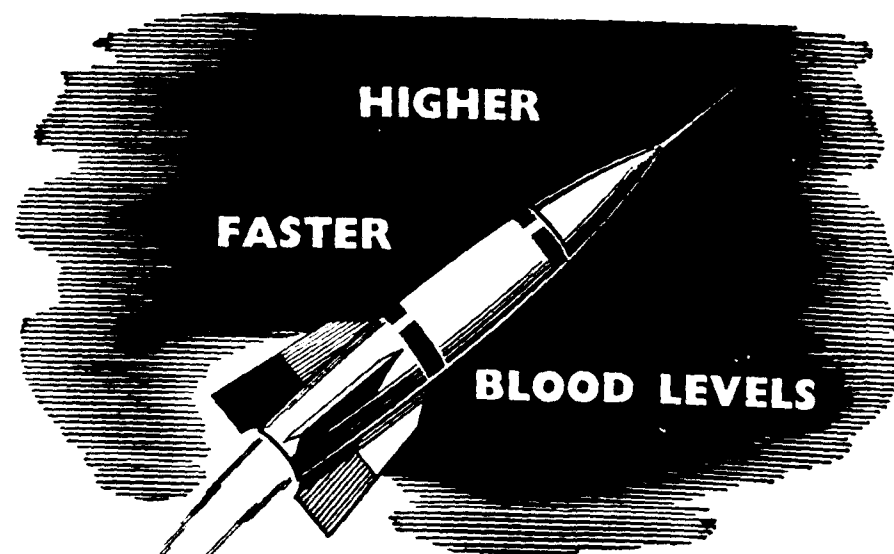
1. Quinine 1/2 gr.
2. Caffeine 1/2 gr.
3. Phenacetin 3 gr.
4. Acetylsalicylic Acid 3 gr.

These 4 medicines provide powerful synergistic action against neuritis, neuralgia, muscular pain, headache, toothache, influenza and dysmenorrhea. 'Anacin' is a non-toxic and clinically dependable preparation with powerful analgesic and antipyretic properties. A single dose of 1 or 2 tablets will achieve a prolonged period of analgesia and impart a sense of well-being.

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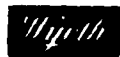
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oral penicillin*

- Eight times less toxic than injected penicillin G
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DOSE: 1 or 2 tablets three times a day or as recommended by the physician.

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Tubes of 20 tablets.
Bottles of 100 and 500 tablets.

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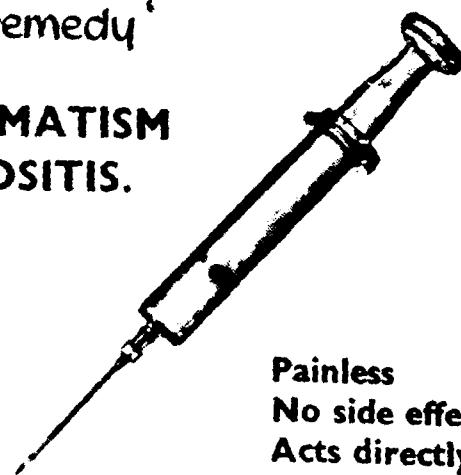
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No side effects
Acts directly
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EUPRAGIN

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For Intramuscular Injection

Composition:	5 cc.	10 cc.
Each amp. contains:	Amps.	Amps.
Sodium Sulphate	0.24 g.	0.48 g.
Potassium-Sodium Tartras	0.05 g.	0.10 g.
Para-Aminobenzoyldiaethyl- aminoethanol-hydrochloricum	0.05 g.	0.07 g.

Packing: 5 amps. & 50 amps. Boxes.

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FERRING A B, MALMO, SWEDEN, a pioneer in hormone research, has now entered into a collaboration arrangement with KHADELWAL LABORATORIES PRIVATE LIMITED, Bombay. Using Ferring's technical know-how, Khandelwal's will progressively manufacture these hormones locally, making yet another contribution to the country's health.

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KH-104

Just one capsule a day

Plastules with Vitamin B₁₂ represents a practical, common-sense approach to the management of all nutritional anaemias. Given in a ONE-A-DAY dosage schedule, Plastules provide the following essential factors for a speedy haemopoietic response:

- ★ Vitamin B₁₂
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PLASTULES B₁₂
HAEMATINIC COMPOUND

Packing: Bottles of 30 and 300 capsules

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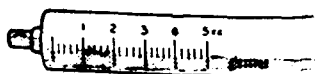
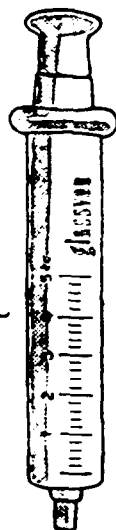
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standard interchangeable precision



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Made of selected non-corrosive heat resistance glass... guaranteed to render long, useful service... individually fitted, calibrated and graduated... withstand extreme shock and thermal changes... tips are extra-strong and

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Manufactured in India with Japanese collaboration

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Combination in various uses from
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A multivitamin product with Calcium, Phosphorus and Glycero-phosphate in a palatable and nutritious malt base to check the state of malnutrition in CHILDREN, ADOLESCENTS and ADULTS in the most effective way.

PACKING : 1 lb. Jar.

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A drug of choice for the treatment of Hyperemesis Gravidarum, Motion sickness, radiation sickness in neuritis due to I.N.H.

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Each 30 ml. contains :

Pyridoxine Hydrochloride U.S.P.	... 40 mg.
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Flavoured Syrup	Q.S.

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Lewis, R., and Levine, S. A.: Current Concepts in Digitalis Therapy. Boston, Little, Brown & Company, 1954, p. 21, par. 2.

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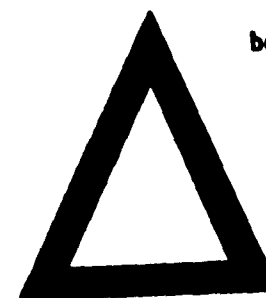


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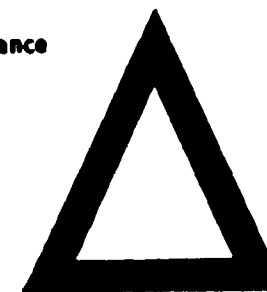
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Cortisone
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5 mg. tablets according to the formula:
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VIALS OF 10 & 20 TABLETS

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Vials of 15 tablets of 5 mg.
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Particulars, Literature, Etc. From
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Bapu Ghar, Hornby Vellard, BOMBAY 18.

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5% Glucose in 45% Sodium Chloride

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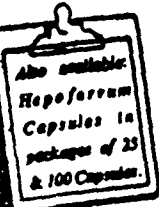
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Graphic 228

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Dextrose Monohydrate 98.4
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Calcium Glycero-phosphate 0.2
Calcium Phosphate 0.4
Each ounce of Glucovita is fortified with 200
I.U. of Vitamin-D (Calciferol)

Agents for India: Perry & Co. Ltd.

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SAFE**A DEPENDABLE REMEDY FOR
STOMACH DISCOMFORTS**MIXTURE**IN 4 OZ & 16 OZ BOTTLES
WITH OR WITHOUT OPIUM

The relief afforded is soon observed as it rids all pain, facilitates digestion, neutralises excess of acidity and dispels the flatulency in bowel complaints it has been taken with decided success. Recommended by the Medical Profession.

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IN WATER AFTER
FOOD WILL RELIEVE
ALL PAINSC. HEWLETT & SONS (INDIA) PRIVATE LTD.
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ASTHALACK for Asthma

For BRONCHIAL
ASTHMA
SPASMODIC
COUGHS AND
EOSINOPHILIC
LUNGS

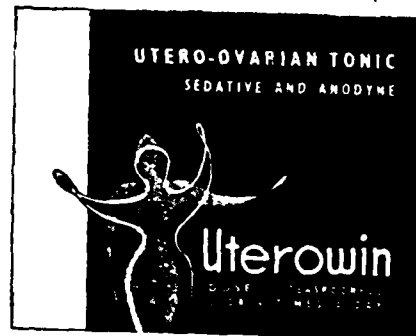
Asthalack is a synergy, composed of Highest active antispasmodics, dilator of the bronchi, cardiac tonic and expectorant.

Contains:—Aminophylline, Cocillana, Euphorbia, Caffeine Tribolide, Grindelia, Lobelia, Senega, Ephedrine, Belladonna, etc. etc.

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A supreme tonic in the field of Gynaecology
Vitalises the Neuro-Endocrine functions of the female generative organs

Contains:—Alettris, Viburnum Prunifolium, Hydrastis, Piscidia, Erythrina, Extract of fresh Ovary, Placenta, Hyoscyamus, Pot. Bromide etc. etc.

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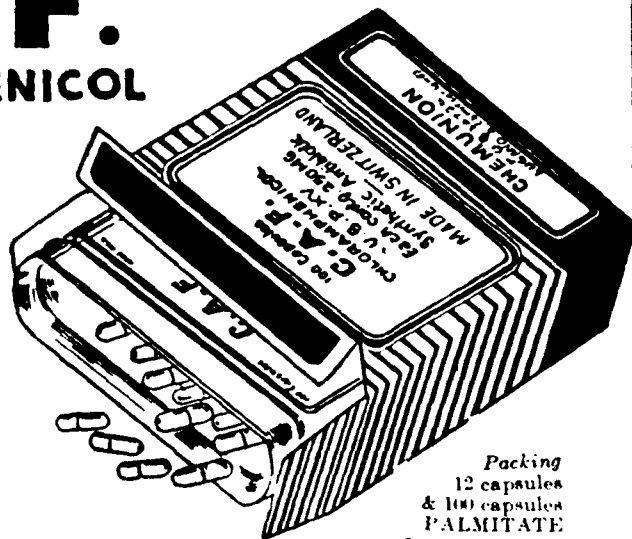
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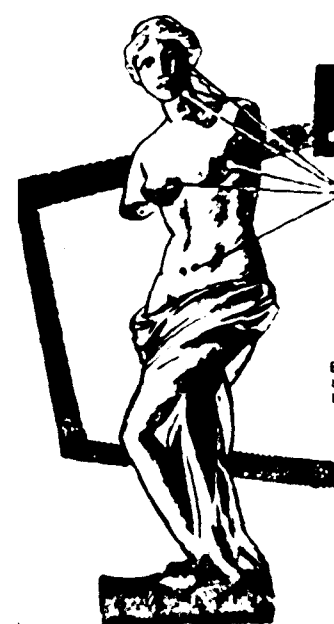
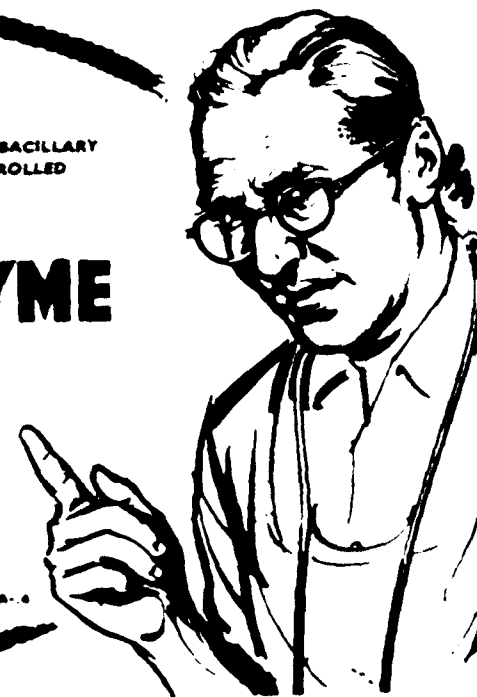
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Editorial & Publishing Office: 323-24, Thambu Chetty St., Madras-1

Annual Subscription: Rs. 7-50 nP. Foreign—Rs. 10—Post Paid

Vol. 56

FEBRUARY, 1959

No. 2

Original Articles

OBLITERATIVE VASCULAR LESIONS OF THE LOWER LIMB*

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OBLITERATIVE lesions of the blood vessels of the lower limb are frequently observed and a fair proportion of such cases require an amputation in the later stages of the disease. Symptoms of tiredness on exertion, postural changes in the colour of the toes are observed to begin with, but in the established form intermittent claudication develops followed by gangrene of the toes and the distressing pain of ischaemic neuritis.

Buerger's disease in its classical form is uncommon and the cases of vascular obstruction can be classified into four groups, (Boyd) viz., (1) Primary popliteal artery thrombosis—of congenital origin; (2) secondary popliteal artery thrombosis, which is usually secondary to trauma to the limb often associated with a fracture of the femur or the tibia; (3) juvenile arteritis—the digital arteries are usually affected and fungal infection of the toes often exists. The absorbed toxins from the fungal infection might be contributory to the thrombosis of the blood vessels, and (4) senile arteritis, which type of lesion accounts for the majority of patients and which is due to arterio-sclerotic changes in the blood vessels. Pre-senile arterio-sclerosis in a young adult is often observed. Diabetes, chronic renal insufficiency, and luetic infection are some among the several causative factors.

Estimation of the skin temperature before and after induced vasodilatation has been an established method of investigating

* Specially contributed to the ANTISEPTIC.

vascular disorders of the lower limbs. Unfortunately these tests do not often give us a correct picture of the circulation in the muscles of the limb, where the pain of intermittent claudication has its origin. It is quite possible to get symptoms of intermittent claudication, due to ischaemia of the calf muscles, in a patient who shows good colour of the toes. The vasomotor control of the arterioles in the muscles of the calf may function independently, and often antagonistically to that of the vessels supplying the skin of the foot (Barcroft¹). Lumbar sympathectomy may be followed by improved circulation of the toes enabling areas of cutaneous gangrene to heal, but the symptoms of intermittent claudication may remain unaltered. Plethysmography, or the estimation of changes in the volume of a limb, before and after vaso-dilatation, is a better index of the blood supply. Microplethysmography, utilizing the volume changes in a finger or a toe, is a more convenient method of estimation, (Goetz³). Visualization of the vessels of a limb by arteriography gives a vivid picture of the site and extent of the block, and also indicates the extent of collateral circulation that has developed. The conventional arteriogram achieved by injecting the common femoral artery does not visualize the aortic bifurcation or the iliac vessels which account for a good few cases of intermittent claudication. Aortography by the trans-lumbar percutaneous route, is a simple and safe procedure for the visualization of the aortic bifurcation (Nigam¹). Using 50% diodone as the radio-opaque medium, sixty cases have been studied by this procedure with hardly any complications. (See Figs. 1 to 3).



FIG. 1. Normal aortic bifurcation. (Aortography)



FIG. 2. Obliteration of right common iliac artery.

The treatment of vascular obstructive lesions in the lower limb depends upon the degree of occlusion. Early cases respond

well to medical measures using vasodilator drugs. Adequate attention to the cleanliness of the toes and feet and protection



FIG. 3. Obliteration of left common iliac artery.

against trauma, by means of a proper foot gear are important. Intra-arterial injections of Hydergine, or Priscol are valuable in the early stages, but in patients with frank gangrene and severe ischaemic pains, I have not found these to avail. Lumbar sympathectomy is a good operation in patients showing a high vasomotor index. As already mentioned the symptom of intermittent claudication may not improve. The anterior extraperitoneal approach gives a good exposure of the lumbar sympathetic chain, and sympathetic ganglia from L₂ to L₄ are removed. The emphasis thus far given to an entirely preganglionic sympathetic denervation is not justified from clinical experience. In advanced cases with established gangrene and severe neuritic pains, amputation above the knee is the only suitable method of treatment. It may be possible to lower the level of amputation by a preliminary sympathectomy in a suitable case and a patient may be able to walk on a heal stump after a Chopart's amputation.

With improvement in the technique of vascular surgery, and an accurate localization of the level of block, especially in thrombotic lesions of the iliac and the femoral arteries, a more direct operative interference has produced better results. Thrombo-endarterectomy or intra-luminal removal of the organized clot, has a definite, though limited field of application. Some of the cases treated by this procedure show improvement in circulation but in the majority the cleared segment of vessel undergoes further thrombosis. Replacement of the obliterated segment by an autogenous vein graft, or a homologous arterial graft or a nylon prosthesis is an ideal procedure in a suitable case (Linton¹). Since dissection of the diseased artery damages the valuable collaterals in the immediate vicinity, a shunt procedure by which the obstructed segment is by-passed is a better operation. Selection of the cases has to be very carefully done in order to achieve a functioning shunt. A young adult with intermittent claudication, showing a segmental block in a large proximal artery is most suitable for this operation. It is difficult to procure a suitable homologous arterial graft, and in a series of cases reported in this paper (See Table I, p. 88) either

a vein graft utilizing the long saphenous vein, or a vascular prosthesis of Dacron has been employed as shunts. The results have been encouraging but the long term follow-up has not yet been studied.

TABLE I

Case No.	Site of block	Operative procedure	Result
1	Femoro-popliteal	Thrombo-endarterectomy	Fair. Claudication relieved
2	Common femoral	Do.	Temporary relief. Amputation required later
3	Femoro-popliteal	Vein graft shunt	Fair. Claudication relieved
4	Common iliac left	Dacron prosthesis	Fair. No claudication
5	Common and external iliac left	Dacron prosthesis	Fair. No claudication
6	Femoral (common)	Vein graft shunt	Fair. No claudication

Summary.—1. Obliterative vascular disorders of the lower limb are frequently observed, and lead to a loss of the limb in the later stages of the disease.

2. Tests based on the skin-temperature estimations are not reliable indices of the overall circulation in a limb. Plethysmography is a better method of estimation.

3. Aortography by the trans-lumbar percutaneous route is a simple and safe diagnostic procedure. Cases of vascular disorders due to a blockage at the aortic bifurcation or the iliac and common femoral arteries can be diagnosed.

4. Lumbar sympathectomy improves the blood supply of the skin of the foot but does not improve intermittent claudication.

5. The usefulness of direct surgery to the diseased segment of the artery by thrombo-endarterectomy or vascular grafts is emphasized, in suitable cases. Illustration is given of cases personally observed.

Acknowledgement.—The author is grateful to the Dean of the Medical College, Nagpur, and to the staff of the Department of Surgery for their co-operation and help in the clinical work reported in this paper.

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THE URETHRAL MEATUS AND CIRCUMCISION

From Chicago comes an instructive report. Berry and Cross (1956) measured the external urinary orifice in a large number of circumcised and uncircumcised men and infants. About 60 per cent. of the circumcised adults had a meatal size of 20 F. or less, as compared with only 25 per cent. in the uncircumcised series. Another significant finding was that men undergoing the operation early had a higher incidence of meatal narrowing than did those circumcised later. Only 30 per cent. of the circumcised infants had a meatal opening of 14 F. or more, but 53 per cent. of the uncircumcised group were in this category. The relationship between early circumcision and the development of meatal ulcer with secondary stenosis was correlated in this study. —(*The Med. Ann.*, 1958).

CLINICAL WISDOM IN AYURVEDA*

(With Special Reference to the Method of Describing the Natural History of the Disease-Process)

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THE Semeiography (symptomatology) of Ayurveda has made clinical classification of symptoms in such a way as to give a clear picture of the time-relation: i.e., the time and sequence of manifestation of each group of symptoms. The method critically bears co-ordinated relation with the various stages of the pathogenesis or the natural history of the disease and hence it serves very practical and useful purposes *namely*: (1) Facilitates the diagnosis of the disease-condition in its earliest stage and (2) thereby controls the spread of the disease in its initial stage and also signifies and guides the kind and degree of medication required at the moment of the development of the particular group of symptoms.

Susruta the practical exponent of the scientific medicine of that age evolved an ideal method of classification of symptoms in hexaphasic chronological stages. This enabled the physicians to penetrate deep into the patient's condition and perceive meticulously minute and subtle variations in the appearance, and behaviour of functioning and then start appropriate treatment at this early stage of the disease. Susruta divides them into the six stages given below:—

संचयं च प्रकोपं च प्रसरं म्यान संश्रयम् ।

व्यक्तिं भेदं च यो वेति दोषाणां स भवेद्भिषक् ॥ सु. सू. २१. ३६.

He who knows the various stages of pathogenesis *viz.*:— summation (संचय), provocation (प्रकोप), diffusion (प्रसर), localization (स्थानसंश्रय), manifestation (व्यक्ति) and termination (भेद) is entitled to be a physician.

The first three stages pertain to the period during which the whole personality reacts as one biological unit and endeavours with all available defensive measures and mechanisms to counteract and nullify the maleficent effects of the external or internal pathogenic agent and maintain the innate homeostasis or equilibrium of milieu interne. The total personality reacts nearly in the same single stereotyped way to all kinds of stress—physical, chemical or biological and elicits an integrated syndrome of interrelated group of symptoms *i.e.*, *Dosha* reaction. The agents may be of any kind but body reactions are of only one type *i.e.*, non-specific triumvirate *Dosha* reaction. The degree of reaction may vary according to the intensity of the pathogenic agent and

* Specially contributed to the ANTISEPTIC.

also to the power of resistance of the individual constitution and conditioning factors.

Charaka establishes the importance of the study of the Dosha-vitiation conditions because of their practicability.

नत्त्रयाधयोऽपरिसंख्ये या भवन्ति, अतिबहुत्वान्;
दोषास्तुखलु परिसंख्ये या भवन्ति अनतिबहुत्वान्।
नस्माधथाचित विकारानु दाहरणार्थम्,
अनवशेषेण च दोषान् व्याख्यास्यामः।

प. वि. ६. ५.

Disease-conditions are innumerable, and unlimited. The *Dosha*-vitiation-conditions are on the contrary strictly numerable, and limited. Hence as regards the disease-conditions, I shall instance only those that are described by the ancients, but with regard to the *Dosha*-vitiation conditions I will give a complete exposition.

Vagbhata enhances the importance and utility of the above statement by a further explanation:—

सर्वेषुतेषु अनुक्तेषु चान्येष्व संख्येयत्वाद्धिं करोष्वि
मान्येव दोषा नामान्मर्लिगानि सकल्यारीत्यापीयन्त्यभि चारीणि च।
तथा कर्माण्युपक्रमश्च।

अ. च. सू. २०.

In all *Dosha*-vitiation conditions as well as in all the numerous disease-conditions, these specific signs and qualities of *Dosha* that initiate the disturbance of health make their appearance early by pervading the whole body, remain invariably there throughout the period of illness, manifest the action of those qualities and serve as indication for the exact line of treatment required at the time.

It is very happy and inspiring augury to find a great similarity between the concept of the initial three stages of Susruta and the fascinating recently evolved new concept of stress by Dr. Hans Selye, a master-architect in Experimental medicine and surgery. He has indeed revolutionized the concept and natural history of the disease in the modern times. The new Hippocratic School, the psycho-somatic school, the proponents of the total personality and Ayurvedists will ever remain grateful to the Experimental studies of Dr. Selye that contain clues to the general unitary concept of a man's life and his destiny. Ayurveda will have reason to be profoundly grateful because its ideal scheme evolved in the East in ancient times has been revived and widened and enhanced in scope by this great Western Scholar and Savant. This clearly demonstrates that any person regardless of country, creed or nationality can contribute to and

enrich the common pool of knowledge, and can lay claim to such outstanding contribution. Dr. Selye calls the entire non-specific response the "General Adaptation Syndrome," (G.A.S.) emphasizing that it evolves in three stages: *viz.*, (1) The Alarm Reaction (A.R.), (2) the Stage of Resistance (S.R.), and (3) the Stage of Exhaustion (S.E.). (The Alarm reaction has two phases *viz.*, the Shock and Counter-shock).

The description given by Susruta of the primary three stages nearly common in all pathological conditions, the sequence of emergence of symptoms in each stage and their significance in therapeutic application, will now be considered.

The first stage of summation (संचय) :— There is first an increase or accumulation of pathogenic elements in the body. Ayurveda believes in the unity of the science of physiology and pathology as did the great physiologist Claude Bernard. It has evolved the concept of the triumvirate of pathogenesis or the *Tridosha* pathogenesis; the three basic integrative organizations, *namely*: *Vata*, *Pitta* and *Kapha* are the determinants of health as well as of disease. When all these three are normal and well-balanced they behave as fundamental functionaries of the physiological state of health of the living organism. When abnormal, imbalanced or disorganized they are the determinants of the pathogenetic and pathognomonic phenomena of the disease-condition.

रोगान्तुदोषवैषम्यं दोषमाभ्यमरोगता।

अ. सं. सू. १.

Susruta classifies the integrative syndrome of the summation stage into the three primary integrative organizations and considers this stage to be first in importance for practical therapeutics.

The second stage of provocation (प्रकोप) :— This is the provocative reaction of the members of the triumvirate that have reached the maximum point of increase and are at this moment irritated and provoked by an extraneous excitant aetiological factor, endogenous or exogenous. Susruta ascribes definite syndromes to the provocative stage of each of the triumvirate, and considers this stage to be the second in importance for practical therapeutics.

The third stage of diffusion (प्रसर) :— Susruta strikes an exceedingly astonishing note when he tries to explain this process of diffusion:—

In this process of diffusion of the vitiation process, the triumvirate provoked by the excitant aetiological factors begin to increase just as the combination of rice flour water and yeast give rise to increase (fermentation). And increase naturally leads to overflow and a spreading in the body.

The vitiating effects spread and continue to circulate in the whole body, just as clouds do in the sky till they find sufficient attraction for settling or definite obstruction to proceed further and produce the disease condition at that site. Susruta describes a definite syndrome indicative of the diffusive stage of each of the triumvirate and considers this stage as the third in importance from the therapeutic point of view.

Susruta classified the integrative syndromes of these three stages in three categorical grouping of *Vata*, *Pittha* and *Kapha*.

(मन्थक्रेष्ठा)—Stasis or stiffness of the abdomen; (पूर्णक्रेष्ठा) Fullness of the abdomen; (पीताम्बु) Yellowish tinge—icteroid tinge; (मन्दोष्णता)—Hypothermia—low temperature; (अङ्गानां गौरव)—Heaviness of the limbs; (आलस्य)—Lassitude; and (चयकारणविवेक)—Repugnance for the causative factors.

The symptoms of the second provocation stage are similarly classified in three categories of *Vata*, *Pittha* and *Kapha* :—

(क्रेष्ठ तोद)—Pain in the abdomen; (क्रेष्ठ संचरण)—Excessive movement in the abdomen; (अम्लीका)—Acid eructation; (परिदाह)—All-round burning sensation; (अन्नवेष)—Aversion to food; (हृदयोत्कलेद)—Nausea; and (अस्वास्थ्य)—General feeling of being just sick.

The symptoms of the third of Diffusion stage, as grouped in three categorical classifications are :—

(वायोविमर्गमन)—Misperistalsis; (आटोप)—Painful fullness and gurgling in the abdomen; (ओष)—Discomfortable heating sensation; (जाद)—Scorching sensation; (परिदाह)—All-round burning sensation; (धुमायन)—Fuming sensation; (अरोचक)—Anorexia; (अविपाक)—Indigestion; (अक्लसद)—Exhaustion—fatigue; (हर्दि)—Vomiting; (रोगसम्भव)—Emergence of specific disease.

Susruta, while teaching wants a physician to know necessarily the six chronological stages of the disease-condition also recites in the next verse the rationale of the study of the chronological order of the disease.

संचयेऽपहृता दोषा लभन्ते नोत्तरागतीः ।

तेतूतरासुगतिषु भवन्ति बलवत्तराः ॥

सु. सू. २१.

Vitiation process checked or subdued in the summation process, fails to produce any further development; but allowed to progress and develop it gains in strength and intensity. Thus is explained the reason for a thorough study and diagnosis of each stage from the practical therapeutic point of view.

Treatment will be easier and simpler when started in the earlier stage than when started late when the vitiation process has gained momentum intensified.

As these three stages exhibit non-specific reaction, treatment is also by means of non-specific measures. In Ayurvedic parlance, these are the stages of *Dosha*-disturbances, hence the treatment is to be directed to regain the equilibrium of *dosha* and the original homeostasis and to establish again the equanimity of psychosomatic condition of man.

Dalhana, commentator of Susruta Samhita expounds these points and explains that :—(1) if the treatment is started early—mild treatment will be necessary but if started late intensive treatment may be needed; (2) if the intensity of morbidity is excessive the treatment should be of the purificatory type (शोधन), if moderate, fasting and digestive (लयन पाचन) therapy are indicated and if very low, the sedative therapy (शमन) is to be applied.

Each of the above therapies is further sub-divided to suit the three categories of *Vata*, *Pittha* and *Kapha* organizations. Not only that, an endeavour is also made to achieve co-ordination with each and every quality of these integrative organizations. To attain this ideal of easy comprehension and exactitude the ancients reduced the therapeutic science almost to a mathematical formula. Ingestion of food and drug was the sole method of administration at that time and hence taste (रस) which was the main index, was grouped into six categories to fit easily with the three categories of the three primary organizations of *Dosha* (देव) and there was further evolved the general formula co-ordinating each of the triumvirate with a group of three of the taste categories. One group of three increasing and the other group of three decreasing the force of each of the *vitia* or the *doshas*.

