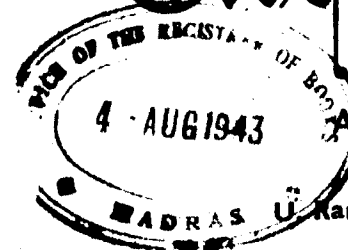


The Antiseptic



Monthly Medical Journal

Edited by

U. Rama Rau, & U. Krishna Rau, M.B., B.S.

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1. Roblin et al: J. Am. Chem. Soc. 62: 2002 (Aug.) 1940.
2. Billing and Wood: Bull. John Hopkins Hosp. 69: 314 (Oct.) 1941.
3. Finland and Dingle: N. Eng. J. M. 225: 829 (Nov.) 1941.
4. Thorn and Lewis: J.A.M.A. 118: 214 (Jan. 17) 1942.
5. Trevett, G. J. et al. Bull. John Hopkins Hosp. 69: 303. 1941.
6. Reinhold et al: Am. J. med. Sci. 201: 106-15, 1941.
7. Council on Pharm. and Chem. J. Am. Med. Assn. 118: 730 (Feb.) 1942.
8. Feinstone et al. Bull. J. Hopkins Hosp. 67,6,427-56 1940.
9. Jacoby et al: Brit. Med. J., 204: 149-53, 1941.

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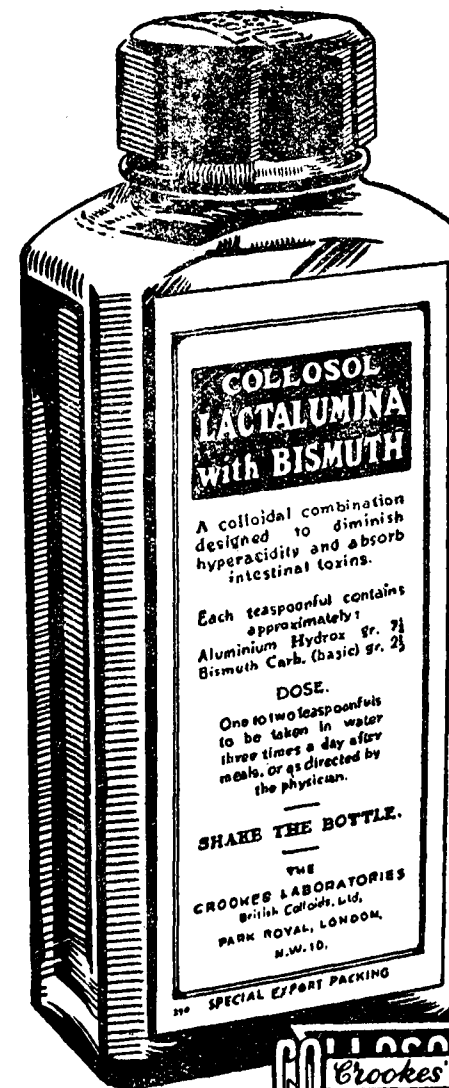
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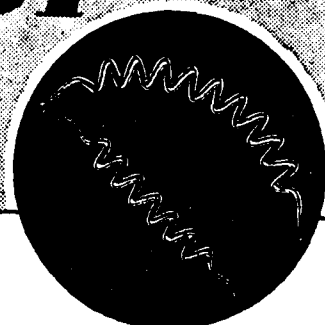
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Vol. 40.

JANUARY, 1943.

No. 1.

Original Articles

Pregnancy and Pulmonary Tuberculosis *

BY

A. K. SHARIFF, B.A., M.B., B.S., T.D.D. (WALES),

Medical Officer, P. K. Sanatorium, Mysore.

THE subject of pregnancy and pulmonary tuberculosis is a complicated and interesting one. It is a dual problem involving questions of physiology of pregnancy and puerperium and of pathology, course and management of pulmonary tuberculosis. Of all the problems, the most important one is the influence of pregnancy on the course of co-existing pulmonary tuberculosis. No other problem in tuberculosis has given rise to so much of controversy and conflicting views during the past two centuries. Even at the present day, opinions on this point are by no means unanimous. An attempt will be made in this article to throw some light on this important aspect from a study of pregnant tuberculous patients admitted and treated in this sanatorium.

But before reporting these cases, it is necessary to review pertinent available literature and analyse the various views held on the subject by several authorities.

Till about the middle of the 19th century, it was held that pregnancy exerted a favourable influence on the course of pulmonary tuberculosis. For this reason, persons like CULLEN, and E. WARREN recommended marriage for tuberculous girls and the latter quotes authorities like HIPPOCRATES, SYDENHAM, ROCKITANSKY and others who held similar views. Even recent authors like SABOURIN and FORSSNER think likewise.

Quite an opposite view was held by many writers in the latter part of the nineteenth century that pregnancy occurring in a tuberculous woman definitely exerted a deleterious influence on the course of tuberculosis. The studies made by LOUIS, MORICEAU and DEBREUILH are in accord with this view. RIST, MATHEWS and BRYANT are among the recent advocates of this

* Specially contributed to 'The Antiseptic'.

opinion. RIST observes that "every pregnant woman in whom tuberculosis develops is threatened with death after a brief delay".

So, on this ground, interruption of pregnancy occurring in a tuberculous woman was advocated and, it for a time, became an established procedure in several countries like Germany and United States of America. PANKOW believed that abortion should be induced only during the early months of pregnancy. At the present day, those who believe in the therapeutic induction of abortion advise interruption upto the 4th month of pregnancy, but allow the pregnancy to go to full term if detected after this period because of the formidable nature of abortion in later months which is likely to do more harm than good to the patient.

On going through literature on the subject, it is clear that the view held by many that pregnancy has sinister influence on pulmonary tuberculosis is open to serious criticism.

The dogmatic teaching that pregnancy is harmful to tuberculosis is based on observations and statistics that were collected before the modern diagnostic measures, specially the X-rays and modern therapeutic methods such as collapse measures, were in use.

The different statistics indicating the proportion of tuberculous women whose disease is aggravated by pregnancy differ very widely, ranging from 10% to 100%. This clearly indicates that either the statistics are wrong or they are based on clinical material which is not comparable. In this connection, FORSSNER points out that as most of these statistics have been published by obstetricians who are not skilled in the diagnosis of tuberculosis and are likely to include serious and advanced cases and overlook milder ones.

In recent years, carefully collected and published statistics clearly show that pregnancy has very little, if any, baneful influence on tuberculosis. In 1924, FORSSNER, SUNDEL and KJELIN, after a careful study of literature available and of out-patients of two large maternity institutions of STOCKHOLM, came to the conclusion that "taken altogether the figures speak strongly against pregnancy having exerted a pernicious influence on the course of tuberculosis." They further state that there is no proof that abortion checks the activity of the disease. FORSSNER in 1925 in a comparative study of 396 tuberculous non-pregnant and 341 tuberculous pregnant females found that mortality in two groups was practically the same after two years. At Seaview Hospital, New York, a group of 85 pregnant tuberculous patients were studied and followed up from 1 to 5 years by ORNSTEIN, ULMAR and DITTLER. Of these 36% died, 18% were unimproved and 46.8 improved. Compared with this was a larger group of 5450 non-pregnant tuberculous females, where the results were 33% died, 31% unimproved and 36% were improved.

It is an unfortunate fact that in the West, where generous provision has been made for the care and treatment of the tuberculous, very inadequate facilities are made available in sanatoria for the treatment and management of tuberculous pregnant females. In most of the institutions, pregnancy diminishes rather than enhances the chances of admission of tuberculous women. In spite of these handicaps the tuberculous pregnant women appear to fare as well as the non-pregnant with better care.

That pregnancy has no deleterious effect on tuberculosis and interruption of pregnancy is unwarranted in a tuberculous gravida is strikingly

brought home from the following example. Till recently, interruption of pregnancy in tuberculous females was very vehemently advocated in Germany. Within the past few years when there was a rapid fall in birthrate, the pregnant tuberculous women have been permitted to go to full term and they were given benefit of adequate modern treatment disregarding pregnancy. The results obtained were so gratifying that the German authors have reversed their opinion and state that combination need not be feared if tuberculosis can be given proper treatment.

The above observations and facts clearly demonstrate that pregnancy *per se* has no bad effect on tuberculosis and the outcome in a given case depends on type of the disease and not on pregnancy. On the other hand, some authorities think that interruption of pregnancy has deleterious effect on tuberculosis. From a study made by BRIDGEMAN and NORWOOD on 134 cases, it was found that more deaths occurred among those that were aborted than those who were allowed to go to full term. GLASER is also of the same opinion that abortion has unfavourable effect on tuberculosis; and he and ROLOFF believe that modern collapse measures have done away with the necessity for this procedure.

Even in the face of the above observations and facts, there are still some clinicians who hold that pregnancy exerts harmful influence on tuberculosis and on that account advocate interruption particularly in the early months of gestation. Generally speaking, the French and recent German authors favour conservation of pregnancy while majority of American and British clinicians advise interruption if detected before the 4th month.

But it is observed that in a number of cases, there is exacerbation of the disease after parturition. During puerperium and for some time afterwards, the signs and symptoms are aggravated, particularly in cases who either did not receive adequate and proper treatment during pregnancy or came under observation and treatment later, and the disease could not be brought well under control before confinement. With proper and adequate treatment and modern collapse measures, most of them respond satisfactorily. This post-partum flare up is variously attributed by different authors.

Sudden release after parturition of upward pressure exerted by the gravid uterus, was supposed to give rise to increased negative intrapleural pressure, thus facilitating aspiration of infective material from the diseased portion in the lung to other healthy parts. But it has been found that there is no appreciable variations in the intrapleural pressure just before and after labour.

The loss of fluids such as blood and lochia during and after delivery was thought to be responsible for aggravation of the disease. Added to this there is coincident prolonged muscular exertion and consequent exhaustion. But by modern methods of handling the parturient these risks could be reduced to a minimum.

Any possible unfavourable effect puerperium has on tuberculosis may be due to the increased capillary permeability that occurs soon after confinement reaching the normal level on 7th or the 8th day. This probably favours an extension of diseased process.

Coming to the other aspect of the problem namely the effect of pulmonary tuberculosis on pregnancy and labour, it is observed that no

appreciable influence is exerted by the disease on the course of pregnancy and labour. A tuberculous pregnant female goes through pregnancy and labour as well as a non-pregnant female with a slightly increased tendency for premature labour in very acutely ill patients.

Case Reports.—Altogether 25 tuberculous pregnant women were admitted to this sanatorium from 1931 to the end of 1941. 18 of them were not suitable for the present study as their stay in the sanatorium was not long enough, varying from a day to a little over 4 months, and they did not or could have the benefit of collapse treatment.

Only the remaining 7 cases are suitable for detailed study. Their stay in the sanatorium has been fairly sufficiently long and therefore lend themselves for critical study. All were given the benefits of sanatorium treatment combined wherever possible with collapse therapy. They can be divided into two groups. (1) Those in whom pregnancy was interrupted. (2) Those who were allowed to go to full term and confinement. Two cases come under the 1st group and the remaining 5 under the 2nd, and they are reported in some detail.

CASE 1:—S.B., a Muslim female aged 20 years, mother of two children, was admitted on 30-9-35 with a history of cough and fever of 2½ months' duration. She was 2 months pregnant at the time of admission. Family history—*aunt* suffered from pulmonary tuberculosis 10 years ago and was treated at the sanatorium. On admission, highest temperature was 99.4° F. and general condition good. Physical examination revealed signs in the left lung and few in the right. X-ray picture (*Fig. 1.*) showed exudative lesion with cavitation in the upper half of the left lung and slight infiltration over right infraclavicular region. Sputum positive for T. B.

She was started on Sanocrysin injections on 19-10-35 and in all received about 6 grams. Therapeutic abortion was induced on 3-11-35. The patient's temperature which so far never rose beyond 99.4° F., soon after the interruption of pregnancy, shot up to 102° F., one day touching 105° F. The febrile course kept up with occasional short periods of remission when the temperature would reach a maximum of 100° F. A. P. was induced on left side on 18-11-35 and refills kept up and a satisfactory collapse was obtained. On 6-2-36, left phrenic nerve was crushed to give additional rest to the lung. The patient did not respond favourably but gradually went down-hill, and was discharged at request in moribund condition on 3-6-36 and died at home after about two months.

CASE 2:—A. K., a Muslim female aged 25 years, mother of 4 children, was admitted to sanatorium on 26-9-35 with a history of fever and cough of 2 months' duration. Family history—*sister-in-law* died of pulmonary tuberculosis. She was 2 months pregnant on admission.

On examination, her general condition was found good; temperature between 98° F. and 100.4° F., sputum positive for T.B. Diagnosis of mainly left-sided pulmonary tuberculosis was made. X-ray revealed extensive infiltration with a big cavity in the left lung and a small patch of infiltration in right mid-zone (*Fig. 3.*). With rest she was afebrile within three weeks. Had spontaneous incomplete abortion on 30-11-35 which was completed at the local maternity hospital. The patient did not disclose till 30-11-35 that she was pregnant, otherwise it would have been therapeutically induced earlier. The temperature rose to 102° F. after the abortion and it was of remittent type not going below 100° F. for about a fortnight.

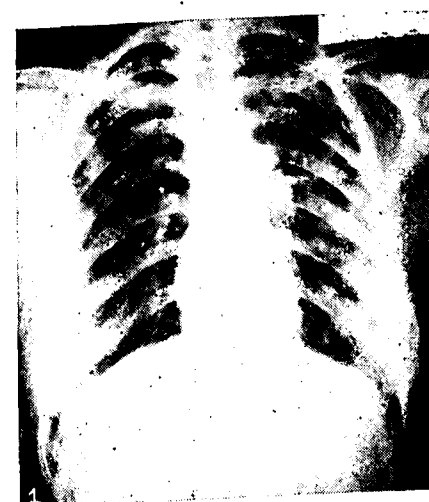


Fig. 1.



Fig. 2.

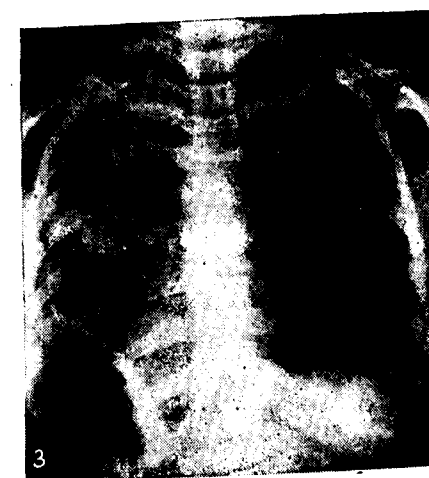


Fig. 3.

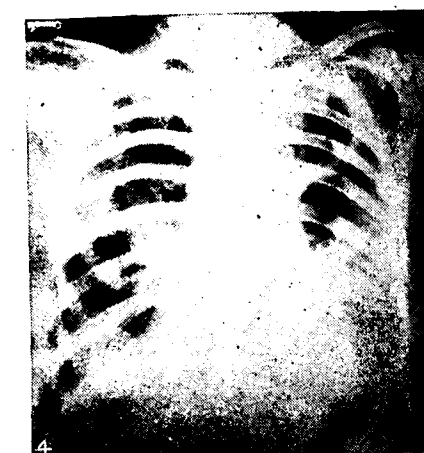


Fig. 4.

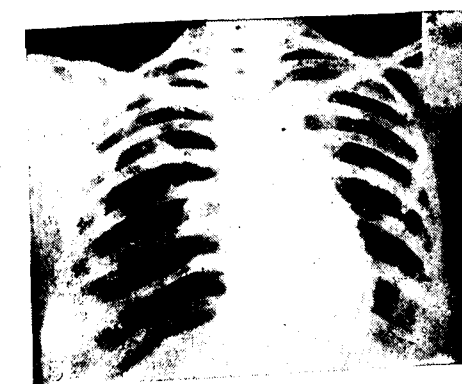


Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.

Fig. 1. Case 1. (S.B.), Radiogram taken on 2-10-35, 3 days after admission.

Fig. 2. Case 1. (S.B.), X-ray picture taken on 18-7-36, 1½ months after discharge. Note extensive bilateral involvement.

Fig. 3. Case 2. (A.K.), Radiogram taken on 17-12-35 about 3 months after admission. Note elevation of left diaphragm due to pneumoperitoneum having occurred in an attempt to induce pneumothorax: a small pneumothorax is also seen.

Fig. 4. Case 2. (A.K.), Picture taken on 12-3-37 about 3 months after discharge. Shows extensive bilateral involvement with giant cavities on the left side.

Fig. 5. Case 3. (N.), Picture taken on 23-12-36, 2 days after admission.

Fig. 6. Case 3. (N.), Picture taken on 14-5-37 showing bilateral pneumothorax.

Fig. 7. Case 3. (N.), Picture taken on 2-7-38, about 10 months after discharge. Note considerable amount of fibrosis, particularly on the left side, with trachea pulled to that side.

Fig. 8. Case 5. (L.K.), Radiogram taken on 4-4-41, next day after admission.

Fig. 9. Case 5. (L.K.), Picture taken on 26-1-42. Note satisfactory collapse of left lung.



Fig. 9.

A. P. on the left side was induced on 9-12-35 and 5 refills only could be given owing to pleural adhesion and no satisfactory collapse was established. On 20-12-35 Sanocrysin injections were started; a total quantity of nearly 2 grms. was given. On 13-1-36, left phrenic crushing done. Had a bout of haemoptysis on 24-4-36. Again A. P. on the left side was tried on 17-9-36 and had to be abandoned after four very small and ineffective refills owing to lack of pleural space. The patient did not show any improvement after the set-back she had subsequent to abortion. Though the temperature showed few short periods of slight remissions now and again, she gradually got worse and at the time of discharge on 14-12-36 she had extensive bilateral pulmonary tuberculosis and she was in a hopeless condition. (Fig. 4.) She died about 3½ months later at home.

CASE 3:—N., a Hindu female aged 25 years, mother of 1 child, admitted on 21-12-36 with a history of fever and occasional cough of 2 months' duration. On admission she was 5 months pregnant.

Examination revealed a thin and poorly built individual. Weight 67 lbs. Highest temperature 101° F. Sputum negative for T. B., on admission, but it was positive at subsequent examination. Physical and X-ray examinations showed signs of bilateral pulmonary tuberculosis involving upper half of the left lung and infraclavicular region on the right with cavities on both sides. (Fig. 5.)

Pregnancy was not interfered with. A. P. was induced on the left side on 12-1-37 and refills continued. Temperature was normal in about 3 weeks, but showed a rise after a month. A. P. was induced on the right side on 9-3-37: developed superimposed spontaneous pneumothorax on 11-3-37 on the right side; 1600 c.c. of air aspirated to give relief from urgent symptoms. On 16-3-37 pleural effusion on the left side up to posterior 7th rib was detected, and 400 c.c. of serous fluid was aspirated and replaced with 250 c.c. of air. Bilateral A. P. refills continued alternately and collapse was satisfactory on both sides. Temperature was within normal limits in a fortnight. On 18-5-37, she had normal labour and the infant was separated from the mother. During puerperium, the temperature shot up touching 103° F. in the evenings, but the temperature gradually came down and she was afebrile by 15th June 1937. From 22-7-37 A. P. refills on the left side had to be abandoned owing to the development of obliterative pleuritis. So, on 24-8-37 left phrenic crushing was done. A. P. were continued on the right side. She was discharged much improved on 24-9-37 at her own request. At the time of discharge, she was walking ½ mile twice a day, had no cough and no sputum. She was advised to attend for right sided A.P. refills as an out-patient.

CASE 4:—M., a Muslim female, aged 26 years, mother of 5 children, was admitted on 29-10-38 with a history of cough and fever of 5 months' duration. Family history: brother died of pulmonary tuberculosis 2 years ago. She was 7 months pregnant on admission.

On examination—general condition fair. Highest temperature 101.6° F. Sputum positive for T.B. X-ray examination revealed exudative infiltration with cavity upper 1/3 of left lung.

A.P. on the left side was induced on 31-10-38, 3rd day of admission, and refills were continued; selective collapse was obtained. Temperature was controlled within three weeks. She confined on 10-12-38. Labour

was normal and the child was healthy. During puerperium, the temperature rose again, the highest being 102°F. and kept up for some days, and gradually came down by 18-2-39. She made satisfactory improvement and was discharged on 19-6-39 with disease in quiescent condition. At the time of discharge, she was free from cough and sputum. She continued A.P. refills as an out-patient for sometime and then voluntarily left off.

CASE 5 :—L.K., a Hindu female aged 22 years, admitted on 3-4-41 with a history of cough and fever of 5 months' standing. She was 7 months pregnant on admission.

On examination—general condition good, patient afebrile. X-ray examination revealed diffuse nodular infiltration left base with hilar cavity (Fig. 8) Sputum was positive for T. B.

A.P. on the left side was induced on 8-4-41 and refills continued. Effective partial collapse was obtained (Fig. 9). Patient confined with a healthy baby on 8-7-41. Labour was quite normal. In this case, there was no postpartum exacerbation of symptoms. She remained afebrile throughout. Gradually, her cough diminished, her sputum was negative on 14-2-41 and remained so till discharge. She was discharged, on 22-3-42 with disease arrested. At the time of discharge, she was walking 2 miles. She is attending for A.P. refills as an out-patient.

CASE 6 :—B., a Hindu female aged 25 years, admitted on 1-8-41 complaining of cough and fever of 3 months' duration. At the time of admission she was 4 months pregnant.

On examination, general condition poor, highest temperature 101°F. severe cough; sputum positive for T.B., had tuberculous laryngitis. X-ray examination showed consolidation of right lower lobe with a big cavity in the perihilar region between 2nd and 4th anterior ribs.

A.P. was induced on 9-8-41 on the right side. Pleural pressures were poor. But refill kept up till 29-9-41 when only 100 c.c. of air could be injected and subsequently had to be abandoned. Temperature abated, the highest being 100°F. Right phrenic nerve crushed on 14-10-41 after which temperature came down to 99.4° or less, rarely touching 100° F. Confined on 23-12-41. Had exacerbation in puerperium and the temperature going up to 102° F. A course of intra-pulmonary Phenol injection was given. But no improvement was noticed. There was extension of the disease to the left side. A.P. was not successful on left side. She was discharged in worse condition on 21-6-42 at her own request.

CASE 7 :—G., a Hindu female aged 30 years, admitted on 13-9-41, with a history of distressing cough, wheezing and rise of temperature of two months' duration. She was about 7 months pregnant on admission.