The mathematical formula concerning *Dosha* (देव) and *Rasa* (रस) did not end there. As *Dosha* was worked out by the combination and permutation method to 63 forms, so *Rasa* was also worked out into 63 forms by the same method.

इति त्रिषष्टिर्द्रव्याणां निर्दिष्टा रस सप्तयथा ।

त्रिषष्टिः स्यात्तु असंख्येयारसानुरसकल्पनात् ।

रसान्तरमाभ्यां तां संख्यामति पतन्ति हि ॥

च सू. १६.

In this manner are the substances divided into 63 groups according to the distribution of tastes. This number of 63 swells into an incomputable figure when the after-tastes are taken into account; likewise if the comparative and superlative degrees of tastes are taken into consideration the sum goes beyond computation.

Moreover *Dosha* was also considered in its comparative (तुल्य) and superlative (तम) state, so was also *Rasa* co-ordinated with *Dosha*.

प्राधान्यं पुनर्दोषाणां तरतमाभ्यामुपलभ्यते । तत्तद्वयोत्तरः,

त्रिषु तम इति ॥ १२ (३) ॥ च. नि. १.

The predominance of morbid vitia is described in terms of comparative and superlative degrees. The comparative is used with reference to two and the superlative to all the three vitia.

And last but not least important is the subtle calculation of each of the qualities of the three vitia.

समवेतानां पुनर्दोषाणामंशांशवल विकल्पो विकल्पोऽस्मिन्नर्थे ॥ १२ (५) च. नि. १

'*Minutia*' in the context is used to signify precise minute pathological changes in subtle part or quality of each of the vitia. Thus the mathematical formula of inter-relation is the most significant attainment of exactness and precision conceived and achieved by the ancient authors of Ayurveda in practical therapeutics.

In this period the treatment is directed against *Dosha* (दोष) utilizing the purificatory (संशोधन) or sedative therapies (संशमन). These are all therapies of the non-specific type, and any of them will uniformly produce almost the same type of reaction in the body. They may stimulate the body resistance forces and activate all defensive mechanisms, as an emergency measure, and also fight the pathogenic invaders.

चतुष्पकारासशुद्धिः पिपासा मारुतातपौ ।

पाचनान्युपवासश्च व्यायामश्चेतिलङ्घनम् ॥ १८ ॥ च. सू. २२

The four modes of purification, subjection to thirst, exposure to wind and sun, the use of digestives, having recourse to fasting and exercise, constitute the ten methods of the lightening therapy. In addition to these oleation (स्नेहन), sedation (स्वदन), depletion of blood (रक्तश्राव) or cauterization by heat (अग्निक्लम) are the main non-specific agents used as therapeutic measures during the three initial stages. These therapeutic measures are further classified and used in accordance with the intensity of the morbidity of the triumvirate. Most of these therapeutic measures will conform to Dr. Selye's, as they will be acting as non-specific stressors. These are the observations of clinical science. How they act, is a problem to be decided by experimental science. In consideration of the significance of the terms used in Ayurveda, it may be conjectured that the first stage may be the phenomenon of the encounter of the pathogenic agent with the power of vital resistance in man. The second stage indents on the services of the autonomic nervous system and the third stage brings into play the endocrine glandular system. This period is considered as the incubation period in general medicine.

The Second Act in the Drama begins when the pathogenic stressor is not subdued, but freely circulates in the body, and selects out a favourable spot where it settles down to continue and spread its mischief in that particular area. This is the birth

or emergence of the specific disease. As soon as the local tissue-organ or system is attacked, it behaves in the same way though on a smaller scale as the whole body reacted in the initial stage. This is considered as the prodromal stage of modern medicine and Susruta designates it as the fourth stage or *Paravagrapa* (उर्वम्प). This stage of localization is of the greatest clinical importance for the early diagnosis of the specific disease-condition. The vitiating elements once having obtained a foothold, gradually establish themselves there and produce symptoms indicative not only of the vitiation of the particular vitium or vitia but also of the particular tissue-organ or system which was the breeding place of the pathogenic elements and the source for the further spread of their harmful effects. These combined symptoms help to diagnose the site or locality of the disease condition (व्याधि) and decide the line of treatment required for the early stage of the disease (व्याधिनिर्दिष्टा) as well as for the accompanying *Dosha* disturbance (दोषाविकल्पा). Susruta the master-clinician, differentiates the symptoms produced during this stage of localization of the vitiation process, as the definite prodromal or premonitory symptoms. As these symptoms are specific as regards the particular organ or tissue (व्याधि) they are described under each individual disease.

तेषामेवमभिसंनिविष्टानां पूर्वरूपप्रादुर्भावः तेषानि रोगवक्ष्यामः ।

तन्पूर्वरूपगणेषु चतुर्थः क्रियाकालः ॥ ३३ ॥

सु. सू. २१

"The premonitory symptoms are manifest when the vitiation process becomes located in a particular place. They will be described with the description of each individual disease. This prodromal stage is the fourth period for the therapeutic measures."

Prodromal symptoms are described in modern medicine in some of the diseases but not systematically in a regular way in the natural history of all the diseases. Ayurveda has however, adopted it as a definite part of the description and clinical study of all diseases. Charaka says :—

तस्योपलब्धिनिर्दिष्टान् पूर्वरूपं लिङ्गोपशयसंप्राप्तितः ।

The all-comprehensive knowledge of the natural history of the disease is attained by the quinary clinical methods of study. The description of symptoms of this fourth stage is very interesting and instructive. It is a mixture of symptoms produced by the local organ or system affected (specific : व्याधि) as well as those of the general vitiation process (non-specific : दोष).

This state is again further subdivided into two stages. The first, where the specific symptoms of the local lesion are very

conspicuous and prominent ; this is called the general prodromal stage (सामान्यपूर्वक).

भ्रमोऽति विवर्णत्वं वैरस्यं नयनप्लवः ।

उच्छाद्वेषौ मुहुश्चापि शीतवातातपादिषु ।

The symptoms are very mild and hardly noticeable as the local disease is just emerging and is only in the seed stage (व्याधि बीज आरम्भक). In this are included some symptoms clinically observed during this period but an explanation of how they are produced is difficult to find.

दोषदर्शनमदोषेषु अपि भावेषु (पात्रोदकान्नसूपापूपदंशपरिवेषकेषु) ।

मक्षिकाधुगकेशानां तृणां पतनानि च प्रायोऽन्नपाने ।

बाह्वोश्च प्रमाण जिज्ञासा ।

These data make the clinical study of this stage very entertaining. The second stage is called the particular prodromal stage : (विशिष्ट पूर्वक).

विशेषात् तु जम्भाऽप्यर्थं समीरणात् ।

पित्तात् नयनयो दहिः ।

कफात् न अन्नाभिनन्दनम् ।

And here is the noticeable mixture of symptoms due to the local organ or system affected and those of vitium or vitia influencing the disease-condition. This two-stage classification is done in order to facilitate therapeutic application. In the first stage, mild specific treatment is indicated and in the second specific combined with some non-specific treatment is indicated ; this latter may be in the form of *Anupana* (अनुपान).

Specific treatment indicated in this prodromal stage (पूर्वक) and the specific treatment indicated in the fully developed disease stage (व्यक्ति) differ not only in quantity, (smaller in the former and larger in the latter) but may sometimes also differ in quality. To emphasize this possibility and explain this qualitative difference in the therapeutic measures in these two consequent stages, viz., fourth and fifth, Susruta makes the following clever statement comparing them to the smoke-stage and actual fire-stage.

रूपं प्राग्रूपयोर्विद्यान्नानात्वं बन्धिधूमवत् । १०० । सु. उ. ३९

Dalhana further explains the above statement :

अथनक्ज्वरे स्नेह संशोधनवर्जनात् कथं पूर्वरूपे तदुपदेश इत्याह —रूपप्राग्रूपयोरित्यादि ।

रूपप्राग्रूपयोः नानात्वं पृथक्त्वं बन्धिधूमवत् विद्यात् । बन्धिधूमहृष्टां तेन नानात्मनयोः

नष्टपरादिवत्, अतोऽनयोर्ज्ञाने यत्नो विधेयः ॥

This simile is given in order to point out that as the means to control the smoke stage and the fire stage may differ qualitatively so also the treatment in the prodromal stage and actual manifestation stages may also differ qualitatively at times.

The fifth stage is the manifestation of actual disease-condition which Susruta designates as manifestation, meaning the actual appearance of clinical phenomena of the fully developed disease-condition.

अतउर्ध्वं व्याघेर्दर्शनं वक्ष्यामः ।

The actual manifestations of the disease, will next be dealt with :—

This disease condition may be of a system, organ, tissue or one part or limb according to the location of settling and establishing of the pathogenic elements. This is the beginning of organic or structural changes in the body. This disease-condition may be classified in two groups (general and local) and both these groups can again be subdivided into the acute and chronic types. Local diseases are generally termed inflammation of those particular parts or organs and the suffix of '*itis*' is applied to the part or organ affected.

The classification of symptoms is made in the three categories of basic organizations of the living organism to facilitate the line of treatment. Though the symptoms are predominantly of the specific disease it is always accompanied by some symptoms due to disturbance of one, two or three vitia individually or collectively.

Susruta's dictum is quite unambiguous on this point.

विकारजातं विश्वरूपेनावस्तितमव्यतिष्ठि वातपित्तश्लेष्मानोर्कृते । ८ । सु. सू. १४

Charaka modifies this statement by stating :—

सर्व एव निज विकारानान्यत्र वात पित्त कफेभ्योनिर्कृते । च. सू. १९.

All endogenous diseases never occur without the discordance of *Vata*, *Pittha* and *Kapha*, and here he mentions a very interesting point in differential diagnosis.

आगन्तुर्हि व्यथापूर्वसमुत्पन्नो जघन्यं वातपित्तश्लेष्मणां वैषम्यमापादयतिः निजे तु वात पित्तश्लेष्मानः पूर्व वैषम्यमापद्यन्ते, जघन्यं व्यथामभिनिर्वर्तयन्ति । च. सू. २०

The exogenous one begins with pain and later on leads to the discordance of *Vata*, *Pittha* and *Kapha*. But in the endogenous one, discordance of *Vata*, *Pittha* and *Kapha* occurs first and later on gives rise to pain. Susruta also refers to the classification of the disease process into two in the chapter on "Diseases of the Nose," (संशोऽन्नक):—the sudden type and (व्याघेर्दर्शनक) the

systematic. The former crops up suddenly without passing through the regular summation etc.—the three initial stages.

Dr. Selye also pronounces that some manifestations of the General Adaptation Syndrome will unavoidably be superimposed upon the specific changes caused by the specific causative agent of the disease.

Hence the line of treatment will be predominantly specific for the disease (व्याधि चिकित्सा) but it should also be accompanied by auxiliary non-specific therapy (दोष चिकित्सा).

If the disease process is too powerful or even associated or accompanied by complications or sequelæ, the principles of treatment are greatly modified.

Ayurveda terms the sequelæ as *Upadrava* (उपद्रव) and as they appear after the disease has well advanced, Charaka advised to consider them as a serious emergency and hasten to treat the sequelæ (उपद्रव).

स तु पीडाकर तरोभवति पश्चादुत्पद्यमानो व्याधिपरिकलिष्ट शरीरत्वात् ।

तस्मादुपद्रवं त्वरमानोऽभिवाधेत । ४० । च. चि. २१

They are more troublesome than the main disease itself, as they appear in the later stages of the disease when the body has already weakened. Hence, one should be very prompt in the treatment of the sequelæ.

For serious diseases, the ancients developed a special branch of Prescience or Prognostics. There was given very great importance to the knowledge of prognostics and it was incumbent on every physician to find out first whether a particular case was curable or incurable. Charaka divided diseases into four categories from the prognostic point of view.

सुखसाध्यं मतं साध्यं कृच्छ्रसाध्यमथापि च ।

द्विविधं चाप्यसाध्यं स्याद्याप्यं यन्नानुपक्रमम् ॥

Curable diseases are of two kinds:—those that are easily cured and those that are cured with difficulty. Incurable diseases fall into two categories: those that are palliable and those that are absolutely irremediable. The particular groups of symptoms indicating each prognostic category are described, lucidly by Charaka (चसू. १०). But the most interesting and astonishing part is the specialized all-comprehensive study of this branch. Charaka devotes one of the eight sections to this subject and the description runs into twelve chapters. One can see from the section devoted to the Prognostics (*Indriyasthanā*) that dreams and omens, abnormal sights and sounds, unusual deeds and imagination and many other such traits appear long

before the attack of the disease. And some of these symptoms appearing during the illness prognosticate sure death or recovery. These death symptoms are termed as *Arista* (रिष्ट-अरिष्ट) group of symptoms, i.e. *Prognosis infausta*. They are well called by some author as prodromal symptoms (पूर्व-रूप) of death. There is also a description of symptoms of favourable prognosis, *P. fausta*, those of doubtful prognosis, *P. anceps*, those of expectation of life, *P. quad ritum* and those regarding the event of recovery, *P. quad restitus ad integrum*.

Prognostics form an indispensable and unavoidable part in the description of the natural history of the disease in Ayurveda. This knowledge has many advantages as it enables the physician to foresee the emergence of danger; it attracts the confidence of the patient; the physician is free from blame as he has already announced the issue of future difficulties; moreover it gives the physician a decided advantage in conducting the treatment by making necessary preparations beforehand, against possible dangerous turns in the disease-process before they actually occur or advance. So the physician, like the captain of a ship who keeps himself well prepared and ever-ready to meet changes in weather, will be able to treat the patient successfully in all emergencies.

The last stage is the (मेद) terminal stage. This is the last of the three-acts in the drama of Natural history of the disease process.

अत उर्ध्वमेतेषामवदीर्णानां ऋणभावमाप्नोतानां षष्टः क्रियाकालः ।

ज्वरातिसार प्रभृतीनां च दीर्घकालानुबन्धः ।

तत्राप्रतिक्रियमाणेष्वसंसाध्यतामुपयान्ति ।

Henceforth, progressing and passing on to the stage of dissolution is considered to be the sixth period of therapeutic application. There will be prolongation of the disease-condition in case of general disease viz., fever, diarrhoea etc. If these conditions are left untreated, the diseases become irremediable.

In the general disease-condition, the person may completely recover (Resolution) if his body vitality can successfully counter-act the incursion or he may suffer death or dissolution if the invading forces are too powerful for his body vitality to resist; and the disease-condition may persist for a prolonged period, if any of the forces is not able to subdue the other completely.

Similarly in the local disease condition too (in inflammation), there may occur complete resolution or dissolution or death of the local part (Necrosis or gangrene). Local condition has a special method of termination and disposal or elimination of waste or morbid matter. It is the process of suppuration. This

will end in producing the condition of wound (ऋण). Its conclusive termination is not brought about and the chronic inflammatory condition or chronic wound condition such as fistula (नादीव्रण) may continue for a long period.

This is the last or sixth stage of the Disease-process or the sixth therapeutic period propounded by Susruta.

There is nowadays a tendency to classify in such chronological stages the natural history of the disease-process as to facilitate early diagnosis and institute appropriate treatment.

This again confirms the old axiom "There's nothing new under the sun, and we walk where others went." So this trend of classifying the disease process in chronological order is the revival of the Ayurvedic method of classification propounded by the Master-clinician Susruta.

COMPARISON OF OCULAR REACTIONS USING PENICILLIN AND BACITRACIN OINTMENTS IN OPHTHALMIA NEONATORUM PROPHYLAXIS

A total of 7,774 infants was studied by Dr. Margileth in the newborn section of the U.S. Naval Hospital, Corona, California to compare the effects of the penicillin and bacitracin in ophthalmia ointments. The former was used for two years ending in August 1956 and bacitracin ointment was taken then substituted and observed for a year till September 1957.

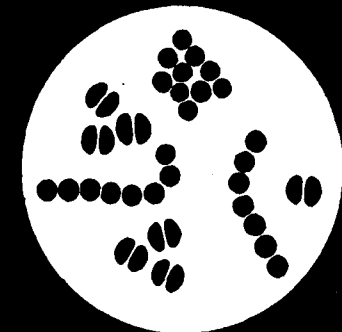
There was a low reaction rate of 1 per cent to either ointment, and no severe reactions occurred. This was expected since there was only one application of the ointment. If the eye remained clear for the first four days after birth and then became inflamed or developed a discharge it was considered a possible infection and not a reaction. If the infant was still in hospital a bacteriologic culture was taken, and of this group a proved infection occurred in 0.1 of the penicillin and 0.4 of the bacitracin series. No gonococcus was cultured, and there were no cases of maternal gonorrheal vaginitis during the study. It is interesting that all the bacteria obtained in the bacitracin group were gram-negative, and no staphylococci were cultured. While the author believes close observation of the newborn infant is better than any prophylaxis, he advocates bacitracin as a safe, effective and non-irritating ointment free from the disadvantages of penicillin.—(*Paediatrics*, 51 : 646).

HAZARDS TO THE EYE IN ANÆSTHESIA

Occlusion of the central retinal artery following major surgery is discussed by Dr. G. Klomp of Gottingen, Germany, who cites a case of unilateral blindness in a woman patient who, the day before, had received inhalation anæsthesia during a two-hour operation. Apparently the arterial occlusion had been caused by pressure on the eye-ball by the tubing of the anæsthesia mask, which had become displaced.

Dr. Klomp reported five similar cases in the literature ; in each one the tubing of the apparatus was on the affected side. In eight other tubing cases, permanent unilateral blindness resulted from pressure on the eyes from a head-rest used in neuro-surgery. During anæsthesia constant control of the face mask is essential to protect the eyes. If a patient complains of visual disturbance after an operation, an examination should be made at once. Only prompt treatment of an arterial occlusion can prevent blindness.—(*Sight Saving Review*, March 1958).

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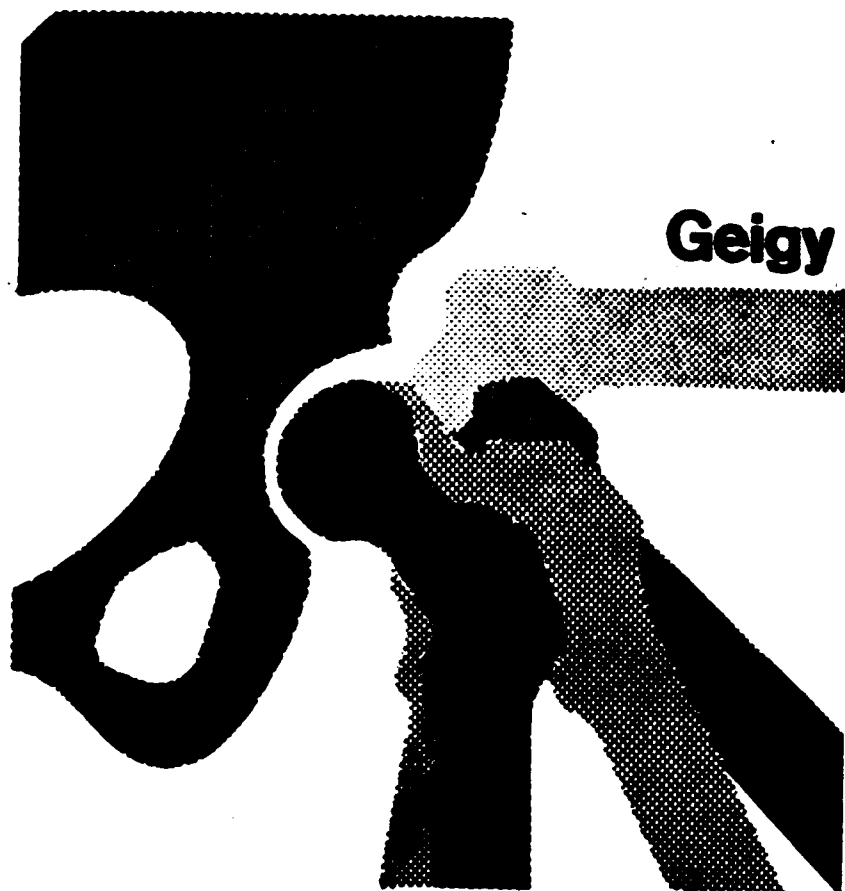
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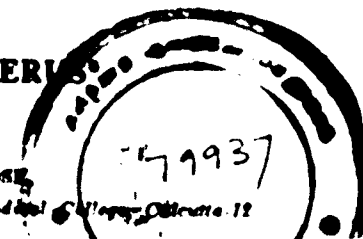
COUVELAIRE UTERUS

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INTRODUCTION:—Couvelaire in 1912 described a condition of hæmorrhagic infiltration of the uterus in a series of concealed accidental hæmorrhage which he designated as retroplacental apoplexy and subsequently this was named after him as "Couvelaire Uterus." Fortunately such extreme cases of accidental hæmorrhage occur rarely and an incidence of 0.7 per cent was reported by O'Donnell Browne (1952). The condition has attracted attention in recent years due to the associated conditions of pre-eclamptic toxæmia in about 95% cases (Crichton, 1950), failure of the clotting mechanism of blood from a state of hypofibrinogæmia in 5 per cent of cases, (Moore 1954), the often associated complication of anuria and the gradual changing trends in its management.

Ætiology:—The coincidence of pre-eclamptic toxæmia is by far the most important factor, though in many instances the cause can hardly be traced. According to Stallworthy (1951), less than 25 per cent have a toxæmic origin, but even the most conservative estimates acknowledge it in over half the cases and according to Crichton (1950), pre-eclampsia is associated in 95 per cent cases. There may be some doubt sometimes in relating pre-eclampsia to abruptio, in deciding which is the cause and which the effect. When a patient is first seen the antecedent hypertension may be lowered as a result of shock or the albumin may first appear in the urine following hæmorrhage as cited by O'Donnell Browne (1952) in about 25% of cases. The other ætiological factors suggested for accidental hæmorrhage like trauma, torsion of uterus, traction on short cord, thrombosis of the veins, essential hypertension, chronic nephritis, vitamin deficiency etc. cannot justify Couvelaire lesions in all cases. It is four times commoner in incidence in multigravida than in primigravida and may occur at any time in late pregnancy, most commonly at about the 34th week i.e., some days prior to full term.

Pathology:—The pathology in the uterus is a manifestation of a generalized catastrophe. Due to the premature separation of the placenta, a great deal of blood accumulates behind the placenta before any is discharged from the uterus, and in addition to the retroplacental clot, the lesion in the uterine wall itself becomes manifest. The muscle at the region of the placental attachment is infiltrated with extravasated blood that ploughs up and injures the muscle fibres—the individual muscle fibres being torn and

Specialty supplied to the Antiseptic.

dissociated from each other. Subsequently there may be isolated small subperitoneal or numerous large confluent hæmorrhages producing the appearance of widespread ecchymosis with a generalized cyanotic coloration. Extravasated blood may be found infiltrating the parametrium of the broad ligaments and splitting of the peritoneum over grossly affected areas may lead to the presence of free blood in the peritoneal cavity. Consequent to these injuries, the muscles of the abdominal wall are in a state of spasm which precipitate shock. Partly because of the extensive infiltration of the uterine musculature with extravasated blood and œdema fluid and partly because of the sudden distention from collection of retroplacental hæmatoma, the uterus is often atonic and loses all power of contraction and retraction. Clinically this is manifested by maternal shock or coagulation defect with uterine tetany and death of the foetus, thus belonging to grade 3 of the classification of Page *et al* (1954). Hæmorrhagic lesions are not limited to the uterus alone but in fatal cases are found in the liver, suprarenals, kidneys, endocardium and meninges. These may also show fatty and parenchymatous degeneration, hæmorrhages and areas of necrosis often indistinguishable from those found in fatal cases of eclampsia.

DIAGNOSIS:—The diagnosis is not very difficult, since the clinical features are often pathognomonic of the condition. Occasionally there are premonitory symptoms like cramp-like pains in the abdomen and a small amount of vaginal bleeding somehow during the last month of pregnancy and a predisposing cause very often of toxæmia may be elicited. The patient is shocked and pale and complains of continued severe abdominal pain. The shock is usually intense and out of all proportion to the amount of blood lost. The pulse is weak and rapid and blood-pressure falling. The uterus is woody, hard, tense and tender and on measurement is found to be enlarging. It is nearly always impossible to palpate the foetal parts and the foetal heart sound is usually inaudible as the foetus is often dead. Albuminuria is often present. This state may be present for several hours until intermittent uterine contractions begin and labour starts. Shock gradually passes off and the patient's condition improves. Labour in such cases is usually fairly rapid—a still-born foetus being delivered followed by the placenta and a huge retroplacental blood clot. In a few cases, however, shock may be very profound and progressive, signs of afibrinogenæmia and oliguria appear and the patient may succumb undelivered.

Maternal and foetal mortality.—The usual maternal mortality in these genuine types of cases of concealed accidental hæmorrhage is probably not less than 7 or 8 per cent, if not more. The principal cause of death is shock from injury to the uterine musculature and internal hæmorrhage and deposition of fibrin in

the pulmonary vascular bed increasing pulmonary tension with dilation of right heart and a fall in aortic blood-pressure to shock level (Schneider, 1954).

Severe uncontrollable hæmorrhage associated with failure of the blood to clot may mark the end of the patient during the third stage of labour—a condition ascribed to be due to afibrinogenæmia following the separation of placenta, from entry of thromboplastins into the circulation, resulting in extensive intravascular coagulation, defibrination of blood, depletion of blood fibrinogen and consequent failure of the blood to clot when shed (Schneider, 1957; Page *et al* 1953).

Another cause of death is suppression of urine from shock attended with low blood-pressure, bilateral cortical necrosis from vasospasm of afferent glomerular arterioles due in turn to uterorenal reflex, set in motion by uterine distention (Sophian, 1955; Franklin; Winstone, 1955).

Lastly, these cases may easily succumb to puerperal sepsis, not only because of the need which may arise to intervene, but chiefly because of the patient's lack of resistance to infection which, as a result of blood-loss and shock, is greatly diminished.

The foetal mortality is also seriously affected by abruptio and in these groups of cases is not far short of 100 per cent; only very seldom does immediate cæsarean section carry any slight prospect of securing a live baby.

Management.—Completely concealed accidental hæmorrhage with Couvelaire lesion, fortunately rare, is the most dangerous of all forms of antepartum hæmorrhage and the management of such cases requires considerable experience and great precision of judgement. On the one hand, there are obstetricians advising early cæsarean section for concealed hæmorrhage in order to save more foetal lives (O'Donnell Browne 1952), to avoid the risks of the blood failing to clot from a state of afibrinogenæmia, aggravated by greater migration of thromboplastins in a gradually distending uterus (Stevenson 1953) and the dreaded complication of anuria. Others again restrict operation to patients who continue to deteriorate in the continued absence of uterine contractions after several hours of conservative treatment (Crichton 1950) a view shared also by Gibberd (1948) and Townsend (1955). We must choose between the time-honoured treatment with its expected hazards or try to evaluate the results by earlier blood-transfusion and abdominal section. Nevertheless, the advantages of cæsarean section over the conservative measures remain to be proved.

As babies are usually dead before any definite therapy can be instituted, the treatment is directed to preventing maternal catastrophe, although O'Donnell Browne (1952) claims

a great percentage of foetal survival by caesarean section in the first phase of the condition. In the recent past, attention had been mainly focussed on the delivery of the patient and the most favoured abdominal section. With a new appreciation of the defects in the blood coagulation mechanism, it is now possible to outline a definite course of management. It is inviting disaster to make any attempt to deliver the case either vaginally or abdominally before a complete evaluation is made of the blood picture. The first step is to evaluate the type and amount of separation with regard to the blood loss and ascertain if afibrinogenæmia exists; and if a conservative management is to be followed, serial fibrinogen studies are necessary to reveal the trend.

When signs of concealed hæmorrhage predominate, the first requisite is to restore the patient's general condition as soon as possible and before labour supervenes. To this end, morphine gr. $\frac{1}{4}$ is given to relieve pain, warmth is applied and blood transfused. The size of the uterus is noted and repeatedly checked, the blood-pressure and pulse are recorded every half an hour. The continued administration of oxygen may be of benefit to patients during the acute phase. The urinary output should be charted and the blood condition repeatedly ascertained by Weiner's clot retraction test or by Shea's rapid fibrinogen estimation to determine hypofibrinogenæmia. By far the majority of cases will respond dramatically to this treatment when labour supervenes within the next 10 to 12 hours. Sometimes it is difficult to ascertain when labour has supervened because of the extreme pain and hardness of the uterus. But the appearance of blood at the vulva signifies a return of uterine contractility when a vaginal examination is worth making and membranes ruptured artificially. But the membrane should never be ruptured while the uterus is tense, since this allows blood to take the place of the escaped liquor without causing the onset of labour pains and further aggravates shock.

Intravenous oxytocin drip should be used with great caution and is only indicated when uterine contraction has returned and the membrane ruptured; else there are chances of rupture of the uterus and aggravation of the existing hypofibrinogenæmia due to more thromboplastins being forced into the circulation (Page *et al.*, 1954).

The use of a vaginal pack has only a limited place in the treatment of Couvelaire uterus. If properly inserted, it always adds to the shock already present. It causes sepsis, and thus materially increases the risk of caesarean section even though sometimes it proves to be a life-saving measure. Finally, as the uterus is atonic, the pack is useless either to control hæmorrhage or to induce contraction.

In cases where labour does not supervene in spite of adequate treatment of shock and partial improvement of the patient, one is faced with the choice between the caesarean section, rupture of membranes or masterly inactivity leaving the patient strictly alone. With an improving condition of the patient caesarean section can hardly be recommended, the choice between the other two being guided by the urinary output and the blood-condition, artificial rupture of membranes being the most satisfactory and least shock-producing procedure.

Frequently, the patient fails to rally in spite of adequate resuscitative measures and the condition deteriorates with an increase in the pulse-rate and a fall of blood-pressure. Decision is momentous at this stage since caesarean section may be apparent at a time when the patient is least likely to stand it. Moreover, Weiner *et al.* (1953) warn against operating in the presence of a low fibrinogen because of the danger of bleeding. The obstetrician, however, should be guided by the blood condition of the patient, the amount of urine passed and the degree of improvement after the resuscitative measures. Hysterectomy to stop bleeding which seems otherwise uncontrollable is hardly ever required. The uterus should be delivered gently through the abdominal incision after caesarean section, massaged and compressed between hot saline packs and oxytocics administered. It is now believed that hysterectomy following caesarean section not only adds to the risk of operation but may tip the scales adversely when the woman is already in profound shock.

Post-partum hæmorrhage is liable to occur due to uterine atony from over-distention and very rarely from afibrinogenæmia but in most cases the uterine retraction is quite effective in controlling the bleeding. Very rarely the bleeding may persist in spite of all treatment and the blood shed *per vaginam* shows no sign of clotting as a result of afibrinogenæmia. The logical treatment in such cases is the replacement of fibrinogen (2 to 4 g.) by intravenous injection, but as fibrinogen is not commercially available, one has to be satisfied with massive fresh blood transfusion in pints since one pint of blood increases the blood fibrinogen concentration only by 5 to 10 mg. per 100 cc. (Weiner *et al.*, 1953). But fortunately cases of failure of the blood to clot are rare and not all believe that afibrinogenæmia really exists and is ever the cause.

Time alone will prove whether the views expressed are correct or harmful. Our present knowledge of blood-transfusion, command of anaesthesia, precise concepts of the pathological processes and caesarean section techniques should go a long way in formulating a rational and standard method of treatment all over the world in the near future.

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LOCAL USE OF HYDROCORTISONE AND OXYTETRACYCLINE IN DERMATOLOGY

In this clinical study, 89% of 104 patients with allergic or infectious lesions of the skin were benefited by topical therapy with hydrocortisone and oxytetracycline administered by Dr. Meyer L. Niedelman of the Skin and Cancer Hospital, Philadelphia, Pa. (*American Practitioner and Digest Treatment*, November 1957).

All of these patients were treated with an ointment combining 1% hydrocortisone with 3% oxytetracycline hydrochloride.

Patients were instructed in each case to apply a very thin film of the ointment on the affected area, either 2 or 3 times daily, and the results were ascertained at regular intervals throughout the study or when the condition had cleared.

Another group of 25 patients with 22 various fluid-filled cysts were treated with local injections of hydrocortisone acetate in a 2.5% aqueous suspension. Several minims of the aqueous suspension were injected directly into the cavity of each cyst after its contents had been thoroughly aspirated; this procedure was repeated at weekly intervals. In successful cases, response was usually observed after the first injection, and no more than 3 or 4 injections were required for satisfactory effects.

Rapid and satisfactory control was obtained with this therapy in 77% of the 104 patients treated, and some improvement of lesions was observed in an additional 12%. In 11% of the patients, this therapy failed to influence the condition. Most of the failures occurred in attempts to control pruritus.

The oxytetracycline component of the ointment was uniformly effective in preventing or eliminating secondary bacterial infection except in 1 patient in otitis externa.

In none of the patients treated were there observed any side effects from the hydrocortisone-oxytetracycline ointment used, although in many instances treatment was continued for several weeks.

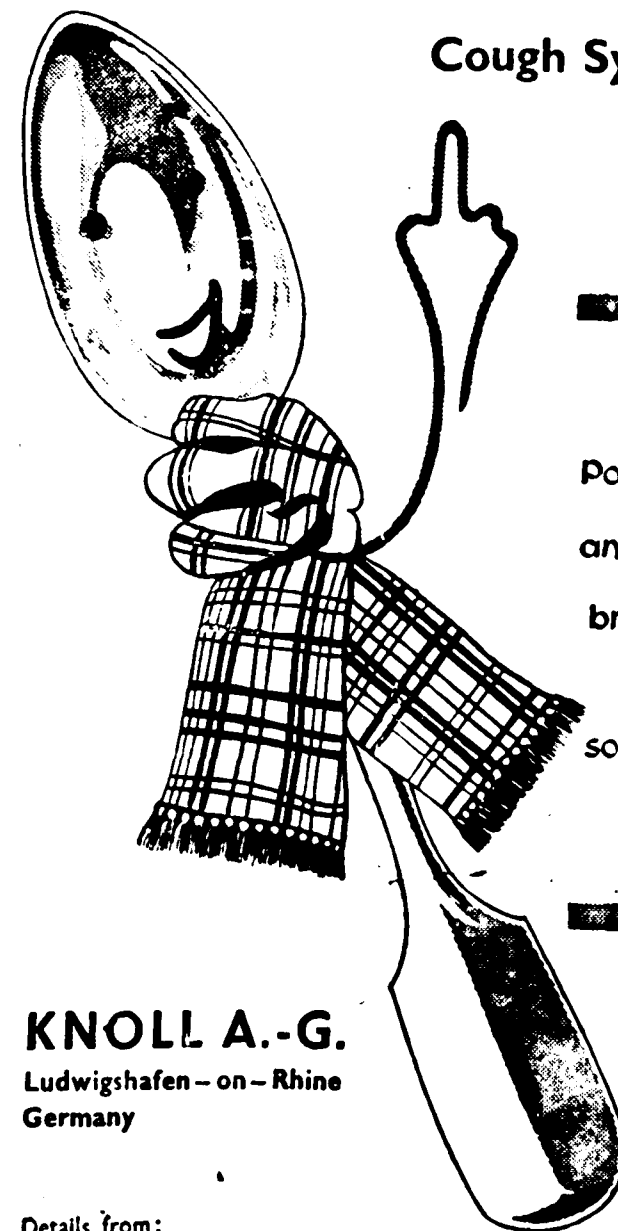
Local injection of hydrocortisone into fluid-filled cysts was responsible for their rapid involution in 18 of an additional 20 patients.

The exceptional safety of this type of therapy is shown by the fact that no side reactions occurred either from hydrocortisone or oxytetracycline in any of the 129 patients treated during this study.

It is concluded that superior results may be achieved with the proper use of hydrocortisone and oxytetracycline in many skin disorders.—(*Current Medical Digest*, Feb. 1958).

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GASTRO-INTESTINAL NEUROSES*

THE EMOTIONAL ASPECT OF SPASTIC OESOPHAGUS
AND OF COLON DYSFUNCTION

A. MASSA, M.D., M.H., F.D.F.,

Bombay

MANY years ago the medical man, with a full knowledge of organs and tissues—their structure and action in health and disease so far as this was known, failed to see his patient as an individual whose system responded easily to his mental condition. Later, it came to be gradually realized that the mental make-up of the patient, his emotions, like fear, resentment, anger, jealousy, anxiety, worries, frustration and his morbid way of thinking etc. played an important part in determining his physical condition, his power of assimilation, his general resistance to disease, and even what type of disease might develop in a particular individual.

When the poet Longfellow stated that "Joy, temperance and repose slam the door on the doctor nose" he may not have been fully aware of the wisdom of his words.

Many body-symptoms are in essence reactions designed to relieve the psychic tension which has thrown the body into disequilibrium. Once the symptoms have been produced they are made use of and exaggerated. The person feels some kind of pain, in his chest or in his abdomen, starts complaining of this or that feeling; finally, whenever he is faced with difficulty the symptoms keep on recurring and the pain increases. He must lie down and he must be looked after. Symptoms are therefore, to be evaluated as a reaction or gesture expressing the state of mind, anxiety, ambition, anger, refusal and so on.

When a woman or a child trying every method to persuade her husband or his father to some course of action, is unable to get what they need, they burst into tears. The last resort is to adopt the means which were effective in moving their relatives.

The neurotic often re-enacts a "pantomime" which has brought him some privilege in the past. The particular organ that gets affected depends on the previous psychic experience. Neurosis is manifested largely in the vegetative centre, in the respiratory, circulatory and digestive systems controlled by the psyche through the endocrine glands.

Just as a child does not make any difficulties so long as he is pampered, the neurotic does not produce symptoms while he feels to be in a privileged position. The origin of a neurosis lies not in objective circumstances, but in the person's own subjective reaction to his circumstances. *We do not break down by what happens to us but it is our mental reaction that tears us to pieces.*

*Specially contributed to the ANTISEPTIC.

The normal person is aware that life is a struggle for existence, he is mentally prepared for all life's difficulties, he still believes life is wonderful and fascinating, and he has the incentive to work; so people who enjoy their work or too busy to be unhappy.

The normal person is able to move smoothly with almost everyone. He can adapt himself to any situation and the secret of his adjustment lies in his ability to subject his emotions to the control of his will. He thinks before he acts or makes a decision, while the neurotic acts on the impulse of the moment.

The neurotic is a much more serious case than one who has been injured physically; physical injury heals in a few days, while psychic trauma which causes a physical distress may take a very long time to heal.

The neurotic is a sick person, quite as sick as one who contracts typhoid fever, or meningitis. In fact I would add that it is a thousand times better to suffer from some organic illness than to go through the mental agony of anxiety neurosis. The neurotic complains a great deal, seeks sympathy and attention and usually uses his illness as an excuse for his failure. His symptoms can be correlated with his emotional instability. Some psychiatrists believe that even constipation is sometimes an expression of fear of economic insecurity. Lack of appetite may be a symbolic wish to die. Multiple aches and pains can be a disguised expression of chronic unhappiness. Dysmenorrhœa may be an expression common in women who dislike their roles in life. Neurotics manifest their condition in different forms; the hypochondriac who is always extremely concerned about his health—the anxiety neurosis which keeps the patient in a constant state of tension and perpetual fear by anticipating dreadful things that may or do never happen. At times the disease is a conscious or unconscious effort to cover their feeling of inferiority. A husband conceals his feeling of impotency or sexual inadequacy by complaining of fatigue.

Insanity or neurosis are not inherited. The fact that one of our relatives spent some time in a mental institution is no criterion that we will suffer a similar breakdown. We may inherit the sensitiveness to the environment or to the same type of emotional reactions. Children exposed continually to a neurotic mother or father incorporate in their behaviour many of the peculiarities of the parents. Persons most apt to suffer a mental breakdown, are those who, as children, became oversensitive.

The neurotic shows an emotional immaturity and exhibits the emotions of a child; he is jealous and moody, he feels easily hurt, shirks his responsibility, is dependent on others and is a parasite. Having never been allowed to grow, he becomes so

conscious of his inadequacy and lack of confidence that he is very much dependent on others.

Boredom or working at something you don't particularly like may give rise to a feeling of overwhelming fatigue, tenseness, sickness and depression. Just look at your typist or telephone operator, and you will find that she often shows signs of tenseness and boredom which will not be hard to read. Watch her, for a few minutes, she frowns, scarcely sits still, has at times a far-away look, and at times appears worried and distressed. You can feel her tenseness when you talk to her, and you can't be at ease with her. Tomorrow she will absent herself from work as she has diarrhoea; next week an allergic type of cold, sneezing, headache will prevent her from coming to office and so on.

Neurotics who are continuously complaining about their ill-health are subconsciously expressing through their ailments their need for affection. Their symptoms point to a form of getting attention; anger, jealousy, anxiety, sorrow and crying spells are expressions of emotionalism. They are abnormal reactions giving rise to emotional intoxication. They dissipate one's reserves of energy. What affects the mind affects the body and vice versa. "Remember that you can literally think your way into a chronic unhappiness or cheerful life. You can think your way into a successful living, or suicide. The choice is yours."

The neurotic's fear is unreal, he fears something which cannot do him any harm. He cannot run away from his mind. Most of his fears or his way of thinking is like a gramophone record being played over and over again. I do not think that a vacation, drugs or electric-shock treatment can cure the mental conflicts of deep seated origin. *Psychological disorders must be treated by psychological methods.*

Hypnotism, faith-healing, insulin coma, electric shock all claim to produce apparently beneficial results, but lasting cures can be achieved only by a re-orientation of the style of living which need the symptoms as its protection. Neurosis is not only mechanical but always purposive in its activity.

The majority of neurotic patients are often sexually mal-adjusted and this maladjustment can cause a host of physical and nervous ailments. The patient is usually unaware of the existence of a relationship of the sex factor to his illness. The impulses from old age instinct are curbed, but at times they rise. He tries to repress those desires and impulses, but when the struggle to repress them becomes too great, when it reaches the breaking point and the impulses and desires threaten to break loose, he becomes mentally ill. It is a fight between the desire demanding gratification and a normal conscience repressing the impulse.

Physiologists have shown that the digestive tract is one of the first affected by emotions such as fear, hate, anxiety, panic etc. The colon type of patient has a feeling of insecurity; he is over-conscientious, sensitive, afraid of public opinion, develops a great deal of resentment, and a feeling of guilt which manifests itself in a state of tension. He cannot relax. The lower colon under a continuous bombardment of nervous energy responds with spasm and pain. If the condition goes on for some time organic changes take place and may cause diarrhoea even with blood and mucus in it. These emotional disturbances are deep-seated, of which the patient is not conscious.

A chronic spastic condition causes constipation at the beginning; only later, when the disease becomes more severe and chronic inflammatory changes have occurred in the bowels, diarrhoea may start. Many colon patients do experience vomiting, pain and diarrhoea during periods of acute emotional crisis, but constipation in the main symptom. Emotionally, colitis is a reaction to resentment, as in ulcer.

Eminent physicians in dealing with the cause of constipation, abdominal pain, mucus in the stool, indigestion, colitis, choking feeling in the throat which is relieved by belching after taking soda, rapid heart beats, frequent urination, vomiting, diarrhoea and even fever etc., consider that these symptoms are the commonest signs of nervous over-strain.

We know that fatigue, failure to relax and anxiety are present in all cases of functional disorders of the colon, and these may be the sole factors responsible for the production of symptoms.

A good example of a person living on his nerves is the busy doctor. His reception room is full of patients often many more than he can handle; he can hardly find enough time for each patient, the telephone keeps ringing, he is wanted at the bed-side of a patient or in the operating room, or in consultation or at a special medical conference. He is always in a hurry, worried about this or that patient, about his limitations and his failures. He has no regular time for his food, he has to answer phone calls even at night, his rest is broken, his mind is over-active, and he is tense and irritable. His candle has to burn at both ends. When you see him, there is something about him that makes you feel that he is tense or over-alert. Signs of over-strain and added irritability are very conspicuous. He is not organically sick his heart, lungs and kidneys are alright, but he does not sleep well, his blood-pressure is high, his digestion is upset and you wonder whether these symptoms are not in some way connected with his over-strained nervous system.

Here is another illustration of just an *average day for a busy doctor*—"This has been a bad day—started early after a restless

and broken night—(a case of pseudo-angina which kept him out of bed from 3 to 4-30 a.m.). Weather foul; traffic inordinately heavy; trouble in finding a place to park his car; his nurse has not turned up in the morning; phone messages of an annoying nature from early morning and all day: patient at the Nursing Home not doing well—missed lunch because of a lengthy consultation where no one would agree—and this afternoon's 'benign breast' proved to be malignant—operation—and the family acted as though it were my fault that she had cancer! Tired, and my feet burning and hurting especially the right one with the old broken toes—next time I break a toe I would do better to consult a doctor—I go home in the evening—it is 9-30 p.m.—I want nothing else but to have my dinner and go to bed—an urgent call is waiting—out I go again—the new patient is a fat old doll in the fancy *neglige* smiling coyly and refusing to recount her symptoms—"That's why I called you doctor—I want you to find out all about me."—(*P. Med. J.*, 51: 26 Jan. 1958).

Another illustration of functional disease is the case of Mrs. M. who for the last 15 years had been suffering from intense gastric disorders. Doubtful diagnosis of appendicitis followed by operation with no improvement. In order to find relief from pain she went from one doctor to another, only to be told by all that there was nothing wrong with her. She went through all pathologic routine tests and many X-rays were taken. Every thing went to prove that there was nothing pathologically wrong with her except that the X-rays disclosed that the muscle wall of her digestive tract was contracting irregularly in various places. So she was told that there was nothing wrong and not to worry any more about it; it was only nerves—so forget it. Mrs. M. tried to follow the advice of the doctors, but the symptoms kept on worrying her and she felt very unhappy and unable to concentrate in her work. Mrs. M. went from one physician to another feeling that her disease had not been understood. What was really wrong with her was shown by the X-ray examination which definitely disclosed that her digestive organs were over-tense due to the over-activity of the nerves (Spastic colitis).

There is ample evidence to support this view. A study was carried out by having patients take a single swallow of barium meal. In the well-balanced individual all the barium passed through the oesophagus in about one minute or less, but in nervous patients there was considerable delay, which in severe conditions may exceed one or two hours. The delay indicates the degree of spasm.

Rest cure has not much effect in this type of disease. A patient might lie in bed apparently quiet for hours, yet remain sleepless, nervous and restless. The emotional disturbances

still persist. Mrs. M. needed relaxing and in order to relax, the mental complex had to be unearthed. Habitual ways of acting are acquired as we grow up *e.g.*, we learn to walk, to eat with a fork, we learn to be polite and we learn to be rude, we acquire good and bad habits of doing and thinking and we acquire also habits to react in a particular way to difficulties of life.

Among psychosomatic reactions, spasm of the œsophagus is the most common of all functional ailments of the digestive tract. Nervous œsophageal symptoms vary somewhat; in more severe cases, the patient feels a lump in his throat, nausea and a choking sensation. At times there may be also intense pain. The sensation may be relieved by taking food or by alkaline powders or by belching which usually brings temporary relief. All studies support the view that the œsophagus is very active in emotional states. In chronic nervous colitis correct diagnosis is particularly important because of the danger of unnecessary operation. The danger arises because in this condition tenderness in the region of the appendix or gall bladder is often found and can be mistaken for inflammation requiring surgery. In highly nervous persons, a portion of the large intestine is frequently tender upon pressure and sometimes may be felt as a somewhat firm mass or a number of masses.

Here is an illustrative case.

Mr. V.F.S., aged 28—Sustained an injury due to an air-crash early in 1954 and was subsequently operated for topical hydrocele. Sometimes later, severe progressive pain in the stomach and vomiting started. The patient was admitted to the hospital; after routine pathological investigations, he was treated with antibiotics without any relief. As the condition was getting worse an operation was suggested. Heavy hemicolectomy with side to side anastomosis was done under spinal anaesthesia; he was hospitalized for 15 days.

After he was sent home, the abdominal pains and vomiting gradually grew worse. Diets of various kinds were tried with no effect. He lost weight from 125 to 82 lbs.; was readmitted to the hospital and kept under observation for 20 days. Liquid diet and glucose saline injections, blood transfusions and pethidine *plus* atropine were administered. The patient was discharged in a worse condition than before his admission. Faith healers gave him some temporary relief. Homœopathic and Ayurvedic treatments were tried with no relief. Pain and vomiting became more and more severe. After 4 years of such suffering the patient was taken to Indore, for special treatment. All laboratory investigations were repeated and new diet and treatment were administered with no relief. The patient was brought back

to Bombay and to relieve his pain and vomiting, daily injections of pethidine and largactil were administered.

At last psycho-therapy and treatment for nervous exhaustion were given with rapid response. In a month he was able to get back to work. The violent pains and vomiting were therefore, only a conversion of his neurotic anxiety into functional symptoms.

It is generally conceded by eminent medical authorities that ulcer of the stomach and abdomen, whatever the contributing factors may be, is also often due to nervous hypertension. Surgeons were able to obtain satisfactory results by cutting the vagus nerve which supplies the stomach and abdomen. Surgery will relieve the pain and the digestive distress but will have no effect on the mental condition of the individual which originated the disease. The operated person remains still a neurotic and fresh symptoms will replace the old ones.

Here is another interesting case:—

Mr. J. S., a young man of thirty was for the last two years living a life of apprehension. The history revealed that two years previously due to various pains in his body especially in the abdomen, sudden sweating, high blood pressure, palpitation, choking, a feeling of fatigue etc., he was sent to a nursing home and treated for a long time for the different ailments. All the treatment proved unavailing. The symptoms continued with increasing violence. He was told that an operation was imperative; he agreed to get operated. Many neurotic patients complain of symptoms which do not appear to have anything to do with unbalanced nerves. Often the trouble seems to lie in some particular organ. The symptom is true and disturbing, the patient becomes conscious of it and feels distressed about it.

Mr. J. S. was in a continuous state of anxiety—his abdominal muscles were tense—the large intestine was tender upon pressure. Specimens were taken again of his urine, stool and blood. The number of white blood cells was above normal, which may indicate that he had an area of inflammation somewhere, but in this instance meant only that he was highly emotional at the time the specimen was taken. After he had swallowed a glassful of buttermilk containing barium, the X-rays disclosed that the muscle wall of his digestive tract was contracted irregularly in various places.

Mucus or spastic colitis is often associated with constipation while ulcerative colitis is usually associated with diarrhoea. Patients with spastic or mucous colitis are seldom very ill, while those with ulcerative colitis are often seriously ill.

The term spastic colitis will please nervous patients who usually crave for a positive diagnosis of some kind. They do not

like to be told that their disease is due to a nervous imbalance. Diseases due to the reaction of the individual to the environment will last long and will be difficult to cure. If the patient refuses to face the fact that his abdominal distress is due largely to worry and unhappiness, he will never get well. The patient should not worry about the passage of mucus from the bowels. It does not do any more harm than does the passage of mucus from the nose. The fact that a patient has a mild congested mucus-forming bowel does not mean that he or she has a disease. The patient usually blames his gassy colon for all his symptoms but usually all the distress in the bowel is more likely due to his nerves. Diet and colon-washing, can help in relieving the patient but the attack of soreness of the colon is likely to recur whenever the patient gets tense and nervous. At this time there may be pain and passage of long stringy masses of mucus. In spastic colitis when the physician examines the colon with the sigmoidoscope he sees a normal lining membrane. The X-rays show a tendency to spasm.

In a perfectly normal colon only so much mucus is secreted as is needed to lubricate the inner membrane and to protect it from an irritating substances. In the colon of a hypersensitive person there is often an excess of mucus. It is a well-known fact that the mucus is poured out, by nervous stimuli which originate from an over-active nervous system.

In the severe form of nervous colitis there will be constant soreness in the lower part of the abdomen and at times vomiting and bloating. In the diagnosis of a sensitive colon the pain is usually felt below the navel, the pain of ulcer of the duodenum or stomach or gall bladder disease is usually felt above the navel.

The presence of spasm in the lower bowel causes pain; the pain may be due to gases which cannot be expelled out of the sensitive segment. While these spasms are present no food can be digested with comfort. The patients suffering from colitis are usually of the tense, sensitive nervous and worrying type.

Many women get an attack of colitis when they are faced with difficult problems in life. Persons get a bad attack just from having friends to dinner, or starting a journey, or meeting strangers.

In all forms of colitis it is advisable to have a sigmoidoscopy and fluoroscopy of the colon to make sure that no trouble other than sensitiveness is present.

TREATMENT:—These patients need a happy environment which is as essential for recovery as oxygen is for life. Fear about the condition should be removed and their life and diet should be normalized. Remove from the diet all food which will cause soreness of the bowel, (allergy); also relieve constipation without

upsetting the bowel. A saline enema is the easiest and best. The reason why a salt enema is the best is that digested food is slowly poured into the small bowel, most of the digestion and nearly all the absorption of the end-products of digestion take place in the small bowel. The residues pass through the ileocaecal sphincter into the colon. One of the functions of this part of the bowel is to hold faecal residues until they are pushed forward for defaecation. Constipation never involves the small bowel, stagnation is always in the large bowel, usually in its terminal segment. An enema which runs into the bowel under pressure will deal directly with the faecal residues. Colons vary in size and shape in different individuals; in some they are wide and long; and in others short and narrow; some will hold much material while others will hold less. A patient with a big roomy colon gets along quite well with two bowel movements a week and feels quite comfortable.

Food sensitiveness too can cause abdominal symptoms, flatulence, cramps, and loose stools with a lot of mucus. By removing certain types of food from the diet the patient will report a decided improvement. Often the patient fails to recognize the offending food simply because it happens to be one which he eats almost every day, like milk, onion etc.

Since, in many cases, the patient is sensitive to commonly used food it is very difficult to prescribe a diet free from the food that is causing distress. The problem of finding the offending food is indeed a very difficult one.

To illustrate:—Mr. A., suffered for years from an attack of colitis and appeared to be sensitive to many types of food, while on some occasions the same food caused no trouble at all. After a lengthy investigation the offending substance in all the food was found to be salad oil. Whenever this was used for frying or for making salad dressing etc., the patient became very ill.

The list of foods which may cause severe reaction is a long one. Therapy of the irritable colon will not be successful unless both the psychologic and physical factors are treated. In allergic reactions, the offending allergen should be detected and dealt with.

In colon disorders, antispasmodics yield good results but they should be used usually as adjuvant therapy—in combination with Lysembril and analytic therapy. I have found in practice Gasex* tablets very effective in spastic states of the gastro-intestinal tract; in relieving pylorospasm and gastro-intestinal hypermotility; in correcting irregularities in gastric secretion and functioning and in improving the appetite and in assimilation. As the patients suffering from functional colon disorders

*A product of the Himalaya Drug Co., Bombay.

are usually in a state of nervous imbalance or physical exhaustion, asthenia, neuro-vegetative disorders, 'Lysembrio' injections are useful. Satisfactory results from the clinical point of view, were obtained in most of my patients with the above therapy.

'Lysembrio' is a new form of organo-therapy represented by the lysates of organs. The therapeutic scheme was as follows:—three injections a week for a total of 12 to 24 according to the needs of the case. The subjective effect in most of the cases treated was an improvement in the general state, with the disappearance of the tired feeling, dizziness, muscular pain and neurovegetative disorders. Mentally the patient showed more cheerfulness, higher tonus and greater physical activity.

Here is an illustration:—“Mrs. S., aged 68 years, was in a very bad general state, due to gastro-enteric dysfunction, vomiting and pain, the origin of which was not organic but neurovegetative. Continuous loss of weight, lack of appetite and sleep, restlessness, dizziness, headache and an intense feeling of fatigue kept the patient most of the time in bed. She improved on a course of 'Lysembrio', and Gasex, treatment. She is now able to do her house-hold work, and eat and sleep normally. Her intestinal disorder was improved. Her blood-pressure was reduced from 205/115 to 165/95; her weight increased from 93 to 98 lbs.; and the red cell count increased from 3,400,000 to 4,100,000.

The analytic therapy in functional gastric disorders consists in exploring the mind of the patient and in bringing to light hidden conflicts, stress, emotion, environmental influences at work, thereby affecting some change in the mental outlook of the individual. This combined treatment usually brings a gradually progressive and permanent improvement in the physical and mental condition of the patient.

In all diseases Nature always helps in recovery when the correct treatment is applied proving the truth of the old aphorism “Medicus curat, Natura Sanat.”

Acknowledgement.—My grateful thanks are due to Mr. P. Lixoli for his uniform and valuable help in preparing this article.

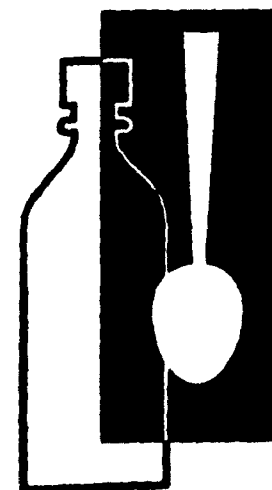
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URINARY 17-KETOSTEROID EXCRETION*

TABULATION OF RESULTS OF THE WORK DONE IN INDIA

B. MUKHERJEE,

Ahmedabad

HISTORICAL REVIEW:—The 17-ketosteroids are metabolic products of hormones secreted by the testes and the adrenal cortex. The term "17-ketosteroids" was introduced by Callow and his co-workers¹ to denote those steroids with a ketone group on the 17th carbon atom. The evidence for the existence of androgenic material in the urine of normal males was presented by Loewe and Voss² (1929) and Funk, Harrow and Lijwa³ (1930). In the earlier investigations bio-assay methods were used. The most widely used one was that of Gallagher and Koch⁴ (1930). These methods could detect only the biologically active material.