Examination revealed poor general condition with highest temperature of 99.4°F. sputum positive for T.B. Physical examination revealed profuse crepitations and ronchi throughout both the lungs. X-ray showed far advanced disease with a big cavity in the mid-zone on the right side and diffuse mottling throughout left. As her general condition was very poor with extensive bilateral involvement of lungs, it was thought inadvisable to induce A. P. Confined on 8-12-41. Had normal labour but developed temperature soon after confinement and gradually grew worse and had a severe bout of haemoptysis on 26-2-42 and immediately died.

Comment.—These cases exemplify several interesting features. The patients that were aborted though their general condition on admission was fairly good, deteriorated after abortion in spite of efficient treatment. On the other hand, majority of those in whom pregnancy was not interfered with but prompt and adequate treatment was instituted, reacted satisfactorily. In fact, in all the three patients in whom satisfactory pulmonary collapse could be produced, brilliant results were obtained. One case (Case No. 3) is of particular interest. She had bilateral lesion; her general condition on admission was rather poor. But, with successful bilateral pneumothorax treatment, she responded splendidly in spite of her developing distressing complications during the course of treatment. Cases 6 and 7, who had far advanced disease on admission and in whom either additional collapse measures were not successful or could not be carried out, deteriorated in spite of routine sanatorium treatment.

Deductions and Conclusions.—From the above case reports it seems obvious that pregnancy does not exert any harmful influence on the co-existing tuberculosis and that interruption of pregnancy does not check spread of the disease but appears to aggravate it; and that prompt and proper collapse measures in addition to routine sanatorium treatment do influence favourably the course of the disease; and that the outcome in any given case is not at all influenced by pregnancy but by the type and extent of the lung lesion and response to proper treatment.

In the light of above experience, no pregnant tuberculous female who comes under our observation, however early her pregnancy may be, is now advised induction of abortion. But she is dissuaded from such a procedure even if she desires it. On the other hand, she is admitted as an emergency case and collapse therapy instituted wherever possible at once in addition to usual rest treatment. The results attained amply justify this attitude.

References :

1. Edwin M. Jameson.—Pregnancy and Tuberculosis. Gynecological and Obstetrical Tuberculosis.
2. M. Fishberg.—Reciprocal Relations between Pulmonary Tuberculosis and certain Physiological and Pathological Processes. Pulmonary Tuberculosis Vol. II
3. Frederick H. Falls.—Tuberculosis and Pregnancy. Clinical Tuberculosis by Goldberg Vol. II
4. Andrew Peters and Lowery F. Devonport.—Pregnancy and Parturition during the course of Bilateral Artificial Pneumothorax. Amer. Rev. of Tuberculosis January 1937.



Liver Function and Blood Vitamin C in Indians*

BY

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THE present-day idea as regards the various functions of the liver according to SAMSON WRIGHT (1941) are: (1) Bile secretion. (2) Formation and destruction of red cells. (3) Protein metabolism. (4) Fat metabolism. (5) Carbohydrate metabolism. (6) Antitoxic and protective function. (7) Coagulation of blood. (8) Formation of fibrinogen and hæmoglobin and (9) Liver treatment in anaemia.

The ideal liver function test revealing all the required informations of an experimental subject is not known because the liver has various functions with the characteristics to be able to regenerate possessing a tremendous amount of reserve power in it. The physiological reserve power of the liver is by virtue of its having liver tissue far in excess of the minimal amount necessary for normal physiological function and it has been experimentally found in dogs that removal of 80 p.c. of the liver tissue does not lead to any untoward effect and liver proliferation by mitotic division of the cells take place. This regenerative power in the liver is very important in the repair of the liver after the administration of any hepatic toxins. There are various liver function tests and they have been employed to determine different functions of the liver, such as (1) Detoxicating action of the liver is found out by the Hippuric acid excretion test for hepatic function of synthesis and detoxication. (2) Metabolic function of the liver is found out by the sugar tolerance test for carbohydrate metabolism and also to determine the non-protein nitrogen of blood for protein metabolism. (3) Excretory function of the liver is found by the VAN DEN BURGH's test for estimating bile pigment excretion and various dye elimination tests measure Kpuffer cell's power to remove foreign matter. (4) Manufacturing function of the liver by the estimation of fibrinogen content of the blood and estimation of the prothrombin level of blood. (5) Storing function of the liver is found by observing the qualitative and quantitative changes in the constituents of the blood of the hæmatinic principle. For years together clinicians, physiologists and clinical pathologists have been trying to devise tests that would indicate the functional capacity of the liver.

PRASAD (1942) points out that there are two types of cells present in the adult liver which are responsible for all these functions. The reticulo-endothelial system (Kupffer cells) serves clear hepatic blood of particulate matter bilirubin, foreign material, bacteria and possibly certain excretory products. Formation of antibodies and antitoxins also is thought to occur in the Kupffer cells. Metabolic, synthetic, detoxicatory and storage functions are all carried in the polygonal cells of the liver. There is no differentiation of special cells to perform special functions. Each hepatic cell is a unit in itself, contributing its share to multifold functions attributed to the liver as an organ.

The power of the liver to remove from the circulation various poisonous substances, to alter them chemically or combine them with certain common constituents of blood in such a manner as to render them physiologically inert has been known to the physiologist for years. The conversion of

Indole to Indoxyl Sulphuric acid, the conjugation of Cholic acid to form Bile salts and the formation of conjugated Glycuronates are familiar examples of this process. Different tests with Thymol, Menthol, Camphor, Salicylates etc. have been used but have not been very successful. The only survivor of such tests of the detoxifying function is one that is based on the power of the liver to conjugate Benzoic acid to form Hippuric acid.

Studies on the synthesis of Hippuric acid excretion in urine have been carried on by many biochemists for a fairly long time. LUCKE (1860) observed that the Hippuric acid excretion is increased in normal subjects by eating vegetables and fruits. Experimentally it was found by BUNGE and SCHMOIDENBERG (1877) that when the dog's kidneys were perfused with Benzoic acid and Glycine the final product was Hippuric acid. SENATOR (1879) pointed out that, the presence of a reducing substance in the urine of patients taking Sodium Benzoate. ROBERT (1880) considered this reducing substance in the urine to be due to Sodium Benzoate intoxication. MAGWIS-LEVY (1907) found out that this reducing substance was a compound of Benzoic acid and Glycuronic acid and LEWINISKI (1908) and DAKIN (1909) corroborated this finding. FRIEDMAN and TACHAN (1911) observed that liver was responsible for the synthesis of Hippuric acid. WHIPPLE (1913) carried on investigation on dogs for the determination of Hippuric acid excretion after giving the test dose of Benzoic acid. KINGSBURG & BELL (1915) found Hippuric acid in the tissues after the injection of Sodium Benzoate and Glycine in nephrectomised dogs. CSONKA (1924) carried on experiments to find out the quantitative relationship of Benzoic acid conjugated with Glycine and Glycuronic acid in the pig. MORGULIS, ET AL (1923) proved that Glycine is not formed when the liver is extremely damaged. BRYAN (1925) proved that a decreased amount of available Glycine was produced in the damaged liver of dogs and the synthesis of Hippuric acid is diminished. QUICK (1931) observed that the rate of synthesis of Hippuric acid is the rate at which the liver is able to produce Glycine. Thus by administering Glycine together with Benzoate the rate of excretion of Hippuric acid is increased and QUICK is the first to use the Hippuric acid test as a measure of the detoxicating power of the liver in man. This test of QUICK was corroborated by VACCARO (1935) who found out that the rate of synthesis of Hippuric acid is governed by the physiological power of the organ to produce Glycine and this power is affected in certain types of liver damage resulting in the diminished excretion of Hippuric acid. PROBSTEN and LONDE (1940) BARTLES (1941) and SCHMIDT, ET AL (1941) studied the Hippuric acid liver function test and found it to be lowered in various pathological conditions. Glycine is synthesised by the hepatic cells but the liver does not store it. Ordinarily, there is also an exogenous supply of Glycine in the protein of the diet. ZIFFREN, ET AL (1942) found out that in the absence of exogenous Glycine the liver manufactures Glycine at a constant and fixed rate. LAHIRI (1942) has found that the Hippuric acid excretion in liver is diminished in cases of syphilitic infection. LAHIRI (1942) and (1943) has shown that by the administration of liver extract even in apparently healthy subjects where the Hippuric acid excretion which is comparatively lower than the average normal rises. LAHIRI (1942) has shown that in the infection *Sp. pallida*, the liver function is also improved by the combined administration of liver extract and vitamin C. LAHIRI (1942) has observed the temporary protection of the damaged liver by the administration of vitamin C.

* Specially contributed to 'The Antiseptic'.

LONGENECKER, ET AL (1940) observes that animals that are able to synthesize vitamin C respond with an increased formation of vitamin C to toxic doses of various poisons. BUNDESEN ET AL (1941) points out that man is not able to synthesize vitamin C, and vitamin C for detoxication in man must come either from the ingested food or from the body stores. TAYLOR, ET AL (1936) determined the blood vitamin C content in 33 normal individuals and found on an average 1.61 mg. per 100 c.c. with a range from 0.83 to 2.43 mg. per 100 c.c. of blood and found a transient rise of the blood vitamin C level following oral and intravenous administration of vitamin C. LAHIRI (1942) has found out the blood vitamin C in syphilitics and a temporary rise in blood vitamin C was observed. FIRMER ET AL (1940) observed that in syphilitic patients when Arsenic was given in therapeutic doses there was lowering of plasma vitamin C level. BUNDESEN ET AL (1941) observed that with Arsenic injection the vitamin C content of plasma in cases of arsenical intolerance was greater and has been corroborated by LAHIRI (1942), BARTLES ET AL (1940) studied vitamin C in plasma in 13 normal controls and found 0.77 mg. per 100 of plasma.

TABLE NO. I.

Normal Vitamin C content in mg. per 100 c.c. of blood and normal Hippuric acid excretion in urine with the test dose of Sodium Benzoate (6 gm) and collecting urine after 4 hours.

Case No.	Subject.	Sex	Age	Community.	Profession.	Diet	Blood Vitamin C in mg.	Hippuric acid in g. in urine.
1	K. D. L.	M.	30	Hindu.	Med. Pract.	Mixed.	1.2	6.0
2	R. N. S.	M.	29	Do.	Do.	Do.	2.2	4.6
3	N. B.	M.	23	Do.	Service.	Do.	0.8	4.6
4	M. R.	M.	40	Do.	Teacher.	Do.	0.8	5.2
5	S. R.	M.	29	Do.	Med. Pract.	Do.	0.9	4.8
6	J. N. G.	M.	52	Do.	Compounder.	Do.	1.2	4.7
7	M. I.	M.	42	Mohammadan.	Clerk.	Do.	1.0	4.9
8	G. B.	M.	33	Anglo-Ind.	Engineer.	Do.	1.0	6.2
9	B. X.	F.	26	Do.	Domestic.	Do.	1.8	6.0
10	S. D.	F.	24	Hindu.	Do.	Veget.	1.2	5.0
11	A. B.	F.	13	Do.	Student.	Mixed.	1.4	4.1
12	D. K. D.	M.	48	Do.	Clerk.	Do.	0.9	5.2
13	U. P.	M.	24	Do.	Derwan.	Do.	1.6	4.8
14	G. R.	M.	32	Do.	Servant.	Veget.	1.2	5.2
15	K. D.	F.	16	Do.	Student.	Mixed.	1.2	5.0
16	M. H.	M.	24	Mohammadan.	Clerk.	Do.	0.8	4.9
17	A. H.	M.	12	Do.	Student.	Do.	1.0	5.1
18	P. S.	M.	36	Ind. Christ.	Service.	Do.	1.1	4.5
19	S.	F.	30	Do.	Domestic.	Do.	1.4	5.7
20	B.	F.	54	Hindu.	Do.	Veget.	2.0	4.8
21	L. L.	F.	24	Do.	Do.	Mixed.	1.6	6.1
22	S. C.	F.	66	Do.	Do.	Do.	1.8	4.4
23	C. S.	M.	17	Do.	Student.	Veget.	2.0	4.7
24	J. S.	M.	21	Do.	Do.	Mixed.	1.2	4.7
25	M. M.	M.	37	Mohammadan.	Clerk.	Do.	0.6	4.9
26	R. C. S.	M.	21	Hindu.	Grocer.	Veget.	0.7	4.2
27	J.	M.	17	Do.	Servant.	Mixed.	0.6	4.4
28	B. N. M.	M.	11	Do.	Domestic.	Do.	1.2	4.4
29	P.	F.	18	Do.	Do.	Veget.	0.7	5.1
30	S.	F.	10	Do.	Student.	Mixed.	0.9	5.3
Mean—							1.2 mg.	Mean—
							(0.6 to 2.2)	5.0 g.
								(4.4 to 6.2)

RHINEBERT ET AL (1938) found the average blood vitamin C to be 0.7 mg. with a range of 0.22 mg. to 1.45 mg. in 120 control groups. SLOANS (1938) has found out by determinations at shorter intervals that the blood vitamin C level immediately after injection is much higher and found that at the 15 minute interval the blood level is falling rapidly and at the end of one hour the curve has flattened out sufficiently to make the time factor less important.

Observation.—The present investigation has been done with a view to find out the liver function test and blood vitamin C content in normal subjects.

The liver function test has been done by the method of LAHIRI (1942) which is a modified method of QUICK (1931). The blood Vitamin C level has been done by the method of LAHIRI and RUDRA (1942).

Liver function test and blood vitamin C content has been determined in the same subject. In 30 apparently healthy individuals of different sex, age, diet and profession, the fasting blood vitamin C content has been determined and the liver function after the test dose of Sodium Benzoate. (Table No. I. vide page 10). Liver function and fasting blood vitamin C content has been determined in 30 apparently healthy women. (Table No. II.)

TABLE NO. II.

Relation of excretion of Hippuric acid in g. in urine after the test dose of Sodium Benzoate and Vitamin C in mg. per 100 cc. blood of fasting women (normal).

Case No.	Subject.	Age.	Diet.	Blood Vitamin C in mg.	Hipp. acid in g. in urine.
1	S.	23	Veget.	0.60	4.8
2	D. D.	28	Do	0.74	5.8
3	R.	27	Do	0.65	6.0
4	F. H.	18	Mixed	0.54	4.8
5	B.	33	Do	0.76	6.2
6	N.	54	Do	0.67	5.7
7	M.	45	Do	0.71	5.9
8	L.	37	Veget.	0.80	4.9
9	K.	40	Do	0.71	5.0
10	L. D.	45	Mixed	0.63	5.8
11	L.	55	Do	0.78	5.9
12	N. P.	54	Do	0.76	5.8
13	R. D.	23	Do	0.87	5.8
14	B. D.	35	Do	0.76	5.4
15	L. K.	46	Do	0.76	4.7
16	H. D.	34	Veget.	0.70	4.8
17	A. D.	26	Do	0.86	4.7
18	Z.	24	Mixed	0.78	4.9
19	G.	27	Do	0.57	5.0
20	S. S.	21	Do	0.80	4.8
21	R. N.	19	Veget.	1.01	5.2
22	S. N.	22	Do	0.80	5.0
23	J. D.	51	Mixed	1.00	4.8
24	F. H.	48	Do	0.72	5.7
25	S. B.	24	Do	0.86	5.9
26	N. K.	28	Do	1.04	5.6
27	R. L.	22	Do	0.75	4.7
28	D. D.	34	Veget.	0.60	4.5
29	S. A.	32	Do	0.57	5.2
30	T. D.	28	Do	0.56	5.6
Mean—				0.72 mg.	Mean—
				(0.54 to 1.02)	5.0 g.
					(4.5 to 6.2)

TABLE NO. III.

Hippuric acid excretion and blood vitamin C content in apparently healthy subjects before and two months after administration of liver extract (2000 g.) per day for 14 days.

No.	Subject.	Hippuric acid excretion in g.		Vitamin-C content in mg per 100 cc. blood.	
		Before.	After.	Before.	After.
1	A. N. S.	3.4	3.9	9.82	0.82
2	R. G. P.	3.6	4.2	1.24	1.26
3	M. I. K.	3.2	3.6	0.96	1.01
4	G.	3.7	4.0	0.71	0.72
5	N. R.	3.1	3.4	1.71	1.74
6	B.	3.5	3.6	0.62	0.62
7	S. R.	3.2	3.4	0.57	0.57
8	L. P. V.	3.4	3.8	0.72	0.74
9	B. A. P.	3.3	3.9	0.61	0.66
10	I. A. R.	3.2	3.8	0.79	0.91
11	K. B.	3.0	3.3	0.61	0.61
12	H. M.	3.8	4.4	0.82	0.91
13	S. K. G.	3.9	4.3	1.48	1.50
14	R. N. L.	4.0	4.8	1.60	1.76

TABLE NO. IV.

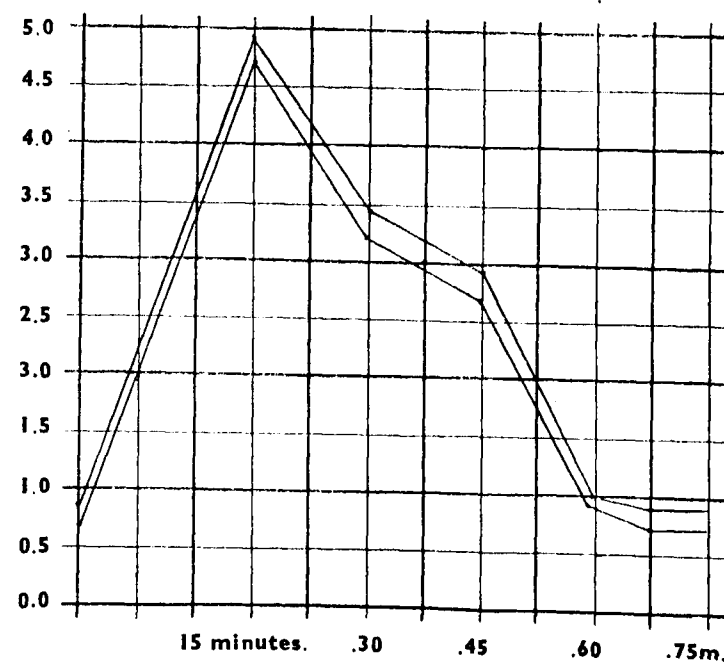
Liver function and blood vitamin C content in 17 apparently healthy subjects before and after administration of vitamin C (500 mg) intravenously daily for 14 days.

No.	Subject.	Hippuric acid excreted in g.		Vitamin C content in mg per 100 cc. blood	
		Before.	After.	Before.	After.
1	L. L.	6.1	6.3	1.6	1.9
2	S. R.	5.4	5.4	0.9	1.4
3	N. K.	5.8	5.7	0.71	0.86
4	C. P.	4.8	4.9	0.70	0.93
5	R. K.	5.2	5.8	0.87	0.89
6	R. L.	4.9	5.4	0.67	0.68
7	J. M. P.	6.0	6.2	0.98	1.34
8	S. C. C.	5.5	5.9	0.88	1.00
9	S. C.	6.0	6.4	0.94	1.50
10	N. L.	5.8	6.7	0.97	1.64
11	J. G.	5.4	5.7	1.09	1.35
12	R. D.	4.8	4.9	1.20	1.54
13	N. R.	4.6	4.8	1.10	1.45
14	I. B. G.	5.6	6.0	0.98	1.58
15	A. K. G.	4.8	5.4	1.02	1.47
16	M. H. I.	5.4	5.9	0.98	1.48
17	R. C. P.	5.5	5.9	2.0	2.66

TABLE NO. V.

Fifteen Minute Curve.

Curves showing Vitamin C content of blood in two normal subjects before and with 500 mgm. Vitamin C I.V. and estimated at intervals of 15 minutes—higher vitamin C content is shown at 15 minutes.



Blood vitamin C content curve determined at 15 minutes' interval before

Liver function and fasting blood vitamin C content determined in 14 apparently healthy subjects before and after administration of Liver extract (2000 g.) by intramuscular injection daily for 14 days. (Table No. III.) Liver function and fasting blood vitamin C content in 17 apparently healthy subjects before and after the administration of 500 mgm. daily of vitamin C intravenously for 14 days. (Table No. IV.)

and after administration of 500 mgm. vitamin C intravenously in 10 normal subjects. (Table No. V.) Normal curve showing relation between Hippuric acid excretion and blood vitamin C content. (Table No. VII). Curve showing relation between normal Hippuric acid excretion and blood vitamin C in women. Table No. VIII & Table No. IX are curves showing results.

TABLE NO. VI.

Normal curve—Showing relation between Hippuric acid excretion & Blood Vitamin C.

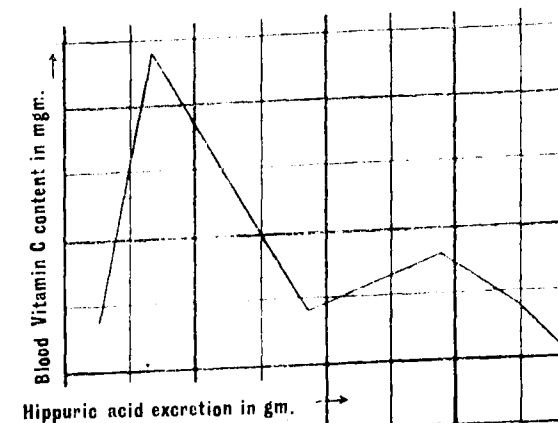


TABLE NO. VII.

Curve showing relation between normal Hippuric acid excretion and blood vitamin C in women.

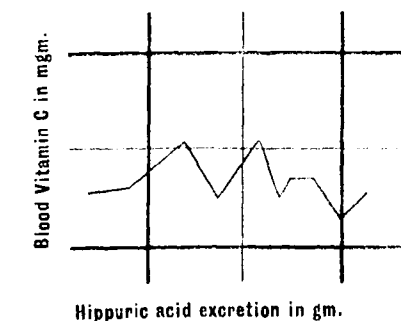
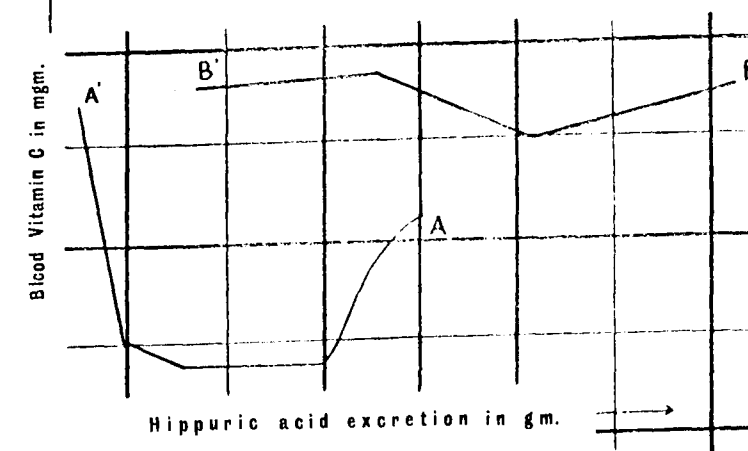


TABLE NO. VIII.

AA' showing Hipp. acid excreted & blood vitamin C before & BB' showing Hipp. acid excreted & blood vitamin C after liver therapy.



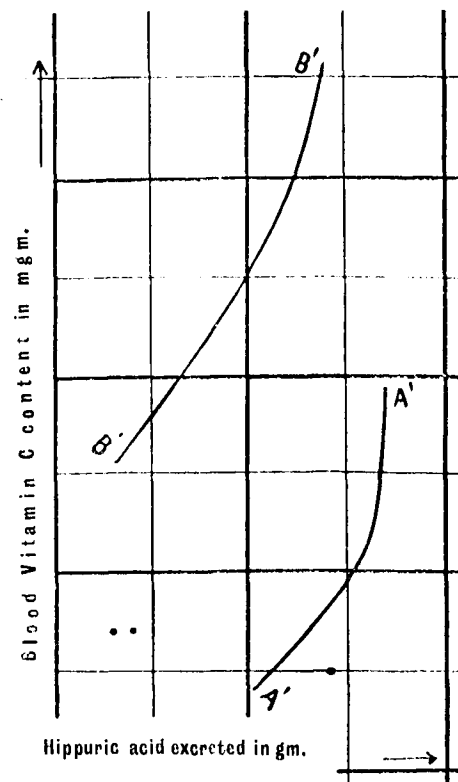
Conclusion.—The detoxicating function of the liver appears to be in regard to hepatic activity protecting the organism from some harmful substances which may originate within the body or reach the blood stream from the outside.

Normal liver function on an average is 5.0 gm. and normal blood vitamin C is 1.2 mgm. and only in women 0.72 mgm. per 100 c.c. of blood.

That the administration of liver extract definitely improves the liver function is shown by the experimental results. Liver together with vitamin C

TABLE NO. IX.

Curves AA' showing Hippuric acid and blood vitamin C before and BB' after vitamin C therapy.



"Yakriton" was administered to rabbits. MACKEE and ASTRACHAN (1940) observed that there were more improved cases among those intolerant to arsenicals than among cases intolerant to heavy metals; the best results were obtained in cases which received the largest number of liver extract injections. SPIETHOFF (1931) observed remarkable improvement in arsenical intolerance with liver therapy. NAIR (1935) found very encouraging results with liver extract. LAHIRI (1942) found that the liver function could be much improved in arsenical intolerant congenital syphilitics by the administration of liver extract injection and LAHIRI (1943) has found the liver function improving by the administration of liver extract in acquired syphilitics. Good results have been obtained by LAHIRI (1941) by the administration of liver and vitamin C in arsenical intolerance. LAHIRI (1942, 1943) could continue arsenical injections in mild arsenical intolerant syphilitics together with vitamin C administration. MANN (1941) observes that there is a direct and specific effect of any vitamin deficiency on the liver as an organ. The liver does have an important role in regard to

when given improves the liver function and raises the blood vitamin C content, but vitamin C alone only raises the blood vitamin C level without improving the liver function.

GHOSH (1942) found dramatic improvement in acute amoebic hepatitis by giving four injections of Campolan. (MANN 1941). The organ may protect the body from toxic substances in other ways than actual destruction of its tissues.

SHIBATA (1936) worked with liver extract in rabbits. He gave intra-ocular inoculation with Tubercle bacilli prepared on (b) low hormone and (f) high hormone content rabbits. The latter showed a more favourable blood picture and survived longer than the rabbits with low hormone. Hence the course of tuberculosis should be compared with rabbits having equal liver detoxicating power. OHTA and SATO (1942) isolated this hormone of liver which has been named "Yakriton". They have observed that Yakriton increases the detoxicating power of the liver although this action wears off slowly. OHTA (1940) observed improved liver function when

several vitamins and specific deficiency may affect some of its functions. Liver plays the major role of storage and many of the vitamins are found in relatively large amounts in the organ. It is the site where some of the vitamins produce part of the effects.

Summary.—Liver extract and vitamin C are the two liver protecting remedies, particularly the former. The possibilities of a hepatic factor in the newer phases of medical science must always be considered.

Acknowledgement.—I am grateful to Principal, DR. T. N. BANERJI, and Superintendent, Captain R. P. GHOSH, for permission to carry on my investigation on cases of the Venereal Department, and to use the Medical Chemistry "Research" Laboratory. I am also thankful to Professor DR. T. N. SETH for facilities and help and to DR. H. P. LAL, for help and encouragement. The work was kindly guided by my teacher, MR. M. N. RUDRA of the Department of Medical Chemistry, Prince of Wales' Medical College, Patna, (Bihar.)

References :

- Wright, S.—(1941), *Applied Physiology*.
- Prasad, B. N.—(1942), *Pat. J. Med.* 17: 197.
- Luoke, A.—(1860), *Arch. Patn. Anat.* 19: 196.
- Bunge and Schmoldenberg.—(1877), *Arch. Exp. Path. Pharm.* 49: 229.
- Senator, H.—(1878), *Z. Klin. Med.* 1: 243.
- Kobert, R.—(1880), *Sch. Jahr.* 185: 12.
- Magwis—Levy, A.—(1907) *Biochem. J.* 12: 184.
- Lewiniski, J.—(1908), *Arch. Exp. Path. Pharm.* 58: 397.
- Dakin, H. D.—(1909), *J. Biol. Chem.* 7: 102.
- Friedman, H. and Tachan, H.—(1911), *Z. Biochem.* 35: 88.
- Kingsbury, F. B. and Bell, E. T.—(1915), *J. Biol. Chem.* 49: 229.
- Csonka, F. A.—(1924), *J. Biol. Chem.* 60: 545.
- Morgulis, Pratt and Jahr.—(1923), *Arch. Int. Med.* 31: 111.
- Bryan, A. W.—(1925), *J. Clin. Inv.* 2: 1.
- Quick, A. J.—(1931), *J. Biol. Chem.* 92: 60.
- Vaccaro, P. E.—(1935), *Surg. Gynec. Obst.* 61: 36.
- Snell, A. N. and Plunkett, J. E.—(1936), *Am. J. Dig. Dis. Nut.* 2: 766.
- Yardumian, K. and Rosenthal, P. J.—(1937) *J. Lab. and Clin. Med.* 22: 1046.
- Boyce, F. F. and Mc Ftridge, E. M.—(1938), *Arch. Surg.* 37: 401.
- Boyce, F. F.—(1939), *Ann. Surg.* 109: 359.
- Probstein, J. G. and Londe, S.—(1940), *Ann. Surg.* 3: 230.
- Bartles, E. C.—(1940), *J. Lab. and Clin. Med.* 26: 1330.
- Schmidt, C. R. Walsh, W. S. and Chesky V. E.—(1941), *Surg. Gynec. Obst.* 73: 502.
- Ziffren, S. E., Owen, C. A., Warner, E. D. and Peterson, F. R.—(1942), *Surg. Gynec. Obst.* 74: 462.
- Lahiri, K. D.—(1942), *Jour. Proc. Inst. Chem.* 14: 117.
- Idem.—(1942), *Indian J. Von. Dis.* 8: 84.
- Idem.—(1942), *Pat. J. Med.* 17: 155.
- Idem.—(1941), *Ibid.* 16: 220.
- Idem.—(1942), *Communicated Indian Science Congress.*
- Idem.—(1943), *In the press.*
- Idem.—(1943), *In the press.*
- Idem.—(1943), *In the press.*
- Longenecker, H. E., Fricke, H. H., and King, C. G.—(1940), *J. Biol. Chem.* 135: 492.
- Bundersen, H. N., Aron, H. C. S., Greenbaum, R. S., Farmer, C. J. and Abt., A. F.—(1941), *Jour. A. M. A.* 117: 1692.
- Mann, F. C.—(1941), *Collected papers of Mayo Clinic*, 33: 145.

Recent Advances and the Relative Value of Sulphonamide Preparations*

BY

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Of the recent advances in chemotherapy during the last 7 years, undoubtedly Sulphonamides take the first place. It is impossible to turn over the pages of any journal without finding an article or two about them. More and more is learnt about them every day and improvements are announced almost every year. They are dramatic in their performance and dangerous if misused. Enormous literature has sprung up and continues to flow day in and day out and a correct conception of the usage of the various preparations in the various conditions is the object of this short paper. I am also giving a few illustrative cases amongst many of all types I have been able to come across. I consider there is no subject which is more important from a therapeutic stand point than Sulphonamide therapy to-day.

It was on the 15th February 1935 that PROF. DEMAGK staggered the world with his discovery of Prontosil for which he was offered the Nobel Prize. Though born in 1908, Sulphonamide was left undisturbed until awakened by PROF. DEMAGK and in 1939 alone as much as 300 tons of the drug was used. Various improvements have been effected in its formula from time to time and each preparation had its own boom. Prontosil Rubrum, Prontosil Album, Uleron, Albucid, Spirocid &c., had their days and we have to-day five Sulphonamide bullets to choose from. They are:—(1) Sulphanilamide, (2) Sulphapyridine-M & B 693 or Dagenan, (3) Sulphathiazol-M & B 760, (4) Sulphanilguanidine and (5) Sulphadiazine. There are preparations of the above for parenteral use where necessary for obvious reasons as the Sodium salt of Sulphapyridine, Proseptasine, Soluseptasine or solutions of Sulphanilamide by various firms, under different names. The object of this paper is to bring home the indications, the toxic effects and the place of the various preparations in therapeutics. While all the preparations of the Sulphonamide series are effective against Haemolytic streptococci, B. coli, Pneumococci, Meningococci and Gonococci in general, every preparation has a right place and is superior to the rest in certain infections. There are certain general principles in the use of Sulphonamide preparations. The dosage, the route of administration and choice of compound vary in each case. A large initial dose is always desirable in every case to obtain an adequate and quick concentration. The blood content should be maintained at this level. If this level is not reached orally, it should be supplemented parenterally. The oral preparations are slow and continuous and maintain an adequate blood level. Soluble preparations are more rapidly absorbed and are also excreted as rapidly. The parenteral route should be used when swallowing is not possible and when nausea and vomiting are troublesome and when an urgent action is needed. When the drug is effective, the result is apparent in a few days. If no improvement is noticed in ten days, it is useless to pursue it further. An interval of at least 3 days should elapse before a second course is given and a change of preparation is an advantage for the second course. When toxic symptoms arise, the blood stream should be cleared by inducing diuresis.

* Specially contributed to 'The Antiseptic'.

The four cardinal signs of chemotherapy are:—

- (1) To expect too much from the drug;
- (2) To promise too much for the patient;
- (3) To be easily satisfied with early response;
- (4) To neglect tests of cure.

The common errors are that Sulphonamides are given in insufficient clinical data and in insufficient dosage and for too short a period of time. Certain elementary precautions against toxic effects are often neglected. They should always be preceded by a soap-and-water enema and thereafter constipation or diarrhoea should be avoided. Purgatives containing Sulphates and Sulphur, Iron Salts containing Sulphur, Sulphur-containing foods like eggs, onions and garlic or bright sun light should be avoided, Sulphonamides should be given only when the patient can be under observation preferably as an in-patient. They should not be given in severe anaemias and restricted when there is Liver or Kidney disease. In patients suffering from syphilis or gonorrhoea, treatment with arsenicals should be delayed until treatment with Sulphonamides is finished. Toxic manifestations of Sulphonamides are: malaise, lassitude, head-ache, giddiness, dizziness, abdominal discomfort, nausea, vomiting, hepatitis, jaundice, haematuria, rashes, pyrexia, calculi in the kidney, anuria, nodules in the subcutaneous tissues, empyema, mental excitement, acidosis, sulphamethaemoglobinaemia and agranulocytosis.

Nausea, vomiting, empyema and haematuria are more common after Sulphapyridine and nodules on the skin and haematuria after Sulphathiazol. Dizziness and cyanosis are common after Sulphanilamide. Drug rashes are common about the 5th or 9th day after Sulphanilamide or Sulphathiazol. Drug fever at any time from the 1st to the 30th day and generally with Sulphanilamide or Sulphathiazol, leucopenia and agranulocytosis may occur with a single dose of Sulphanilamide and it may not occur till the 60th or 70th day: the commonest period being 17th and 25th day of treatment. No death has been reported within 12 days from agranulocytosis and therefore a blood count is desirable in all cases after this period if the drug has still to be used. As a matter of fact a patient under Sulphonamide treatment should be under the eye of the doctor and must be seen by him daily. Enquiries regarding any lassitude, headache &c., should be made, face and nails should be examined for cyanosis, conjunctiva for pallor, skin for any rashes and his temperature noted. The treatment of the minor ailments consists in increasing the fluid intake and elimination by diuretics. In fact a patient under Sulphonamide treatment should take 4 pints of fluid daily. A liberal amount of Glucose and fruit juice and Soda Bicarb is also essential. For cyanosis, Methylene Blue in pill 1 to 2 grains, thrice daily or Rubiazol 0.2 to 0.4 grammes every 4 hours and for anuria, intravenous Normal Saline and for agranulocytosis, Sodium Nucleopentide should be given.

Coming to therapeutic uses, Sulphanilamide should be the drug of choice in all Haemolytic streptococcal infections viz., erysipelas, cellulitis, furunculosis, tonsillitis, otitis, mastoiditis and other intracranial inflammatory or suppurating complications of otitis media: in puerperal septicaemia, in septic abortions, pelvic cellulitis, peritonitis as a prophylactic in all cases of prolonged or difficult labour and in cases handled outside before coming to hospital, in appendicitis, periostitis, osteomyelitis, in

all badly lacerated wounds, compound fractures, boils, abscesses and carbuncles, to abort or limit their extent and in all streptococcal skin affections as impetigo, pemphigus, pustular folliculitis, herpes, eczema, sycosis barbae and excavating ulcers too common in certain places.

It may not be out of place if I mention here that a number of cases of impetigo occurred here during the recent summer and a 5% Sulphanilamide ointment applied locally cured them all in 3 to 5 days. Before Sulphanilamide came in, Unguentum Hydrogiri Ammoniata or Gentian Violet had to be used for 10 days or more and not always with encouraging results. A type of excavating ulcer is common here, particularly amongst workers in slates or amongst school boys. The ulcer presents a punched out appearance and covered with dirty slough and the edges are raised and often indurated. Topical application of Sulphanilamide makes them clean and rosy in a few days. The ulcers which are the result of injuries appear to be due to infection with *Streptococcus* primarily and hence they yield to Sulphanilamide.

The next group of infections where Sulphanilamides are more useful than the rest of the series are the *B. coli* infections. A combined alkaline treatment with Sulphanilamide is excellent. In fact, Sulphanilamide is indicated in alkaline urine. Thus, it is useful in pyelitis, *B. coli*, septicæmia and cystitis.

In gonococcal infections, Sulphanilamide has no action in the very early stages. Its action is not apparent until 2 weeks after the infection as no anti-bodies are formed before this. A three weeks' course of treatment and a total of 50 grammes are necessary. Sulphathiazol or Sulphapyridine is more effective so far as gonorrhoea goes. Both these can be used a week after infection and a shorter course is enough, 50 tablets of M & B 693, 6 a day for 5 days, and 4 a day for 5 days. Sulphathiazol, M & B 760 has come into fashion in the treatment of gonorrhoea and the results are excellent. It is far less toxic and more rapid than M & B 693; 4 grammes or 8 tablets per day for 5 days without any adjuvant treatment effects a cure in most cases. In all cases where diagnosis is in doubt a less toxic and least harmful preparation like Sulphapyridine should be the choice. The complications of gonorrhoea are all benefited with Sulphanilamides but where resistant, combination of Sulphanilamide with non-specific protein therapy succeeds. An alkaline mixture, a course of Gonococcal Vaccines and Milk injections are successful in chronic cases which are usually the rule. Curiously, Sulphapyridine works miraculously in gonorrhoea ophthalmia. In soft chancre and buboes, Sulphanilamide is good enough. Sulphanilamides in meningococcal infections are of value if the cause of meningitis is a *Streptococcus*. In pneumococcal meningitis, Sulphapyridine is obviously of greater value and in tubercular meningitis none of the series is of any use. Sulphanilamides have been found useful in scarlet fever, Malta fever, typhoid and para-typhoid infections, *B. proteus* infections, small-pox, plague and in trachoma, ulcer cornea and iritis. The value of Sulphanilamide in small-pox seems to depend on its controlling the secondary septic infection of the pustules and thus lessen the toxæmia and disfigurement. In trachoma, keratitis, ulcer cornea and septic eye conditions as panophthalmitis, Sulphanilamides have a remarkable value, locally as well as generally. In filarial lymphangitis, the value of Sulphanilamide is again to fight the secondary infection. And now coming to the topical use of Sulphanilamide, it has come into prominence

since the present World War. Sulphanilamide diffuses through dead tissues far more rapidly than any other. Sulphathiazol, however, is more powerful against gas gangrene infection. A mixture of both Sulphanilamide and Sulphathiazol is regarded as best. 10 to 15 grammes of the powder should be gently rubbed and filled into the wounds. While it is being locally used it should also be given internally. Locally, it penetrates for 2 to 3 millimetres into living tissues. In Dunkirk and Libya, in the present war, it has been shown that patients receiving the drug through both the routes were decidedly much fitter and showed less sepsis. It is said that every soldier has a dozen Sulphanilamide tablets as part of his kit now.

Sulphanilamide over recently sutured wounds or into the peritoneum prevents risks of sepsis and controls it when it exists. In suppurative appendicitis in a series of nearly 300 cases in America, Sulphanilamide was used topically and not a single death occurred. Excision, Sulphanilamide and Plaster are now extensively employed in the recent war wounds with good results.

Sulphanilamide is useful in burns of the 3rd degree. The powder is dusted on the burnt surface and the burns heal without any sepsis. A glycerine paste containing 2½% Albucid, 40% Kaolin and 5% Codliver oil, commonly known as 'Eugalamide' is also employed in burns.

Sulphapyridine, M & B 693 or Dagenan is a pyridine compound of Sulphonamide and has a selective action on the *Pneumococcus*. In lobar and broncho-pneumonia, its effects are spectacular. The temperature comes down to normal within 24 to 48 hours given in proper doses. The usual dose is 4 tablets at once and 2 every 4 hours for the first 24 hours and thereafter one tablet every 6 hours for another 24 hours. If it does not have any effect, it means the patient's resistance is low either as a result of hook-worm or malaria or he is going in for empyema. It is useful in other respiratory affections also from a common cold to abscess of the lung, coryza, sinusitis, acute bronchitis, bronchiectasis, pleurisy and gangrene of the lung. M & B 693 was used as a prophylactic against pneumonia by the Russians and Germans in the present war during last winter with success. Nausea and vomiting are more frequent with M & B 693 and empyema may be a complication after its use. Resolution in pneumonia is, however, slow after M & B 693. I have used M & B 693 to bring down temperature in hyperpyrexia not due to pneumonia and it does bring it down in about 24 hours as in pneumonia. In gonorrhoea, its effects were discussed above, and it is less toxic. It can be used early enough and a shorter course than Sulphanilamide is enough. The discharge stops in 24 to 48 hours i.e., after 12 tablets. In meningitis in general and pneumococcal meningitis in particular, M & B 693 is preferable to Sulphanilamide. In acute bacillary dysentery and inflammatory summer diarrhoea of children, it is almost a specific. I have used it often in the absence of serum with uniformly good results. A combination of serum and Sulphapyridine is desirable in desperate cases. The effect of M & B 693, in ophthalmia neonatorum, cancrum oris and vulvovaginitis of children is remarkable. M & B 693 is, however, useless in influenzal broncho-pneumonia. It is also useful in other infections where Sulphanilamide is indicated but it is too costly and it would be extravagance to use it where a less costly and more effective preparation like Sulphanilamide does the work quite as well and possibly better. Sulphonylguanidine is hailed as a specific in bacillary dysentery but I have not had occasion to use it yet. Probably, it is superfluous and, where Sulphapyridine is as effective, it is unnecessary.

Sulphathiazol (M & B 760) is now the latest in the field for gonorrhoea giving the largest percentage of cures in the shortest period.—4 grammes a day for 5 days often effects a cure. It is useful in conditions where a staphylo and streptococcal infection is the cause as in boils and carbuncles. It is useful in pyaemia, and as a preoperative measure before a carbuncle is operated upon.

Sulphathiazol is more readily absorbed and more rapidly excreted than Sulphapyridine. It should not be given to patients with meningitis as its diffusion into the spinal fluid is irregular. Sulphathiazol in lobar pneumonia brings down the temperature within 24 hours. The response of both Sulphapyridine and Sulphathiazol in bringing down temperature in pneumonia is almost equal. When an organism becomes drugfast to one Sulphonamide it is also resistant to others of the same series. In such patients, it is necessary to give type serum.

Sulphathiazol in infections of the urinary tract is found valuable. Again it is the only Sulphonamide compound which affects—*Streptococcus faecalis*. It is more effective than Sulphanilamide against infections due to *Streptococcus aureus*, *B. proteus*, *B. coli* and *B. lactis-aerogenes*.

Its singular disadvantage appears to be the formation of lumps and rashes on the body and irritation of the kidneys. To obviate the defects of the Sulphonamide compounds referred to above, a preparation known as Sulphadiazine has been discovered in April 1940. It is as potent as Sulphanilamide and 15 times more life-saving than Sulphathiazol. It is not limited in its scope. Sulphanilamide is weak against *Pneumococcus*, Sulphapyridine is not sure against wound infection, while Sulphathiazol is weak against *Hæmolytic streptococci*. Sulphadiazine is not so limited and is a universal coccus killer. It is harmless to the kidney, reaches a high microbic fighting level in the blood and leaves the kidney slowly. In 100 cases of pneumonia tried in Philadelphia there was not a single death when treatment was begun within 3 days after the onset. The only precaution necessary is to find out if the patient has had any Sulphonamide drug before and if so, if he had any reaction. In such cases, a small test dose should be tried first. Supplies of the drug are still not generally obtainable in India and they are promised by winter.