Zimmerman⁵ (1935) was the first to suggest that steroid sex-hormones could be determined quantitatively by the use of *m*-dinitrobenzene and in 1936 he⁶ described a method applicable to urine extracts. The colorimetric procedure as described by him could detect not only the biologically active material but also the biologically inert steroids which are degradation products of the active ones. In 1938, Callow *et al.*⁷ described a modified and improved method for determining urinary 17-ketosteroids. In 1943, Pincus⁸ described his method using antimony trichloride which combined with 17-ketosteroids to form a blue compound. In 1951 the Committee on Clinical Endocrinology of the Medical Research Council prepared an account of the standard method with which other methods can be compared (M.R.C. method 1951).

Synthesis and metabolism.—Estimation of 17-ketosteroids in the urine has been one of the popular methods of studying adrenal function under various conditions. The purpose of this paper is to give a short account of 17-ketosteroids and to tabulate the results of the work done in India.

The synthesis of steroids in the adrenal cortex follow two pathways:—(1) the 17-ketosteroid pathway which consists mostly of dehydroepiandrosterone; and (2) the corticosteroid pathway.

Under normal conditions, in the humans the corticosteroids are synthesized in larger amounts, while the synthesis of 17-ketosteroids is small. In the blood the 17-ketosteroids are carried both free and in the conjugated form in association with serum proteins. Small amounts of hydrocortisone and cortisone are also converted into 17-ketosteroids. This conversion takes place in the liver. If the liver is diseased, the 17-hydroxycorticoids level may be elevated and the 17-ketosteroids level depressed. Most of the 17-ketosteroids are excreted in the urine.

*Specially contributed to the ANTISEPTIC.

The 17-ketosteroids in the urine are of three types viz.:—
 (1) The acidic compounds which are derived from the bile acids;
 (2) the phenolic from the oestrogens and (3) the neutral 17-ketosteroids, which reflect mainly the excretion of metabolic derivatives from the endocrine secretion of the gonads and the adrenal cortex. In the female, 17-ketosteroids are produced entirely by the adrenals; in the male by the adrenals and the testes, the testes contributing one third of the urinary neutral 17-ketosteroids.

Estimation of urinary neutral 17-ketosteroids.—Here is an outline of the principles and the method followed:—

It is necessary to collect a 24 or 48 hours' specimen of urine, a few crystals of copper sulphate is added, as a preservative. If the specimens of urine are acidified with 10 cc. of concentrated hydrochloric acid, they can be kept for at least 2 weeks in a refrigerator.

The 17-ketosteroids present in the urine are water-soluble conjugates and must be hydrolysed to the free steroids. This is accomplished by treatment with concentrated hydrochloric or sulphuric acid. After the hydrolysis is completed, the 17-ketosteroids are extracted by the addition of ether or carbon tetrachloride.

The 17-ketosteroids thus extracted will now consist of three fractions viz.:—(1) acidic fractions which are removed by washing the extraction with NaHCO_3 ; (2) the phenolic fractions which are removed by extracting with 2N. NaOH .

After treatment with NaHCO_3 and NaOH , only the neutral fractions will remain in solution. This solution is then evaporated to dryness. The dry residue is dissolved in aldehyde-free absolute alcohol (about 4 cc.). To this is added an alcoholic solution of *m*-dinitrobenzene, which gives a coloured complex (Zimmermann's reaction). The standard in the estimation of urinary 17-ketosteroids is crystalline dehydro-isoandrosterone which is treated to produce a colour in the same manner as the urinary extract.

The method of estimation of urinary neutral 17-ketosteroids is quite elaborate, technical and time-consuming. Therefore, there are not many laboratories in India where this estimation is routinely carried out. However, several research workers have carried out the estimation of urinary 17-ketosteroids.

The data available from published material, have been tabulated under the following heads:—

(1) Normal healthy male, female and children; (2) pregnancy; antepartum and postpartum; (3) toxæmia of pregnancy;

antepartum and postpartum; (4) diabetes; males and females with or without ketosis; (5) cirrhosis of the liver; males and females; (6) infective conditions; hepatitis and kala-azar; and (7) miscellaneous conditions; tropical eosinophilia, before, during and after treatment with A.C.T.H. and cortisone.

TABULATED RESULTS

Name of the author with method used (within brackets).	No. of cases.	Mg./24 hours mean daily output.	Range of values.
Normal healthy Indian males:—			
Friedmann (1954) ⁴	23	10.81—2.25	7.05—17.1 mg.
(Zimmermann's reaction)	12	10.00—1.02	7.9 —14.04 mg.
Das Gupta <i>et al</i> (1958) ⁴	15	16.94—0.91	11.50—25.6
(Robinson & Warren)			
Ramachandran <i>et al</i> (1955) ¹⁴	9	7.94	3—13
(Warren & King)			
Patwardhan <i>et al</i> (1957) ¹²	31	8.21—0.61	4.6 —17.6
(Hollorf & Koch)			
Chatterjee <i>et al</i> (1957) ³	—	8.33	—
(Callow's modification of Zimmermann's methods)	—		
Normal healthy Indian females:—			
Tampan ¹⁰	—	6.48	—
Das Gupta <i>et al</i> (1957) ³	17	8.56—0.75	2.77—15.27
(Robinson & Warren)			
Tampan <i>et al</i> (1958) ¹⁸	24	5.93	2.54—15.04
Patwardhan <i>et al</i> (1957) ¹²	30	6.1 —0.39	3.7 —10.0
(Hollorf & Koch)			
Chatterjee <i>et al</i> (1957) ³	—	5.77	—
(Callow's modification)			
Normal Indian children (Age 3—9 years):—			
Ramachandran <i>et al</i> (1956) ¹⁴	12	.41	0.06—1.8
Normal Indian pregnant women—Antepartum:—			
Tampan ¹⁰	59	9.51 mg.	
Mitra (1956) ¹⁰ (Kings)	122	10.26	
Mitra (1956) ¹¹ (Kings)	156	10.81—.65	
Tampan <i>et al</i> (1956) ¹⁶ (Pincus)	21	7.98 (28—34 wks.)	4.06—15.98
	24	8.4 (36—40 wks.)	3.2 —16.5
Normal Indian Pregnant women—Postpartum:—			
Tampan <i>et al</i> (1956) ¹⁶ (Pincus)	28	6.74	2.10—15.72
Toxæmia of pregnancy—Antepartum:—			
Tampan ¹⁰	50	10.07 mg.	
Mitra (1956) ¹⁰ (Kings)	50	9.44 mg.	
Mitra (1956) ¹¹ (Kings)	93	10.88—0.62	
Tampan <i>et al</i> (1956) ¹⁶ (Pincus)	24	10.19 (Mild cases)	3.00—22.44
	27	8.88 (severe cases)	1.01—20.16
	19	10.14	3.90—19.32

TABULATED RESULTS—(Contd.)

Name of the author with method used (within brackets).	No. of cases.	Mg./24 hours mean daily output.	Range of values.
Toxæmia of pregnancy—Postpartum :—			
Tampan <i>et al</i> (1956) ¹⁸ (<i>Pincus</i>) ...	19	4.84	2.22— 8.02
Indian diabetics with ketosis :—			
Bahl <i>et al</i> (1956) ¹ (<i>Robbie & Gibson</i>)	... 5 males ... 5 females	13.69 19.22	6.7 —28.76 9.48—29.28
Indian diabetics without ketosis :—			
Bahl <i>et al</i> (1956) ¹ (<i>Robbie & Gibson</i>)	... 20 males ... 14 femls.	8.13—3.35 5.94—3.14	3.288—13.99 1.26 —14.54
Indians with cirrhosis of the liver :—			
Wig <i>et al</i> (1954) ¹⁹ (<i>Robbinson & Warren</i>)	... 9 males ... 6 females	2.95 2.85	0.82—4.72 0.38—3. 3
Indians suffering from infective hepatitis :—			
Das Gupta (1957) ⁵	... 16 males ... 5 females	1.85—0.29 1.79—0.53	Range for whole grup.0.35—4.5mg
Indians suffering from Kala azar :—			
Chatterjee <i>et al</i> (1957) ³ (<i>Callow's modification</i>)	... 9 males	2.97 before treatment 5.15 after treatment	0.66—5.8 2.86—9.85
	1 female	3.9 before treatment	—
Indians with tropical eosinophilia :—			
Sanjivi <i>et al</i> (1952) ¹⁵ <i>Zimmermann's reaction</i>)	... 15 treated with ACTH	Pre-therapy 2.7—10 Mid-therapy 5.5—15 Post-therapy 3.3—15.2	
Sanjivi <i>et al</i> (1955) ¹⁶	... 20 males & 4 females treated with A.C.T.H.	4.7 Pre-therapy 1.24—10 8 Mid-therapy 0.18—15 5.47 Post-therapy 1.08—17.79	
Sanjivi <i>et al</i> (1955) ¹⁷ (<i>Zimmermann's reaction</i>)	... 21 treated with cortisone	7.51 Pre-therapy — 7.45 Mid-therapy — 8.54 Post-therapy —	

Conclusion.—The 17-ketosteroids are a reflection of only the androgenic function of the subject, therefore, 17-ketosteroids do

not represent a direct measurement of adrenocortical activity as do 17-hydroxycorticoids. The normal daily excretion of urinary 17-ketosteroids is quite variable and the degree of elevation in certain conditions, like Cushing's syndrome, acromegaly, pregnancy etc. may be so slight that they might fall within normal daily variations. It is greatly increased in those cases of hyperadrenocorticalism which are associated with excess production of androgens, e.g. adreno-genital syndromes.

In clinical medicine the estimation of neutral urinary 17-ketosteroid is of limited value.

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IMPROVING THE ACCURACY OF EOSINOPHIL ENUMERATION IN ROUTINE DIFFERENTIAL LEUCOCYTE COUNTS

A slightly or moderately elevated eosinophil percentage in an otherwise normal differential leucocyte count is a frequent occurrence. Depending on the clinical picture, eosinophilia may direct the clinician's attention to the possibility of parasitic infestation, allergy, Hodgkin's disease, periarteritis nodosa, or a number of other conditions. In most cases a report of slight or moderate eosinophilia will be followed by requests for repeat blood-counts, chamber eosinophil counts, stool examinations for parasites, and possibly other tests. Yet there is no doubt that many reports of eosinophiles in the range of 5 to 15 or 20 per cent are inaccurate and do not really represent eosinophilia.

The statistical error in eosinophil enumeration in routine differential counts is very high due to irregular distribution of the cells. The statistical error is greatly diminished by counting 500 cells using the technique described and it is suggested that this be done whenever the routine 100 cell count yields an eosinophil percentage above 5. The results show that

the more accurate counts tend to be lower, and this was verified by statistics analysis. Actually this result could be anticipated because it is based on the asymmetrical shape of the statistical distribution curve for counts other than 50 per cent. The results emphasize the practical importance of the problem, because it is the high eosinophil values that are taken to have clinical significance. Many supposedly high counts will become normal if more cells are counted in order to overcome errors of distribution.

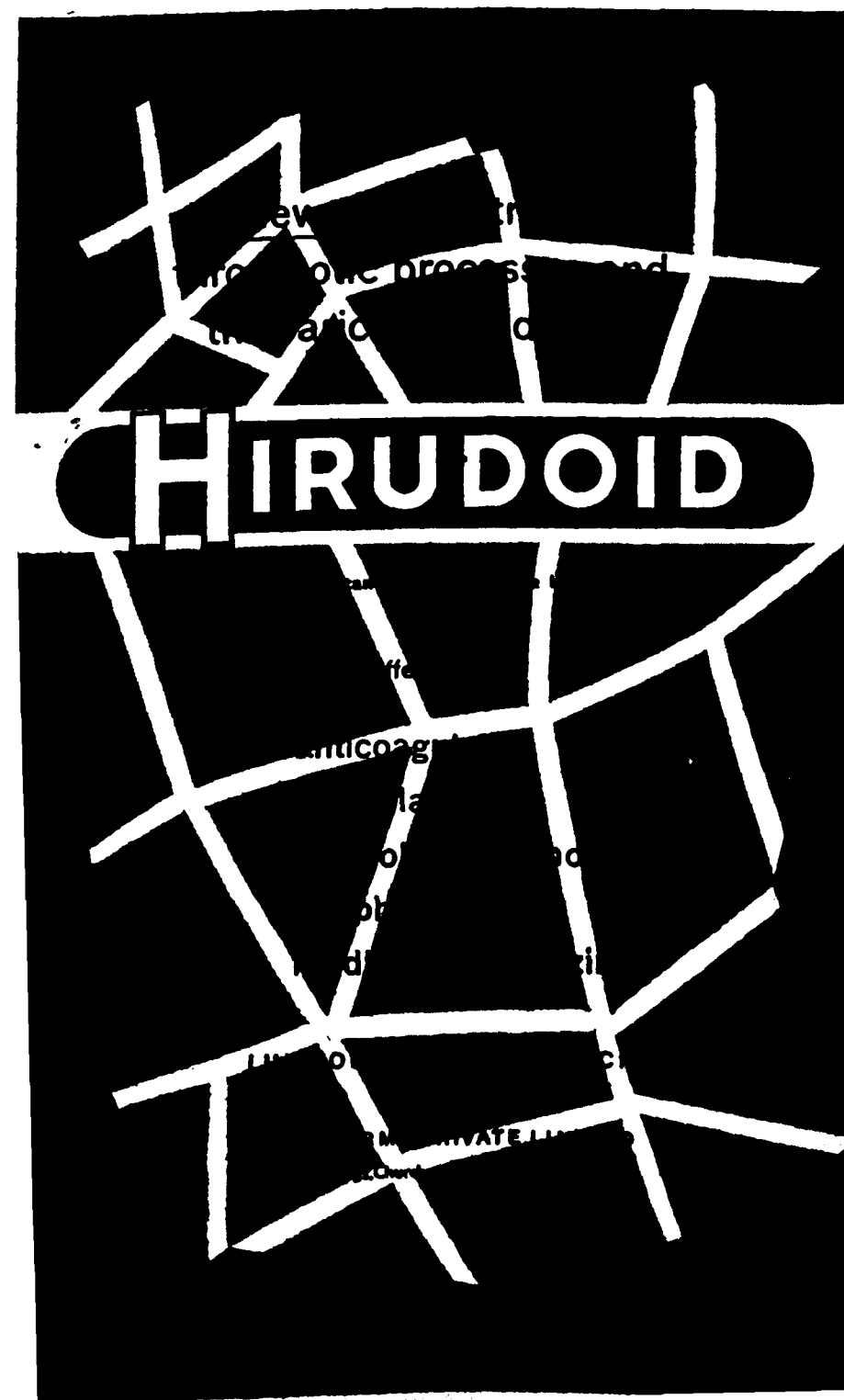
The technique presented below is not intended as a substitute for chamber methods for counting absolute numbers of eosinophils. The purpose of our method is to reduce purely statistical inaccuracies that result in false reports of eosinophilia in routine differential counts*.

METHOD:—The statistical error is greatly decreased by counting larger numbers of cells. The 95 per cent confidence limits for 5 per cent eosinophils in a count of 100 cells are 2 per cent and 12 per cent while these limits for a count of 250 cells are 3 per cent and 8.5 per cent, and for a count of 1,000 cells are 4 per cent and 6.5 per cent. In order to take advantage of this increase in accuracy we have resorted to examining 500 cells for eosinophils only, whenever the eosinophil percentage is above 5 in an otherwise normal routine 100 cell differential count. By the simple expedients of mounting the blood smear with a large cover slip and doing the 500 cell count under the high dry objective, the procedure is no more time-consuming than an ordinary 100 cell differential carried out under the oil immersion lens. Eosinophils are readily identified under the high dry objective, and no attempt is made to identify any other cell types. The differential of the routine 100 cell count is reported with a note concerning the corrected eosinophil percentage.—(Dr. Seymour Levine, M.D. and F. Jacques, B.S. of the Pathology Dept., St. Francis Hospital, Jersey City, N.J., via *Am. J. Med. Technol.*, 24: 2, April 1958).

[Note:—*In order to permit correct statistical evaluation of this method a single observer performed sixtyseven 100 cell differential counts and several days later performed 500 cell eosinophil counts on the same slides, without reference to the original results. This is certainly convincing.—Ed. ANTISEPTIC].

STREPTONICOZID IN LEPROSY

Streptonicozid ('streptohydrazid'), a crystalline compound formed by reaction between streptomycin and isoniazid, 'in a dosage of 5.6 g. a week, given preferably in combination with sulphone therapy, is a method of treatment which we can advocate for the rapid clearing of nasal and buccal lesions, and for those cases which show intolerance to sulphone therapy,' according to J. Dreisbach and R. G. Cochrane (*Leprosy Review*, July 1958, 29, 136) as a result of trials carried out on 47 patients with lepromatous leprosy in Northern Nigeria. Sulphone was given in the form of a 50 per cent solution of solapsone ('sulphetrone'): 3 cc. intramuscularly twice weekly, i.e., 3 g. a week. Erythema nodosum reactions were much less marked than with sulphone therapy, and there was no effect on the white-cell count, although some patients developed anaemia. No toxic reactions, such as drug-rashes, hepatitis, renal impairment or central nervous system complications were encountered. Most of the improvement was seen in the first six to twelve months. The over-all results after a period of treatment extending over thirty-two months was: 22 per cent improved and 16 per cent much improved with streptonicozid alone, and 18.5 per cent improved and 33.3 per cent much improved with streptonicozid plus solapsone. The most striking effect, however, was the rapid healing of nasal and buccal lesions.—(*The Practitioner*, London, Sep. 1958).



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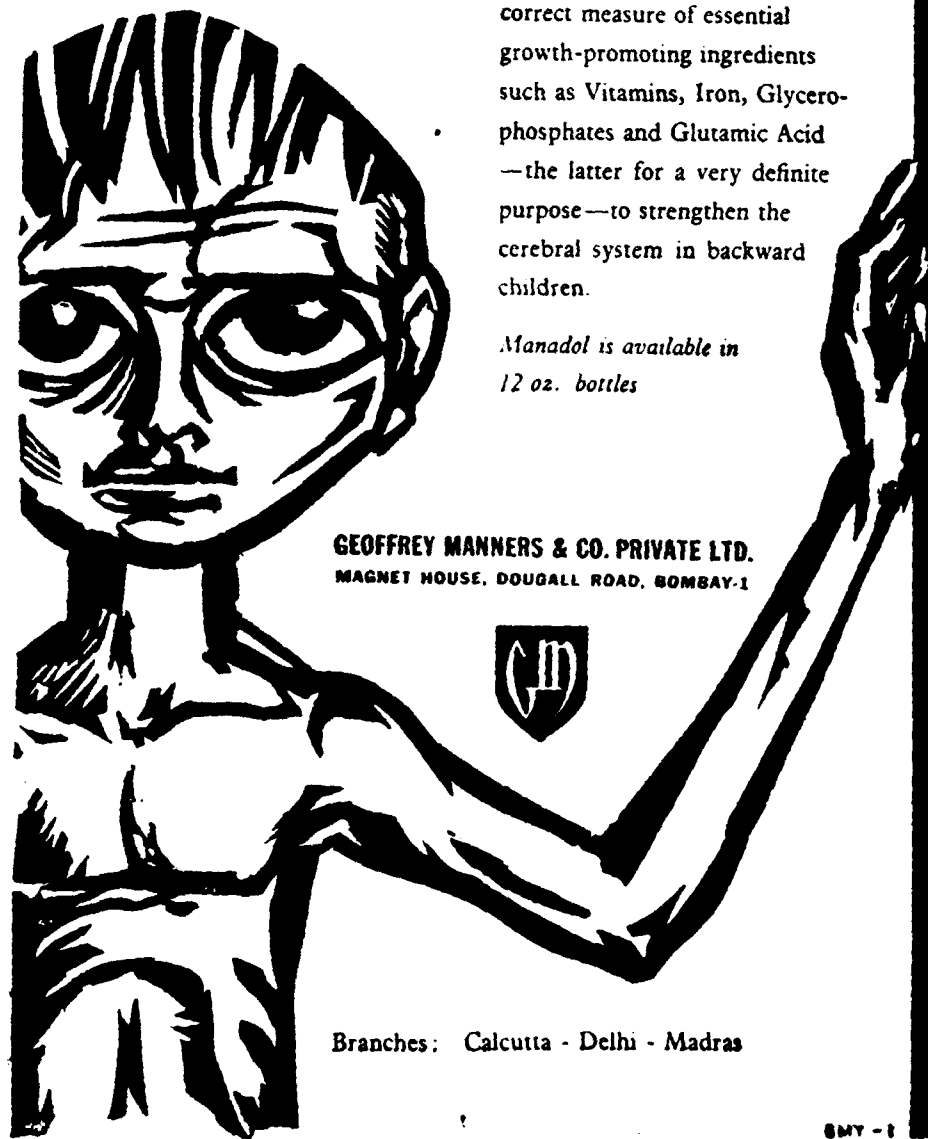
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THE EARLY DIAGNOSIS OF CANCER: FACTS AND FALLACIES*

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MUCH has been said about the importance of the early diagnosis of cancer; half of the problem of treatment is solved by the early detection of the disease. But it is our common experience that most cases present themselves only in the advanced stages. I propose to discuss in this article the fallacies that exist in the matter of detection, based on observations made by me on certain cases in a cancer clinic.

Cancer of the cheek, tongue and palate are often overlooked and treated as simple bacterial ulcerations, which are treated as such even when the condition spreads and sinuses form. The involvement of the glands are considered to be due to an infective process. The earliest symptoms like excessive salivation, referred pain in the ear, burning sensations when taking hot or spiced food are rarely taken into account but treated symptomatically using vitamin therapy and oral antiseptics. A Wassermann test, whether positive or negative may mislead the diagnosis either way.

Cancer of the stomach is treated by physicians for affections of the upper gastrointestinal system, and not for the real one. Because the early symptoms e.g. anorexia, abdominal discomfort, flatulence, nausea, acidity, heartburn, change in the bowel habit or malaise and ill-health are apparently trivial and are often indistinguishable from the unimportant complaints which all of us have from time to time but ignore. Even in the late stages with more definite symptoms, such as pain, vomiting, melena, hæmatemesis and diarrhoea, a lack of facilities for proper investigation prevents correct diagnosis and the condition is treated as an acute exacerbation of the peptic ulcer syndrome.

Cancer of the colon and rectum with its insidious onset and trivial symptoms does not readily come to the notice of either the doctor or the patient. Increased intestinal flatulence with varying degrees of abdominal discomfort or any change in the usual bowel habit is ignored. Bleeding per rectum is invariably treated for hæmorrhoids and embarrassment on the part of the doctor or the patient in having a proctoscopic examination, not to speak of a sigmoidoscopy, allows the lesion to progress unchecked. Past history of amœbiasis and hæmorrhoids only serves to mask the real picture further.

Cancer of the liver, either primary or secondary is a condition difficult of diagnosis. All these patients with ill-defined

*Specially contributed to the ANTISEPTIC.

[123]

symptoms and subtle signs pass from the hands of one physician to another and treated with all sorts of medicaments, until a suspicion of 'Cancer of the liver' flashes, on the mind of one, only when they are referred to a cancer specialist for a confirmatory diagnosis, who finds them to be cases of 'too advanced for any therapy'. Nobody cares for an enlarged or tender liver with or without jaundice, in a tropical country. Irregularity of the surface of the liver is less marked in the early part of the disease and liver biopsy is not such an easy procedure to be applied readily.

Cancer of the breast with its early painless lump is never considered by our ladies to require a consultation with the doctor; a false sense of modesty, adds to the march of events leading to cancer. Even in the late stages of the disease with fungation and ulceration, some cases are referred to a cancer hospital or specialist, after having been treated for breast abscess.

Cancer of the uterus has three fallacies, peculiar to it. *Firstly*, the irregular bleeding or other type of discharge is not considered to be of any serious import, unless it is associated with pain or other distressing symptoms of the later stages. *Secondly*, the unwillingness on the part of the patient to undergo a *per vaginam* examination and the indifference of the practitioner to emphasize its importance cause great harm. *Thirdly*, in cases associated with other uterine pathology, the attention of the examiner may be drawn elsewhere depriving the patient of a routine biopsy examination and thus allowing the disease to progress silently.

Cancer of the lung is clinically manifested by cough with expectoration, shortness of breath, dyspnoea, pain in the chest, hæmoptysis and loss of general health. These patients are invariably treated for a long time for the more common lung conditions which are not very serious. Cases often referred from Tuberculosis hospitals tell the tale. In many other cases either the patient is too poor to afford the cost of investigations or the treating doctor does not consider special investigations necessary. A misleading X-ray report from an inexperienced radiologist, with his mind biased in favour of tuberculosis leads to a fatal termination.

Cancer of the larynx, pharynx and associated structures in the early or even the late stages causes a sensation of lump in the throat, pain in the throat and face, thickness or hoarseness of voice. Nobody can blame the doctor if the case is treated for the usual minor throat troubles. Dysphagia, dyspnoea or metastatic swellings outside the neck are usually later symptoms. What should be insisted upon, in such cases from practical experience is that they should be referred to an E.N.T. specialist for an endoscopic examination in order to exclude any chance of

malignancy, particularly when they do not show signs of improvement within a reasonable time.

It is easy to diagnose cancer of the skin if the possibility is kept in mind but is liable to be overlooked, as it often happens. Only three cardinal things must be kept in mind:—*first*, rodent ulcer, *second*, malignant melanoma, and *third*, carcinoma appearing in some pre-existing skin condition. Rodent ulcer and malignant melanoma typically conform to the text-book picture and should not therefore, give any difficulty in diagnosis. On the other hand the possibility of cancer appearing in some pre-existing skin diseases e.g. lupus vulgaris, lupus erythematosus or in some of the so-called pre-cancerous skin conditions e.g., fissures, keratosis, chronic ulcerations, indurations etc., must be kept in mind.

Cancer of the penis is a condition in which the sufferers reveal a funny psychological picture. The early proliferative ulcerative growth is always mistaken by the patient to be due to some error on his part in regard to sexual matters; and especially to any venereal affection he may have. Such patients often try to conceal the disease as long as they can or go to some quack only to get worse without rational treatment.

Cancer in other parts of the body, is comparatively rare, and is diagnosed by trial and error and by careful observation. These are really difficult to diagnose and require much special skill and experience. Conditions which develop rapidly or are featured by physical trouble e.g., cases of lymphosarcoma or osteosarcoma are attended to, at the proper time.

On the other side of the picture, many non-malignant cases are sent by general practitioners for diagnosis and treatment. To name a few, these include lipoma, mixed parotid tumours, fibroadenoma of the breast; these should be given the benefit of doubt.

At least one in ten patients submits himself for examination of his own accord, because he had read about it in lay journals or noticed statements published in the press from time to time, for making the people cancer-conscious. Very few of these are found to suffer from cancer. These cases include sebaceous cyst, dermoid, hydrocele, boils, furuncles, warts, keloid, whitlow, chronic mastitis and various types of neurasthenia.

Summary.—Since the disease begins with slight or negligible symptoms, the serious attention of the patients is not directed to it. They do not consult a doctor promptly and when they do, they are in the late stage.

A small group of asymptomatic patients, even if they are cancer-conscious, when they present themselves for examination, are already in an advanced stage, without their knowing it.

Illiterate patients, forming the bulk of the total number, never appear for advice or treatment until and unless the disease physically incapacitates them from attending to their daily routine.

Lack of cancer-consciousness, ignorance or neglect of some precancerous condition, exposes people to risk.

General practitioners throughout the country who are charged with the detection and giving of proper advice to patients have in many cases, betrayed an alarming ignorance of the early manifestations of the disease, and are not alive to the grave significance of the symptoms.

Text-book pictures of cancer are of no help, as these generally deal with the advanced stages when they are almost incurable. Even when the earliest symptoms and clinical signs are known, the diagnosis at this stage is not quite easy, because they are vague and indefinite, and indistinguishable from those caused by other diseases.

A lack of co-operation on the part of the patient, lack of facilities for pathological, radiological and instrumental examination and a biased mind in the doctor are some of the factors which operate in making the diagnosis difficult.

The views expressed in this article are my own personal ones and do not reflect the views of others associated with me.

CONGENITAL BIOLOGIC FALSE-POSITIVE SEROLOGIC TEST FOR SYPHILIS

Biological false-positive reactions are frequently observed in patients with vaccinia, infectious mononucleosis, malaria, leprosy, upper respiratory diseases, yaws, pinta, Colorado tick fever, relapsing fever, lymphogranuloma venereum, chancroid, measles, chickenpox, atypical pneumonia, infectious hepatitis, rat-bite fever, and disseminated lupus erythematosus. In fact, any febrile illness or immunization is a potential cause of false-positive tests. No patient who has recently had a febrile illness or immunization should be given a diagnosis of syphilis on the basis of serologic tests alone. A false-positive serologic test should be considered in all patients whose marital partners have negative serologic reactions. In all patients in whom there is a possibility of a false-positive serologic test, a careful history should be taken as to exposure, symptoms of intercurrent infection, and immunization, and a physical examination should be done for evidence of other aetiological factors.