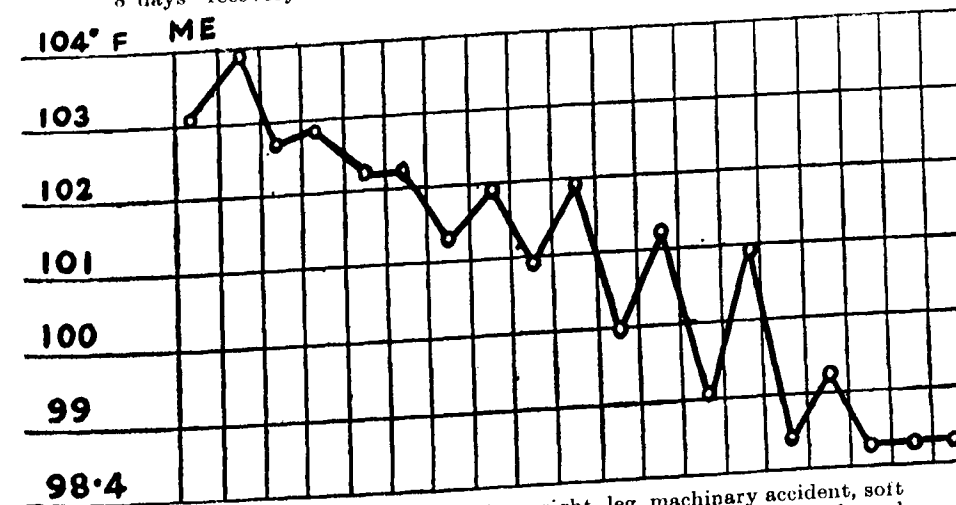
Parenterally Prontosil Rubrum in 5 c.c. ampoules was the first introduced and was effective against all *Streptococcal hæmolytic* affections. As the supply of the drug became poor on account of the war, being a German product, other substitutes have replaced it. Proseptasine, Soluseptasine, Sodium salt of Sulphapyridine, Streptocide, Sulphanilamide in solution by various manufactures have been introduced. Soluseptasine appears particularly useful in abscess of the lung with Sulphapyridine by mouth. The parenteral preparations are indicated as elsewhere when administration orally is impossible as when there is persistent vomiting or when the patient is unconscious or when an urgent action is required.

I have used Sulphonamide and its derivatives since 1938 in several conditions stated above with uniform success. It is no exaggeration to say that the time has come when most of the drugs of British Pharmacopœia we use will soon be historical relics.

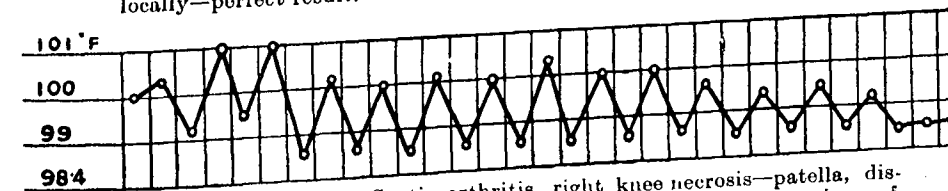
I have gathered much of the literature of this subject from journals like *The Indian Medical Gazette*, *Antiseptic*, *British Journal of Venereal Diseases*, *Practitioner*, *Readers Digest* etc. I am indebted to my son Dr. C. V. Narashimha Murty M.B.B.S. for helping me in the preparation of this article.

JAN. '43] THE VALUE OF SULPHONAMIDE PREPARATIONS—KRISHNAMURTY 21

- (1) V. C. A., male, 18. Injuries, mauled by a cheeta 3 days ago, had a number of badly lacerated deep wounds on face, neck, cheeks and eyelids with cellulitis, gas gangrene, foul smelling discharge, severe toxæmia, dry tongue, pulse 130, respirations 36 per minute. Sulphanilamide internally for 8 days—recovery.



- (2) K. C., male, 18. Compound fracture right leg, machinery accident, soft parts badly lacerated, tibia splintered. Sulphanilamide internally and locally—perfect result.



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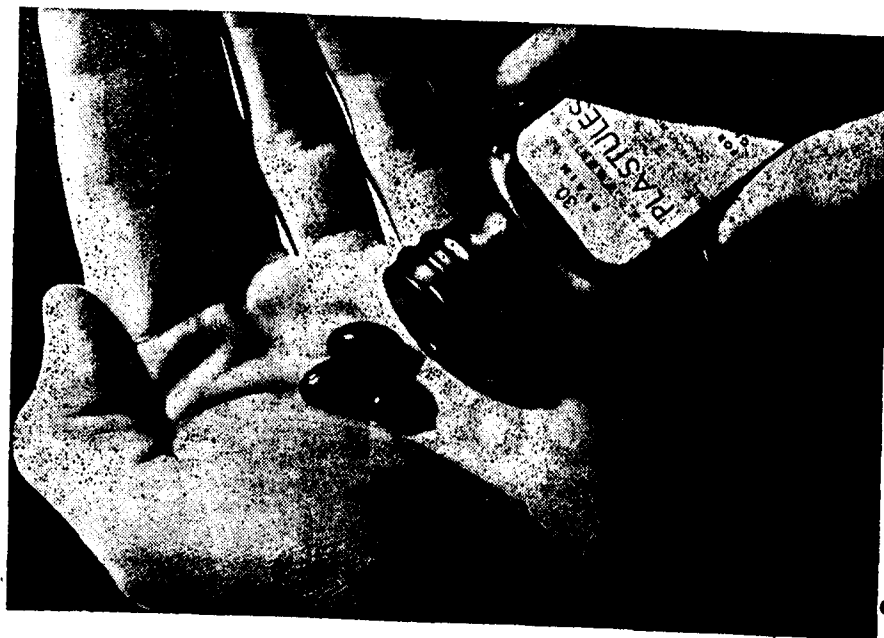
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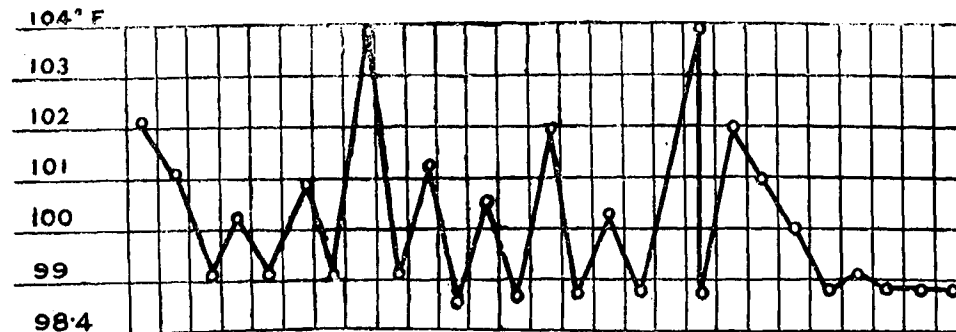
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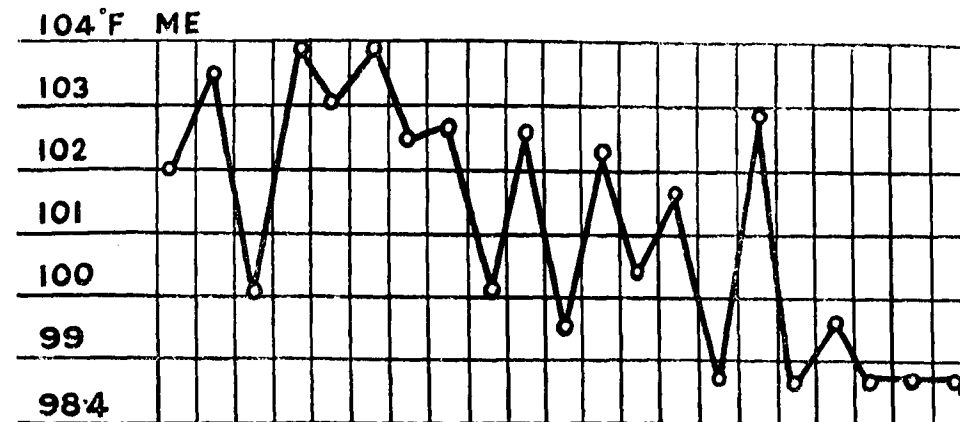
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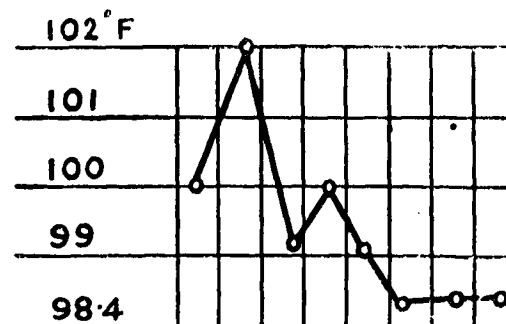
- (5) G. S., female, 16 years. Prolonged labour—2 days, handled outside. Pulse 110, respiration 44, tongue dry, uterus tense, pains feeble, foetal heart 135 per minute, os 4/5th dilated, after emptying bladder and rectum Pituitrin 1 c.c. given, delivered in 15 minutes. Sulphanilamide internally, cured.



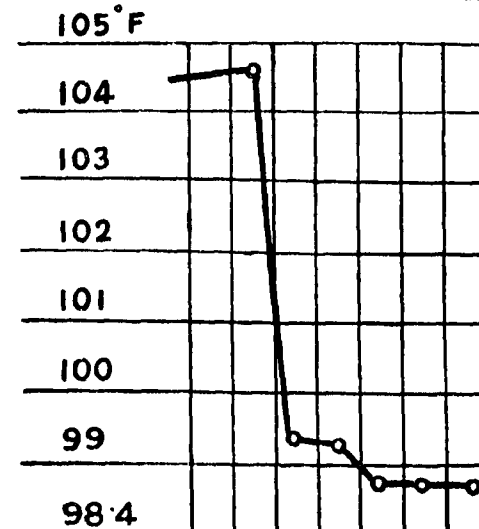
- (6) L., female, 19 years. Endometritis, came in for retention of urine and fever. Bladder distended, urine drawn, uterus enlarged up to umbilicus, tender and painful, denied pregnancy or gonorrhoea. Sulphanilamide internally, uterus gone down into pelvis, temperature normal, no retention of urine.



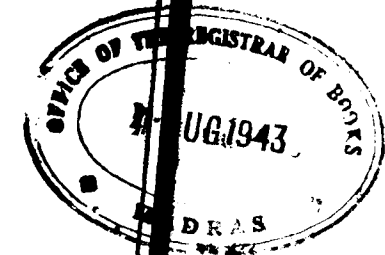
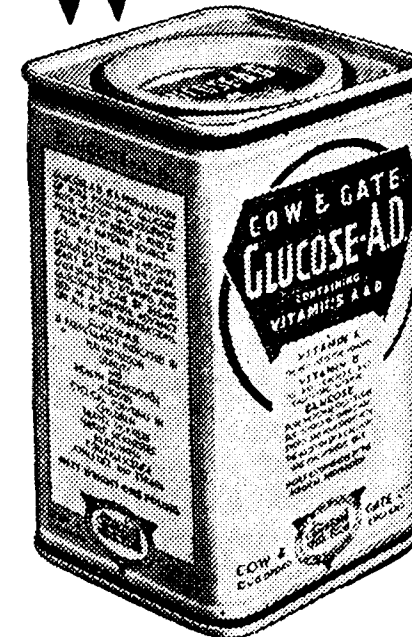
- (7) S.K., male, 13 years. Appendicitis, came in with typical signs and symptoms,—pain, vomiting, fever and tenderness over Mc. Burney's point. Sulphanilamide internally with usual treatment viz., Fowler's position, sips of Glucose water only by mouth and constant hot water bag, relieved.



- (8) T. A., male, 25 years. Pneumonia lobar left—3 days at home. On admission, temperature 104.5° pulse 120 and respiration 46. Patient semiconscious, occasionally delirious and pinching at bed-clothes, tongue dry. Bowels costive. Glycerine enema. Full doses M & B 603, 4 tablets at once, 2 every 4 hours for 24 hours. Fall by crises in 15 hours. Patient conscious.



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Diagnosis of Cholera*

BY

D. N. DEBSARMA, F.M.B.

Malariologist, Late Tea Estate Medical Officer,
Abhaya Hospital and Research House, Mathurapur, P.O. Tihu, Assam.

General Remarks.—Cholera is an acute specific gastro-intestinal affection caused by Comma bacilli discovered by KOCH in 1883, and it is a well known disease in India specially in Bengal. The history of the disease shows that not only India but also many other countries—both temperate and tropical, have been visited by the malady at one time or another. The most virulent epidemics usually occur in the summer as well as in autumn months though sporadic cases are found throughout the year. The signs and symptoms in a well developed typical case of cholera are so clear and striking that its recognition hardly presents any difficulty but in an atypical and complicated case the disease often presents problems in diagnosis. In the latter type of cases, even the very elect may fail to diagnose the condition. Some cases occurring in the beginning and towards the end of an epidemic are characterised by mere diarrhoea and malaise, there is never complete suppression of urine, the stools never lose their bilious character, there is no cramp of muscle and there is no stage of reaction. Again in another set of cases, the infection is so heavy that the diagnosis of the disease is practically impossible before the death of the patient. All this variation in severity of the disease is directly proportional to the dose and potency for the infective micro-organisms. Besides this there are many other factors that make the clinical diagnosis more difficult. Profuse purging and vomiting of a colourless serous material, muscular cramps, complete anuria, algidity and collapse are the principal features that constitute the typical picture of cholera which once seen never fades from memory. But this simple picture is of little help in some atypical cases as well as in the earlier phases of the disease. Isolation of the Comma bacilli from the intestinal discharges is the only sure means of diagnosis in all these cases. An attempt has been made here in this paper to point out some practical facts about the diagnosis of the ailment.

Classification of the Disease.—Several types of the disease are met with during an epidemic of cholera and they are described under different heads by different authors. However, it is usually classified into the following heads:—(1) Choleraic diarrhoea (Cholerae.) (2) Cholera gravis. (3) Cholera hæmorrhagic. (4) Cholera sicca (Dry cholera).

Choleraic Diarrhoea is nothing but a mild infection of Comma bacilli and its signs and symptoms are not so alarming like those of cholera gravis. But these characters in both the mild and the severe forms are similar, they differ only in degree. In the hæmorrhagic type of cholera, the signs and symptoms are usually more acute than those of even cholera gravis, the stools are always sero-sanguinous in appearance instead of rice watery, but in other respects it is also quite similar to the said varieties. The fourth variety is cholera sicca. In this form, neither vomiting nor purging occurs, the patient generally dies within a very short time. In this case a large quantity of watery stools accumulates in the intestine but the intestine cannot expel its contents owing to its paralysis. Description of pathological changes of these various phases is out of place

* Specially contributed to 'The Antiseptic'.

here. Now, regarding the diagnosis of the disease in question it can be said that choleraic diarrhoea, cholera gravis and haemorrhagic cholera can be clinically diagnosed in the same process but the 4th variety, i.e., the dry cholera presents much difficulty in its diagnosis which can only be definitely made at the autopsy by the nature of the intestinal content and its bacteriological examination. It is the rarest and the most dangerous type of the disease.

History.—The history of a recent visit to a cholera-stricken place, a visit to a sacred place, nursing a cholera patient, occurrence of the disease in the locality and the neighbouring places of the patient will certainly give a clue to the diagnosis of the case though such history is quite out of question in an epidemic. But in a sporadic case of unknown origin such a history is of great help for an early diagnosis which is also again very important from the point of view of prophylaxis since early prophylactic measures prevent the spread of the infection. Then comes the question of the mode of onset of the disease. It usually starts in two ways—the mild cases start with the premonitory stage of diarrhoea and malaise and the severe cases suddenly begin with profuse rice-watery purging and vomiting. The story of onset in an average case of cholera runs thus: Late at night the patient is aroused from sleep by a slight discomfort in his abdomen round the umbilicus, thus indicating the site of infection in the lower part of the small intestine. Then he passes an effortless normal motion which is soon followed by another. Thus he passes several motions and develops various symptoms within a short time.

Clinical Picture.—The signs and symptoms that constitute the clinical picture of a typical cholera case gradually appear in four stages—the stages of incubation, evacuation, collapse and reaction. This picture mainly consists of frequent bileless rice-watery motions, rice-watery vomits, severe muscular cramps, suppression of urine, burning sensation of the body, thirst, weakness, arterial hypotension, appearance of intense dehydration, characteristic shrivelled up appearance, cyanosis, subnormal temperature, and collapse. This is soon followed by rapid alleviation of symptoms in a favourable case and by some other serious complications, such as uræmia, 'cholera-typhoid' hyperpyrexia etc., in an unfavourable case. For the diagnosis of a case the clinical picture is always useful. Below, some of the above mentioned points and some other diagnostically important points have been described in detail.

1. *Characters of Cholera Stool*:—The first few motions generally contain little bile and faecal matters which are soon lost by the subsequent motions. They soon become thin and rice-watery with a characteristic pungent odour. These watery stools contain in suspension white flocculi consisting of desquamated intestinal epithelium and intestinal mucosa. Enormous quantities of this matter are passed in the evacuating stage but in the next stage i.e., the collapse stage, both frequency and quantity of stools are gradually diminished. But these stools contain larger quantities of flakes of mucosa. The watery stool of a cholera patient separates into two layers when allowed to stand in a test-tube. The upper layer consists of an ashy grey watery and serous fluid and the bottom layer consists of some shreds of epithelium and shredded intestinal mucosa. The motions are effortless and painless from the beginning. In some severe cases the stools may be of uniform pink or red colour; they are always

sero-sanguinous in appearance, as already stated, in the haemorrhagic type of the disease.

2. *Characters of the Vomit*:—Commonly, vomiting starts along with or shortly after the onset of purging. Sometimes, it begins late in the course of the disease and most rarely it may not occur at all. The first few vomits contain bile and semi or undigested food material, then these are followed by yellowish or greenish bilious watery vomiting. Gradually it loses all its colour and becomes almost clear with slight turbidity. Like the stools, the vomits are also effortless, and they also diminish both in frequency as well as in amount in the later stage of the disease mainly owing to the great loss of fluid from the system. Thus, in the form of purging and vomiting, 35 to 64 per cent. of the fluid of the body is soon lost. (ROGERS.)

3. *Thirst*:—The patient develops an intense thirst on account of excessive loss of fluid from the tissues and this thirst is nothing but the demand of the tissues for the replenishment of the amount of fluid lost in purging and vomiting. Unfortunately, the patient cannot retain any fluid given to him in his stomach, it simply aggravates the vomiting which however, may help in elimination of at least a portion of the toxin from the system.

4. *Cramps*:—Cramps of an agonising character attack the extremities and abdomen including the diaphragm and the spine shortly after the loss of a fairly large quantity of fluid from the blood, the involved muscles contract violently and intermittently during the process of dehydration and stand out like rigid bars, or are thrown into lumps. Cramps of such selected muscles are characteristic in cholera. The cramps cease in the collapse stage because the muscles get fatigued then.

5. *Early Prostration*:—The patient develops weakness out of proportion to the number of motions. He may, even after one or two large motions, become almost bed-ridden and pass stools in the bed.

6. *Temperature*:—The axillary temperature sinks several degrees below normal—93° or 94°F., whilst the rectal temperature may be several degrees above normal—101° to 105°F. High temperature in the rectum indicates unfavourable prognosis. Hyperpyrexia (axillary temperature 107°F.) is a rare occurrence and the case is invariably fatal.

7. *Anuria*:—Along with the first few motions, the urine passes in smaller and smaller quantities but soon it stops owing to the excessive loss of fluid from the blood. The more or less inflammatory condition of the kidneys also may be responsible for anuria in the later stage of the disease.

8. *Collapse*:—The patient may pass into a state of collapse either due to loss of fluid in the first occurrence of collapse or due to cardiovascular weakness in the subsequent collapses. Shrivelled skin (especially that of the fingers and toes), sunken eyes, pinched nose and face, cold and clammy skin, cold breath, husky voice, restlessness, cyanosis, burning feeling in the chest, shallow and rapid respiration, feeble or imperceptible pulse at the wrist and apathetic look with conscious mind are some of the features noticed during this stage.

1. *Specific Gravity of Blood*:—The specific gravity of the blood rises:

may rise even upto 1078 in the collapse stage due to excessive loss of fluid and consequent concentration of blood. But, in a subsequent collapse which is mainly due to the cardio-vasomotor weakness the specific gravity is not raised much.

10. *Blood Pressure*:—Generally, a considerable fall of blood pressure accompanies collapse and it can be raised again in quite a good number of cases by transfusion of Saline but in some cases where vasomotor failure is the cause of collapse, the blood pressure remains very low and no pulse can be felt at the wrist even after intravenous injection of Saline. (DR. D. N. BANERJEE).

Laboratory Diagnosis.—The laboratory examinations are the only means for diagnosis in some complicated cases although they usually confirm the clinical diagnosis. Various tests are done in the laboratory for this purpose. A brief description of a few of them has been given below :—

1. A flake of mucus from the dejecta is spread out on a slide and examined under the microscope. A slightly curved organism like a comma will be observed. Sometimes an S-shaped body or a long thread-like thing with turns is observed when two or more bacilli are united.

2. The specimen can be examined also by staining with carbol fuchsin.

3. Examination for pus-cells in the stool:—It has been proved by GOOD PASTEUR and many other doctors that pus cells are as a rule, absent from the stool of an uncomplicated cholera case. But, in many other similar infections of the intestines attended with violent purging and vomiting these (pus cells) are found in the motions.

4. A few flakes of mucus are washed out in sterile Saline and inoculated in alkaline peptone broth. A pellicle of vibrios is found after twelve hours' incubation.

5. Cholera-red reaction:—The Comma bacilli grow rapidly when a flake from the dejecta is placed into DUNHAM's Peptone salt solution (1 per cent Peptone, 0.5 per cent Sodium chloride), and incubated at 37°Cent. The vibrios show a red or pinkish colour when a few drops of pure Sulphuric acid are added to the solution.

Besides these, the blood is also tested in the laboratory. Development of cholera agglutinins in the blood (Agglutination test), increase of blood corpuscles, alteration in the blood chemistry such as rise in blood urea and reduction of blood chloride and blood volume, are observed in a case of cholera (D. N. BANERJEE).

Differential Diagnosis.—Cholera may be confused with the following conditions :—

Severe Diarrhoea:—Some acute cases of diarrhoea are often misleading. Some severe cases of infantile diarrhoea also show a great resemblance to cholera. However, they are differentiated from cholera by the following points—purging and vomiting are not bileless and effortless as in cholera; vomiting is rather distressing in many cases of diarrhoea. Vomiting in cholera is very frequent, profuse and irrespective of drinking any liquid unlike that of diarrhoea. Griping or pain in the abdomen may be present in cases of diarrhoea while in cholera burning sensation in the body is present. Characteristic rice-watery stool, anuria, cramps and

collapse are unusual in diarrhoea. Axillary temperature falls several degrees below normal in cholera while it is often above normal in diarrhoea particularly in cases of bacterial origin. Some cases are associated with high rise of temperature and may be mistaken for a fatal type of cholera which is always attended with high fever from the very beginning. Inflammatory exudation is present in the stools in such cases. Again, some severe cases of diarrhoea caused by errors of diet or by influence of climate may be mistaken for cholera. Loss of appetite before the actual onset of the disease and early vomiting are usually noticed in these cases. These facts have been carefully observed by the writer in a good number of cases of diarrhoea which is a very common ailment among the tea-garden coolies. Weakness and prostration also are not so marked, and thirst is also not so intense as in cholera. Motion-culture or any other examination of the stool does not yield cholera-vibrio.

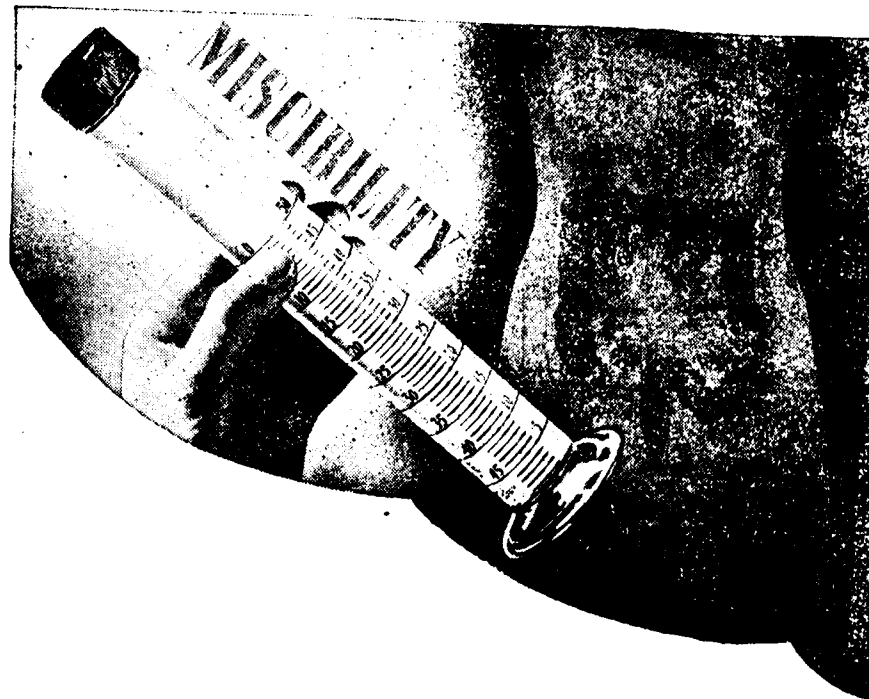
Bacillary Dysentery:—This is differentiated from cholera by offensive meat-washings-like small stools, tenesmus, fever, severe toxæmia, cord-like palpable sigmoid, pain and tenderness over the sigmoid colon, diminished number of both W.B.C. & R.B.C. (DR. MAJUMDAR), absence of cholera vibrios in the motions, absence of other characteristics of cholera, and incidence of similar cases in the locality.

Acute Arsenic Poisoning:—This is distinguished from cholera by brown vomits, streaks of blood in the vomits and stools, dryness and constriction of the throat with intense thirst, severe epigastric pain and tenderness, cramps in the calves of the legs, history of taking some suspicious meal or applying a large quantity of arsenic to wounds, laboured respiration, skin eruptions and hæmaturia.

Algid Malaria:—History of previous attacks of fever, palpable spleen, malarial parasites in the blood, icteroid conjunctivæ, amenability to Quinine and similar drugs, bile-coloured stools and vomits, florid and more or less normal appearance of the patient in contradistinction to the pinched dehydrated appearance of a cholera patient, and the absence of all other characters of cholera distinguish it from cholera.

Food Poisoning:—This poisoning may be from fish, meat, mushroom or any other food. History of taking some contaminated or suspicious food, pain in the abdomen, bloody stools, dilated pupils, dyspnoea, absence of Comma bacilli in the motion, history of incidence of similar cases in locality, and absence of marked dehydrated appearance are the points to note here. Bacteriological examination of the motion and culture for Salmonella group of organisms is essential in this condition.

Streptococcal Infection:—Sometimes, streptococcal infection of the intestines may be mistaken for cholera. The following case abstracted from "Advance Therapy" (April, 1936) will clearly illustrate this—A girl of 14 had an attack of vomiting and purging with rice-water stool, and abdominal pain; the patient was in extreme agony after 4 evacuations. The case was diagnosed as cholera and the usual treatment for cholera was adopted, no improvement was seen, on the other hand, the temperature rose up to 103.8°F. and the stool became tarry. The vomiting subsided but there was difficulty in breathing. Then, on the 4th day, the case was diagnosed to be typhoid with intestinal hæmorrhage. But the writer of this case note (DR. M. L. GANGULI, B.SC., M.B., Calcutta), suspected the case to be one of streptococcal infection of hæmorrhagic type and



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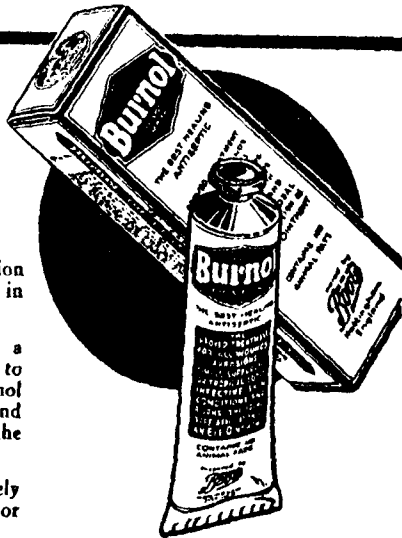
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JAN. '43] SOME COMMON AFFECTIONS OF EYE IN OLD AGE—GURUBATHAM 29

mortality. So, every medical man should try to educate his neighbours in all the necessary laws of sanitation.

4. Cholera may be unexpectedly met with in any place and at any time, and the "carriers" are often responsible for such an occurrence of the disease. Detection and treatment of these "carriers", though very difficult, are absolutely necessary from the public health standpoint.

5. Lastly, I must state that nothing new or original has been given in the above few pages; only a few diagnostically important points have been arranged with the hope that they will serve to refresh the memory of the general practitioner.

References :

1. Manson's Tropical Diseases.
2. Majumdar's Bed-side Medicine.
3. Indian Medical Review, April, 1937.
4. Antiseptic—September, 1940, March, 1941, & July, 1941.
5. Journal of the Indian Medical Association—April, 1939.

Some Common Affections of the Eye in Old Age*

BY

DR. S. GURUBATHAM,

Mary Taber Schell Memorial Eye Hospital, Vellore, N. Arcot.

As age advances, there is physiologic degeneration of tissues and among them special mention must be made of hyaloid and fatty degenerations, change in the blood vessels and interference with the nutrition tissues. The eye shares in all these degenerations. Different individuals react differently due to differing vitality and changes regarded as senile in some individuals may not appear in some who may be older. Some get gray hair at 30 or even earlier while others keep up black hair even after fifty. In this paper, I describe a few of the common affections I have come across in my eye practice.

Senile Ectropion.— Due to relaxation of the orbicularis, the lower eyelid is not kept in contact with the eyeball and the margin is everted. This condition is made worse by a chronic conjunctivitis and epiphora so common in old people. Local applications have no satisfactory result. Temporarily, the eye can be bandaged up in the nights; but to have a permanent relief operative interference is called for.

Spastic Entropion is allied to the above but is the opposite condition of inversion of the lower lid especially if bandaged for a few days after a cataract or similar operation. This condition is due to want of support to the lower lid brought about by flabby lids with loose skin and the sinking of the eyeball as fat in the orbit diminishes. There is constant rubbing of the eyelashes against the eyeball resulting in annoying watering and redness of the eye.

As a temporary relief, fix one end of a broad adhesive plaster, one or two inches long, to the border of the lid, pull it down and attach it to the bony prominence of the cheek. More permanent results are obtained

* Specially contributed to 'The Antiseptic'.

either by injection of $\frac{1}{2}$ c.c. 90% Alcohol into the tarsal region of the lower lid, rather painful in the beginning; or by removing 5m/m to 1 c.m. of skin, 5 m/m below and along the whole length of the lid margin and apply two or more sutures.

Among conjunctival affections a passing mention may be made of the chronic conjunctivitis mentioned before, the hyaloid degeneration in pinguecula and the yellowish discoloration of the bulbar conjunctiva. The conjunctivitis is relieved by three to five applications of $\frac{1}{4}$ to $\frac{1}{2}$ % Zinc Sulph. solution with Boric acid 4%.

Arcus Senilis.—This is a ring-like grayish opacity appearing at the corneal border, generally about 2 m/m broad appearing above and below, sometimes coalescing to form a ring. This ring is separated from the sclera by an apparently clear cornea of about 1 m/m breadth. This may appear in some as early as 30 and in some later or it may not appear at all. This need not cause any alarm. This in itself though limiting the area of clear cornea has no effect on vision. It is a physiologic change, (nutritional?) common among people with small cornea. It does not call for any interference.

Band Keratitis.—It is a symmetrical opacity of the cornea observed occasionally among the poorer class of old people of over 60. It first appears on either side of the cornea in the interpalpebral region and meets in the centre forming a horizontal band beneath the epithelial layer. This is not the same as pterygium. In advanced condition there is lacrimation and discomfort from irritation when the corneal surface becomes rough and the vision is affected. In early stages application of Yellow Oxide of Mercury ointment 2% will give relief and arrest its progress. In advanced condition operative interference will be necessary.

The Lens.—One tissue of the eye which does change frequently through the greater part of life is crystalline lens. Lens has no blood vessels. As such the cells that die become sclerosed and as new cells are formed these sclerosed cells are pushed towards the centre forming a nucleus. This accounts for the gradual loss of accommodation as age advances and presbyopia develops. Moreover, the loss in the elasticity of tissues also operating the condition is aggravated. This loss of accommodation to near point begins to be troublesome in the case of Indians from 35th to 40th year. At first there is difficulty to read fine print and do fine work in artificial light and a little later even in day light. People begin to hold the reading matter at a distance or keep the light very near the print. This is called presbyopia. It is not a disease but a physiological change.

A normal eye at rest is adapted for distant vision which for ordinary purposes is considered to be 20 feet and beyond. In order to see an object at 18 inches the antero-posterior diameter of the normal lens is increased by the action of the ciliary muscles. But due to reasons mentioned first the lens cannot assume the changed position and as a compensation an artificial lens has to be placed in front of the eye. As this change comes on gradually, several healthy persons can unconsciously overcome this defect by persisting in the use of the eye for near vision. The muscles which control the accommodation are made to act more powerfully bringing on eyestrain. They often claim to have overcome presbyopia. This is not wise; when one is run down in health or has an attack of acute illness which lowers vitality, there is a sudden breakdown

of compensation. The patient feels suddenly that his vision is seriously affected and I have come across several cases of unnecessary nervous breakdown.

Treatment is glasses. Begin with plus 1.00 convex spherical lens for ages 35 to 40 and increase it by 0.50 for every additional five years till +3.00 D is reached. After 55, this is fairly stationary. In some cases it begins to diminish after this age and it is called second vision. The eye becomes myopic. These are approximate. There will be individual variations. In the case of Europeans the onset of presbyopia is delayed by about five years.

Senile Cataract.—In this country, when an elderly person comes to a doctor complaining of gradual diminution of vision, what he first thinks of is cataract incipient. But often a glaucoma or non-specific chronic choroiditis looks like a senile cataract. The patient is asked to wait till vision comes down to hand movement and when he goes to the specialist in full hope of an operation and recovery of sight, he is told that the condition is glaucoma or advanced senile choroiditis and it is too late to do anything for it; a common sad sight in the out-patients of an eye clinic, a mistake sometimes committed by even a specialist who makes a careless examination. As age advances the nucleus gets hardened and in oblique illumination it reflects light which simulates an opaque lens. Inexperienced men diagnose it as senile cataract with the catastrophe mentioned above. With indirect ophthalmoscopy look for a clear glow. If there be any appreciable opacity of the lens it will be observed as a dark spot in the red glow. In spite of a clear glow if the patient should complain of gradual diminution of vision look for a glaucomatous cupping or some affection of the fundus. Commonly there is a brown fundus with all choroidal vessels clearly visible. This is senile choroiditis of which very little mention is made in literature. This is generally associated with night blindness.

The etiology of senile cataract is very little known yet. There are many unsatisfactory causes mentioned. I always point out that if one can give an adequate cause for the appearance of gray hairs, the same explanation will hold good for this also. Some develop it when quite young and many do not get it till late in life. Has nutrition anything to do with it? Perhaps nutrition, action of reflected and ultraviolet rays and occupations which throw too much strain on the lens all may be contributory causes. Many claim to have arrested the condition in very early stages by giving Pot. Iodide internally or by sub-conjunctival injection of Cyanide of Mercury 1 in 5000. But if it has reached the stage when an ordinary medical man can diagnose it, one has to allow it to mature for a safe removal. With modern advance in technic, often an immature cataract can be extracted in capsule safely.

Some Remarks About Cough *

BY
VALLABHDAS N. MEHTA, L.M. & S.,
Marvi.

IN medicine, many little things bear repetition and that on account of an ill-conceived pride which would scarcely allow one to talk or write about common things like a cough, a chilblain, a cold in the head, a toothache, a ringing in the ears or a little dizziness, slipshod diagnosis becomes often the cause for much unnecessary suffering and long continued expensive drug taking. Especially does this obtain with a common every-day symptom—a cough.

In the course of his professional career, the physician is consulted for a cough more often than for any other ailment except perhaps, headache, pain in the stomach, and constipation. It is true that in the majority of cases, cough is a symptom of disease of the larynx, the trachea, the bronchial tubes, lungs or pleura; but when with some men in the profession, it becomes an obsession to diagnose every cough of whatever origin, it may be as a chronic bronchitis, or a little nervous irritation of the throat, it behoves somebody to call a halt and to draw the line.

For many practising physicians, there seemed to be no such thing as cough due to naso-pharyngeal trouble, to hypertrophic, atrophic and vasomotor rhinitis, spurs and deviations of the septum, nasal polypi, and the irritation due to dry crusts. They seemed so utterly convinced that cough must always be tracheal, laryngeal, bronchial, pleuritic, pneumonic or connected with pulmonary tuberculosis, that they did not stop to give a thought to post-nasal adenoid or lymphoid growths, to the collection of thick mucus in that locality, to elongated uvulas, to granular pharyngitis or the like. The enlarged lingual tonsil is very often the cause of obstinate cough which defies all internal medication and disappears only when the swelling is reduced.

A few words about indirect and unusual causes of cough might not be amiss. They are known as agencies for transferred or non-respiratory cough.

It so happens that cough may signify pressure effects upon branches of the *recurrens vagi*, or laryngeal inferior nerve, from enlarged bronchial glands, mediastinal tumours, abscess, or hæmorrhage, thoracic aneurysm metastatic sarcoma, or caries of the dorsal vertebra.

Cough is not an infrequent symptom of cardiac disease, such as dilation, hypertrophy or valvular lesions.

Stomach cough is found at times in the subjects of chronic hyperchlorhydria, due most probably to the low grade of accompanying pharyngitis.

Liver cough may be observed after excess of drinking by pressure of an enlarged liver against the diaphragm, or in connection with gall stones, hepatic abscess, cysts, perihepatitis, or sub-phrenic abscess. An enlarged spleen and an inflamed spleen may give rise to cough for similar reasons.

Habitual cough is incident to some occupations where dust and

* Specially contributed to 'The Antiseptic'.

irritating fumes are inhaled and is quite frequent with excessive tobacco smokers.

Boys with neurotic family tendency often exhibit loud barking cough at puberty.

Dentition in infants or an inflamed tooth in older persons, will produce sufficient transferred irritation to cause cough.

Aspiration of a pleural exudate will as a rule cause a violent fit of coughing whenever the operator exhibits too much haste in voiding the pleural cavity of its contents.

Cough has sometimes been caused by irritability of the uterus, the ovaries and testicles.

Another cause of cough is sometimes found in an incipient hernia, whether it be of the umbilical, inguinal or femoral variety.

The cough of hysteria is a neurosis which claims psychic treatment.

The moral to be drawn from this brief article is the following :—

Cough does not always require a sedative, or narcotic—often a mechanical removal of some physiological detritus, often a shrinking of some redundant tissue, sometimes an alterative tonic like Potass Iodide with Mercurial inunctions will cure a cough in a short time while all kinds of much lauded cough-mixtures will only work harm to the over-drugged sufferer.

I am sure you will tell your patients that are in need of having their eyes looked after, and need perhaps glasses, to go to a reliable oculist for their refraction work and not to an optician.

In like manner, I feel assured that you will instruct those that are near to your heart, not to rely upon any cough-syrup which perchance may fall into their hands to relieve a cough, the nature of which has not been diagnosed by a reliable physician.

The public needs education and there is one item of importance where that education is badly wanted and needed. Let no one ever neglect a cough or attempt to cure it by self-treatment in confiding to some time-honoured patent remedies.

Cases and Comments

Sulphaguanidine—Its Use in Shiga Dysentery

BY

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AT the outset I would introduce this new drug as a derivative of Sulphonamide which is so well-known a group in modern methods of drug treatment. It has been recently used in the treatment of bacillary dysentery specially of shiga type in the fighting forces of the Middle East. I have used this drug in a very few cases with encouraging results. The most important and valuable adjunct to the drug in the cases of fulminating toxic types of dysentery is intravenous injection of concentrated refined anti-toxin in a dose of 50,000,000,000 units which may be contained in less than 10 c.c. as generally used in the Middle East.

The usual dosage of the drug in acute cases is 20 gms per day with an aggregate of about 135 gms for each case. The mild acute cases of shiga infection, usually respond to a dosage of 60 to 80 gms in individual cases but for the correct action of the drug, the initial dose must be adequate. In an average adult, the dose recommended is 20 gms per day for the first two days and 10 gms per day for the next three days. To the individuals who do not present any clinical manifestations of dysentery but from whom nevertheless true bacillary organisms have been recovered, this drug should be given with 18 gms in the first 24 hours, administering 6 gms thrice daily after meals as initial dose and in subsequent 5 days the dose should be 3 gms, thrice daily.

The fate of the drug in the human system has been studied also. The drug after oral administration is absorbed into the blood stream in very small percentage, so that even doses of 0.05 gms per kilogram of weight, given every four hours rarely produce in adults a blood concentration higher than 3.5 gm per cent of free Sulphaguanidine. The remaining bulk of the drug passes unchanged into the large bowel, and it is at this place that the drug exerts its bacteriostatic action. Hence diseases of large intestine like bacillary dysentery are liable to be relieved or cured by the action of such drug.

About the pharmacology of the drug and its action, it has been reported to prevent progressive toxæmia by its bacteriostatic effect but there is yet no evidence of its power to neutralize the circulating toxins. The investigations of the drug includes laboratory and sigmoidoscopic observations. Three bacteriological examinations of the stools should be carried out at daily intervals, commencing 5 days after the termination of the course of the drug, provided that the bowels have been acting normally at least once a day during this period. A laxative or enema should be given in order to ensure that all the Sulphaguanidine has been eliminated. The anti-toxin used as an adjuvant to the drug is purified by means of proteolytic enzymes. It causes practically no serum reactions and appears to be the most promising of all shiga-anti-toxins tested.

Being a Sulphonamide derivative, the drug has its toxic effects as others of the same group and we should take due precautions in the administration of it, including the maintenance of an adequate outflow of

urine by a balanced fluid intake. Anyway, the experience of the drug up to the present has not revealed toxic phenomenon of more than a transient nature. The cases selected in the Middle East were of acute nature, exhibiting severe symptoms.

The clinical effects of outstanding importance as observed by the administration of this drug in about one hundred serious cases will be described now in some detail. After about 24 to 48 hours of the administration of the drug, there is a feeling of well-being of the patient, a rapid relief of pain in abdomen and tenesmus, and the consequent lessening in most cases and disappearance in some cases of abdominal symptoms, pulse rate and temperature are reduced in uncomplicated cases, and they come to normal within three days. A marked reduction in the number of stools takes place within a week, and bowel does not act more than once or twice daily. The blood from the stools disappears rapidly as evident by the microscopic and also macroscopic examinations of stools. The mucus is also reduced in quantity after the disappearance of blood, showing thereby the healing process of the lesions in the bowel wall. By sigmoidoscopic examination it has been found that the earlier treatment by this drug is commenced, the less extensive is the damage done to the bowel wall and more rapid the convalescence and recovery.

A few cases of chronic bacillary dysentery have been tried. The cases generally came after 21 days, and some long after that. The results of treatment of these cases with this drug are very promising and about three fourths of the cases showed complete healing of the bowel lesion. It can be easily imagined that the result would have been more satisfactory had the drug been administered in the early stage of the above cases.

In some cases it has been observed that the bacteriological examination of the stool after the first course of the drug shows the presence of dysenteric bacilli. In these cases a further course after an interval of at least 10 days should be considered, with a keen eye on the toxic manifestation of the drug.

I could only use this drug in a very few cases specially due to unavailability of the drug. All my cases can be called chronic as they all came after 21 days. Only one case did not respond at all. I used 15 gms per day for the first 3 days and 10 gms for the next two days. One of the patients showed slight toxic manifestation but the adequate amount of fluid (4 pints in 24 hours) and administration of alkalies saved the situation. Of course, this bit of experience can't prove the efficacy of the drug, but it confirms the observation in the 100 cases treated in the Middle East recently. The information at present available of the effectiveness of the drug can be said to be rather incomplete but the evidence which so far has come to hand indicates that a high proportion of cures can be expected if it is used with proper care. The investigation made recently may be said to represent a more exacting trial of the value of the drug in bacillary dysentery than any one previously reported.

Peri-Articular Arthritis of the Shoulder Joint

BY
CAPTIAN P. S. GUPTE, M.B., B.S.,
Nasik.

I AM very much interested to know if any of your readers has come across this particular arthritis of the shoulder joint which has ostensibly come to my notice in my practice. What strikes me most is why patients have not the same sort of trouble so common in other joints :—

The patient complains of pain in and around the shoulder joint. It may be mild or it may be so severe and continuous as to disturb sleep. The onset is insidious and the trouble gets gradually worse. It is a sort of dull aching pain generally increased on movement. The period of illness has varied from two months to a year. Pain may be localised in the anterior joint along the arm upto elbow and in severe cases even upto forearm and hand.

On physical examination it will be noticed that, on pressure, the supra-anterior region of the joint is the only painful part of the shoulder. No abnormality of the joint structures can be seen or felt. The contour of the shoulder is not changed; but if pain continues for some months and prevents free movements of the joint, atrophy of the muscles around it particularly of the deltoid is easily noticeable. In mild cases the patient finds great difficulty in extending the joint posteriorly and placing his hand on the lower part of his back. He cannot abduct his arm too far nor can he lift it over his head. If he tries to do these movements he feels pain in the joint and is thus much inconvenienced while putting on his clothes or his head-dress. If the patient complains of severe and continuous pain he holds his upper extremity along the trunk in an adductor position.