The cause of a false-positive reaction cannot always be determined. The author presents a family in which only the females had positive reactions to syphilis; the male members showed consistently negative tests. The positive tests were of low titre, and the results varied from time to time from positive to negative. The treponema pallidum complement fixation test was positive in 2 examinations in which the serologic tests were negative. The treponema pallidum immobilization test was always negative in this family. Therefore, the author thinks that the treponema immobilization test should be performed whenever the treponema complement fixation test is positive, so as to avoid an erroneous diagnosis of syphilis in patients with a congenital tendency to false-positive serologic reactions.—(J. F. Cannon, *A.M.A. Arch. Int. Med.*, 101: 620-622, March 1958. Chicago).

MASS RADIOGRAPH CAMPAIGN

In Edinburgh 190,000 persons participated in the city's mass radiography scheme. Of these 6,600 were recalled for a larger film, and of these 1,650 were referred to a chest clinic for further investigation; 44 had active pulmonary tuberculosis requiring treatment, and of this number 20 were hospitalized. The figures indicate that about 1 in every 4,320 persons examined by mass radiography in Edinburgh required active treatment for pulmonary tuberculosis.

2 ORAL ANTIDIABETICS

AHSAN (BZ 55)
ORIGINAL CARBUTAMIDE

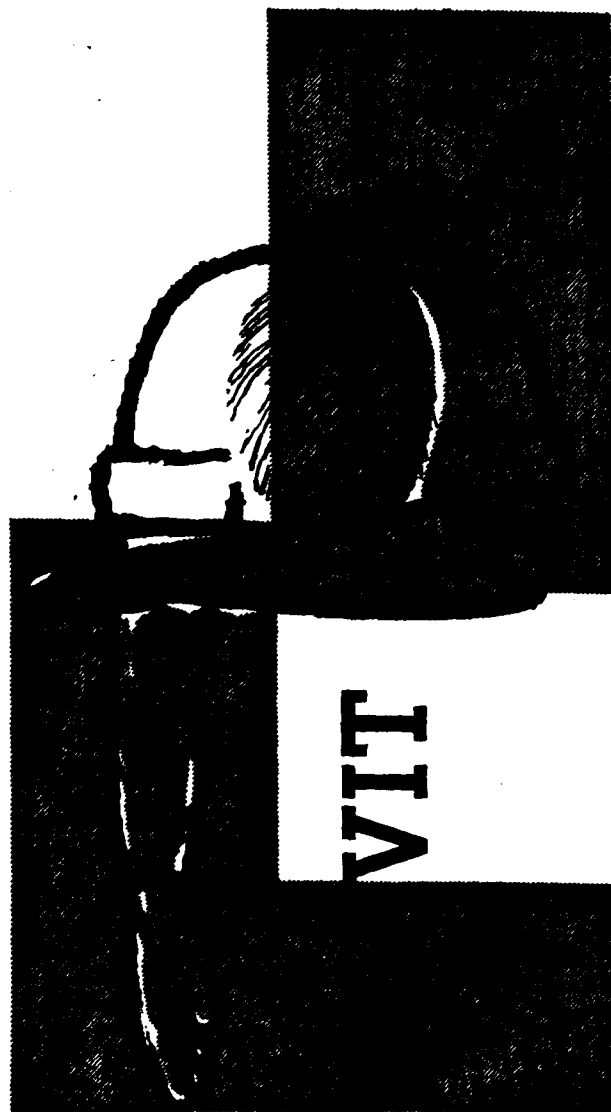
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RANDOM CLINICAL OBSERVATIONS*

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THE practice of medicine is a scientific discipline. It requires a good grounding in the application of scientific methods. Many people are apt to generalize too quickly and from too meagre data without allowing for chance occurrences or rare happenings. Another pitfall is that people too often connect sequential events in time into a cause and effect relationship. This is a well known fallacy in logic, *post hoc ergo propter hoc*. All clinicians must guard against this fallacy.

The following observations which expose this attitude are based on my wide experience:—

No matter what the patient's complaint is, it is a very good clinical dictum that every patient should be examined from top to toe, completely stripped naked, and in good light, natural or artificial. I fully realize that a general practitioner may not have the time to examine a patient thus fully. However, it is not difficult to ask the parents of a child to strip a child completely. This will obviate missing many conditions, particularly congenital anomalies. I was once called to see a case, diagnosed by a general practitioner as one of intestinal obstruction, (correctly); on undoing the knot of the dhoti, he showed a strangulated hernia on the right side. Had he stripped the man he would not have wandered for long to note the cause of the obstruction.

Practitioners of medicine of some standing must be cognizant of the fact, that respiratory infections form the bulk of their practice, in adults as well as in children. No child should go without an examination of urine, as pyelocystitis is very common in children. What is more important is that quite often urinary and upper respiratory infections coexist.

The greatest disservice to the medical profession that the advent of sulpha drugs and antibiotics has done is that it has reduced the clinical acumen of the medical practitioners. By giving a combination of sulpha and penicillin or one of the broad spectrum antibiotics, the general practitioner assumes that any infection will be taken care of. I am not the first nor will I be the last to deprecate this attitude.

In consulting practice, I do not consider an examination complete unless a full physical examination is followed by an examination of the urine, blood, stools and a screening of the chest. Further tests and investigations will depend upon the results of these examinations.

It is always necessary to be aware of what constitutes an emergency. In his busy practice the city practitioner always does things quickly because he cannot afford to waste time. But

* Specially contributed to the ANTISEPTIC.

in rural practice, where everybody is known intimately, a practitioner often does things in a leisurely way. For example, diphtheria is also an *emergency* and the sooner it is dealt with the better for all concerned. One must realize that the treatment of diphtheria must start with a *suspicion* of diphtheria and *not* with the diagnosis of diphtheria. A practitioner suspecting diphtheria should promptly give antidiphtheritic serum after making sensitivity test, and then make arrangements for transferring the patient to a hospital. It is a notorious fact that proper hospital treatment is not organized and quick and cannot be had in every instance, and emergencies are usually attended by inexperienced house officers who do not realize the value of time in such cases and often even doubt the diagnosis of the more experienced general practitioner.

Again it is very important to realize the significance of what one observes. Mistakes in diagnosis occur from two sources:—One is not looking sufficiently well for signs which may be there, and the second is by not realizing the importance of what one has already observed. A case in point is *Anaemia*.

A diagnosis of anaemia should never be made. It is merely a sign, and a very important sign at that, which must always be followed up by a further study of the case, and a diagnosis of the cause should always be made.

During the growth of an infant, during pregnancy, during any post-haemorrhagic state in any person, an iron deficiency anaemia is quite common but in the absence of such causes, the underlying disease giving rise to anaemia must be unravelled. Diagnosis is detective work and a good detective must look for clues. Anaemia is a very important clue. In the past I have been foiled by the following conditions, which present anaemia as a salient feature: (1) Tuberculosis; (2) chronic nephritis; (3) malignant hypertension; (4) Addison's disease; (5) Simmond's disease or Sheehan's disease; (6) myxoedema; (7) leukæmia; (8) Colonic carcinoma; (9) thalassaemia, minor and major; (10) porphyria; (11) gastric carcinoma and (12) bleeding peptic ulcer.

Leukæmia commonly presents as a case of fever with anaemia. In every case of anaemia with fever, a blood count should be made, if one does not want to make a mistake and regret it later. In old age, malignancy of the gastrointestinal tract commonly presents as a case of anaemia. Valuable time can be saved if the above causes, are kept in mind.

A few remarks on anaemia in an adult male will not be out of place here. While iron is selectively absorbed from the duodeno-jejunal part of the small intestine, and is stored in the erythron (the total red cell mass) and the reticulo-endothelial cell system, it is not excreted from the body except in *infinitely* small

amounts. Whereas women lose blood periodically, men do not do so, hence any anaemia in an adult male must be taken seriously, and the cause found. The two most important conditions in young adult males that may be discovered by keeping this in mind are bleeding peptic ulcer, and piles.

Acute hæmolytic anaemias are not usually missed because they present in acute condition characterized by fever, gross pallor, hæmaturia, hæmoglobinuria and jaundice in a few cases; chronic hæmolytic anaemias are however, easily missed. In every case of anaemia one must always consider the possibility. Chronic infections like pyelonephritis, tuberculosis, sub-acute bacterial endocarditis, rheumatic carditis, and chronic malaria are conditions which I have found to be responsible in most cases. Thalassaemia was formerly supposed to be a condition occurring in residents of the Mediterranean countries only, but now it is known to occur even among Indians in India. I have seen about half a dozen cases in my practice.

The reason why we believe in modern medicine is that it is scientific medicine and therefore, rational procedures alone are adopted. India has other medical systems and the only ground on which we can keep our heads up is that of adherence to proved truths. The moment we slip into irrational procedures and unscientific methods, our death knell will be rung. The most slippery ground in our practice is therapeutics.

The treatment of anaemia is one field in which unscientific treatment is rife. In the administration of iron, while the oral route is the cheapest and effective in most cases, there are occasions when the parenteral route has to be preferred. But in using this route one must bear in mind that iron is not excreted from the body and hence excessive amounts given parenterally are bound to be stored up in the body. This may give rise to hæmachromatosis. Also when giving repeated blood transfusions in non-bleeding diseases, this should be borne in mind. I see no reason why liver extracts, folic acid and vitamin B₁₂ should be given in any case of anaemia. The practice by general practitioners of giving any or all of these drugs without determining the aetiology of anaemia is not only unscientific but also dangerous.

Treatment of infantile diarrhoea is essential rest to the gastrointestinal tract for 24 to 36 hours with the administration of fluids and electrolytes by the parenteral route. In spite of this, anti-diarrhoea mixtures and antibiotics are used. The latter should be used only if there is evidence that there is a local infection somewhere or systemic infection in the body and that the diarrhoea is what is known as a parenteral diarrhoea.

Another field in which drugs are used unwarrantedly is that of the vitamins. I feel that vitamins are used quite unnecessarily in many conditions. Pharmaceutical concerns place on the market several preparations, in many cases without controlled

clinical trials and offer them to practitioners. Medical practitioners should resist being used as indirect salesmen for these concerns. I seldom use vitamin preparations unless specifically warranted by the patient's condition. It is all too frequent for practitioners to use new preparations under the impression that the latest is always the best. This is quite wrong in many cases, as practitioners soon learn by experience. In judging the results of therapy one is apt to be easily misled, if he does not bear in mind certain principles of diagnosis and the natural history of the disease.

To illustrate, a girl, ten years old with fever and painful swelling of the right knee of a few days' duration was treated with Irgapyrin and later on it was claimed by the practitioner that he had cured a case of rheumatoid arthritis by Irgapyrin and that Irgapyrin was a very good drug in rheumatic fever! In this case there are two points to differentiate. *Firstly*; rheumatic fever and rheumatoid arthritis are two quite different conditions. Fever occurring during rheumatoid arthritis is not rheumatic fever. *Secondly*, any swelling of the knee-joint in a young woman is not rheumatoid arthritis. There are certain criteria for diagnosing rheumatoid arthritis without which one must not diagnose rheumatoid arthritis.

Another case is the claim by someone of a cure for eczema by a particular drug within a few days' or weeks' time. Eczema is such a notoriously difficult disease to cure. Every practitioner of experience must have seen cases which have relapsed after years of remission. In other cases they disappear from one particular area only to appear in other parts of the body. Anyone who knows the natural history of the disease would never make such a claim.

Most of the people are aware that the observations made on a single patient, while very important, should not be relied upon to make generalizations. It is not safe for any one to generalize from only a few cases. Thus for example if one treats a patient during an attack of angina pectoris with coramine and gives him relief, it is not correct to jump to the conclusion that it is better drug than nitroglycerine which over the years has proved to be a very reliable drug to use in such cases.

The same applies to modes of treatment in every disease. Results which are satisfactory in a few cases following the use of a particular method or drug only go to show the particular method or drug is quite useful; but it does not necessarily follow that it is better than other alternative methods or drugs unless control studies have been made on a large number of cases.

It is high time therefore, that the practitioners of modern medicine practise the very principles on which its superiority is based and only then will they be safe from slipping into systems akin to witchcraft and sorcery.

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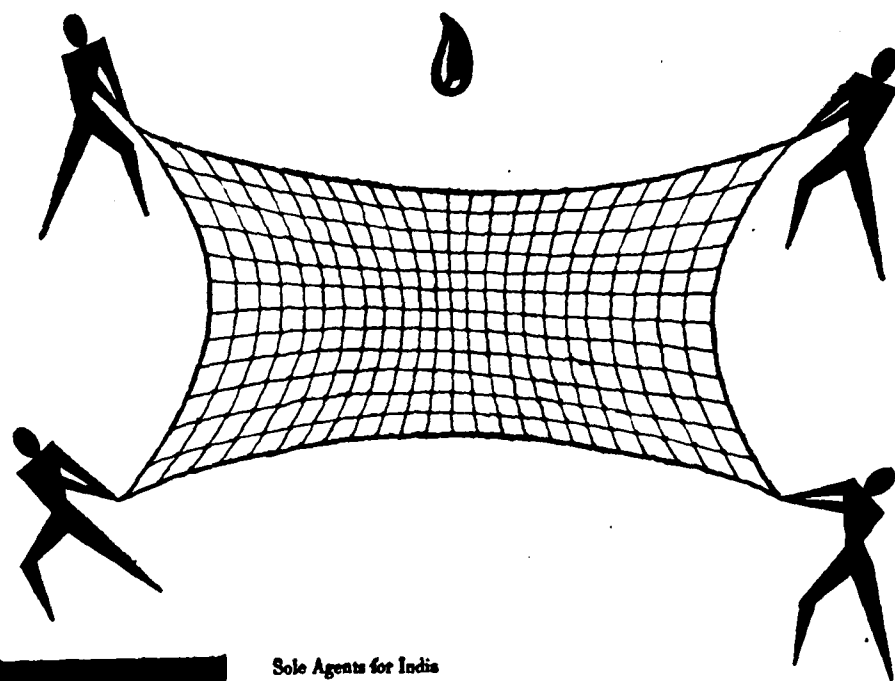
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Cases and Comments

ICHTHYOSIS HYSTRIX

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INTRODUCTION:—Ichthyosis hystrix, also known as hystericiform naevus unilaterialis disseminatus, is a condition belonging to the group of hard verrucose naevi. It closely resembles clinically and microscopically the condition known as naevus unius lateralis.

Ichthyosis hystrix is a misnomer, as this condition is neither truly related to Ichthyosis nor truly porcupine (Hystrix = Porcupine).

The first case of Ichthyosis hystrix was described in 1732 by John Machim. The patient and his son who had a similar condition, exhibited themselves as porcupine men and earned their living.

Age:—The majority of cases reported were among children. The condition may be noticed from birth or may manifest itself at a later date.

Sex:—Like hæmophilia, Ichthyosis hystrix was thought to be inherited by the law of Nasse according to which the disease is transmitted only to males. But several cases were subsequently reported in females also. Of the 42 cases on record, the ratio of males to females is 2:1.

Distribution:—Geographically it is global and not confined to any particular country or area and no racial affinity is noticeable in the cases reported.

Lesions:—The linear naevi constitute the most remarkable group of hard naevi and are arranged in streaks, several inches in length or in bands extending over the whole length of the limb. They usually affect one side of the body though occasionally a case of bilateral distribution may be seen. The bands are made of small pinkish papules or nodules simulating lichen planus or at other times they may be of a dirty brownish tint and in rare cases may form patches or lines dotted with large comedones and acniform pustules (Naevus acneiformis unilaterialis of Selhorst).

The cause of this peculiar linear arrangement is puzzling and so far no convincing argument is put forward although from time to time various possible explanations are given for this peculiar distribution.

Explanations offered are:—(1) It is probably due to some developmental error; (2) it has been suggested that the lines follow the distribution of cutaneous nerves; (3) it may be due to intra-uterine affection of a nerve ganglion (Barensprung); (4) it may be

connected with Voigt's imaginary lines which separate areas of distribution of the cutaneous nerve.

Histopathology :—In Ichthyosis hystrix, the papillae are elongated and contain dilated blood vessels. The papillary processes are correspondingly lengthened with deep furrows between them into which a thickened horny layer dips down.

Stated concisely the histopathology of Ichthyosis hystrix may be described as hyperkeratosis, papillomatosis and acanthosis with elongation of the pegs.

According to Rostenberg and Kersting, the abnormal fragmentation and vacuolization of the granular layer with irregular spaces full of kerato-hyaline debris and eosinophilic granules is a specific microscopic change not found in Nævus unius lateralis.

CASE REPORT :—Patient, N., male child, aged 6 years, second child of the parents, healthy but for these lesions which were first noticed by the mother one year ago on the left side of the chest and which gradually extended to other parts of the body.



FIG. 1



FIG. 2

Family history :—Mother, father and the two other children are free from similar lesions. In no other member of the family was a history of similar disease elicited.

Local examination :—The lesions are hyperpigmented, greyish or dark, papular and slightly horny and linear in distribution with arborization pattern. They were confined to the left half of the body; besides the trunk and extremities, they were also found on the back of the neck on the left side.

Distribution of lesions :—(1) Upper part of the left side of the chest extending on to the left shoulder and left upper arm; (2) middle of the left side of the chest extending from the sternocostal junction to below the left nipple; (3) left side of the chest below the axillae; (4) left side of the back of the neck; (5) left

gluteal region; (6) anterior aspect of the left thigh and (7) dorsum of the left metacarpal region extending to the back of the left thumb.

General and systemic examination :—The patient is a normal healthy child with a fair complexion. General and systemic examination did not reveal any abnormality.

Haematological examination :—R.B.C. : 3.5 million cmm.; Hæmoglobin : 70%; W.B.C. : 8,800 cmm. **Differential count** :—Polys 68%; lymphos 26%; eosino 4%; mono 2%; E.S.R. : 5 mm. 1st hour; V.D.R.L. : negative. The urine and stools showed nothing abnormal.

Histopathological report :—Marked hyperkeratosis with basket-weave appearance of the dermal papillae which project downwards. In certain areas the dermal papillae were atrophic and in relation to such atrophic papillae, there was focal accumulation of lymphocytes. Where papillae were hypertrophic they dipped down into the dermis with a corresponding horny layer. A few papillae showed dilated blood vessels. Vacuolation of cells in stratum granulosum was seen (See Figs. 1 and 2, page 132).

Summary.—A case of Ichthyosis hystrix is reported because of its rarity. The clinical features and histopathology are discussed. The disease is characterized by hard naevi, dark or greyish colour, linear in distribution, arranged in streaks, several inches in length. They are usually confined to one half of the body; the majority are noted in childhood and there is a tendency for hereditary transmission of the disease. The nature of linear distribution is not definitely known. Histopathology is characterized by hyperkeratosis, papillomatosis and acanthosis with elongation of retepegs. In addition, the vacuolation of cells is seen in the stratum granulosum as described by Rosenberg and Kersting.

Acknowledgement.—We are grateful to Dr. K. Ramesh Pai, B.A., M.S., F.R.C.S., Superintendent, General Hospital, Kurnool for permitting us to use the clinical material of the Hospital. Our thanks are due to Sri Bh. Appa Rao, the College artist, and to Sri P. Haricharam Petty, Clinical Photographer, for helping us with the photographs.

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HOW TO COUGH WITHOUT ABDOMINAL STRAIN

As a result of personal experience following herniorrhaphy, W. S. Altman (*New England Journal of Medicine*, June 12, 1958, 258 : 1237) recommends the following procedure for reducing to a minimum the abdominal discomfort produced by coughing immediately following an abdominal operation. In the standing position, while leaning forward from the hips, brace the hands and forearms against the washbowl at hip level. By this procedure he found that he could cough practically at will, with a minimum of 'abdominal-muscle discomfort.'—(*The Practitioner*, London, Sep-

ABDOMINAL DISTENTION IN TYPHOID FEVER

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THOUGH the routine use of Chloramphenicol in the treatment of typhoid fever has reduced the mortality, the incidence of the disease has not shown any decline.

One of the common complications of typhoid fever is abdominal distention. Unless abdominal distention is treated adequately, it is often a forerunner of severe complications like diarrhoea, hæmorrhage and perforation. Hence it is important to treat the distention adequately and energetically.

The accepted lines of treatment of this complication like the application of turpentine stupes to the abdomen and the passing of flatus tubes, have often failed to produce the desired effect. I have evolved a line of treatment which has been found to be very effective.

It is very similar to the one which is adopted in the surgical wards for paralytic ileus and I believe the meteorism in typhoid fever is due to a paralysis of the gut due to the toxæmia.

When once the abdominal distention is observed, *all feeds by mouth are stopped* for a period of 48 hours. If the condition does not improve a Ryle's tube is passed into the stomach and continuous aspiration of the stomach contents is started. Side by side, intravenous glucose saline (5% glucose in normal saline) is given as a drip, a total of 2 pints in 24 hours being given daily. The drip is also used as a convenient vehicle for the administration of tetracycline. The patient gets 250 mg. of tetracycline daily with the drip. The chloramphenicol is given intramuscularly 0.5 g. in the morning and 0.5 g. in the evening. The biochemistry of blood should be studied and corrected as indicated. These measures are generally sufficient to control the abdominal distention and toxæmia. It is no exaggeration to say that the patients improve remarkably under this regime; patients who were desperately ill and severely toxic become brighter and begin to take interest in their surroundings. In my experience, the abdominal distention gets better generally in the course of 48 hours and rarely does it take 4 days to get over it. When once the distention improves, the patient is given fluids by mouth and the intravenous drip is reduced to one pint with 250 mg. of tetracycline. The patient's temperature becomes normal by the 6th drip. Rarely we had to give the tetracycline for 12 days.

In selected cases, where the patient is extremely toxic, the addition of parenteral cortisone, 150 mg. or prednisolone 25 mg. daily for 4 days, has been very helpful. If there is any evidence of hæmorrhage, it is wise not to give the steroids.

RESPONSE TO MODERN THERAPY OF CASES OF TUBERCULAR MENINGITIS

(With Three Case-Reports)

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THE patients in this series were all below twelve years of age the ratio of females to males being 2 : 1. They were all from the Children's section of the Balrampur Hospital, Lucknow.

Thirty cases were treated but as the clinico-pathological response varied widely, it was considered proper to keep a few cases under strict supervision. So the reports on three of the cases only are given here.

Uncomplicated cases improved earlier and better than cases with complications. Ten children who had also miliary tuberculosis of the lung did not respond satisfactorily and seven of them died inspite of the best treatment within 10 to 15 days of admission.

Twelve of the 30 cases, were from the lower socio-economic strata, ten were from the middle class and eight from the upper rich. The age of the youngest child in this series was 6½ months and the oldest was 12 years.

The three cases specially studied were given hospital treatment for five months—two months as indoor patients and three months as outdoor patients. They were followed-up for a further period of five months; the total duration of treatment was 18 months. It was frequently observed that the clinical improvement was not necessarily accompanied by improvement as judged pathological and radiological investigations.

The dosage schedule for streptomycin was as in Table I below.

TABLE I
Showing the Dosage Schedule adopted for Streptomycin and Nydrazid

Age group	Streptomycin dosage		Nydrazid dosage
	Intrathecal	Intramuscular	Oral
Up to 1½ yrs.	20 mg.	½ g.	25 mg. b.d.
1½ to 5 yrs.	20 mg.	½ g.	25 mg. t.i.d.
6 to 9 yrs.	25 mg.	½ g.	
10 to 12 yrs.	25 mg.	½ g.	
6 to 12 yrs.	—	—	25 mg. q.i.d.

Multivites in adequate doses were given to all cases as also a high-protein, high-carbohydrate and high-fat diet with suitable amount of minerals. Cortisone was given orally in complicated cases in 25 mg. doses twice daily.

The incidence of the disease was higher in the Hindus than in Christians and Mahomedans, and among the Hindus it was more common in the scheduled castes and banyas. The number of cases from the Eastern U.P. was more than from Western U.P.

Case report.—CASE 1. S. K., aged 6 years; Hindu, schedule caste, male from Gorakhpur was admitted with complaints of fever of 20 days' duration, frequent vomiting for 5 days and unconsciousness for one day. He had no cough or other complaints.

Past history:—He had pertussis, diagnosed by another doctor at the age of 5 years. He had no other disease except moderate fever for 1 to 4 days at irregular intervals, for which he did not receive any treatment.

1. **Family history:**—Mother had occasional pyrexia and cough for which she received no specific treatment. An X-ray picture of her lungs showed nothing abnormal. Her blood showed 27% eosinophils. She had no complaint when she was examined by us.

2. **Mother's relations:**—Grand father died of T. B. of the lung. Mother and father had no cough. Mother died of pain in abdomen. Father died of high fever of short duration.

3. **Father** had occasional cough. His lung fields were clear and no abnormality in his blood.

4. **Father's relations:**—Both mother and father are alive and healthy.

Socio-economic history:—The patient was from the low income group with poor nutrition and living in damp and congested lodgings. His diet was especially poor in high class proteins and vitamins.

History of present illness:—The patient had fever 20 days back, which was not high at the onset, but shot up two days later, since when it was continuous. The temperature was not recorded. Five days ago he started vomiting, which increased in frequency and was 10 to 15 times a day when admitted. He became unconscious the previous day and was in the same condition when admitted. Local treatment with indigenous drugs given outside, had no effect.

ON EXAMINATION:—The patient was of average build with a pulse rate of 150 p.m. and a temperature of 101°F; his conjunctivæ and nails were anæmic; his tongue was dirty and moist; the teeth were dirty. His appetite was poor, his sleep was disturbed but the bowels were regular.

SYSTEMIC EXAMINATION:—**Central nervous system:**—The cranial nerves were normal; behaviour was irritable; neck rigidity was present (+ +).

Cardiovascular system:—Pulse rate was 150 per minute but the heart showed no abnormality.

Respiratory system:—The movements were rapid and bilaterally symmetrical; no bony anomaly; the apex beat was heard at the 4th interspace half an inch internal to mid-clavicular line; trachea was in normal position; percussion slightly impaired on both sides, in all zones. Coarse crepitations were heard at the left apex, right apex and both mid-zones. **Abdomen** showed nil abnormal.

Legs:—Nutrition: impaired; tone: diminished; knee and ankle jerks were normal in both; plantar: extensor in both; ankle clonus was absent; and Kernig's sign was positive in both.

INVESTIGATIONS:—**X-ray of the skull:**—Showed nothing abnormal; **X-ray of the chest** was not suggestive of pulmonary tuberculosis.

Blood:—At the time of admission:—Total R.B.C. count was 2.5 million per cmm. and total W.B.C. 15,000 per cmm.; Differential count:—polys 56%; lymphos 40%; eosino 4%; monos nil.

Blood examination at the time of discharge showed a total R.B.C. of 4.2 million per cmm.; a total W.B.C. of 7000/cmm. Polys 65%; lymphos 30%; Eosino 3%; monos 1%; baso 1%. The urine and stools were normal on examination.

Cerebrospinal fluid at the time of admission was clear; cobweb coagulum on standing; there was increased tension (+++); 58 cells per cmm.; proteins: 200 mg.%; chlorides: 540 mg.%; and sugar was 15 mg.%. No organisms were found in the C.S.F. **At the time of discharge** the C.S.F. was clear with no increase in tension; 3 cells per cmm.; proteins: 30 mg.%; chlorides: 730 mg.%; and sugar was 54 mg.%. No organisms were found.

CLINICAL CONDITION WHEN DISCHARGED:—His temperature was normal; no abnormality seen in his lungs. His appetite had improved; his bowels were regular and he had increased in weight and there was no rigidity in the neck.

TREATMENT:—Ambistryn 25 mg. was given intrathecally on alternate days for two weeks, bi-weekly for two weeks, weekly for two weeks and fortnightly for one week; it was given also intramuscularly every day for eight weeks at $\frac{1}{2}$ g. per day; Nydrasid 25 mg. q.i.d.; Pencebrin 1 cc. in o.d. and Mist. diaphoretic. 3 iv t.d.s. On discharge he was advised to take the following treatment regularly: Streptomycin $\frac{1}{2}$ gm. o.d. for 1 month, bi-weekly for 3 months and later weekly for one year; Nydrasid 25 mg. q.i.d. for a year and a half and multivite tablets one b.d.; a diet rich in high-class protein and with an adequate amount of fats, carbohydrates, minerals and vitamins. He was also asked to have a frequent check-up.

Case II.—C., aged 7½ years, Hindu, banyas male of Gonda, came with complaints of fever of 1½ months' duration; headache for 15 days; cough for 10 days; convulsions for 5 days; delirium for 3 days and had been unconscious for 12 hours.

Past history.—He had frequent attacks of diarrhoea for the last 2 years; he had measles at the age of 4 and suffered from fever occasionally for a year.

Family history.—Mother—alive and healthy; nothing of significance in mother's relations; Father—had syphilis 5 years ago after the birth of the patient and nothing to note in his relations.

Socio-economic-history.—He was from the low economic strata, with a deficient diet, living in insanitary dwellings.

History of the present illness.—The patient has been having fever often very high since 1½ months. During high fever the patient has intense headache also. At times he became delirious and got convulsions since last fifteen days; his headache and convulsions since last five days were more frequent. Patient has had cough only since the last ten days. The cough was never a prominent symptom. The patient has been unconscious for the last twelve hours and was admitted to the hospital in that state. He has had no treatment outside.

GENERAL EXAMINATION.—The boy was average-build; his conjunctivæ and nails being anæmic; his tongue and teeth were dirty and moist; his pulse was 140 per minute; temperature was 100 F.; his appetite was poor and he was always drowsy; bowels were constipated.

SYSTEMIC EXAMINATION.—*The central nervous system*.—Cranial nerves were normal; his behaviour was irritable; neck-rigidity was present (++++).

Cardiovascular system.—Pulse rate was 140 per minute; N.A.D. in the heart.

Respiratory system.—Cachexia was marked; respiratory movements bilaterally symmetrical but slow and there was no bony abnormality. The apex beat was heard in the 4th inter space half an inch internal to mid-clavicular line; his trachea was in normal position; percussion note was impaired in all zones on both sides; coarse crepitations heard throughout in both lungs, but more marked at both apices. The abdomen showed nothing abnormal.

Legs.—Kernig's sign positive; nutrition much impaired.

INVESTIGATIONS.—An X-ray of the skull showed no abnormality; X-ray of the chest showed evidence of miliary tuberculosis.

Blood examination made at the time of admission revealed a total R.B.C. of 2 million per cmm. and a total W.B.C. of 10,500 per cmm. The differential count showed: polys 60%; lymphos 40%; eosino nil; mono nil; basophil nil.

At the time of discharge the blood test showed a total R.B.C. of 3.5 million per cmm. and a total W.B.C. of 8000 per cmm. The differential count was: polys 62%; lymphos 35% and eosino 3%.

The urine and stools were normal. At the time of admission the C.S.F. was clear with no coagulum; a much increased

tension (++++); 48 cells per cmm.; proteins 130 mg.%; chlorides 610 mg.%; and sugar 40 mg.%; no organisms were seen. At the time of discharge—it was clear with a slightly increased tension; and 5 cells per cmm.; proteins 35 mg.%; chlorides 730 mg.%; and sugar 45%; no organisms were seen.

CLINICAL CONDITION WHEN DISCHARGED.—The temperature was normal; lung signs had markedly improved, as also the appetite; the bowels were regular and there was no rigidity of the neck. The patient had put on weight.

TREATMENT.—It was the same as that given to the previous patient, except that this patient was given also cortisone 25 mg. b.d. orally for two weeks. He was given advice on discharge on the same lines as for Case I.

Case III.—K. B., aged 11 years, Hindu, baniya girl of Banaras was admitted with complaints of fever of 4 months' duration; diminished appetite for 5 months; pain in the neck for 6 days; and convulsions for 4 days.

Past history.—She suffered from whooping cough, at the age of 5 years, had smallpox at the age of 6½ years and also suffered often from diarrhoea.

Family history.—Her mother had pleurisy with effusion twice. Among the mother's relations, two sisters and her father had pleurisy with effusion and the father died of pulmonary tuberculosis. Her father suffers from bronchial asthma.

Socio-economic history.—She belongs to the middle class in sound economic condition with good nourishment and living in sanitary lodgings.

History of present illness.—The patient is having fever since last four months. Her appetite has diminished since last two years, but more marked since 5 months. She is feeling pain in the neck since last 6 days. The pain is less when she keeps her neck extended. She has had convulsions for the past 4 days. She was regularly getting Ayurvedic treatment, but it did not avail her.

ON EXAMINATION she was of average build; her conjunctivæ and nails were normal; her tongue was clear and moist and the teeth were clean; the pulse-rate was 130 per minute; the temperature 100 F.; her appetite was poor and her sleep was disturbed. She had constipated bowels.

SYSTEMIC EXAMINATION.—*Central nervous system*.—The cranial nerves were normal, as also her behaviour; she had a slight rigidity of the neck.

Cardiovascular system.—The pulse rate was 130 per minute her heart, lungs and abdomen showed nil abnormal. Kernig's sign was positive in the legs and their nutrition was not impaired.

INVESTIGATIONS :—The X-ray pictures of the chest and skull showed nothing abnormal. Blood examination at the time of admission revealed a total R.B.C. count of 3.5 million per cmm. and a total W.B.C. of 10,000 per cmm.; poly 55%; lymphos 38%; and eosino 7%.

At the time of discharge the figures were total R.B.C.: count 4 million per cmm. and total W.B.C. 8000 per cmm.; polys 62%; lymphos 32%; eosino 4%; monos 2%. The urine and stools showed *nil* abnormal.

At the time of admission the C.S.F. was clear with cob-web coagulum on standing; increased (++) tension; 20 cells per cmm. and proteins 90 mg.%; chlorides 680 mg.%; and sugar 20 mg.%. No organisms could be seen.

At the time of discharge the C.S.F. was clear with normal tension; 3 cells per cmm.; proteins 30 mg.%; chlorides 720 mg.%; and sugar 40 mg.%; no organisms were present.

CLINICAL CONDITION WHEN DISCHARGED :—The temperature was normal; as also the appetite. The bowels were regular and the patient's weight had increased. The lungs showed nothing abnormal and there was no rigidity of the neck.

TREATMENT :—Ambistryn 25 mg. intrathecally on alternate days for two weeks, bi-weekly for two weeks, weekly for two weeks, and fortnightly for a further week, and the same in 0.5 g. doses was given for 8 weeks *i.m. o.d.*; Nydrazid 25 mg. *q.i.d.* for 8 weeks; Pencebrin 1.5 cc. *i.m. o.d.*; Mist. diaphoretic 3 iv *t.d.s.*; Paraldehyde 2 cc. *i.m. sos.*

ADVICE WHEN DISCHARGED :—Ambistryn $\frac{1}{2}$ g. *i.m. o.d.* for a month; and bi-weekly for 3 months; Nydrazid 25 mg. *q.i.d.* for the whole period adequate and suitable diet was also advised.

Conclusions.—Tubercular meningitis is more common in infants and children; females are more affected than male children; more Hindus suffer than Christians and Muslims; streptomycin given intrathecally in addition to intramuscular therapy gives better results than streptomycin given by the intramuscular route alone; intrathecal streptomycin must be continued for an adequate period and then tailed off gradually. Cortisone should be given in complicated cases of tubercular meningitis in order to obtain better results. The patient should receive adequate nourishment throughout the treatment and for a long time thereafter. The progress of a case should be assessed clinically, pathologically and radiologically. Frequent check-ups are essential even after the patient has been discharged from the hospital. Early diagnosis, suitable, early and prolonged treatment with adequate rest and nourishing diet, make for success in the management of tubercular meningitis.

PHARYNGOPLASTY

(Case Report)

R. J. MANEKSHA, F.R.C.S. (Eng.),
Bombay

IN cases of cleft palate the importance of closure of the defect is to improve physiological functions, like speech. Speech requires a good oro-pharyngeal mechanism and a proper closure of the oro-pharyngeal isthmus. This requires a mobile and retroplaced soft palate so that there is no nasal escape during speech. When the palate is very short or has often been operated, it is not possible to close this isthmus without the aid of extra palatal tissue, which can be provided either from the oral cavity or from outside. In the former method, the pharyngeal flap operation is a very useful procedure. A tongue shaped flap is elevated either with its base above or below and its free end is attached to the separate parts of the soft palate. This operation thus creates a bridge of tissue from the palate to the pharynx with two lateral apertures. It is a permanent bridge of tissue and it helps in reducing the amount of nasal escape. The other operations on the pharyngeal wall which diminish the gap are Hyne's and Wardill's pharyngoplasties. Gillie has used a skin tube from outside the oral cavity and inserted it in the palatal gap after a series of operations.

Case report.—Miss W., a girl of 14, had a cleft palate defect since birth. She had already undergone four unsuccessful operations elsewhere on the palate and at each attempt useful tissue



FIG. 1. After pharyngoplasty. Shows the posterior gap closed by pharyngoplasty operation. No closure attempted in front as the gap is very wide with absence of palatal tissue.



FIG. 2. With obturator in position. Front gap closed with an obturator. Considerable improvement in speech after operation.

had been subtracted from her palate till she ended up with a wide gap in the hard and soft palates and very poor speech.

It was decided that pharyngoplasty would help to close the back end of the palate and the front portion should be closed with an obturator. Under general anaesthesia a superiorly based flap was elevated and after freshening the margins of the remaining soft palate both the structures were stitched with 2-0 plain catgut. Two release incisions were made in the hard palate so as to push the palate as far back as possible.

The result of the operation shows a good closure of the oropharyngeal isthmus. She is now receiving speech therapy.

"Pravin Court,"
Queen's Road, Marine Lines,
Bombay-2.

NEUROLOGICAL MANIFESTATIONS IN TYPHOID

T. V. VENKATESAN, M.B., B.S., F.A.I.M., F.C.C.P. (U.S.A.),
F.A.C.A., F.I.A.A., F.D.S. (Lond.).

Formerly Hony. Physician, Medical Unit and
M.O., In-charge Neurology Clinic, Erskine Hospital, Madurai

VARIOUS neurological manifestations in typhoid were noted in the medical unit during a period of 10 years and these will be reviewed below :

Memory.—At the onset, memory is usually deficient and during convalescence it is impaired. Post-typhoid psychosis and neurasthenia may occur.

Delirium.—(a) At the onset delirium is not common; and (b) during the 2nd and 3rd weeks, the patient may be quiet and stuporose or continuously restless.

Coma vigil.—The patient has open eyes, is muttering and is oblivious to surroundings. There is incontinence of urine and faeces. Tremors of the lips, tongue and limbs occur. Twitching of the muscles or subsultus tendinum, carphology or picking of the bed clothes are seen.

A suicidal tendency may be present; also acoustic neuritis; cerebral venous and sinus thrombosis; and anterior crural nerve involvement producing crural neuritis. The motor portion may be involved producing difficulty in flexion at the hip; the sensory involvement, the irritation producing pain and paralysis producing loss of sensation of the area of supply may occur.

There may be lateral cutaneous involvement producing pain or anaesthesia or Bernhard syndrome. Meningeal spinal haemorrhage or haematorachis may occur. This may cause sudden pain of root distribution. Peripheral neuritis may occur late in the disease or during convalescence. Neuritic ocular paralysis may occur in typhoid; also painful cramps in the calves due to myositis or venous thrombosis; and hemiplegia due to cerebral thrombosis.

T.A.B. vaccination may produce Landry's paralysis and myelitis; Typhoid meningism is common in children while typhoid meningitis is extremely rare.

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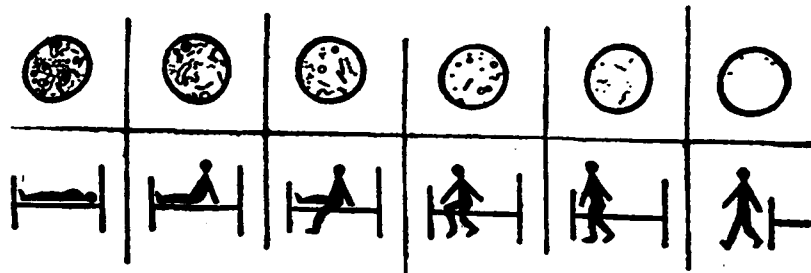
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A Monthly Journal of Medicine and Surgery

Published on the 6th of every month

Founded by the late Dr. U. RAMA RAU in 1904

Consulting Editor: U. KRISHNA RAU, M.B., B.S., M.L.A.,

Editor: U. VASUDEVA RAU, M.B., B.S.

Editorial & Publishing Office: 323-24, Thambu Chetty St., Madras-1

Annual Subscription: Rs. 7-50 aP. Foreign—Rs. 10—Post Paid

Vol. 56

FEBRUARY, 1959

No. 2

Editorials**DIAMOND JUBILEE OF THE HAFFKINE INSTITUTE AT BOMBAY**

(Sixty Years of Remarkable Progress)

INAUGURATING the Diamond Jubilee Celebrations of the Haffkine Institute at Bombay on the 10th ultimo, over which Shri Sri PRAKASA, Governor of Bombay presided, Rashtrapathi RAJENDRA PRASAD expressed the hope that modern scientists in the different spheres of scientific research would pool and utilize their knowledge for the welfare of humanity and prevent their use for destructive purposes. "The world, particularly we in India," said President PRASAD, "owe to Dr. HAFFKINE a debt of gratitude, for he helped to rid India of its major epidemics, plague and cholera."

India paid its homage, in the presence of numerous scientists of renown who had come from all over the world to attend these celebrations, to the great benefactor Dr. WALDEMAR M. W. HAFFKINE, whose genius was responsible for practically eradicating plague from this country and for controlling epidemics of cholera both of which were levying a heavy toll of precious human lives.

Late in the year 1896, Dr. HAFFKINE arrived in Bombay entrusted with the great task of controlling and preventing the Bubonic plague that was taking a heavy toll of human lives in Bombay and its suburbs. The disease is believed to have started earlier in the year among workers in godowns, where cereals and grain were stored, and to have spread like wild fire through the agency of rats infecting the godowns.

The trade in Bombay became paralysed; shops and houses were deserted, and people started a regular exodus from the city, only to spread the disease in other parts of the country. During

(13)

the first year of its incidence nearly 2,000 of the 2,600 people affected fell a prey to it, and in the three years that followed nearly 2½ lakhs of people died out of the 3½ lakhs stricken with the fell disease.

It was under these circumstances, that Dr. HAFKINE set to work, and successfully evolved a vaccine which after due tests and standardization, he used on himself before issuing it for the inoculation of the general population.

He started working first in a small room in the Grant Medical College, Bombay, with little or no trained help—for bacteriology was then only a baby-in-arms, brought into the world by the savants Pasteur and Koch. The cholera vibrio was discovered by Koch about 1880, and it was Dr. HAFKINE who, after his apprenticeship under Louis Pasteur, undertook the task of finding a remedy to combat the spread of cholera. He successfully cultivated the comma bacillus (cholera vibrio) outside the human host, maintaining its virulence through successive passages; he was soon able to make anti-cholera vaccine that would protect the experimental animals, and conferred great immunity on them.

He then tested it on himself successfully. The real tests on the general population was, however, made by him only in 1893 at Calcutta when he arrived there at the instance of Lord Dufferin, a former Viceroy of India who was then an Ambassador in France.

Cholera was severely endemic in Bengal. Dr. HAFKINE inoculated nearly 25,000 persons and about 90 per cent. of them escaped from the disease. Soon it became apparent that therein was a reliable preventive of cholera, and anti-cholera inoculation came to be recognized throughout the world as an efficient prophylactic. It however, took about 25 years more to become quite popular in India and today its value remains unassailed.

To return to the Bombay Institute, although the causative organism of plague—the *Bacillus pestis*, which takes a bipolar staining—had been discovered in 1894 by two great Japanese scientists, Kitasato and Ayoma, it was given to Dr. HAFKINE to discover the remedy that would be effective in preventing those germs from multiplying and causing the disease in the human body.

This remedy was the plague vaccine, which consists of an emulsion of the dead bacilli in a suitable medium. He made cultures of the bacillus on suitable broth media, killed them with carbolic acid, standardized and tested the vaccine first on himself. This served to imbue others with courage, and ultimately the first experimental investigation on humans was begun. The initial results were encouraging, as only about two per cent among the people who were inoculated developed plague.

Encouraged by these preliminary trials, the Bombay Government embarked on a large scale manufacture of the plague

vaccine for use not only in Bombay but also in other parts of India to which the disease had by now travelled and was playing havoc. Much larger accommodation and personnel being required for such an enterprise, the Bombay Government set up the Plague Research Laboratory on August 10, 1899 in a large and spacious old Government House building, Dr. HAFKINE being made its first Director. Eventually it came to be named "The Haffkine Institute" in 1925, and Dr. HAFKINE was awarded the distinction of C.I.E. in recognition of his eminently humanitarian services to this country and its people.

The main function of the Institution has been to supply plague vaccine and since its inception in 1898 it has issued 270,000,000 ccs. Apart from this it has also issued a large quantity of cholera vaccine and in 1958 the supply figure was 9,665,880 ccs. and the quantity of typhoid vaccine supplied was 300,000 ccs. The vaccine department is engaged in fundamental research on bacterial variation, bacterial dissociation, immunogenic structure, antigen-antibody reactions, biological standardization of vaccines and agglutinable suspensions and such other fields of research. Under the Second Five-Year Plan, it has committed itself in conjunction with the Department of Anti-Toxins and Sera, to the production of triple toxoids for combined immunization against diphtheria, tetanus and whooping cough. This department collaborates with the plague Committee of the Indian Council of Medical Research in researches on plague and with the World Health Organization in the standardization of cholera vaccine.

This institute is now an International Research Centre with over a hundred scientists working in it on different problems connected with curative and preventive medicine and general sanitation. Medical research, the training of research workers, the supply of vital biological and diagnostic acids constitute the main functions of this great institution. The manufacture of sera and anti-toxins started in 1940 has considerably expanded; during the two years 1955 and 1956 a total of over 28,83,770 ccs. of various sera were manufactured and supplied. The preparation of antivenene against the bites of poisonous snakes—the Cobra, Russell's Viper, Krait and Saw-Scales Viper—is another important branch of activity; antivenene is supplied in the lyophilized form so as to ensure ease of administration in rural areas with its potency unimpaired.

The institute also now manufactures drugs and synthetic chemicals like sulphonamide preparations, vitamin tablets, and anti-malarials. New synthetic compounds are also being made and tested for their utility and efficacy. There is a department of clinical pathology which functions as a diagnostic centre helping in the diagnosis of T.B., diphtheria, enteric fevers and also carrying out clinical tests for hospitals and private practitioners.

The Pharmacological Department helps in the investigation of medicinal plants, drugs and indigenous remedies. It has, during recent years, done very good work in checking the adulteration of drugs.

The institute also trains students for postgraduate degrees in the medical sciences and in pharmacology.

The bulk of this expansion in the activities of the institute took place under the able directorship of Col. SAHIB SINGH SOKHEY who guided the destinies of this institution for 10 years from 1939 to 1949 and it is certainly gratifying to know that Dr. H. J. JHALA, the present Director is maintaining those high traditions by initiating further useful programmes, for which he has secured financial help from the Union Government to the tune of Rs. 16 lakhs in the Second Plan.

We have great pleasure in associating ourselves with the well-deserved tributes that were paid by various distinguished speakers who participated in the Jubilee Celebrations.

THE TENTH ALL INDIA OBSTETRIC AND GYNÆCOLOGICAL CONGRESS 1959

(Twelve-point programme suggested to improve conditions)

PRESIDING over the Tenth All-India Obstetric and Gynæcological Congress on the 3rd January 1959 at the Jubilee Hall at Hyderabad, Shri Dr. R. K. K. THAMPAN, former Director of the upgraded Department of Obstetrics and Gynæcology, Government Hospital for Women and Children, Madras said that obstetrics and gynæcology had not made much headway in India and deplored the lack of proper clinical training in medical colleges in the country. "It is not uncommon," he said, "to see institutions even today where all facilities for obstetric and gynæcological training are lacking, men students being allowed to receive the foetal head over the perineum, the rest of the patient being covered over by a screen. There is even a feeling as to why men students should have any training in obstetrics at all, because most of the work is done by women doctors. This is the foremost cause for the high maternal mortality and morbidity in the country."

It is only from the beginning of this century that improvement had begun in the teaching of obstetrics and gynæcology. In India, at present, there is a tendency to reduce the accepted procedure of more advanced countries to introduce training and examination in obstetrics and gynæcology, which is a retrograde step. "Both these subjects require a thorough knowledge of anatomy, physiology and pathology, and both these subjects should be preserved as a single speciality. Only then will the better and more capable young men be attracted to the speciality."

Post-graduate training in India in these subjects should be rationalized throughout India and this is the time for it, when more and more colleges are being opened, sometimes without adequate staff and teaching facilities. Again every obstetrics and gynæcology department must have a separate staff for research work." We quite agree with Dr. THAMPAN that it is quite essential to organize a body which would discharge the functions now undertaken by the American Board in the United States and the Royal College of Obstetricians and Gynæcologists in U. K. to control the teaching and practice of obstetrics and gynæcology in our country.

Any attempt therefore, at splitting the two subjects at the level of training or examination will certainly be a retrograde step and must be resisted. The head of the department should be a full-time professor and specialist untrammelled by thoughts of private practice. This would certainly mean the grant to him of an attractively adequate remuneration.

Dr. THAMPAN outlined a very sensible and rational twelve-point programme to improve the present unsatisfactory conditions. This programme includes the organization of a body similar to the Royal College of Obstetricians and Gynæcologists in U. K. to supervise the teaching and practice of obstetrics and gynæcology in India; ensuring uniformity in training and examination, establishment of research sections with full time medical and non-medical staff attached to the Department of Obstetrics and Gynæcology; combination of the two branches: obstetrics and gynæcology at the level of training and examination, they being a single department; and selection of students for post-graduate training on merit based on their performance during the college course and particularly during the internship period.

We have ourselves stressed in these columns on several occasions, the need for introducing some of the improvements outlined above and once again reiterate the imperative and urgent need for the early implementation of these proposals on an All-India basis.

THE DRUGS INDUSTRY IN INDIA

XIV Annual Conference of Chemists and Druggists

(Immediate relaxation of import curbs needed)

It will be remembered that just about 4 years ago the Pharmaceutical Inquiry Committee stated in its final report that "we see for the industry a great future when it develops on a planned basis, and in view of its vital nature we recommend that no effort be spared to see that it does develop on right lines." In the interval since then there certainly has been development, e.g., a large increase in manufacturing capacity, and an expansion

in many directions, but at the same time it might be asked whether the injunction of the Committee has been completely borne in mind, that no effort should be spared to see that the development is *on the right lines*.

The holding of the 14th Annual Session of the All-India Chemists and Druggists' Federation at Madras in November 1958, which was inaugurated by Sri M. A. MANICKAVELU, the Madras State Health Minister, would appear to call the pointed attention of all concerned to this vital subject, *namely*, the supply of pure and reasonably cheap and effective medicines for the prevention and cure of diseases and for the maintenance of a high state of health for the population.

The progressive imposition of restrictions on the import of several items on the chemists' and druggists' lists, and the growing menace due to the widely prevalent practice of purveying of sub-standard and often spurious and adulterated articles, have placed several limitations on doctors who are called upon to treat serious ailments; and there can be no doubt that precious lives will be in jeopardy for want of particular specifics, in the required quantities and at the needed times. There appears to be little possibility of the situation improving at all until the bans are lifted or/and the production of quality-drugs is accelerated and advanced. All the speakers at this conference stressed these very points but the Government is unable to find the necessary funds to finance the permit of large imports. Local manufacture of these drugs in our own country is also handicapped, we are told, by the same financial stringency. Still it may be possible that much can be achieved by a tightening up of the application of the rules and regulations in force to ensure that the highest standards are maintained not only in the manufacture but also in the distribution of quality products through sales agencies. Sri M. A. MANICKAVELU, the Madras Health Minister, rightly deplored the tendency of some sectors to put up the prices and make enormous profits when emergencies arise; but it is a difficult problem to put an effective stop to it. Greater vigilance and effective control may help to some extent but unless there is an abundance of supplies, attempts at controls may fail and fail miserably. Mr. H. BHATTACHARYA, the President of the Federation held at Madras pleaded at least for a reduction of the sales tax, which had recently been doubled, if the Government cannot exempt drugs and medicines and make inter-state movements easier and simpler. "If the drugs trade is to be stabilized it is very vital", he said, "that the consumers' fair price should be fixed on an all-India basis." With this everyone would certainly agree. We are glad that Mr. MANICKAVELU announced at this meeting that a Drugs Advisory Committee would soon be formed in the State and that it has since actually taken shape by now. On the question of

exemption from sales tax, he pointed out that "such exemption would be granted only to perishable commodities, and this could not be said of medicines. If they could arrive at some workable formula and place it before the Government, they would certainly consider it and give the necessary relief." The Chief Minister, Mr. K. KAMARAJ, who also participated in the discussions said that their trade was vital for the health of the people and that their deliberations would receive due consideration at the hands of the Government.

The 35th All-India Medical Conference which held its sittings at Cuttack in Orissa on the 26th and 27th December 1958, by a special resolution passed unanimously, requested the Union Government to relax immediately import restrictions on important 'life-saving medicines' which were scarce in the country, and the tried and tested substitutes for which are not manufactured in the country at present. Deploping the "acute scarcity" of these medicines, the Conference urged upon the Government to take such steps as would make available these important drugs, and at the same time, make arrangements for their manufacture in India as early as possible. We have no hesitation in stating that life-saving drugs, which have not been manufactured or is not likely to be manufactured in the near future in India must be allowed to be freely imported in order to prevent jeopardy to the precious lives of patients who are likely to recover if those drugs are readily available in adequate quantities and at moderate cost.

Special Feature

NEWS-LETTER FROM THE UNITED STATES

The possibility of discovering new slants on medical problems seems limitless, and any new ideas may develop into valuable advances toward treatment, cure, and prevention of disease. New attitudes toward many long-standing medical problems were reported at the annual Clinical Conference of the Chicago Medical Society in Chicago. E. S. Gordon pointed out that there is increased evidence that *stress contributes to raising blood cholesterol levels* and probably influences the rate of development of atherosclerosis. At the same time, physical exercise, even though it is, in a sense, a form of stress, appears to lower the blood cholesterol level. There are, however, other factors that play a part in rate of development of atherosclerosis. These include diet, function of the endocrine glands, and inherited tendencies. Also speaking at the Clinical Conference of the Chicago Medical Society was M. E. De Bakey who described an *artificial tube used to replace defective arteries*. The tube, made of flexible, knitted Dacron, has been used in more than 500 patients with aneurysm of the abdominal aorta. Operative mortality was reduced from about 20 per cent in the first cases to 2 per cent in the last 100 cases, and a five-year follow-up study showed that life expectancy was substantially increased. The plastic tube has also been used in 1,000 patients with occluded artery diseases, with equally striking results. Normal circulation was restored in 90 per cent of patients, and operative mortality rate was only about 2 per cent. Mortality rates from various forms of purulent meningitis

were 90 to 100 per cent before the advent of chemotherapeutic agents. Of the therapeutic agents now available, the sulphonamides and antibiotics have proved to be the most effective against meningitis, and one of the most commonly used of the antibiotics is *Chloromycetin*. E. Appelbaum and C. Abler, reporting in the February 1 issue of the *New York State Journal of Medicine*, 58:363, 1958), regard Chloromycetin as one of the very effective agents in treating meningitis due to *H. influenzae*, with a big advantage over streptomycin in that it can be given orally.....A new way of storing plasma has eliminated the danger of transmitting hepatitis to the recipients of transfusions. P. I. Hoxworth and W. E. Hæslar, Jr., reporting in the March 15 issue of *The Journal of the American Medical Association* (166:1291, 1958), point out that after World War II, many methods of eliminating the virus activity in plasma were attempted. Storage of plasma at room temperature for six or more months was suggested in 1951, and a four-year study made since that time has shown the method to be successful.....Diocetyl sodium sulphosuccinate (Colace) is an effective wetting agent for softening hardened stools. In some constipated persons, the addition of a peristaltic stimulator (Peristim) to the therapeutic regimen is advisable. In a study reported by T. A. Lamphier in the December issue of the *American Journal of Proctology* (8:442, 1957), a combination of the two agents (Peri-Colace) was administered to 130 hospitalized patients, 29 of whom were post-partum patients, 41 post-surgical patients, and 63 patients with chronic functional constipation. The average dose was one capsule containing 100 mg. of Colace and 30 mg. of Peristim, but some patients required a larger dose to achieve the desired results. Peri-Colace gave satisfactory results in 97 per cent of these patients. Need for post-operative enemas was almost completely eliminated, and in most of the other patients, constipation was easily corrected.....The XI Biennial International Congress of the International College of Surgeons met in Los Angeles recently to hear papers on some of the latest advances in surgery. L. S. Lucas and J. B. Watkins described a new procedure to correct talipes equinovarus, a type of clubfoot that has been unresponsive to standard treatment. The technique requires cutting the heel bone, notching the severed ends, and fitting the pieces firmly together in a corrected position. A plaster cast holds the foot in place until healing is complete, which takes about eight or nine weeks. Of 45 children on whom this operation was performed, clinical results were good in 33, satisfactory in 7, and unchanged in 5.....Meticorten (Prednisone) has been found highly effective for short-term therapy of acute allergic states. S. J. Levin and P. Adler, reporting in the February issue of the *A. M. A. Journal of Diseases of Children* (95:178, 1958), summarize the results of the short-term use of Meticorten in 85 children with various acute allergic states. Meticorten was found to be two to four times as effective as hydrocortisone and, at the same time, to show fewer side effects. There were no evidences of excessive weight gain, hypertension, or other side effects, nor was there any need for low-sodium diets or supplemental use of potassium. The authors emphasize the fact that Meticorten is effective for short-term therapy, but is not a substitute for specific allergic diagnosis and management.....A pediatrician, K. E. Kassowitz, says that a child's response to hypodermic injections is a good indication of his emotional development. Reporting in the March issue of the *A. M. A. Journal of Diseases of Children*, 95:253, 1958, Dr. Kassowitz noted that there is a normal response to injections at various ages. His study was based on 133 children ranging in age from infants to 12-year-olds, who received a total of 328 injections. Results showed that babies up to 6 months of age have an emotional response to injections. Children from 1 through 4 years of age show the greatest amount of fear and resentment. From 5 to 8 years of age children tend to decrease their fighting of the injections. After 8 years of age they develop self control and pride. Episodes of non-compliance after this age may indicate an underlying emotional disturbance.