General health is not much affected. The complaint is never accompanied by fever.

Urine is found normal in all respects. All other systems are normal. In two cases, where pain was very severe, X-ray showed no pathological change in the structures of the joint.

Age incidence is particularly interesting. Patients are invariably above 40 and below 75. History of injury is never given by patients as the cause of the trouble.

As the disease is found in an advanced age, it is just likely that some toxic absorption from a hidden focus may be responsible for the trouble. The fact that the disease gets completely cured in the course of varying period may be due to the formation of some immunising bodies against the mischievous virus. On this hypothesis, I have recently started giving these patients mixed infection vaccine (Staphylococcus-Strepto-B. coli) which gives some relief but no cure. Probably, these vaccines may in the end bring about earlier cure than had they been left to themselves without this treatment. Another point in favour of my hypothesis is that patients who are under my care and observation for many years have not returned with a relapse of the disease or affection in the unaffected joint.

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Two Cases of Pernicious Malaria Simulating Cholera

BY

DR. HARIDAS DE

*Late Senior House Physician, Campbell Hospital,
Medical Officer, Chatmohar Charitable Dispensary, Patna.*

How in the villages, at the time of cholera epidemic, persons die of other diseases than cholera though the cause of their deaths is popularly believed to be cholera, will be revealed by the following two cases of mine which I am tempted to report with the hope that my fellow men of village life will find some sort of interest in them.

One fine morning, in the early part of November 1942, I was called in to see a case of cholera at Ramnagar, two miles off Chatmohar. I hastened to the spot and found an adult Mahomedan of about 35, passing watery stools and vomiting since the previous night. I took his temperature 95.5°F. His rectal temperature was 99½°F. Eyes sunken, voice husky, extreme thirst, taking water to vomit instantaneously. Cold clammy sweat present. Pulse imperceptible at the wrist. Respiration 40 p.m.—in one word, stage of collapse; liver just palpable below the costal margin, spleen three fingers below the costal margin. Tongue extremely dry. No urine for the previous 8 hours. Stool watery with offensive smell; a huge quantity at a time. Ten persons died of cholera two days back in his next house. Extremities icy cold. Heart—both sounds almost inaudible.

At first I diagnosed it to be a case of cholera and I advised them to call in another medical man to help me to give him Saline injection. In the meantime, providentially his huge spleen, rectal high temperature and history of suffering from recurring attack of malaria struck me and curiously, losing all hope about his life, I injected 10 grs. of Quinine Bihydrochloride in Saccharide solution (B.I. & C.) with 10 c.c. of 12½% Glucose solution in the gluteal region, and injected 25 c.c. of 25% Glucose solution intravenously. I advised his relatives to foment the cold extremities and give him plenty of cold water and dab water and to give me information in the afternoon when, I told them, I would come with another medical man to give Saline. In the afternoon, no man came to me and I thought that the man died. At night, I was thinking whether I did wrong in injecting Quinine which might have hastened his death and became very mortified at about 9 p.m. when quite unexpectedly a man came and told me that my patient was a little better—vomiting and stool have subsided but no urine passed and the patient became very restless. I, without losing any time with my servant went to the place on foot and found the condition of the patient a little better. His extremities had become warm and his pulse could be perceptible at the wrist but the patient was still very low. Then, taking courage in both hands, I injected him another ampoule of 10 grs. of Quinine Bihydrochloride with Glucose solution 10 c.c. of 12½% intramuscularly and for his heart, I injected Coramine (Ciba) one ampoule with 25%, 25 cc. Glucose solution intravenously and came home giving no medicine by mouth, encouraging his relations that the patient would be cured. Next morning, I was again called in to see the case when I found him much better. Urine passed at the latter part of night in sufficient quantity. No stool

and vomiting at night time and the patient wanted to take some food. I injected another ampoule of 10 gr. Quinine with Glucose solution and a simple Carminative mixture and the recovery of the patient was uneventful and, on the 4th day, I gave him rice diet. He is quite O.K. at present. He is taking Bymin Amera.

P. Pramanik, a Mahommedan patient of the village Kukragari, where cholera was prevailing in the latter part of October last, passed five or six loose watery stools and vomited several times in the morning. He was then treated by a village doctor homeopath. In the afternoon, I was called in by the homeopath for consultation. The said doctor told me that the man took rotten fish and rice on the previous night and he had been attacked with cholera. I saw the patient tossing over his head in agony of burning sensation over his whole person and unquenchable thirst and vomiting. His pulse was feeble and thready. Temperature was 100°F. but his extremities were icy cold. His eyes were jaundiced and from the history from his relations, I came to know that he had been suffering from frequent attacks of malaria for which he took seeds of 'Nata' to no effect. His spleen was 2" below the costal margin. No urine was passed since 12 hours. I at once hastened to diagnose it to be a case of pernicious malaria (algid type) and injected him 10 grs. of Quinine with Glucose solution 10%, 10 c.c. intramuscularly and I injected him with Cardiazol one ampoule. Next morning, his condition was much better. He was injected with another 10 grs. of Quinine Bi-Hydrochloride and 25 c.c. of 25% Glucose solution with 10% Calcium Gluconate 5 c.c. intravenously and the patient got cured on the 5th day. After this, he was regularly taking Arseno Ferrotose for weakness, and he is pulling on quite well at present.

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The New Year

YET another year is over and THE ANTISEPTIC enters its 40th year of existence. The world war is still going on and our hopes that "before the year is over, peace and good-will will prevail" have not materialised. The swing however is decidedly in favour of the Allies who have done well in the various theatres of the war. To us in India, the grim realities of war and its devastating effects have been brought home by the bombing of Calcutta and Chittagong by enemy planes. The people in these places have shown commendable courage and have set an example to others by their calmness and fortitude. We are sure that the people of India will live up to their glorious traditions and earn the approbation of the rest of the world.

The medical problems created by the war and to which we have been referring in our pages have not been solved. The exodus of the people from coastal towns to the interior created serious problems to medical men and added difficulties to the already existing complications. Loss of practice and consequent hardships have made the lot of the average medical man in the coastal cities a very unenviable one. To this was added the difficulties due to drug shortage. Imports from foreign countries have stopped either on account of shipping difficulties or due to the countries supplying them having fallen into enemy hands. While these have necessarily added a great fillip to Indian and local chemical industries, we are afraid that the supply has not been equal to the demand. Of special importance in this group must be mentioned Quinine. We have referred in previous issues to the enormous increase in the prevalence of Malaria due to a large influx of people from Burma coming through the heavily malaria-infested Assam tracts and also to the shortage of Quinine supply. We have referred to the need for care and scrutiny in the use of Quinine in fever cases in this county and have also requested the Government to have a more liberal Quinine policy and to release for public consumption some of the large stocks of Quinine they have. The Government in their communique have agreed to release this essential drug to the public. But we have known nothing further about this very desirable decision. We hope the Government will make known to the public the method by

which the poor people will be able to obtain adequate supplies of this very essential but what has now become a costly drug.

Recruitment to the Indian Medical Service is still another problem which requires solution. In England and America, this problem of recruitment of Medical men is entirely in the hands of the Medical Associations of the respective countries, who, however, are responsible ultimately to the Ministers. In our country, the Indian Medical Association which is perhaps the only Association on the same footing as the British and American Medical Associations, is not only not consulted in these matters but is also perhaps not in the good books of the Government. The reason is not far to seek. The Indian Medical Association has repeatedly asked for the complete transference of the members of the Indian Medical Service from the Civil side to the Military and has all along fought shoulder to shoulder with journals like *THE ANTISEPTIC* for the improvements in the emoluments, prospects and status of the doctors entering the Emergency cadre of the I.M.S. This is evidently not to the taste of the authorities. Recruitment to the I.M.S. has therefore not been as encouraging as it should be. The privileges that have been given have come in such small dribblets that they have lost their grace. To add to these difficulties, the political situation in this country has definitely worsened since we last wrote on this matter and its solution will be very necessary if a key is to be found that will be very effective in solving this difficult problem.

The army in India is growing and it requires more medical men to look after it. With the shortage of medical men for this growing army comes the question of conscription of doctors. There is talk all over that conscription is coming. We, however, feel that there is no necessity for this step. The solution of this is in the hands of the Government. We would impress on them the necessity for solving the political deadlock and the establishing of National Governments both in the Centre and in the Provinces. The importance of taking the Indian Medical Association and other important public bodies and organisations into their confidence and associating them with and in all their counsels cannot be more emphasized. During such emergent times the Government should also take extra-ordinary decisions. We refer to the growing desire among the public to the granting of Emergency Commissions to the Licentiates. All difficulties should be brushed aside in the country's interest and the large body of medical men, some of whom are even now doing splendid work in an inferior and subordinate service, should be encouraged and their claims recognised at least till the duration of the War. We are sure that if the Government is wise enough, and agrees to this suggestion, there will be no necessity, at least for the present, for conscription of medical men, which under the present tension, will, we are sure, only increase bitterness and ill-feeling.

To us, journalists, great difficulties loom ahead. Difficulty in getting paper may be a very real danger to the existence of medical journals. We do not get foreign paper. The paper produced by Indian Mills was quite insufficient even in normal times to meet the demands. Now the Government, we understand, subject to correction, have decided to commandeer most of this Indian made paper leaving a very small percentage for public use. We hope that medical journals will not be starved as they convey to all medical men, who are essential to the well-being of both the Civil

and Military population, knowledge, which is essential to the relief of human suffering. We earnestly hope that the Government will do all they can to keep medical journals going.

The year ahead of us is full of dangers and difficulties. But we hope to get over them all by the help and good will of our readers and advertisers. Some of our readers and contributors are in far off and distant lands undergoing great hardships. Some of them, however, even though they are in Military service are still in India. Others in the Civil side are also in great difficulties. But they have not forgotten us. Our advertisers who have recognised our worth have also been with us during these difficult days. To all of them we offer our sincere thanks and we wish that in the year to come they will have peace and prosperity.

Gleanings From Medical Press

Obstetrics and Gynaecology

Management of Occipito-Posterior Cases.—Dr. T. Dixon Hughes, of The Women's Hospital, Sydney, in an illuminating address, which is printed in *The Medical Journal of Australia* (Oct. 11, 1941), gives some useful hints on the management of occipito-posterior cases in relation to the shape of the pelvis. His article is based on a series of 880 cases. The shape of the pelvis is not the only cause of the posterior position of the occiput, otherwise the same patient would always have such a presentation of the foetus. Dr. Dixon considers the various types of pelvis in which this presentation is likely to be met with. There is first of all what he terms the *anthropoid pelvis* with a good sacral curve. Owing to its deviation from the circle, rotation of the head is not favoured. In this case, unless, of course, there is an unduly large head, the head will probably be delivered spontaneously or as a persistent-posterior. Any attempt to rotate the head within the pelvis can only cause further trouble on account of the lateral walls. The correct treatment in this type of pelvis, therefore, is either to leave the head alone, to rotate it above the brim, to rotate it on the perineum when free of the lateral walls, or to interfere at an earlier stage so as to avoid impaction of the head.

Then there is what is known as the *platypelloid pelvis* with a normally placed sacrum. This variety is recognised by the small antero-posterior diameters and either normal or increased transverse measurements. In such cases the occiput, if it is possible for it to engage, will rotate into the transverse position and will continue to descend (unless the pelvis is large or the foetus small) in the latter position until free of the anterior and posterior walls; and then only can the head be rotated. Dr. Dixon is careful to lay stress on the practical fact that in this type of case failure can only result if the accoucheur attempts to rotate the head while still in the pelvis. "If the head is

dislodged upwards and rotated no advantage will be gained as it will still have to rotate within the pelvis back to the transverse position." The correct treatment, accordingly, is to be conservative and rotate the head on the perineum.

The third type of pelvis considered is the *flat pelvis* with a forward-curved sacrum. The head in this case may either not engage at all or do so very slowly. If there is failure to engage after reasonable delay the treatment is primarily Caesarean section. Should engagement take place the head should be allowed to descend to the pelvic floor and the occiput, when free of the anterior and posterior walls, should be rotated. This type of case is well suited to the use of Kielland's forceps.

Lastly comes the *android pelvis*. In this case the flat posterior position of the pelvis prevents anterior rotation of the occiput and its converging side walls interfere with descent of the head. In such cases the correct treatment is to dislodge the head and rotate it above the brim. There is no use trying to rotate the head within the pelvis on account of the flat sacrum and the converging walls of the pelvis. Interference should be undertaken, moreover, at an early stage so that the smaller diameters of the head may have a chance to pass through the diminishing pelvic diameters. Otherwise the head may become impacted and craniotomy will then become necessary.—*Medical World*.

Hyperemesis Gravidarum and High Vitamin Therapy.—L. O. Watt (*Journal of Obstetrics and Gynaecology of the British Empire*, 48: 619, Oct., 1941) advocates the treatment of hyperemesis gravidarum with large amounts of vitamins especially B₁. When the vomiting has been severe and has continued for some time, avitaminosis to some degree will undoubtedly

Some of the nervous symptoms of hyperemesis gravidarum indicate especially a vitamin B₁ deficiency; treatment of hyperemesis with carbohydrate and pregnancy itself increase the demand for this vitamin. When the patient is vomiting severely and cannot retain anything by mouth, vitamins B₁ (aneurin), B₂ (nicotinic acid), C (ascorbic acid) and A & D (dekadexolin) can be given by intramuscular injection. When the patient can take anything by mouth, these vitamins in high concentration can be given in capsule form. In cases where vomiting is severe and prolonged, "starvation can be mitigated" by the administration of fluids, including vitamin preparations, milk, eggs, syrup and fruit juices, through a small duodenal tube passed through the nose. The author has observed "remarkable results" in some cases from this treatment. When dehydration is marked and sufficient fluid cannot be given by mouth, continuous intravenous infusion of glucose in normal saline is indicated. If there is no favorable response to intensive treatment in forty-eight hours and if mental or nervous changes; jaundice or bile in the urine, retinitis, or low blood pressure develop, or if albuminuria persists, or there is a progressive rise in temperature or pulse rate, termination of the pregnancy is indicated. If the pregnancy is terminated, the vitamin therapy should be continued:—*Medical Times*.

Backache: Its Gynecological Aspects.— By Julius H. Sure, M.D.

Backache, as seen by the gynecologist, is never of the acute lancinating type and is hardly ever sufficiently severe to put the patient to bed because of it.

The character of the pain is a dull heavy ache and frequently is not mentioned on the first visit. Usually it is brought out on direct questioning, the reason being that women consider it a part of their make-up like child-bearing and menstruation, a curse wished on them because of the slip of Eve in the garden of Eden.

The condition is most common between the ages of 30 and 50; the reason being self-explanatory.

I propose herewith a classification of backache of gynecological origin based entirely upon my personal experience, as most textbooks on diseases of women pay but small attention to this complaint.

1. CIRCULATORY.—One of the most frequent causes of backache is a pelvic congestion due to:

A. *Coitus Interruptus*.—Whenever I see a blue, hot non-pregnant cervix, I immediately get a confession of this practice. The same may be said of poorly timed ejaculation, robbing the wife of her orgasm. Either condition in the end results in permanent circulatory damage to cervix, uterus and ovaries.

B. *Retroversion and Retroflexion of the Uterus*.—By interfering with the return

circulation, they also cause chronic pelvic congestion producing a dull, heavy sacral pain which, if the uterus is movable, can easily be corrected by a pessary. And, if such relief is obtained, then, and then only, may one discuss the advisability of the different forms of suspension operation.

C. *Varicosities of the Broad Ligament*.—Diagnosed by palpation of the adnexa in recumbent and standing or semi-recumbent position, when the veins empty and fill. The treatment, of course, is surgical.

2. INFLAMMATORY.—A. *Parametritis Postica*.—A common finding following inflammatory disease of the lower pelvis, particularly the endocervix. The sacrouterine ligaments are tender to the touch and the cervix cannot be moved without causing pain. There may be exudates in the cul-de-sac. Cauterisation of the cervix; heat; foreign proteins.

B. *Other Infection*.—Other areas drained by the lymphatics toward the lumbar set of glands will give rise to the same symptoms. Infected hemorrhoids and cryptitis will do the same thing.

3. CONDITIONS PRODUCING WEIGHT IN THE LOWER ABDOMEN.—Will cause sufficient back-ache to require relief.

A. *Pelvic Tumours*.—Benign and malignant, by pulling on all ligaments including the sacro-uterine, will cause pain.

B. *Pregnancy*.—Causes backache by change in posture. An individual without a load walks straight. One with a load on his back stoops forward. The pregnant woman, to overcome the weight in front, throws her dorsal spine backward, throwing her lumbar spine forward and causing a lordosis which, of course, is temporary.

C. *Obesity*.—Obesity with a pendulous abdomen causes the same condition as a pregnancy.

4. CONSTITUTIONAL CAUSES.

A. *Congenital*.—We are all familiar with the tall, lanky, asthenic woman, who already has had a suspension, perhaps a nephropexy, and now has a return of her prolapse and relaxed pelvic outlet. These people are born atonic, they have a visceroptosis, they cannot eat or assimilate their food. On X-ray of the spine, one not infrequently finds a spina bifida occulta. What they need is proper corseting, rich carbohydrate diet and, if any repair is needed, it should be from below only. The Fothergill (Manchester) operation will shorten their cardinal ligaments, so the bladder and uterus will remain in the proper position.

B. *Acquired Causes*.—Acquired causes mainly belong in the field of general medicine; the anemias, malnutrition and, possibly, post-operative backache due to the relaxation of the spine during anaesthesia, and probably also due to biological conditions brought about by the surgical procedure itself.—*Medical World*.

The Climacteric and the Menopause.—Edwin N. Nash, M.D., F.A.C.S., Galesburg, Illinois—Climacteric and menopause a condition of senescence.

Three groups of symptoms—(a) Nervous. (b) Circulatory. (c) Local Pelvic.

Endocrine Basis of the Climacteric.—1. Changes in hormone production. (a) Decreased blood levels and urinary excretion of reased blood levels and urinary excretion of estrogens. (b) Increased blood levels and urinary excretion of gonadotropic hormones. (c) Other pituitary hormones (Thyrotropic and adrenotropic) have been suspected to be increased in output also. The evidence, however, is not so good as for the above.

2. What is the primary cause of these changes? (a) The primary pathology in the climacteric seems to be a "senescence" of the ovary. That the deficiency is primarily ovarian is indicated by the facts that: (i) The menopausal ovary appears to be unable to respond to the increased production of gonadotropic hormones by the pituitary. (ii) The menopausal ovary is unable to respond to administered gonadotropic hormone (pregnant mare's serum).

3. What causes the changes in sexual characteristics? (a) There seems to be little doubt that the amenorrhea, genital atrophy, and loss of secondary sexual characteristics are the direct result of ovarian hormone deficiency. They can all be restored by the administration of estrogenic preparations.

4. What causes the subjective symptoms? (a) Personality or psychic factor probably influences the degree of subjective symptoms, but does not initiate them. (b) Estrogen deficiency. This has not been proven, but poor correlation may be the result of the personality factor. (c) Gonadotropic excess. The latest, most extensive, and by far the most accurate and reliable investigation reveals no relation between gonadotropic level and the age, menopause symptoms, hysterectomy or involution.

Management: General Management.—The first consideration should be given to general health. Diet should be regulated to overcome any tendency to obesity. Proper relation of rest and exercise should be secured. Mental and emotional rest is important.

Specific Treatment.—Endocrine therapy. Estrogenic hormone is the primary agent. The dose seems to be a moot question.

Duration of Therapy.—Permanent relief will not be obtained unless therapy is continued for weeks or months. If maintenance dosage is gradually reduced, therapy may be stopped within two or three years for the average patient.

Treatment of Nervous Manifestation.—Treatment should consist of potent estrogen in oil, 2,000 I. U. every other day until the patient shows definite improvement; then patient may have either reduced dosage at three- or four-day intervals or oral stilbestrol daily. Mild sedatives may also be employed. There are two indications for the

reduction of dosage or discontinuance of endocrine therapy. They are the occurrence of vaginal bloody flow and the stimulation of libido to an uncomfortable degree.

Vaginal smears: As an indication of Ovarian Follicular Hormone action in the Menopause. (Papanicolaou and Shorr, *Am. Jour. Obs. & Gyn.*, May, 1936.)

While there is quite a variation in the appearance of the menopausal smear, changes induced by treatment are markedly uniform. The characteristics are the disappearance of leukocytes and the erythrocytes, and the replacement of all other cells by flat well outlined cells, many of them cornified with pyknotic nuclei, which give a clean, clear cut appearance to the slide.—*Ill. M. J.* 80: 472 (Dec.) 1941.

Toxæmia of Pregnancy and Future Pregnancies.

During the past twenty years much attention has been focused on the important question of what effect is produced on the subsequent health of the patient by hypertensive toxæmia of pregnancy. Most investigations of the subject are along one of the two main lines. First, large numbers of women who have previously suffered from toxæmia of pregnancy are followed up for a long time with particular reference to the development of hypertension, albuminuria, retinal changes and impairment of renal function, and a study is made of the morbidity and mortality rates from cardio-vascular-renal diseases among them. Secondly, large-scale investigations are made to find what happens when such women are put to specific and searching test of a subsequent pregnancy. Studies of these kinds have been in progress during the past few years in many parts of the world, but the war has interrupted them here and on the continent and much valuable information has thus been lost. It is therefore heartening to find an important paper coming from the active Women's Hospital at Melbourne. V. I. Krieger and R. M. Rome collected 456 patients who had various types of severe toxæmia of pregnancy and investigated them during their subsequent pregnancies, which were form 1 to 7 in number. These findings, in mnemonic form, were: a woman's chance of a subsequent toxæmic pregnancy is roughly 1 in 3 after two toxæmic pregnancies, 2 in 3 after two toxæmic pregnancies, and 3 in 3 after three toxæmic pregnancies. If she does not develop severe toxæmia in the next pregnancy after the initial toxæmia, only about 1 in 6 of her subsequent pregnancies is likely to be complicated by a severe toxæmia; Krieger and Rome are thus in full agreement with Yount's suggestions that, if a patient has two toxæmic pregnancies, further pregnancies should be prevented. Krieger and Rome support the thesis that the earlier in pregnancy the albuminuria appears, and the longer it persists, the greater is the chance of recurrence in the next pregnancy. Their findings indicate a toxæmia recurrence rate in the next pregnancy of 15% if the albuminuria in the initial toxæmia lasted up to

4 days of 40% if it lasted 4-14 days, and of 63% if it lasted 15 days or over. They are so impressed by the seriousness of prologed albuminuria that they now terminate pregnancy in which the albuminuria fails to respond to treatment within 5 days, whereas originally they placed the limit at weeks. They do not find any great difference in late prognosis between ordinary severe toxæmia, pre-eclampsia and eclampsia. Among other conditions, they found that over two-thirds of their cases of accidental hæmorrhage were followed by severe toxæmia in the next pregnancy, whereas pyelitis was hardly ever followed by a true toxæmia. Chronic nephritis developed in 8% of their patients in the next few years after a severe hypertensive toxæmia of pregnancy, but they did not find it more likely to follow one type of toxæmia than another.