GLEANINGS FROM THE MEDICAL PRESS

MEDICINE & THERAPEUTICS

Nocturia in the elderly.—(*The Practitioner*, London, Sep. 1958).

There are many cases of nocturia in the male which can be successfully treated by combined therapy with vitamin B₁, oestrogen and a day-time diuretic, according to Sidney Vernon in the *Journal of the American Geriatric Society*, May 1958, 6:411. This conclusion is based upon the hypothesis that 'troublesome nocturia in the elderly male may in some cases be due to general ageing of connective tissue, which permits increased hydration of the skin, kidney, and interstitial spaces.' Before embarking upon such medical therapy it is, of course, first necessary to exclude any surgical urological cause for the condition. The recommended dose of aneurine hydrochloride (vitamin B₁) is 25 mg. thrice daily. Oestrogen may be given either as a weekly intramuscular injection in oil, or orally as stilboestrol 0.5 mg. thrice daily. The recommended diuretic is aminometradine, the diuretic action of which begins within an hour of administration and lasts for eight hours. It is given at breakfast and at lunch.

Isoniazid and pellagra.—(*The Practitioner*, London, Sep. 1958).

The hypothesis that the administration of isoniazid to undernourished tuberculous patients may induce pellagra is advanced by W. S. Haynes (*East African Medical Journal*, April 1958, 35:171). He gives details of six African patients who developed pellagra while under treatment for pulmonary tuberculosis with combined chemotherapy, including low-dosage isoniazid. In one patient pellagra dermatitis was preceded by confusional psychosis, and in three others there was evidence of riboflavin deficiency as well as pellagra. In four of these patients the response to chemotherapy was disappointing. It is suggested that 'in states of nicotinamide deficiency the body cells may grasp and fix the nearly related isonicotinic acid hydrazide which, however, does not prove an adequate substitute for nicotinamide in preventing clinical manifestations of pellagra. Should such a process occur, it would presumably lead to low isoniazid blood levels and a poor therapeutic response.' If this supposition is correct, then it would be advisable to give supplementary vitamin B to patients who are under treatment with isoniazid, particularly in areas where pellagra is known to occur.

Fatal agranulocytosis due to promazine hydrochloride.—(*The Lancet*, Nov. 9, 1957).

Although promazine hydrochloride ('Sparine') has been widely used in the U.S.A. as a tranquillizing agent, it has only recently been introduced into this country (England). It is closely related to chlorpromazine ('Largactil'), differing only by the absence of one chlorine atom. Reports so far indicate that it does not produce jaundice, which chlorpromazine sometimes does.

One case of fatal agranulocytosis following the use of promazine hydrochloride in the U.S.A. has been reported (Woodward and Solomons, 1956), but in this instance the dosage of promazine (1 g. daily) was very large by European standards. Six other cases of leucopenia have been communicated to the makers of Sparine, but in most of these evidence incriminating it has been equivocal. Delayed agranulocytosis is mentioned by Morrison (1957), who was using up to 2 g. of promazine daily.

Promazine hydrochloride has been used in this hospital chiefly as an equally effective but less toxic substitute for chlorpromazine. The fatal case reported here was among the first twenty-five patients treated.

The patient's previous history of sore throat possibly obscured the clinical picture and prevented early detection of developing agranulocytosis. On

the other hand, the fulminating onset of her infection suggests that the agranulocytosis might have developed just as suddenly. Since the dosage given was small, acute sensitization to the drug must be assumed. It is uncertain just how or why this takes place.

Several new tranquillizing agents derived from phenothiazine have been introduced into psychiatry in the past four years. Chlorpromazine has an established place in psychiatry in spite of its known toxic effects.

Promazine hydrochloride has been used in about 30 cases in this hospital. My impression is that it is rather more effective than chlorpromazine, and a colleague considers it of equal benefit. It can be given intramuscularly without local reaction. The misfortune of agranulocytosis encountered so soon does not in any way condemn promazine. However, it is important to determine the least toxic of these drugs as well as which is the most effective.

Gastrointestinal hæmorrhage and salicylates.—(*The Lancet*, Nov. 1, 1958).

Massive gastrointestinal bleeding was related to salicylate consumption in one patient by Douthwaite (1938); and small series of cases were subsequently reported by Hurst and Lintott (1939), Richmond (1950), and Kelly (1956). Hurst (1943) and Avery Jones (1952) agreed that aspirin might sometimes cause hæmatemesis and melæna, and a third of 166 patients studied by Muir and Cossar (1955) had taken salicylate compounds within six hours of bleeding. Similarly, Brown and Mitchell (1956), studying the American Negro, found that 19 of 46 patients with duodenal ulceration had taken salicylates within twenty-four hours of a massive hæmorrhage. In contrast, Waterson (1955) incriminated aspirin as a causal factor in only 3 of a series of 170 cases of *major* gastrointestinal hæmorrhage.

This paper reports a planned investigation of the relationship between salicylate consumption and gastrointestinal hæmorrhage in 121 consecutive admissions to a community hospital, with careful attention to

salicylate habits, both of the subjects studied and of a control group, and with extensive investigation directed particularly towards the causal lesions. In addition, the effects of salicylate compounds, soluble and insoluble, and non-salicylate analgesics on dyspeptic symptoms and stool occult-blood content have been studied in patients with peptic ulcer or with X-ray-negative dyspepsia and in controls. The appearance of the gastric mucosa at partial gastrectomy after salicylate ingestion has been compared with that in control specimens.

Salicylates could be incriminated in over 40% of 103 consecutive patients admitted to hospital with hæmatemesis and/or melæna associated with peptic ulcer.

The lesion induced by salicylates was difficult to define at gastroscopy or at partial gastrectomy. The clinical history, together with findings at emergency partial gastrectomy, indicated that acute erosions in the stomach, and possibly lower in the gastrointestinal tract, were sometimes responsible, although activation of a pre-existing chronic peptic ulcer often seemed likely. No alteration in prothrombin-time due to salicylates was found in patients with gastrointestinal bleeding.

Occult-blood loss in the stools occurred during periods of salicylate consumption in approximately 50% of patients with peptic ulcer or X-ray-negative dyspepsia and of controls. Patients with previous dyspepsia were more liable to massive hæmorrhage, but occult bleeding occurred equally in all groups. Both soluble and insoluble aspirin caused occult bleeding, but non-salicylate analgesics ('Phenacetin,' 'Panadol,' and 'Antidol') did not influence the stool occult-blood content. There was no evidence that soluble aspirin reduced the risk of *major* bleeding; neither were dyspeptic symptoms of intolerance nor the method of taking salicylate-preparations related to the occurrence of hæmatemesis and melæna.

Treatment of the nephrotic syndrome with concentrated human albumin.—(*The Lancet*, 8-11-1958).

In the treatment of the nephrotic syndrome the use of plasma-expanders such as concentrated human albumin, dextran, or triple-strength plasma has on the whole been disappointing. Although they induce diuresis they do not affect the underlying lesion, and their benefit is usually temporary, as in the case reported by Edwards (1957) in which the œdema recurred a week after leaving hospital. The main indication for them is in cases which do not respond to steroid therapy and which show increasing œdema despite routine measures. In such a case, reported by Williams and Ryan, concentrated human albumin proved of great value.

Concentrated human albumin, which is prepared by ether fractionation, has a relatively low viscosity and sodium content. Hence one can give much protein in a little fluid. If massive single infusions are given, signs of overloading e.g., headache, engorgement of neck veins, and a rise in blood-pressure—may appear. Martin (1954) found that in most cases rates equivalent to 15 g. per hour, up to a total dose of 1 g. per kg. body-weight, could be given safely; but he recommended that, with repeated transfusions, the dose should not exceed 150 g. per week. We used this scheme of dosage without any systemic or local reactions.

The prognosis of the nephrotic syndrome is determined largely by the glomerular changes. Joekes *et al* (1958) found that none of their cases with a membranous glomerulonephritis had a complete remission with loss of proteinuria as well as œdema, but such remissions did occur in those with slight glomerular lesions. The prognosis for our patient therefore appears good.

The nephrotic syndrome.—(*The Lancet*, London, 8-11-1958).

Nephrosis is albuminuric hypoproteinæmia of sufficient severity to cause œdema. Many causes are known, and more suspected; it is a syndrome—the nephrotic syndrome. But, however it is caused, it has the same

clinical features—namely, œdema, at first slight and subcutaneous, later gross and associated with transudates into the body's potential spaces; increased susceptibility to infection, and malaise. There may be other features, but these, like the age of onset, sex-distribution, course, and prognosis, depend on the exact cause of the proteinuria. And on this, too, depend associated features, such as hypertension or nitrogen retention.

Examination of the urine in the nephrotic syndrome always reveals heavy proteinuria; 50-80% of the protein is albumin, and the remainder the smaller globulins. These proteins can be shown to be immunologically identical with the serum-proteins, which themselves are qualitatively normal.

Treatment is still largely symptomatic. It is directed to draining the interstitial space of fluid and sustaining the serum-albumin. To this end very high protein diets are often recommended; but it is common experience that, if the renal loss of protein continues, these are useless, although they may increase the blood-urea. If the liver is already synthesizing albumin to its maximal capacity, then clearly extra dietary protein can do no good. It seems more rational to give only enough to prevent negative nitrogen balance. But a high-calorie diet is necessary to prevent endogenous tissue breakdown, for if this occurs then the effect is the same as giving a diet rich in protein and potassium. Reducing the volume of the interstitial fluid is useful, because of both the mechanical inconvenience of œdema, and the susceptibility of œdematous tissues to infection. The volume may be reduced by restricting dietary salt with or without administration of kation-exchange resins, or by increasing salt excretion by means of diuretics. There is probably no harm in using organic mercurials—essentially tubular in action—in cases where the lesion is thought to be glomerular. But the chief aim of treatment should surely be, not to reduce the interstitial fluid, but to increase the plasma-volume. This would reduce the

stimulus to aldosterone secretion and the consequent sodium and water retention and potassium loss. Here undoubtedly the most useful drugs are the *steroid hormones*, both for their direct action on the renal glomerulus, and for their indirect action whereby the adrenal gland's secretions are suppressed. In one or two special cases there is a specific treatment. In renal-vein thrombosis long-term administration of anticoagulants may be life-preserving. In a few cases secondary amyloidosis has responded to healing of the primary lesion. In general there is no specific remedy; for there are few specific causes, and there are many unexplained and largely untreatable cases. It is by the application of modern diagnostic techniques that we can hope to progress.

Dumping syndrome.—(J. A. M. A., 1-11-1958).

One of the most unpleasant sequelae of gastric surgery is the complex physiological response to the presence of undigested food in the jejunum commonly called the dumping syndrome, a vasomotor phenomenon characterized by weakness, sweating, or dizziness. If any one of these symptoms occurs during or within one hour after eating, a positive diagnosis can be made. No clear-cut increase in the incidence of dumping syndrome was found to be associated with an increase in the proportionate amount of stomach resected but the incidence did decrease with elapsed time after operation. Although the symptoms are almost identical with those of hypoglycemia the time relation to food taking is different. Hypoglycemic symptoms do not occur until two to four hours after eating. Failure to control the symptoms by the use of a judicious diet, avoidance of fluids at meal times, rest after meals when convenient, and parasympatholytic drugs is rare. Although fluids should not be taken with the meals, as soon as symptoms occur the patients should drink 250 to 500 cc. of any fluid containing no sugar or electro-

should be combined with the construction of a gastric pouch (using a portion of the jejunum) of sufficient volume to act as a reservoir.

SURGERY

Radical neck dissection.—(Med. J. Austral., 28-6-'58).

Although radiotherapy is usually preferred in the treatment of a mouth cancer at its primary site, surgery is the method of choice in the control of its extension to the cervical lymph nodes. There were distinct disadvantages in that division of the responsibility for treatment. Although the presence of enlarged nodes in the neck is the main indication for a block dissection, consideration is also given to the likelihood of cure of the primary lesion, to its site and its histology, to the patient's age and general condition, and to the condition of the metastases themselves. Professor Ewing says that a strong argument may be made for the removal of the neck nodes before they were enlarged, but most surgeons follow an expectant policy and remove them only when they first become palpable. Such a policy implied, for its success, a 100% follow-up. The block dissection is usually performed about a month after completion of the irradiation. The operation is designed to remove all the lymph tissue in the neck on one side, from the jaw to the clavicle and from the mid-line to the trapezius. It involves sacrifice of the jugular vein and its tributaries, of the accessory nerve, of the entire submandibular gland and of a part of the parotid. The post-operative disability is not considerable. The operation can be carried out on both sides at once, but it is preferable to perform it in two stages, separated by at least three weeks. The internal jugular vein can be sacrificed on both sides. Increasing interest is being taken in the possibility of resecting the primary growth in continuity with the block dissection of the neck. That technique is applicable, not only to the treatment of a cancer of the mouth, but equally to a tumour of the larynx, thyroid or parotid.

Advances in surgery: Arterial problems.—(The Practitioner, Oct. 1958).

'L'homme a l'age des arteres' is an aphorism that is as true today as it was when first said by Ambroise Pare in the sixteenth century. But it was hoped that when man could be supplied with new arteries from the cadaver or with nylon replacements this statement might no longer be true. In general terms lesions of the healthy artery wall such as embolism (from a distant source) or trauma react well and permanently to immediate surgery; not only is the wall itself healthy but the collaterals are competent. On the other hand, in the patient with the arterial system diseased in all its parts, peripheral, coronary, intestinal or cerebral, a localized lesion can be repaired only with a hope of temporary alleviation. Any tubular replacement of the resected artery, be it cadaver artery or nylon tube, will only remain a patent tube so long as an adequate forceful stream is circulating through it. The lumen may develop a fibrinous smooth type of lining but no genuine endothelium can be expected. In arteries as small as the common femoral, as found distal to Poupert's ligament, the lumen is too small, the *vis a tergo* insufficient and most arterial grafts in this region in time become thrombosed. A slow thrombosis, however, can give the collaterals time to enlarge and compensate and so the graft can in certain cases be said to have served a useful purpose. In the abdominal aorta, with its wide lumen and its more forceful current, a good result can be expected and in many cases it is at some distant point of the arterial system that the final calamity arises. To remove a clot can be effective if the artery wall is soft and pliable and healthy. Often such clots have not arisen locally but from the heart or some distant source. They differ greatly from the organized clot which arises primarily at the seat of obstruction and whose removal entails an endarterectomy leaving a tube with a rough lumen and one most prone to recurrence of thrombosis. By-passing

of the local obstruction by using a suitable vein, e.g. the long saphenous, can be most effective. One must remember to reverse the direction of the vein, to ensure that the valves are opening in the right direction.

Advances in cardiac surgery.—(The Practitioner, Oct. 1958).

The present, or the third, phase of cardiac surgery is certainly the most interesting, and when the technical problems have been settled it will allow more detailed and definite surgery to be carried out.

(1) Phase one was surgery on the actively beating heart, with routine chest anaesthesia. This allowed extracardiac anastomoses and ligatures to be carried out as well as rapid intracardiac dilatations. In this phase ligation and/or section of the ductus arteriosus, excision of coarctation of the aorta, right atrial valvotomy, as well as the various great-vessel anastomoses designed to by-pass obstruction, were the most common surgical procedures.

(2) In phase two, under refrigeration anaesthesia the metabolism of tissues generally and the brain in particular can be reduced to the state of a hibernating animal, and the heart beat can be occluded for seven to eight minutes. This allows certain intracardiac operations, particularly the closure of septal defects, to be carried out.

(3) In phase three the venous return to the heart is diverted through an extra-corporeal heart-lung apparatus so designed that the circulating blood is returned fully oxygenated to the body to circulate through the body and supply its splanchnic and somatic needs. Among the heart-lung machines now in use are the Melrose machine in England, the Lillehei in the United States, and the latest on the market comes from Sweden. Oxygenation can be obtained by bubbling in suitable amounts of oxygen or else introducing the oxygen across a surface film thus simulating the normal lung alveoli. Such technical difficulties as temperature, quantity, clotting, speed, infec-

tion, pyrogens from the apparatus, and damage to the red cells, all become at once evident, and the evolution and perfection of a safe and simple machine is being investigated in many centres. With this technique the silent, heart, fully open and quite dry, can be operated upon and surgical closure of a defect can be obtained under direct vision without hurry and with meticulous precision not possible before.

Aortography.—(*The Practitioner*, Oct. 1958).

(1) Now that a safer technique has been evolved, aortography has become more popular. To inject the artery blindly through the lumbar region was followed in some cases by serious complications. In some cases the needle displaced a plaque from the wall of the artery; in other cases the needle having entered the aorta emptied the entire contents of the syringe into an outgoing vessel on the opposite wall, for instance the opposite renal artery, so that this small vessel received for itself what was intended for the aorta. The result was necrosis of the organ supplied. In other cases the needle before reaching the artery had damaged the blood supply to the colon with consequent sloughing of that viscus. More recently the method of passing a catheter from the femoral artery in the groin and then injecting when the tip of the catheter has reached a selected point in the abdominal artery has proved much less dangerous and more effective. A recent modification of this is where the catheter can be made to enter the selected vessel, for instance the right or left renal artery, and subsequently the correct dosage required for that particular organ injected into its own artery. Frimann Dahl, of Oslo, has perfected this technique and certainly his results are most impressive, showing the individual selection and detail that can be obtained.

Aortography.—(*J.A.M.A.*, 1-11-1958).

(2) P. Betoulières and co-workers (*Mont-pellier Medical*, 52: 2, 1957) used a trocar with a short bevel

needle, a mandrel for obturation, and a sounding line fitting into a metallic conductor for aortography. As one passes the sounding line along the metallic guide in the trocar, an assistant injects a small quantity of a contrast medium to make sure of the exact location of the sounding line. The aortic tree may be made opaque by this method from the aortic arch to the iliac bifurcation. To visualize an arterial branch, bent sounding lines are used. The advantage of this method lies in the possibility of injecting the contrast medium at the desired height and in the fact that a minimum of the medium is required. The technique presents no danger; it is safer than the usual method of aortic angiography.

Tendon grafting.—(*The Lancet*, London, 8th Nov. 1958).

Prof. Paul Brand (Vellore) is of the opinion that tendon transfers are more regularly successful than tendon because they have no suture line in the free grafts length of the tendon to cause adhesions, and because they carry their own blood-supply and therefore do not need to grow new blood-vessels which attach them to surrounding structures along their length. Frequently, however, it is difficult to spare a muscle with a long enough tendon without causing secondary disability from the loss of the muscle's original function. In such cases a tendon free graft from a more proximal muscle might be necessary. Secondary deformities following the Bunnell sublimis operation had led him to use a new operation using free grafts from a wrist-moving muscle. During 200 tendon free graft operations for intrinsic paralysis of the hand he worked out new methods which have improved their effectiveness by minimizing adhesions around the grafts.

Assessment of fracture union.—(*The Lancet*, 8-11-58).

Union of fractures is usually assessed by clinical and radiographic criteria. Free movement between the fragments is convincing evidence that

union has not yet occurred; but local tenderness, and pain on straining the fracture, are of much less significance. In certain regions, particularly where union is slow and uncertain, it is customary to await radiographic confirmation; but often this delays weight-bearing and the return to full activity.

There is clearly need for a method which determines when the process of union has reached an irreversible stage. Perhaps the work of Siegal *et al* (*Surg. Gynaec. Obstet.*, 107: 327, 1958) will provide a basis. Measurement of the velocity of sound has long been used to test the quality of materials, but its application to fracture union is new. The method consists in sending a brief sonic pulse through a leg by means of a transmitting transducer. In the laboratory animal the tibia was then fractured, and conduction in the normal tibia was compared with that in the bone with a healing fracture. The velocity of conduction was reduced across the fracture, and this returned to normal only when union was complete. A small series of patients with tibial fractures was examined, and reduction of sound velocity was also observed. It is unfortunate that serial observations on these patients were not made. Nevertheless, this method may well have clinical application once its limitations have been more clearly defined.

Congenital coxa vara.—(*Lancet*, 8-11-58).

Mr. E. W. Somerville (Oxford) states that in this condition growth in length was no longer possible at the upper end of the femur. He thought that the fact that the inferior epiphyseal artery supplied also the lower part of the neck could account for the presence of the triangular fragment of bone so commonly seen in this region in this disorder, and that there could be a small area of normal epiphyseal plate between it and the adjoining part of the capital epiphysis. If such secondary ossification occurred fast enough elsewhere in the neck some sort of epiphyseal plate might develop there also, but not such that could

produce any significant growth in bone length. Damage very high up to the ascending branch of the nutrient artery of the shaft might prevent the formation of a metaphysis to the neck while preserving that to the greater trochanter, with the result that growth in length occurred here and the neck was left behind.

Arthrodesis of shoulder.—(*Lancet*, 8-11-1958).

Mr. D. M. Brooks (London) and Dr. A. Zaouasis (Athens) have reviewed arthrodesis of the shoulder in the reconstructive surgery of paralysis of the upper limb. Of fifty operations between 1943 and 1957 twenty-eight were for brachial plexus injuries, and in thirteen of them an amputation had been done at the same time as the arthrodesis. Failures of fusion in six of the latter were considered to be due to the difficulty of plaster fixation. In these circumstances, they recommend a method in which the acromioclavicular joint is preserved and the spine of the scapula is excised and used as a graft thrust through a hole drilled through the humeral head into the glenoid.

Indications for surgery in gall-stones.—(*Med. J. Austral.*, 28 6-1958).

In his paper on "The indications for Surgery in Gall-Stones" presented to the B. M. A. Medical Congress at Hobart in March 1958, Dr. Lee said that the widespread current view that gall-stones were a potential danger to the life of their possessors, and should therefore be removed, received no support from an investigation of mortality rates in the State of Queensland. Apart from operation, deaths related to the complications of gall-stones were rare below the age of 70 years, and above that age the major cause of death was related to chronic, degenerative, usually vascular diseases, with the biliary tract disease playing a minor role. Dr. Lee showed that of the so-called dangerous complications of gall-stones, acute cholecystitis, if treated conservatively had an insignificant mortality, except in

the very old. While ductal obstruction was best treated surgically, a great many common duct stones were harboured for many years without serious trouble. Surgery should therefore, be regarded as a therapy for pain, rather than as a treatment of gall-stones. In skilled hands, it was relatively unimportant whether cholecystectomy was undertaken during, or apart from, an attack of acute cholecystitis. However, with the present organization of surgery, any widespread adoption of teaching that acute cholecystitis should be treated as a surgical emergency would result in a large increase in its mortality and morbidity. Dr. Lee said that in estimating the need for surgery in acute cholecystitis, age was the predominant factor, and in very old people with severe attacks drainage was wise. It seemed probable that the routine removal of gall-stones, as soon as they were recognized, would increase the mortality and morbidity of the disease, not reduce it.

OBSTETRICS & GYNÆCOLOGY

Delivery in the physiologic position.—(F. H. Howard, *Obst. and Gynaec.*, 11: 318-322, March, 1958).

The author reports on 219 women, 52 primiparous and 167 multiparous, who were delivered in the modified sitting position with no sequelæ. A new type of delivery table was used. The table has a device to lift the back of the table from horizontal to vertical. The knee crutches are broad. The patient is placed on this table in the lithotomy position, and the back is then elevated through an arc of 90 degrees, wherein the lithotomy position becomes a sitting position. With the aid of this table, delivery in the physiological position, which is a sitting or squatting position, is practical. It is satisfactory from the mother's viewpoint, since the use of the physiological position makes delivery easier, and it should result in less intracranial damage to the child than is now encountered by the use of the various positions which are un-

physiological and abnormal. It is not claimed that the use of the physiological position will prevent all instances of cerebral palsy, but it is believed that its use will reduce the number and that such reduction will be among those with uncomplicated pregnancy. In patients with toxæmia, it seems advisable to augment control of blood pressure and fluid balance when early delivery in the physiological position is performed.

Hæmoglobin level and red blood cell count findings in normal women.—(J.A.M.A., 167: 5, May 1958).

We believe this to be the first time that a physician with well-trained laboratory personnel has analysed consecutive case reports to obtain an adequate sampling so that a statistical determination of red blood cell counts and hæmoglobin levels in normal women could be made.

Erythrocyte counts and determinations of hæmoglobin concentration were carried out on blood samples obtained from three groups of women. There were 84 entirely free from complaints, symptoms, or positive physical or laboratory findings; a second group of 293, described as normal by anamnestic, physical, and laboratory criteria but had complaints ascribed to anxiety, tension, or fatigue. A third group of 286, described as normal with gynaecologic variants, had complaints such as dysmenorrhœa, menstrual irregularity, or menopausal symptoms although they were normal when objectively appraised. The red blood cell counts gave an average of 4,370,000 erythrocytes per cubic millimeter, with 95% of the women falling within the range from 3.81 to 5.03 million per cubic millimeter. The hæmoglobin determinations gave an average of 12.55 gm. of hæmoglobin per 100 cc. of blood, with 95% of the women falling within the range from 10.2 to 14.8 gm. per 100 cc. The values obtained for the gynaecologic variant group were not significantly lower than the values for the first, asymptomatic group, and no effects of age were demonstrated. These results are

important as reference figures in diagnosis and treatment, since it is futile to strive for values higher than the average in the treatment of supposed anæmia. Both of these figures are lower than those generally quoted as normal in text-books.

Habitual abortion.—(*Med. Ann.*, 1958).

That there may be an inherent or acquired defect in the internal cervical os which prevents the retention of the growing conceptus *in utero* and results in habitual abortion, mainly in the third trimester, has been known for some years. Lash and Lash (1950) drew attention to anterior defects in the region of the internal os resulting from obstetrical or gynaecological trauma. They described an operation consisting of wedge resection with repair or side-to-side plication of the cervix, so as to reinforce the cervical sphincter in the region of the internal os. Rubovits, Cooperman, and Lash (1953) were able to demonstrate by hystero-graphy in the non-pregnant woman, that such a defect could sometimes occur following even such simple procedures as dilatation of the cervix before curettage. The symptoms are present only during pregnancy, and consist of habitual abortion, starting with a sudden rupture of the membranes, followed by a rapid and relatively painless extrusion of the products of conception. Shirodkar (1955), however, realizing that the defect in the internal os was frequently lateral rather than anterior in position, described a method of encirclement by means of a fascial strip forming a purse string. Green-Armytage and Browne (1957) described 6 cases in which the defect was demonstrated and controlled by means of a buried monofilament nylon suture in the region of the internal os. Four of the 6 cases have since been successfully delivered. Two have not yet become pregnant, so far as is known. McDonald (*J. Obstet. Gynaec., Brit. Emp.*, 64: 346, 1957) ligates the cervix with a silk suture, and gives the results in 70 cases; 33 of them have given birth to infants who survived. He recommends

that in suspected cases which are already pregnant, speculum examinations should be performed at weekly intervals in the second trimester to detect the beginning of dilatation of the cervix. He, too, emphasizes the frequency with which a history of a previous operative dilatation of the cervix is found.

Local analgesia and forceps delivery.—(*Med. Ann.*, 1958).

Previously the use of local anaesthesia in forceps delivery was reported (*Medical Annual*, 1956, 267) and there can be no doubt that this development in delivery technique is one of the most important obstetric advances in recent years. Besides the fact that it 'works' in practice it has great advantages; the obstetrician is no longer dependent on a colleague (not always available) to give an immediate anaesthetic, the maternal risk of inhalation anaesthesia (Parker, 1956) is eliminated, and neither uterine tone nor foetus are subjected to the depressant action of volatile substances.

An important extension of this technique has recently been reported by Scott and Gadd (1957), who, by combining local analgesia and Kielland's forceps, have so increased the scope of this technique that 94 per cent of 410 forceps deliveries have been so conducted. These results are impressive, for no mother died as a result of the technique used and the corrected still-birth rate was only 0.5 per cent.

It has been argued that local analgesia is unsuitable for these cases, in which the position of the foetal head is occipito-lateral or occipito-posterior, for three reasons: (1) It does not permit the introduction of the whole hand into the vagina and the slight disimpaction of the head usually necessary for manual rotation; (2) it does not allow free abdominal manipulation of the foetal trunk; (3) it does not lead to sufficient uterine relaxation to allow rotation of the foetal trunk with the head. Scott and Gadd (*B.M.J.*, 1957) have examined these limitations of local analgesia carefully

and critically and have presented very convincing evidence that often they are without foundation. As a result of their studies they have given up manual rotation in favour of Kiel-land's forceps for head rotation with an immediate extension of the scope of forceps delivery under local analgesia.

Their techniques are similar to those advocated by Parry Jones with certain modifications. Direct application of the anterior blade has been found possible provided the buttocks are pulled well down the bed and the anterior blade depressed beyond the vertical position prior to its insertion. Stress is laid on all manipulation, including traction, being carried out between pains.

In a number of cases, as an adjunct to this therapy, an intravenous injection of 100 mg. pethidine and 12.5 mg. chlorpromazine diluted with 10 cc. normal saline has been given with very gratifying effect.

Contra-indications to the use of local analgesia, which were few, included dangerous uterine contractions, malpresentations, and other complicated cases, eclampsia, and contracted pelvis.

Castor oil as an adjunct to induction of labour.—(*Am. Jour. Obst. and Gyn.*, January 1958, via *Current Medical Digest*, April 1958).

In order to evaluate the efficacy of castor oil when employed as an adjunct to induction of labour 2 approaches were used: (1) a questionnaire study, (2) a clinical experiment. An attempt was made to determine approximately how popular the use of castor oil is today for the induction of labour. A questionnaire was sent to heads of the Departments of Obstetrics of 50 medical schools and 32 were returned. Of the 32 reporting, 16 never employ castor oil for inducing labour, but 16 use it some of the time.

Clinically, 114 consecutive inductions of labour at Parkland Hospital from 1952 through 1954 were studied. The inductions were routinely carried out with rupture of the membranes and

Pitocin. The patients were divided into 4 groups as follows:

- (1) Rupture of membranes and Pitocin.
- (2) The same plus enema.
- (3) The same with castor oil instead of enema.
- (4) The same with addition of both castor oil and enema.

Patients were automatically and successively rotated among the 4 groups. In each group the Pitocin was given by starting with 1 minim and increasing the dosage every half hour by an additional minim until labour was established. Never more than 6 minims were given at any one dose. When a dosage of 6 minims had been reached and repeated twice, if the patient was not in labour, the induction was discontinued, considered to have failed, and repeated the following day.

There were 5 failures each in Groups 1, 2, and 4, and 3 failures in Group 3.

These data indicate that in a small unselected series of inductions, only two factors are important; ruptured membranes and Pitocin. Although an empty bowel is desirable for labour and delivery, our experience suggests that the enema alone accomplished this result satisfactorily.

I feel that on the basis of these data castor oil is of no value in the induction of labour. It is an irritating medicine and of some cost to the patient. Indeed, one can agree with the post-script on our questionnaire returned from the professor of a leading university who wrote: "A dehydrating, debilitating, drastic drug; it should be used on machinery only."

DERMATOLOGY

Sweating and anti-cholinergic drugs.—(*The Practitioner*, October 1958).

The types of sweating include thermo-regulatory, emotional-hypothalamic or neurogenic; the latter may be cholinergic or adrenergic (de Takats, 1957). Whilst sedatives help emotionally produced sweating, cholinergic sweating is reduced or abolished by

atropine or the synthetic anti-cholinergic drugs. These include methanthelinium bromide ('banthine'), propanteline bromide ('probanthine'), hyoscine methobromide ('pamine'), diphenine hydrochloride ('transentin'), and others with long action, such as diphemaniol methylsulphate ('diphenatyl'). Side-effects are dryness of the nose and mouth, with a bitter taste, gastric disturbance, constipation or tachycardia. The drugs should not be given to patients with angina, and both urinary retention and increased intra-ocular pressure can occur with paralysis of the pupil sphincter. Their uses in dermatology include essential hyperhidrosis, dysidrotic pompholyx (cheiropompholyx), 'prickly heat', miliarial eruptions in atopic eczema or in eczemas affecting the easy sweating areas of hands, feet, groins or flexures; in occupational dermatitis where temperature or physical work may precipitate relapse through excessive sweating in the convalescent skin; in some cases of rosacea; in repeated furunculosis and pyogenic or fungal infections in moist areas and in anogenital pruritus associated with sweating.

Neomycin, used locally, inhibits the offensive axillary odour resulting from bacterial action or apocrine sweat, and has been used in lotion form for prickly heat possibly influencing staphylococcal infection which may cause sweat-orifice obstruction.

Synthetic corticosteroids.—(*The Practitioner*, October 1958).

Prednisone and prednisolone are employed more than cortisone and corticotrophin in control of systemic lupus erythematosus, pemphigus, exfoliative dermatitis or exfoliative psoriasis, intractable atopic eczema, and severe erythema multiforme (Stevens-Johnson syndrome). The same adverse effects of prolonged dosage occur as with cortisone, but sodium retention is less of a hazard.

Recent figures show a reduction of pemphigus mortality from 90% before the use of steroids to a level of 33% after their use. Often very large doses

are required. The response is best in pemphigus vulgaris: some cases remain clear whilst others require a maintenance dosage. Pemphigus foliaceus and pemphigus erythematosus respond less satisfactorily. Severe ichthyosis congenita has been successfully treated with cortisone at birth, with recovery of the skin to normal.

Chemical modifications which are said to minimize the risks of sodium retention and gastric disturbances are on trial as methyl prednisolone and the hydroxy derivative of prednisolone (triamcinolone; 'adacortyl'; 'aristocort'; 'ledercort'). Early personal clinical impressions of the latter in several cases of exfoliative psoriasis, previously only semi-controlled with prednisone, are most favourable.

Brittle nails.—(*The Practitioner*, October 1958).

Brittle nails seem unrelated to calcium or phosphorus metabolism or to thyroid function. The cause is still unknown although occupational factors play some part. Improvement occurred in 43 of 50 patients given 7 grammes of gelatin a day for three months. Gelatin contains 25% of aminoacetic acid (glycine) which may be the active ingredient.

Industrial dermatology.—(*The Practitioner*, October 1958).

Attempts have been made to neutralize or inactivate sensitizing chemicals important in industry, and these may indicate future trends. The effect of trypentine, whose irritative action increases with time, and the oxidation of terpenes to peroxides are inhibited by agents preventing oxidation such as 1% sodium bisulphite, or 1% triethanolamine. Vitamin C, a reducing agent, protects against chromium. Hexavalent chromium (not trivalent or metallic chromium) sensitization is important in lithography, printing, tanning and leather trades, paintworks (zinc chromate primers), electroplating and cement works, and 5% sodium bisulphite has been recommended for hand-cleaning in such trades as it reduces the hexavalent to

trivalent chromium. Cole records improvement in chronic chrome dermatitis with an ointment containing 3% dimercaprol. Chelating agents form stable complexes with metals and have been used as ethylenediamine tetra-acetic acid or its calcium salt for lead poisoning: 10% of the former or its calcium salt will inhibit a positive patch-test with nickel and is said to protect against nickel-suspender dermatitis. Although unsuccessful against chromium in experimental patch tests, possibly because it chelates trivalent and not hexavalent chromium 10% 'calcium disodium "versenate"' in hydrous wool-fat ointment is reported as successful in chrome ulcers.

Advances in dermatology.—(*Practr.*, Oct. '58, via *J. Invest. Dermat.*, 28: 182, 1957).

Acne:—Hormonal factors are more important than all others in their influence on acne particularly in regard to the level of sex hormones, whose effect depends upon the ratio androgen *plus* progesterone: oestrogen, and the sensitivity of the hair sebaceous follicles to the hormones. The influence of the pituitary appears in genito-pituitary relations and abnormal ovarian or adreno-cortical function. Three gonadotrophins derive from the anterior pituitary:—a folli-

cle-stimulating hormone, a luteinizing hormone causing release of oestrogens in the female, and androgen production in the male from the interstitial cells of the testes and thirdly a leucotrophin-producing promoting secretion of progesterone from the corpora lutea. Serum gonadotrophin is under trial in acne, with reports of improvement, (*Br. Jour. Dermat.*, 69: 86, 1957). The recommended dosage is 'gonadyl' 2 tablets of 50 i.u., each daily for a month, one daily for the next month and one on alternate days for the 3rd month; the tablets are allowed to dissolve under the tongue. It is suggested that acne with hypermenorrhoea, or premenstrual tension and normal or reduced pregnanediol may improve with small doses of oestrogen in the second half of the menstrual cycle, but with reduced oestrogens or progesterone, gonadotrophins may help.

Small doses of tetracycline hydrochloride will control secondary staphylococcal infection in papulo-pustular or cystic acne, though it will have no effect on the comedones or the acne process. An initial dose of 4 x 250 mg. (1000 mg.) of tetracycline for 4 to 7 days is reduced to a maintenance dose of 250 mg. or even less daily and continued for several weeks without ill-effect.

REVIEWS OF BOOKS

Essentials of Chemical Pathology.—

By D. N. BARON, M.D., Reader in Chemical Pathology, Royal Free Hospital School of Medicine, London, Formerly Senior Lecturer in Chemical Pathology, Courtauld Institute of Biochemistry, Middlesex Hospital, London. 1957. Pp. 247. (The English Universities Press Limited), 102, New Gate Street, London, E.C. 9. Distributors in India: M/s. Orient Longmans Private Ltd., 36-A, Mount Road, Madras-2. Price: 25 sh. nett.

The subject matter of the book is in keeping with the title, as the fundamentals of clinical biochemistry have been dealt with in an excellent man-

ner. In each chapter, the first half is devoted mainly to a consideration of the normal physiological processes and the second half to the pathological aspects. This method of dealing with the subject will be very useful to both the undergraduate and postgraduate students in their clinical studies. The first two chapters dealing with water, electrolyte and acid-base regulation are very well presented including a note on the chemical anatomy of the body fluid compartments and their compositions, especially in infants who are more easily vulnerable to disturbances of water and electrolyte metabolism.

BOOKS RECEIVED

Staphylococcal Infections—By IAN MACLEAN SMITH. Pp. 180. (The Year Book Publishers Inc., 200, East Illinois St., Chicago). Price 4.25.

Current Therapy—By S. L. ROY. Pp. 240. (Indian Medical Journal, 4-B, Pagbati Chakrabarti Lane, Calcutta 26). Price Rs. 6-00.

Administration Reports of the Madras, Stanley and Madurai Medical Colleges for 1956-57—(Controller of Stationery and Printing, Madras, on behalf of the Govt. of Madras).

Case for the Integration of Ayurveda & Modern Medicine—By Dr. S. RAMAKRISHNA BHAT, L.I.M., Main Road, Puttur, S. Kanara Dt.

New Soviet Seven-Year Plan—(Theses of N. S. KHRUSHCHOV's Report to 21st CPSU Congress). Pp. 101. The Information Department of the USSR Embassy in India, New Delhi. Price 30 nP.

Principles of Administration Applied to Nursing Service—By H. A. GODDARD, Pp. 108. WHO. (Orient Longmans Ltd., 36-A, Mount Road, Madras 2). Price £ 1/

Insect Resistance and Vector Control (WHO Technical Report series No. 153—M/s. Orient Longmans Ltd., 36-A, Mount Road, Madras-2). Price 3/6d.

Proper Spacing of Children for Health—By P. L. CHOPRA. Pp. 26. (Nirmaan Prakashan). Jabalpur. Price 50 nP.

The Eastern Pharmacist—Anniversary Number-Jan. 1959 (8A, 56 W.E. Area, New Delhi) 56. Annual Subscription Rs. 10/- Single Copy Re. 1/-

The author has well brought out in appropriate places recent laboratory investigations, like electrophoretic methods, insulin tolerance test, serum transaminase estimation, etc. This book will be useful to the undergraduate students and also to postgraduates in General Medicine, Surgery and Pathology, because it covers nearly every biochemical aspect of all clinical disorders.

Neuropathology.—Edited by J. C. GREENFIELD, M.D., F.R.C.P., LL.D., W. BLACKWOOD, M.B., Ch.B., F.R.C.S.E., M.R.C.P.E., W. H. McMENEY, M.A., D.M., F.R.C.P., A. MEYER, M.D., and R. M. NORMAN, M.D., M.R.C.P., D.P.M. First published 1958. Pp. xiii + 640. Edward Arnold (Publishers) Ltd., 1958, London. Price 105 Sh. nett.

Dr. Greenfield and his colleagues deserve to be congratulated on this monograph on Neuropathology which will remain a standard book for reference in the particular field of Pathology. It includes all aspects of the pathology of the nervous system with the exception of tumours. Each of the 13 chapters in the book deals exhaustively with the particular topic and field covered by it. The various latest staining and experimental methods in the field of neuropathology are given in the introductory chapter on general pathology of the nerve cell and neuroglia. A few chapters are devoted to mental diseases. The book is well got-up and illustrated by numerous photographs and microphotographs. Fairly exhaustive references are given at the end of each chapter. Pathologists, neurologists and neurosurgeons will find this book to be a valuable guide and source of information.

NEWS AND NOTES

Glaxo Now Making Cortisone in India

In addition to Vitamin A, the Fine Chemicals Division of Glaxo Laboratories is now making cortisone and its derivatives, hydrocortisone, prednisone and prednisolone, in India. Not only is this a pioneer achievement by Glaxo, but it represents a step forward

in the economic development of the country.

At present Glaxo are manufacturing cortisone from an imported intermediate. But in progressive stages, extending over a period of four years, they plan to undertake the whole manufacture in India.

Building for Dental College

The building of the Madras Dental College will come up on a site to the west of the Nurses' Quarters opposite the Madras Medical College. Plans and estimates have been sanctioned and the work will begin shortly. The Government of India has sanctioned a liberal grant of Rs. 3,50,000 for buildings and Rs. 6,00,000 for equipment for the college. At present, the Dental College is an annexe to the Madras Medical College.

Minister's Call to Health Visitors

A call to Health Visitors in the State to work with a spirit of sacrifice was made on 23-12-'58 by the Madras Health Minister, Sri M. A. Manickavelu when he opened the new building for the Government Training School for Health Visitors in the compound of the Kasturba Gandhi Hospital, Triplicane.

Sri Dr. N. Parthasarathi, Director of Public Health, said the new building put up at an estimated cost of Rs. 2,18,000 had also an attached hostel for the trainees. There was an acute shortage of Health Visitors. The Health Visitors' Training School had till now been located in a rented building at Kilpauk and at present 36 candidates were undergoing the regular training course for 18 months and eight general trained nurses were undergoing training in Public Health Nursing Certificate course for three months.

A proposal to open another Health Visitors Training School at Madurai to train 60 candidates in two batches of 30 each was now under the active consideration of the Government of India.

Problem of Dental Education

To meet Dr. U. S. Malik, Principal, Calcutta Dental College and Hospital, Dr. C. S. Raman, President, Madras State Branch of the All-India Dental Association, gave a tea party on 23-12-'58 at Woodlands Hotel, Mylapore.

Dr. Malik said the profession was growing and dental education was taking its due place in the scheme of medical education in the country.

The Government of India was taking interest in the matter, and many colleges were coming up all over the country. But the problem was one of lack of trained personnel to man the colleges. They were taking steps to secure the help of foreign countries and also to send men from India for training abroad.

Scholarships had been offered under various schemes for studies abroad in dentistry. The Union Government had allotted Rs. 1½ crores for establishing and developing Dental Colleges. The M. D. S. course would be started in June next year in Bombay, and provision had been made for the grant of stipend at the rate of Rs. 150 per mensem for teachers who would undergo the training.

Stanley Hospital Extension Scheme at Madras

The Stanley Medical Hospital Advisory Committee at a meeting on 24-12-'58 unanimously resolved that the Regional School of Printing near the Stanley Hospital in Royapuram should be taken over for the extension of the Hospital.

The Committee had also decided that some of the existing buildings would have to be demolished and new buildings put up. The Government had sanctioned Rs. 200,000 for the purpose. Rs. 1,50,000 had also been sanctioned by the Government for putting up a Nurses' Quarters.

Eradication of Malaria (American Grant to India)

The United States Technical Co-operation Mission has made a grant of Rs. 2.8 crores to the Government of India in connection with malaria eradication programme. This brings the total U.S. contribution to India's malaria eradication programme to Rs. 4.8 crores for this fiscal year.

With the new 5,790,000 dollar aid agreement signed on 2-12-'58 India will import about 7,000 long tons of DDT insecticide, 450 jeeps and jeep trucks, 720 microscopes, five million chloroquine tablets, and books and laboratory equipment.

This latest U.S. grant is in continuation of Indo-American cooperation in the Malaria programme with which the United States has been associated since its beginning in 1952. It brings the total U.S. support to the Malaria control and eradication schemes to date to Rs. 23.77 crores.

Danish Surgeon's Visit to Madras

Prof. E. Husfeldt, the Danish thoracic surgeon, who accompanied the WHO team in 1952 was again in Madras early last month; he gave two lectures under the auspices of the General Hospital Clinical Society at the Common Hall, Madras Medical College, on January 3 and 5. Prof. Husfeldt also gave demonstrations on operations on January 3 and 6 at the General Hospital, and on January 5 at the T.B. Sanatorium, Tambaram.

Diamond Jubilee of Haffkine Institute

President Rajendra Prasad inaugurated the Diamond Jubilee Celebrations of the Haffkine Institute in Bombay, one of the oldest and foremost medical research centres in the East, on January 10, 1959.

About forty scientists of international eminence representing important medical research institutes in the world attended the celebrations and participated along with their Indian colleagues in six symposia on different aspects of medical research.

Christian Medical Workers' Conference at Madurai

A Conference of Doctors, Nurses, Pharmacists, X-ray Technicians and Laboratory Technicians and other para-medical workers was held on the 28th, 29th and 30th December 1958 in the premises of the American College, Madurai. About 80 delegates from all over the Tamil Area representing the various missions and private institutions were present.

Dr. Mathuram Santhosham, M.B., B.S., F.O.C.P., Madras, inaugurating the Conference on the 28th December 1958 stressed on the responsibility of the Christian Medical Worker towards society in the present context of things

in our country. He drew attention to the fact that the Christian Medical Association of India was producing Nurses and other auxiliary medical workers who could work not only efficiently, but very economically as they have been trained to be always frugal, and are available to serve the country as an example to the rest of the medical workers in the field without looking out for higher salaries and more expensive living.

On the 29th December there was a session on Preventive Medicine. Dr. E. C. Riggs, M.D., M.P.H., who is engaged on Preventive Medicine Work in Kilanjanai, Ramanathapuram district, along with a team of other Preventive Medical Workers, dealt with its four aspects. Prevention of disability by rehabilitation, prevention of death or prolonged suffering by treatment, prevention of chronic ill-health by nutrition and prevention of disease by hygiene and sanitation.

Dr. D. E. Patterson, M.D., M. Rad., D.M.R.D. (Lond.), Professor of Radiology, Christian Medical College, Vellore, delivered an interesting lecture on the Radiological Diagnosis of Peptic Ulcer illustrating it with lantern slides.

For the Nurses, there was an interesting programme of Clinical Sessions contributed by Miss Anbai Swamidoss, C. B. Hospital, Nagercoil, Dr. Miss B. Chinniah, M.B., B.S., M.R.C.P. etc. of the Christian Mission Hospital, Madurai, and Miss A. Philips of Erskine Hospital, Madurai.

On the 30th December 1958 there was a combined session of doctors and auxiliary workers presenting a Seminar on the Diagnosis and Treatment of Leprosy. Dr. Patterson, Dr. Palaniappan of the Erskine Hospital and Dr. G. C. Anbunathan also contributed. Dr. B. Chinniah, M.B., B.S., M.R.C.P. etc. presented cases of Marble Bone Disease, and Osteogenesis Imperfecta.

New Drug for Birth Control

The Yale University Medical School at New Haven, Connecticut, U.S.A., announced on 29th December 1958 that dogs had been redeemed from a

state of pregnancy—without abortion or perceptible ill effect—through the administration of a new drug Malucidin, discovered by Dr. Ivan Parentjev, a former Yale Microbiologist. This was injected into the pregnant dogs and the embryos were gradually reabsorbed into the blood stream.

'Bed-side Medicine'

We have received from The Scientific Publication Concern of 9, Wellington Square, Calcutta 13, an announcement of their having brought out a revised X Edition of the book "Bedside Medicine" edited by Drs. A. R. Majumdar and S. C. Chatterjee being the collaborative work by several specialists.

Evans Medical Celebrates its 150th Anniversary

This year Evans Medical Supplies Ltd., Liverpool, is celebrating its 150th Anniversary. Originating from a small wholesale druggist's business opened in Worcester in 1809 by John Evans and his brother Edward, the firm has steadily progressed and expanded to its present position of manufacturers of pharmaceuticals, biologicals and fine chemicals, with branches and subsidiary companies in the United

Kingdom and in many other parts of the world. The present chairman Mr. I. V. L. Fergusson, is a great-great-grandson of John Evans the Founder.

As the Company's principal establishment in Liverpool was almost completely destroyed by enemy action in 1941, a new factory—one of the most modern in the country—was built at Speke on the outskirts of the city. Great emphasis is placed on research and new Research Laboratories were erected at Speke in 1958 in which an expanded programme of research will be carried out. Over £1½ million have been invested in New buildings and plant in the post-war redevelopment programme now completed.

In India, the subsidiary company is Evans Medical (India) Private Ltd., formed in 1946, with its head office in Bombay and branches in Calcutta and Madras. In accordance with the prevailing economic position, indigenous manufacture has been encouraged and, of the range of products sold, two-thirds are now made in India. To ensure the Evans standard of quality, samples are analysed at the Evans Biological Institute in England before being released on the Indian Market.

PREPARATIONS AND INVENTIONS

5-Bromo-Salicyl Hydroxamicacid A New Antitubercular Drug

Messrs. G. D. A. Chemicals Ltd., announce the manufacture of 5-Bromo-salicyl hydroxamicacid, a new anti-tuberculosis agent derived from salicylic acid, the tuberculostatic activity of which was detected by Urbanski and his collaborators in 1952. The firm expects that this new derivative of salicylic acid will be a very valuable substitute for PAS in the

combined chemotherapy of tuberculosis, since it is reported to be better tolerated than PAS and the adult effective dose is only 3g. per day instead of the dose of 10g. per day of PAS. Samples for clinical trial are stated to have been placed at the disposal of the medical officers of some of the Tuberculosis Sanatoria in India.

The drug, we are told, will be released for sale in the market on receipt of licence from the Drug Authority.

CORRIGENDA

(1) ANTISEPTIC, Vol. 56: No. 1, Jan. 1959; page 61; for 'K. P. Sen Gupta, M.S.,' please read 'K. P. Sen Gupta, M.B.'

(2) ANTISEPTIC, January 1959, p. 83, under 'Books Received' The Indian Year Book of Medical Sciences 1958 Edition etc., instead of 'P.O. Box 1274, Bombay-1,' read 'P.O. Box 1374, Bombay-1.'

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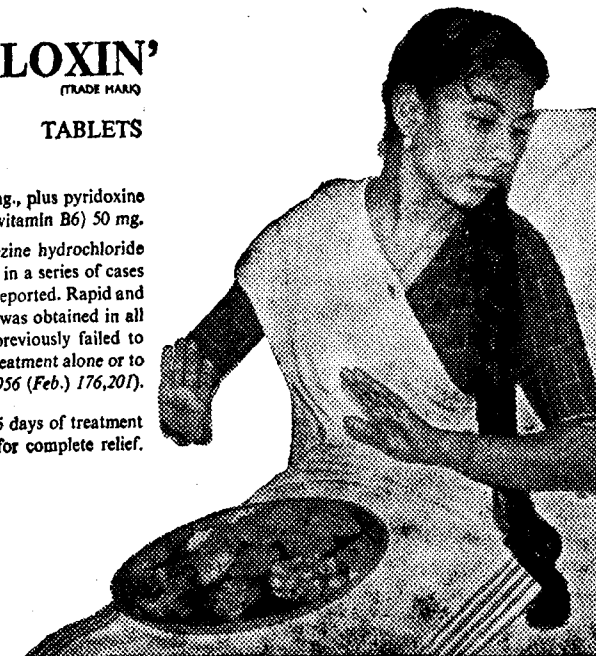
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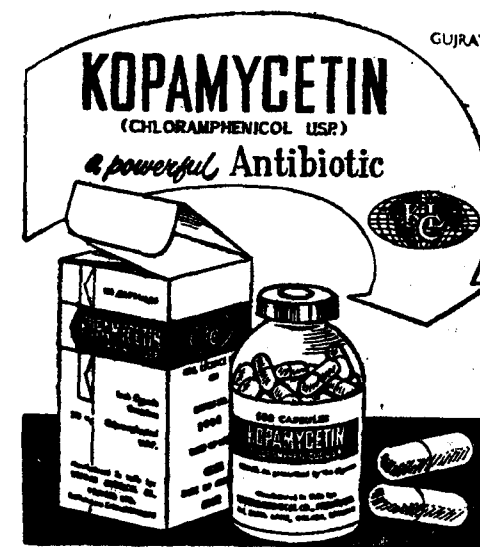
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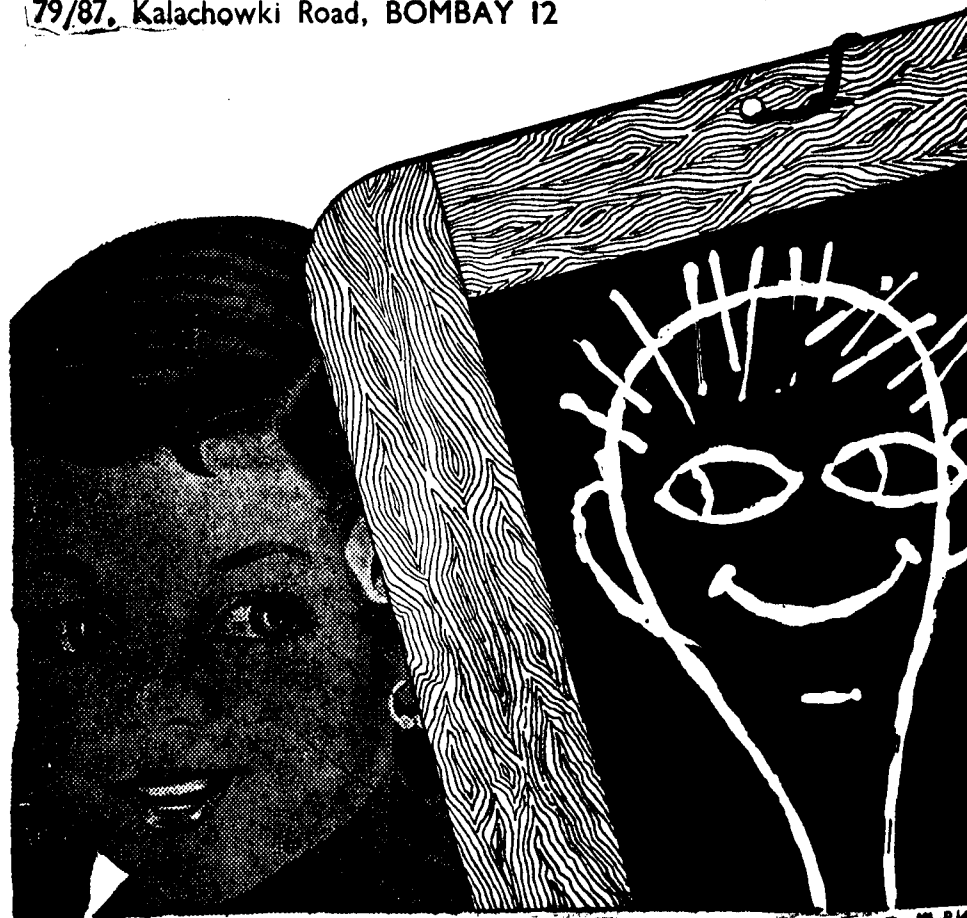
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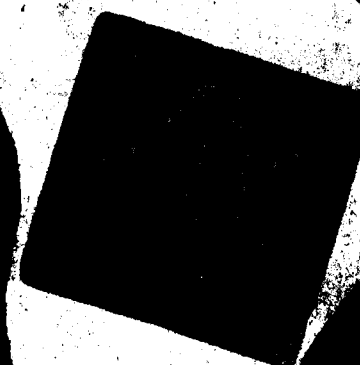
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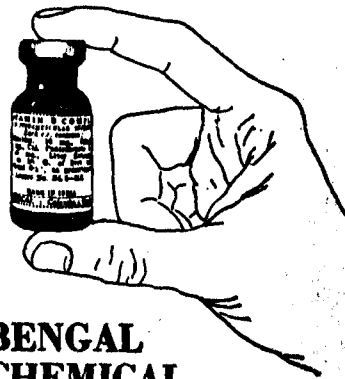
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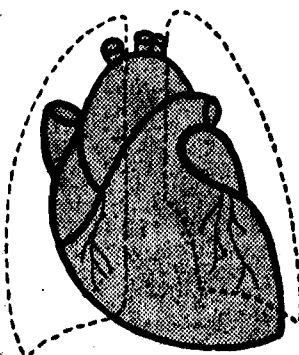
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