In addition to ordinary clinical studies they performed a large series of renal function tests on these patients, during the initial toxæmic pregnancy and also in the follow-up period. They used a urea concentration-excretion test which detects degrees of impairment of renal function intermediate between the severe grades with raised blood-urea and the minor grades with an albuminuria only. Their figures show that some impairment of renal function is common in pregnancy and continues into the puerperium, but usually clears up within about 2 months after delivery. But there is no evidence in their paper that this impairment is in any way related to toxæmia of pregnancy. If chronic nephritis is excluded, there is no significant difference between the findings during or after pregnancy in patients with any type of severe toxæmia and in patients with an albuminuria lasting only one or two days (control figures for normal patients without a previous toxæmia are to be published later). Furthermore there is no significant difference between the incidence of unsatisfactory renal function in the initial toxæmic pregnancy, in subsequent normal pregnancy or in subsequent toxæmic pregnancy. They conclude that the kidney is certainly not the primary cause of the toxæmias, but find the tests of value in differentiating cases of chronic nephritis.—*The Lancet*.

Practical Application of Obstetric Analgesia.—Cecil W. Seibert, M. D., Waterloo.

The problem of obstetric analgesia differs greatly that presented by surgical anesthesia. For surgery, anesthesia must be complete and relaxation must be adequate. The body has no appointed task to perform and the time of operation is limited. This is not true in obstetrics. The pain must be relieved over a long and rather indefinite period of time. During this period the body metabolism must be carried on at a normal rate and prolonged and difficult work must be done. At the end of the first stage the patient must not only be sufficiently awake to cooperate with bearing down effort, but must also be in condition to take additional inhalation anesthesia. The ideal obstetric

analgesia must meet the following requirements:

1. It must relieve all or most of the pain of labor.
2. It must not produce undue excitement in the mother rendering her incapable of cooperating in the second stage.
3. It must not affect the respiratory center of the infant, rendering it incapable of function soon after birth.
4. It must not increase postpartum bleeding.

Unfortunately we have no drug or combination of drugs which fulfills all of these requirements. Hellman has surveyed critically the various methods of analgesia in use during the past ten years. A brief resume of these methods seems advisable.

Nitrous Oxide.—This gas has not been extensively used in America. The main objection has been the cost and the time-consuming factor as far as the anesthetist is concerned. Various ingenious machines have been devised with which the patient may administer the gas herself, but these have not been satisfactory for anything like universal use. When used, the patient should receive at least 15 per cent oxygen with 85 per cent nitrous oxide. Any further reduction of the oxygen in the mixture is likely to produce an anoxemia in the mother which is dangerous to the infant. When given late in the first stage and with second stage pains following some other method of analgesia given earlier in labour, nitrous oxide-oxygen mixture is an ideal analgesic from the standpoint of the patient.

Scopolamine.—This drug alone has not been a satisfactory analgesic agent. The dosage necessary to obtain analgesia closely approaches the toxic level. When given in large doses amnesia is produced to a high degree, but extreme restlessness is frequently an objection. When given in smaller doses in conjunction with other drugs it is frequently a valuable adjunct.

Paraldehyde.—This drug has become rather popular in the past five years. Given alone or in combination with the barbiturates it is an effective and safe analgesic. The margin of safety is wide and it exerts little influence on the fetal respiratory center. It does have one drawback, namely a disagreeable and pungent taste and odor. Given rectally it is very irritating to the rectal mucosa and often expelled unless given very rapidly. Following this mode of administration rectal examinations cannot be done for at least two hours.

Morphine and Related Compounds: This drug and its derivatives have long been favorites with many men. It has recently fallen into some disrepute because of its supposed depressant effect on the fetal respiratory center. It is generally agreed that morphine should not be given when delivery is anticipated within four hours after its administration. This makes it especially unsatisfactory for use in the parous woman.

Ether:—The Gwathmey technic is one of the oldest methods of analgesia. In well-controlled series where adequate special equipment and nursing care are available the results have been excellent. However, rectal instillations are messy, the mixture often being expelled. As with other rectal medication given during labor it is impossible to follow the course of labor with rectal examinations.

Barbiturate Compounds:—In the past ten years the barbituric acid derivatives have sky-rocketed to unprecedented popularity. This is understandable when one considers the ease of administration and the relatively high percentage of satisfactory analgesia and amnesia obtained. What constitutes a reasonable dosage or adequate combination of drugs is difficult to extract from the maze of literature which has accumulated. These compounds depress not only the higher centers but also have a depressant action on the respiratory center. The reaction on the fetus then, is not only direct, by means of placental transmission, but can take place through respiratory depression and anoxia of the mother if the dosage is excessive. The action of the barbiturates on uterine muscle in animal experiments both in vitro and in vivo has been found to be depressing. In the human uterus in labor this effect is very transient and of no consequence. The use of morphine or related compounds with barbiturates is very unsound since both drugs are respiratory depressants. This effect is apparently accentuated in combination. When first used, the longer acting barbiturates such as amylal and sodium amylal were most popular. However, shorter more rapid-acting drugs have gained in favor. Chief of these is sodium pentobarbital. The doses which were first recommended seem as a whole to be excessive, the trend now being toward smaller initial and total dosages. The disadvantages of the massive doses are a marked tendency to extreme restlessness and excessive excitement, often necessitating operative termination of what would have otherwise been a spontaneous delivery, and the rather severe depressant effect on the fetal respiration.

Harm has unquestionably been done in many instances by the injudicious use of drugs in excessive doses. Montgomery has pointed out the inherent dangers of any obstetric analgesia given in too great an amount. He has cited a number of cases in which patients have died suddenly following delivery from marked respiratory depression. He also warns of the dangers to the infant from respiratory depression and brings up the question of possible latent effects due to prolonged apnea at birth.

Because of the ominous warnings and the difficulty in carrying out the various techniques the average man practicing obstetrics in the home or the small general hospital has been somewhat prone to abandon any attempt at analgesia. The author feels that this is not necessary. It has been his experience that by a judicious use of an analgesic in moderate

rate doses one is able to control the discomfort of the first stage without producing undue excitement and without any appreciable depression of fetal respiration.

To begin with one must not attempt to get a "painless labor". It is wise to discuss the matter frankly with the patient beforehand, telling her that labor is unpleasant but that she will be given the greatest degree of relief as is compatible with the safety of her and her baby. The next step is to determine the drug or combination of drugs to use. It is much better to acquaint oneself thoroughly with one method and gain a large experience with it than to be constantly changing and never become thoroughly experienced with any. Because of their simplicity of administration and relatively high percentage of satisfactory results sodium pentobarbital and scopolamine or morphine and scopolamine are the drugs of choice. Because morphine and its derivatives have proved to be more depressing to the fetus than the barbiturates he prefers the latter.

At the onset of labor the patient is prepared and given a hot soap suds enema. As soon as active labor is established, as evidenced by regular contractions and effacement or dilatation of the cervix, the patient is given three grains of sodium pentobarbital, followed in twenty minutes by a hypodermic injection of 1/200 grain of scopolamine. The room is darkened and kept quiet and the patient disturbed as little as possible. The husband or other relatives are allowed to remain in the room but are cautioned not to arouse the patient. Within a period of thirty minutes the patient is sleeping quietly between her pains. With each contraction she arouses momentarily, will turn in bed and may complain but as soon as the pain leaves she again drops back to sleep. If the first stage is prolonged or as soon as the patient is no longer resting between pains, the pentobarbital is repeated grains one and one-half. As a rule the scopolamine is not repeated. If the patient is nauseated the second dose of pentobarbital may be given rectally. If the parturient is larger than usual the initial dose of pentobarbital may be grains four and one-half, but this is never exceeded. Anything short of an initial dose of three grains is futile. Too small a dose initially even though it may be repeated several times, as a rule, gives very poor results.

At the onset of the second stage the patient is moved to the delivery room. By this time the analgesic action has disappeared somewhat and the patient is awake and able to cooperate with bearing down efforts. With each pain she is given several breaths of 80 per cent nitrous oxide and 20 per cent oxygen and told to bear down only as she has the desire. If nitrous oxide is not available open ether is a fairly satisfactory substitute although its action is too slow for the patient to receive the maximum benefit before the pain is gone.

For the actual delivery the patient may be given gas oxygen, open ether or the above

may be combined with perineal block. Any repair work may be done under general anesthesia or one per cent novocain infiltration. In this way the patient receives a minimum of general anesthesia before delivery and the infant is practically never affected.—(J. I. S. M. S.)

Urological Complications of Cervical Carcinoma.—All gynecological text-books lay emphasis on urological complications as a cause of death in carcinoma of the cervix, but a thorough urological investigation is often omitted in such cases except when obvious symptoms focus the surgeon's attention on the urinary tract. Anatomically, this tract is most vulnerable to carcinoma of the cervix in its lower reaches—in the bladder and the pelvic portions of the ureter, notably where they traverse the base of the broad ligament. Lesions of the urethra the abdominal part of the ureter, or the kidney are secondary findings caused either by advanced malignancy or by back pressure from ureteric obstruction. Renal metastasis is rare, and was seen only once by T. F. Todd among over 1000 cases of carcinoma cervix. The incidence of involvement of the lower urinary tract can be judged from his statement that he saw bladder involvement in 110 cases at their first attendance; whereas the rectum, that other close neighbour of the cervix, was involved only once in all cases prior to treatment. The growth first invades the muscle wall, causing circulatory changes in the mucosa, and next spreads forwards into the mucosa, finally ulcerating and producing a vesico-vaginal fistula. Cystoscopy, and cystoscopy alone, can diagnose these bladder changes in their early stages. The mucosa is at first congested and distorted; with isolated hillock formation, and later bullous oedema and finally ulceration. These last two phenomena place the patient in stage IV of the League of Nations classification. The importance of this cystoscopic examination is that in 195 cases clinically assessed as stage III no less than 44 showed involvement of the bladder in Todd's series—a clinical error of 20%. The prognosis in these cases is thus gravely affected by the urological investigation. It is not, however,

only as a diagnostic and prognostic procedure that cystoscopy is of value, but also in the urological complications of treatment. These are two-fold: recurrent malignant disease in the bladder, not differing in appearance from that of the untreated case and therefore self-evident on examination; and prostradiation ulceration—quite a different entity. In Todd's series prostradiation ulceration was rare; he saw only 10 cases in 5 years, and of these only 4 proceeded to the stage of ulceration, the remaining 6 showing merely a telangiectatic atrophy of the vesical mucosa. The ulcers were all situated above the interureteric bar, and had suspicious heaped-up edges and a surrounding zone of bullous oedema; the adjacent mucosa was blanched, with scattered telangiectatic spider-web patches; the ulcer was occupied by a slough. Treatment is expectant, and in 3 of the 4 cases the ulcer healed spontaneously with a scarred bladder base. The diagnosis of the radio-necrotic ulcer is made on the cystoscopic appearance and the absence of any definite malignant lesion. For the malignant ulcer there is no treatment. Todd divides ureteric complications into three groups: those occurring in untreated cases, and those following surgical and radiation treatment. In the first group, he investigated 90 cases before treatment by retrograde or intravenous pyelography. Two of these 90 were in stage I and had no urological complications; among 26 in stage II, he found hydronephrosis in 3. Among 32 in stage III he found hydronephrosis in 5 and a functionless kidney in three and poor renal function in 1; and among 30 cases in grade IV, 10 showed hydronephrosis and 9 a functionless kidney. In many of these cases the blood-urea, investigated as a routine before treatment, was within normal limits. In a follow-up of his cases with urological complications in the upper urinary tract, Todd found that the prognosis was particularly gloomy. Post-radiation complications of the upper urinary tract are not uncommon in patients investigated months or years after treatment, and Todd places the figures as high as 50% in a small series that he investigated. The lesion noted was some form of ureteric obstruction, but whether the cause was actual stenosis from growth or fibrosis he declined to decide.—*The Lancet*.

Surgery

The Management of the Jaundiced Patient.—(Coller and Farris, in *Surgery, Gynecology and Obstetrics*, July, 1941): Fat-soluble vitamin K is essential to the synthesis of prothrombin in the liver. In the patient with obstructive jaundice there is lack of absorption of this factor due to the absence of bile in the upper intestinal tract. K avitaminosis in man is therefore not so much a deficiency disease as it is a condition due to faulty absorption. There are numerous clinical conditions other than jaundice which may alter the metabolism of prothrombin so that spontaneous hemorrhage ensues. Hypoprothrombinemia has been

observed in gastrocolic fistulas in which the jejunum is completely sidetracked and absorption therefore impaired. For the same reason abnormal bleeding tendencies have been demonstrated in patients with intestinal obstruction, acute gastric dilatation, sprue, ulcerative colitis, and following certain sidetracking operations such as ileosigmoidostomy.

The most frequent condition, however, which predisposes to a lowered prothrombin level is the absence of bile in the intestine accompanying obstruction of the common duct by neoplasm, stricture, stone, and incomplete biliary fistulas. For the past 18

months we have administered vitamin K or one of its related compounds for the prevention of post-operative bleeding in our jaundiced patients. The sole indication for the use of this substance is a lowered blood prothrombin. During this administration the patient's blood was carefully followed with one of the tests of the prothrombin level.

In the preparation of the patient with a prothrombin deficiency, we have employed crude extracts of vitamin K along with the newer highly soluble forms of bile which have been desiccated in vacuum. The dosage that seems to be universally satisfactory is 1 capsule—1,000 curative units. Thayer-Doisy method—with 1 capsule—0.32 Gm.—of bile three times daily. When the oral route cannot be utilized, this mixture is given by drip in suspension via stomach tube. In many instances the normal metabolism of prothrombin may be restored by giving bile alone. It has been evident in studying our patients that the immediate post-operative period requires careful watching as there is often a marked and sudden drop in the prothrombin level. This post-operative drop which has been so dangerous in the past can now be prevented by adequate preparation. It should be noted that transfusions alone exert a very temporary effect on the prothrombin level since the increase is merely additive. The effect may last as short a time as 12 hours. Conserved blood loses approximately 50% of its prothrombin in 5 or 6 days and should therefore not be used for this purpose when better sources are available. Depletion of the prothrombin reserve occurred in one instance as a result of repeated blood dilution with saline and glucose in the presence of sustained hemorrhage. After exhaustion of the liver reserve of prothrombin had occurred synthesis from available vitamin K in the intestinal tract was prevented by aspiration of the bile with constant gastroduodenal suction. We have observed 3 other instances in the past year in which a severe hypoprothrombinemia developed with the continuous aspiration of bile through suction drainage as the only predisposing factor. The prime objective in the treatment of obstructive jaundice is the restoration of the patency of the biliary ducts and the protection of the hepatic parenchyma. To attain this latter objective, a high protein and high carbohydrate diet should be given. Attention to other vitamin needs is likewise important. Finally, the bleeding tendency can be controlled by the simple correction of the avitaminosis K and the resulting prothrombin deficit.—*General Practitioner*.

Chemical Disinfection of Instruments.

Chemical disinfection of instruments is a problem which has not yet been solved satisfactorily. Spaulding (*Surg., Gynec. & Obst.* 69: 738, Dec., 1939) tested seven solutions commonly used for "cold sterilization" of instruments and found that, although these agents were able to kill vegetative bacteria within ten minutes, eighteen hours or longer

was required by all of them to destroy sporulating organisms. The best results were obtained with formaldehyde-alcohol and borax-formaldehyde solutions, and these preparations also proved to be the least corrosive. Soaking knives which have been used to lance pus pockets in 70 per cent. alcohol for one hour is not a method to be recommended, since it is doubtful whether spores present are killed by such a procedure. Acetone is a relatively weak germicide, even against nonsporulating organisms, and there is no reason to believe that even prolonged submersion in this agent would contribute much to sterilization of contaminated instruments. As far as can be ascertained, a mixture of acetone and isopropyl alcohol has not been investigated for its antibacterial action; but, since neither of the ingredients is very effective against spores when tested independently, one would not expect much from the combination. The fact is, no single solution has been proposed as yet which combines the virtues of non-corrosiveness, reasonably rapid anti-bacterial activity and volatility sufficient for practical air drying without residue. Exposure to steam under pressure remains the most reliable and satisfactory method of sterilizing contaminated instruments. If "cold sterilization" is to be used, at least four steps are required: (1) Thorough mechanical cleansing of the instruments so as to remove all blood, pus and other foreign material which might harbour bacteria, (2) prolonged soaking in a formaldehyde-alcohol or borax-formaldehyde solution, (3) rinsing with water and (4) drying under sterile conditions. There is no reason why acetone should not be used to facilitate this last step. Syringes and needles dried with acetone can safely be used for intravenous work, provided they are sterile.—*G.P.*

Chrome Ulcerations of Nose and Throat.

—Lieberman examined 4 men and 1 woman employed in a chromium-plating plant. Working conditions in this plant were poor; the atmosphere contained a high concentration of fumes of chromic acid. The symptoms of the patients when working over the chromate tanks consisted of an immediate attack of sneezing associated with epiphora and a profuse watery nasal discharge. Continued close contact produced labored breathing and a choking sensation. Dizziness, weakness and dull headaches were common. After two or three months of employment nasal and postnasal discharges were thick. Heavy crusts, at times blood stained, were frequently expelled when the patients blew their noses. Two patients complained of a swollen sensation of the tongue and mouth associated with burning, soreness and dryness. The woman noticed an impairment in the sense of taste, causing all foods to taste like rubber. If food was eaten on the premises, nausea and vomiting occurred. The 5 patients had previously worked in another chromium-plating establishment, where the ventilation was adequate, and none had had any trouble. Now

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ulcers of various sizes and depths were present on one or both sides of the nasal septum of the 5 workers. The ulcerations were limited to the cartilaginous portion. In 3 they were relatively superficial, in 1 the perichondrium had been destroyed and the erosion exposed bare normal cartilage and in 1 there was a complete perforation measuring 6 by 4 mm. The buccal mucous membrane of the cheeks of the patient complaining of impaired taste was thickened and had a milky sheen. In 2 patients multiple small ulcers with sharply demarcated edges were present on the soft palate, the posterior surface of the tongue and the floor of the mouth. The ulcers were covered with a whitish pseudo-membrane, which wiped off easily and did not bleed. Smears were negative for spirochetes and fusiform bacilli. The dorsum of the tongue was coated, dry and cracked, and many of the papillae were enlarged and red. All the patients at one time or another had suffered from "chrome holes" of the skin of the hands. These cutaneous ulcers required between four and eight weeks to heal. Local treatment consisted in cleansing the nose and postnasal space with a weak bicarbonate solution. A bland ointment was applied to the affected parts and sniffed into the nose morning and night, thus protecting the injured parts while regeneration took place. Chrome ulceration in the chromium-plating trade can be prevented by mechanical devices for the removal of generated fumes and hygienic measures among the workers. Workmen should be examined periodically and those showing signs of chrome poisoning should be suspended from work until the lesions heal.—A.J.M.A.

Diagnosis and Roentgen Treatment of Certain Forms of Lumbago. Ch. I. Bastrup. *Acta Radiologica*, XXI, 151, Apr. 1910.

The author calls attention to the fact that the interspinous space is normally greater anteriorly than posteriorly. While this may vary physiologically, contact of the tips of the spinous process with loss of the interspinous tissues may lead to a severe form of backache. This usually occurs in hyperextension and may be associated with a number of different conditions. Acute flexion may lead to the same symptoms as a result of the tearing of the interspinous ligaments. This condition he designated as osteo-arthritis processus spinosi.

In the acute cases, the pain is usually localized over the interspinous space, but it may be found in the paraspinal areas. Treatment consists of heat, rest, and sedation. In more severe cases, novocain injection frequently affords relief.

In the chronic cases, roentgenotherapy is frequently very efficacious. The details of the therapy are given. In brief, the individual is given 300 roentgen units. This may be repeated twice at intervals of six weeks. If this is ineffective, another series of two or three treatments, at six-week intervals, is given. Of a total of sixteen men, twelve showed improvement; among twenty-seven

women, twenty-one were improved. In most cases the symptoms, of long duration, were relieved after a single exposure. The effect may be only temporary and the patient may require renewed roentgenotherapy upon recurrence of the symptoms.—Henry Milch, M.D., New York.—J.B.J.S.

Some Observations on Sciatica. — Norman Little. *The Medical Journal of Australia*, II, 901, 1939.

Primary sciatica, in contrast to secondary sciatica, has a sudden onset of pain with paralysis occurring at the same time or shortly afterward. Local treatment consists in appropriate splinting and heat to the affected areas. Great relief from pain may be obtained from epidural injection of sixty cubic centimeters of 1 per-cent. novocain solution into the sacral canal. In late cases the nerve should be stretched with the patient under general anaesthesia. One should wait at least three months after an acute attack before manipulating, in order to avoid the formation of adhesions.

In treating secondary sciatica, many factors are involved. Often the physician, without knowing the actual etiology, treats and relieves the patient. The author classifies the etiological factors as static, arthritic, traumatic, osseous, nervous, and pelvic. If roentgenograms reveal no bone pathology, conservative treatment is employed first. This consists in removing foci of infection, correcting static errors, manipulating the spine as indicated, and administering massive doses of vitamin B₁. A plaster jacket is used, if complete rest of the low-back muscles is desired.

If arthritis is present and progressive immobilization is essential, in traumatic cases dramatic results may be obtained from manipulations without anaesthesia.—Harold M. Childress, M.D., Jamestown, New York.—J.B.J.S.

Allergic Sinusitis.—The important relationship of allergy to many diseases of the ear, nose, and throat is stressed by Harris (N. Y. St. J. Med. July 1, '40). There exists a form of sinusitis which is allergic in origin, although formerly it was often regarded as being of an infectious nature. In order to diagnose this variety of sinusitis a much more thorough investigation becomes necessary. Hereditary tendencies are here of importance. In addition to the usual symptoms there is often a history of paroxysmal sneezing and intermittent nasal obstruction. The characteristic appearance of the nasal mucous membrane in these cases is pale greyish white or bluish grey, oedematous, and watery. There are commonly found hypertrophied turbinates, thickening of the mucous membrane as a whole, with the presence of mucous and oedematous polypi. The vast majority of the latter are allergic in origin. Nasal smears yield far larger number of eosinophils than normal. Many

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cases of sinusitis treated surgically are failures because the allergic factor has been overlooked. Treatment consists in elimination, substitution, or immunization. Allergic sinusitis must be regarded as a definite disease, and it may occur with or without secondary infection.—*Prescriber*.

Recognition, Treatment and Prevention of Hearing Impairment in Children.—S. J. Crowe and Curtis F. Burnam.—*Ann. Otol., Rhin. & Laryng.* 50: Mar. 15, 1941.

In conclusion the authors stress the following points:

(1) "Impaired hearing for high tones with good hearing for low tones," is the earliest symptom of middle ear as well as inner ear deafness in children. We have abundant proof to support this statement.

(2) The recurrence of adenoids after operation on young children is so common that it must be regarded as normal. This recurrent lymphoid tissue may impair the function of the eustachian tubes and cause a low grade tubo-tympanic catarrh which may lead to chronic progressive deafness.

(3) Recurrent or hyperplastic nodules of adenoid tissue in and around the pharyngeal orifice of the eustachian tubes are so located that they cannot be removed surgically.

(4) Every type of deafness seen in adults is also found in children. In most types the earliest symptom is a loss for high tones, and for their early recognition the tones above 800 d.v. must be tested.

(5) In order to have good hearing the eustachian tubes must function normally. Impaired function of the eustachian tubes in children is caused by an overgrowth of lymphoid tissue in the nasopharynx. In order to see this condition the nasopharynx must be examined with a nasopharyngoscope.

(6) Early recognition of impaired hearing for high tones—long before the hearing for speech is affected—and radiation of the nasopharynx to restore the patency of the eustachian tubes, is the only method for the prevention of progressive deafness of this type. If we are to learn more about the causes, treatment and prevention of deafness we must concentrate our studies more and more on children. The only hope is early recognition and treatment, before irreparable damage to the mucous membrane of the middle ear and ossicular chain has occurred. These changes begin in childhood. In the treatment of deafness, as in the treatment of cancer, the best results depend on early recognition, and in both the best results are the least spectacular.

(7) Lymphoid tissue is so sensitive to radiation that the dosage employed in the treatment of the nasopharynx is far below the amount that could cause any irritation or injury to the mucous membrane or surrounding structures. No scar tissue, no dryness of the nose or throat and no atrophic changes in the nasal mucosa follow treatment of the nasopharynx with radon,

provided the proper dosage is given at the proper intervals. This statement is based on our observation of hundreds of children. Many of them have been followed for ten years or more. If used carelessly, or if the treatments are entrusted to a technician, radium therapy may be extremely dangerous. It should never be given in the presence of an acute nasopharyngitis. The object of the treatment is to reduce the size of lymphoid tissue. It has little or no direct action on bacteria.

Radiation is of no value in the treatment of chronic middle ear suppuration, otosclerosis or any form of inner ear or nerve deafness. It is used for the sole purpose of reducing obstructing nodules of lymphoid tissue, decreasing the secretion of mucus and restoring the normal ventilating function of the eustachian tubes. For this reason radiation is more often beneficial in children than in adults. To obtain the best results it must be used before changes in the middle and inner ear, secondary to partial tubal obstruction, have irreparably damaged the middle and inner ear structures.—*E. N. T. Monthly*.

Cancer of Colon and Rectum.—Some useful advice on early diagnosis is given by Dr. G. Miller (*The Canadian Medical Association Journal*, June, 1942). In patients, especially over 40 years of age, the slightest uneasiness in the left lower quadrant, a slight crampy pain, a new tendency to constipation, the feeling that more gas is present or perhaps held up for a moment before being helped on by a cramp (particularly if any dark blood has been noticed in the stool) should be considered as carcinoma of the bowel until it has been proved to be otherwise. Such seemingly insignificant symptoms, suggesting a change of bowel habit, call for a thorough investigation, including a rectal examination, sigmoidoscopic examination, an X-ray of the bowel and examination of the stools for gross occult blood. Moreover, in cases presenting a secondary anemia of unknown origin, carcinoma of the caecum should not be ruled out even although no symptoms may be present.—*Medical World*.

Spastic Colon.—This condition is regarded by Dr. E. H. Stokes, of Sydney, as one of the visceral neuroses (*The Medical Journal of Australia*, May 30, 1942). It is characterised by discomfort or pain usually felt in the lower part of the abdomen. The discomfort is variously described as a feeling of stagnation or stoppage or as a ball or lump. The pain, on the other hand, is usually of a dull, continuous aching character. It is frequently referred quite accurately to the portion of the colon which is involved. The pain may be so severe as to interfere with the patient's occupation, but it rarely interferes with his sleep. In its tonically contracted state it is often quite possible to palpate the offending colon. Spastic colon may be met with in association with bronchial asthma. Then, again, female patients

suffering from spastic colon sometimes complain of frequency of micturition and pain in the bladder. These are to be considered as manifestations of irritability of plain muscle. The following conditions have to be distinguished from spastic colon: appendicitis, duodenal ulcer, diverticulitis, malignant disease of the colon, renal colic, intestinal obstruction, disease of the ovaries or tubes, ulcerative colitis and even hypochondriasis. Should a hard lump be found in the colon the existence of carcinoma may be feared.—*Medical World*.

Vertigo Due to Obstruction of the Eustachian Tubes. A Clinical Study Based on One Hundred and Thirty-five Cases.—*Jour., A. M. A.*, 118: 1282 (April 11) 1942.

Vertigo caused by obstruction of the eustachian tube is a distinct clinical entity which is often overlooked. An experience in the treatment of 135 cases of this type has proved that distressing symptoms of vertigo, nausea and vomiting, sometimes present for long periods, can be relieved by mechanical inflation of the eustachian tubes. Since obstruction of the eustachian tube is one of the most obvious and also the most easily corrected causes of vertigo, every patient with dizziness nausea should be subjected to the therapeutic test of inflation of the tubes as a first step in a thorough clinical investigation.

In this series approximately two-thirds of the patients were women. Approximately

half were between 40 and 60 years of age. The obstruction of the eustachian tubes was associated with acute chronic inflammation of the nasal sinuses or ears in a large proportion of cases. The duration of the symptoms varied from a day or two to several years.

The symptoms may be of sudden onset or the condition of vertigo may develop gradually and intermittently. In the latter type the true cause of the difficulty is often overlooked and the patients are subjected to a variety of treatments for supposed disorders of the digestive system which yield no benefit.

Some patients are relieved permanently by only one or two inflations of the eustachian tubes; in other cases, the symptoms recur and may again be relieved by re-establishing the patency of the eustachian tube. In addition to the mechanical procedure of inflation, proper treatment of these patients demands attention to chronic sinus infections and chronic tonsillitis, to possible allergic factors and irritants, such as tobacco, and an investigation of the basal metabolic rate.

The vertigo is caused in most instances, and perhaps in all, by unilateral eustachian obstruction or by more complete obstruction on one side than the other. The direction of the gait furnishes a clue to the side which may be affected, for in most of the cases the staggering is in the direction of the obstructed side.—*E.N.T. Monthly*.

Medicine and Therapeutics

Right-Upper-Quadrant Pain on Effort an Early Symptom of Failure of the Right Ventricle.—N. H. Boyer and P. D. White state that painful congestion of the liver at rest, due to sudden stretching of its capsule, during right-sided heart failure is frequently encountered. This must be regarded, however, as a fairly advanced stage of failure, just as dyspnoea at rest is a distinctly advanced stage of left-sided heart failure. The liver forms a capacious blood reservoir, and serves as a pool for the general venous circulation in the early stage of right ventricular failure. Patients are not uncommonly seen in whom the liver is enlarged, but in whom there is little or no obvious venous distension or increase in venous pressure, both in the early stages of failure and during the course of recovery from advanced failure.

In the case that initiated their interest in 1938, the patient was a student, aged 21, who had always been well except for attacks of rheumatic fever at the ages of 5, 14 and 15 years. Six weeks before admission he began to feel poorly and to tire easily. Two weeks later he went to his home, at an elevation of 8000 ft., where he became miserable with palpitation, upper abdominal discomfort and anorexia. The striking thing in the history on admission was that the

only specific complaint was a "tight feeling" in the right upper quadrant that came on regularly while walking up one flight of stairs at average speed and disappeared with rest. Physical examination revealed mitral stenosis, slight aortic regurgitation and auricular fibrillation. The only sign of heart failure at this time was a tender liver edge palpable two fingerbreadths below the costal margin. During the next 2 months he developed progressive signs of right-sided heart failure, with distended neck veins and oedema, and died with intractable congestive failure and rheumatic fever.

Subsequently 3 patients were seen in whom the initial symptom of heart failure was pain in the right upper quadrant coming on with exertion and disappearing with rest. One patient was a negro, aged 49, whose chief complaint was right-upper-quadrant pain on effort. Arrhythmia with tachycardia had been present for some years, and electrocardiography showed this to be auricular flutter with a rate of 280 and an auriculo-ventricular block varying from 2:1 to 4:1, so that the ventricular rate averaged about 100 at rest. The electrocardiogram also showed inverted T waves in Leads 1 and 4, with a tendency toward right-axis deviation. There were no heart murmurs,

and X-ray examination showed no obvious abnormality of the aorta or significant cardiac enlargement. The pulmonic second sound was not accentuated. There was calcification at the roots of the upper and lower lobes of the right lung, with considerable emphysema and diaphragmatic adhesion on the right. Albuminuria was constant, and there was moderate anaemia. The blood pressure was 120/80. The venous pressure measured 200 mm. at first, but under treatment by digitalis, with reduction of the ventricular rate to 70 by an increase in the grade of block, it dropped to 96 mm. The liver was slightly enlarged. The patient was discharged much improved with a diagnosis of auricular flutter and systemic venous congestion.

The aetiology of the heart failure is obscure. It was attributed to prolonged tachycardia. He was followed for several months, during which the failure increased, despite control of the ventricular rate by digitalis. Recent X-ray evidence of increase of the heart shadow to the right, in addition to the electrocardiographic abnormalities, made it probable that the chambers of the right side of the heart were involved primarily, possibly from preponderant fatigue due to the tachycardia. Whatever the cause of the circulatory failure, the liver congestion was clear—at first paroxysmal and, later, persistent.—*Clinical Journal*.

Diagnostic Hints in Heart Disease.—By Edward Podolsky. (*Extracted from Medical Record, Sep. 4, 1942.*)

The outstanding diagnostic sign of aortic stenosis is a small pulse, rising slowly to a delayed summit. The condition should never be diagnosed without this sign.

There is a displacement of the left nipple upward, above a horizontal line drawn through the right nipple in cases of mitral stenosis in youthful patients.

An infected vegetation in the pulmonary artery gives severe substernal pain and may be confused with the pain of coronary thrombosis.

Pain, shock and circulatory failure are the cardinal signs of coronary occlusion.

Auricular fibrillation in Graves' disease is much oftener transient or paroxysmal than that due to other causes.

Organic heart pain, particularly that due to coronary occlusion, occurs much earlier and in greater proportion than is ordinarily supposed.

A sense of substernal oppression, a mild twinge of pain, a paroxysm of dyspnoea, an aching sensation in the arm or sudden feeling of great weakness indicate an obstruction of a coronary twig.

Coronary occlusion is not uncommon in patients with arteriosclerotic disease.

An acute enlargement of the liver suggests coronary thrombosis.

Patients with old coronary closure frequently present a peculiar colour of the face, which has been described as "a leaden tint spread over an earthy hue of skin."

In irregular rhythms, if there is a constant quickening of the heart rate during deep inspiration, auricular fibrillation can safely be said to be present.

Systolic retraction of the left posterior aspect of the chest at the level of the diaphragm is a sign of pericardial adhesions.

A double heart murmur with the stethoscope exerting gentle pressure over the femoral artery is a sign of aortic insufficiency.

Rhythmic jerking movements of the head synchronous with the heart beats are seen in patients with aortic regurgitation.

Rupture of the heart is moderately frequent following thrombosis.

Fatigue is an early sign of the late stages of cardiac failure.

The characteristic murmur of aortic regurgitation begins abruptly in early diastole and fades away. It is usually a long, smooth, loud, blowing and high pitched murmur.

The diastolic murmur in cases of suspected aortic regurgitation should be sought for along both borders of the sternum, especially along the left border, where it is particularly likely to appear in cases of slight regurgitation that did not affect the pulse.

Anginal pain occurs in many cases showing aortic regurgitation.

A diastolic murmur is sometimes heard over the main artery of a limb in cases of conspicuous aortic incompetence.

An early diastolic murmur heard in the third and fourth left spaces in cases of mitral stenosis should be attributed, even when the pulse is unaltered, not to pulmonary, but to a slight aortic failure.

Characteristic elliptical retinal hemorrhages with white centres occur in acute and subacute bacterial endocarditis.

A pulse deficit indicates auricular fibrillation or extrasystoles, never partial heart block.

Proceedings of Societies, Associations, Etc.

The Kistna District Medical Association, Masulipatam.—Minutes of the monthly meeting of the above Association, held on 17-12-42, Thursday, in the Government Hospital, Bezwada.

23 Doctors and 1 Lady Doctor attended. Tea was served at 4-30 p.m.

Then the Business Meeting began at 5 p.m. with Dr. N. N. Sujeer, President, in the chair.

Dr. M. V. Subbarao, Secretary, read the minutes of the last meeting held at the Government Hospital, Gudivada, on 28-11-42, which was passed unanimously.

Read letter C-107/42-43, dated 22-11-42, from the Hony. General Secretary of I.M.A., Calcutta.

Read letter dated 20-11-42, from the President, Bengal Medical Relief Committee, and collected some voluntary funds.

Then the Medical Meeting began at 5-45 p.m.

Dr. M. V. Subbarao read two cases of Puerperal Tetanus.

Dr. N. Ramarao read a case of Acute Abdomen.

Then the President in his concluding remarks discussed the differential diagnosis of the above cases.

The meeting concluded with a vote of thanks by the Secretary, and disbursed at 6-45 p.m.

West Godavari District Branch of Indian Medical Association, Ellore.—The first business meeting of the above Association for the year 1942-43 was held at Municipal Council Hall of Ellore at 5-30 p.m., on 6-12-42. Tea was served at 5-45 p.m., the host of the evening being Dr. C. Satyanarayana Sastry, M.B., B.S. After tea Dr. V. Narasimharao, B.Sc., L.M. & S., was proposed to the Presidential chair and he conducted the elections of the Office Bearers for 1942-43. The following Office Bearers were unanimously elected for the year 1942-43:

1. *President:* Dr. V. Venkataratnam, M.B., B.S.
2. *Vice-President:* Rao Saheb Dr. N. Narasinga Rao Naidu, L.M.P., L.S.M.F.
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The following resolutions were unanimously passed:—

1. Resolved that the annual subscription from each member of the Association be raised from Rs. 4 to Rs. 5 per annum.

2. Resolution congratulating Dr. M. Narasingarao Naidu on his getting the Rao Saheb title.

3. Resolved to try by all means to amalgamate this Association with the West Godavari District Medical Association.

4. Resolved to request the Andhra Provincial Branch of the Indian Medical Association, Masulipatam, to sanction Rs. 50 only this year for enlisting more members from the West Godavari District.

Minutes of the monthly meeting of the above Association held on Sunday, the 3rd January 1943 at 5 p.m., in the Municipal Council Hall, Ellore:—

20 Doctors, including 3 Lady Doctors, D.M.O., and D.H.O attended the meeting.

Dr. D. Subba Rao, M.B., B.S., was the host of the evening and a grand tea-party was arranged.

After tea, with Dr. V. Venkataratnam, M.B., B.S., in the chair, the meeting commenced. Dr. C. P. Satyanarayana gave a lecture on Typhoid Fever—its complications and sequelæ and their treatment. After the lecture, the subject was thrown open for discussion, in which every one present took part and several aspects of the disease were brought to light, with special reference to the diagnosis and treatment, and the discussion was rendered very lively and instructive.

Next, Dr. V. Venkataratnam, dealt with a case of 'Lung Abscess' and the prominent features which helped the rapid recovery of the case under review including the role of Sulphanilamide and Postural treatment.

Then a resolution was passed to request the Surgeon-General with the Madras Government through the Honorary Secretary of the Andhra Provincial Branch of the I.M.A. to keep available at an early date stocks of Quinine at reasonable prices to Registered Medical Practitioners through the medium of the Post Offices.

The meeting came to a close at 8 p.m. with a vote of thanks to the chair and the host of the evening by Dr. C. Satyanarayana Sastry, the Honorary Secretary of the above Association.

Announcement

"Messrs. Smith Stanistreet & Co., Ltd., Calcutta, have presented three million tablets of Sodium Chloride as a gift to the Government of India. Two million tablets have been earmarked for the use of the Army and the balance for the Royal Air Force".

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SPECIAL TUBERCULOSIS NUMBER 1942

The October number of the **Indian Medical Gazette** is Special Tuberculosis Number. The majority of the articles selected for this number deal with the treatment and control of the disease. The contributors include prominent tuberculosis workers whose names are already known to the readers of the **Indian Medical Gazette** such as Drs. A. C. Ukil, P. V. Benjamin and J. Frimodt-Møller, but there are also important papers by new contributors.

In the collection and selection of papers for this Special Number, the editor has been assisted by a Special Editorial Committee appointed by the Tuberculosis Association of India; this committee consisted of Dr. P. V. Benjamin, Dr. A. C. Ukil and Dr. B. K. Sikand.

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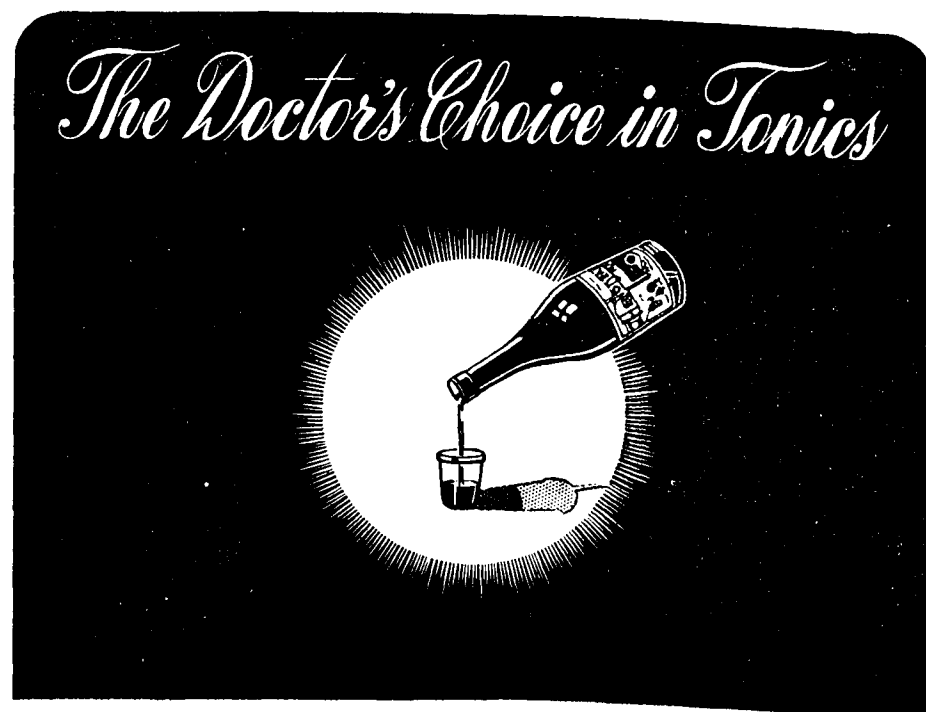
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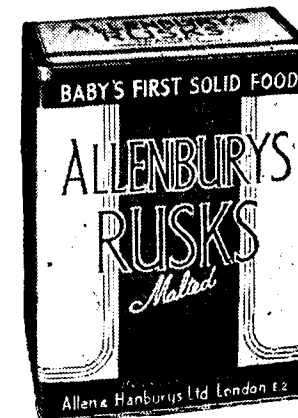
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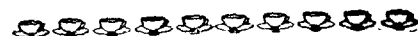
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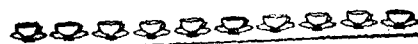
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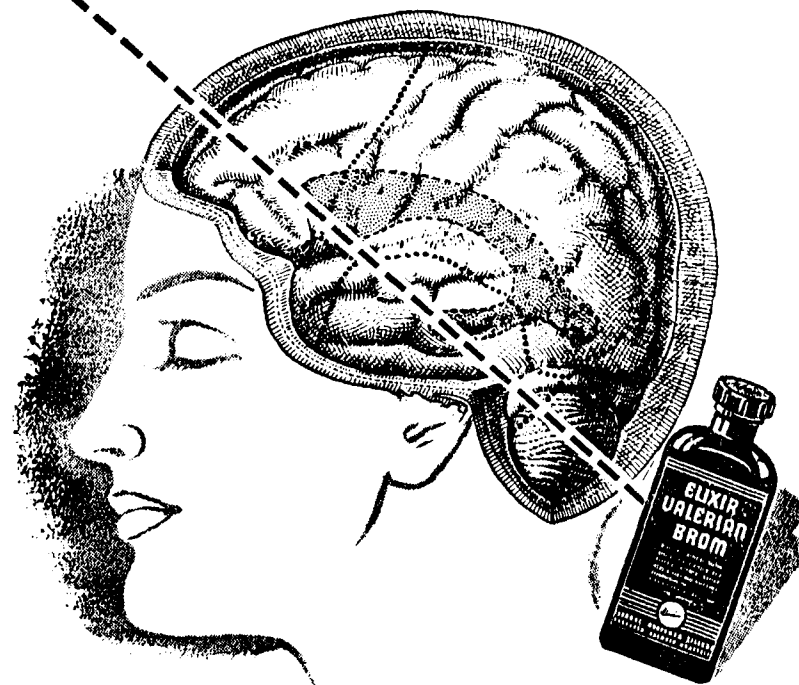
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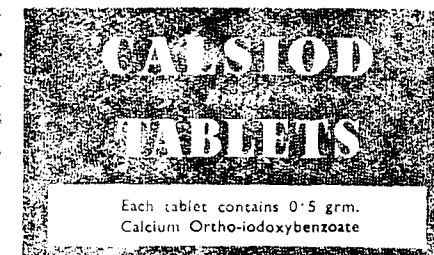
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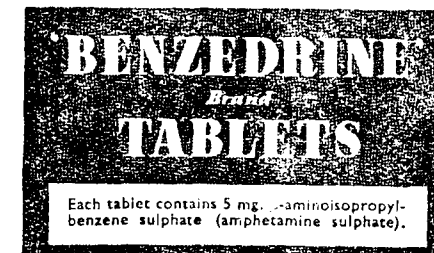
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British Medical Journal,
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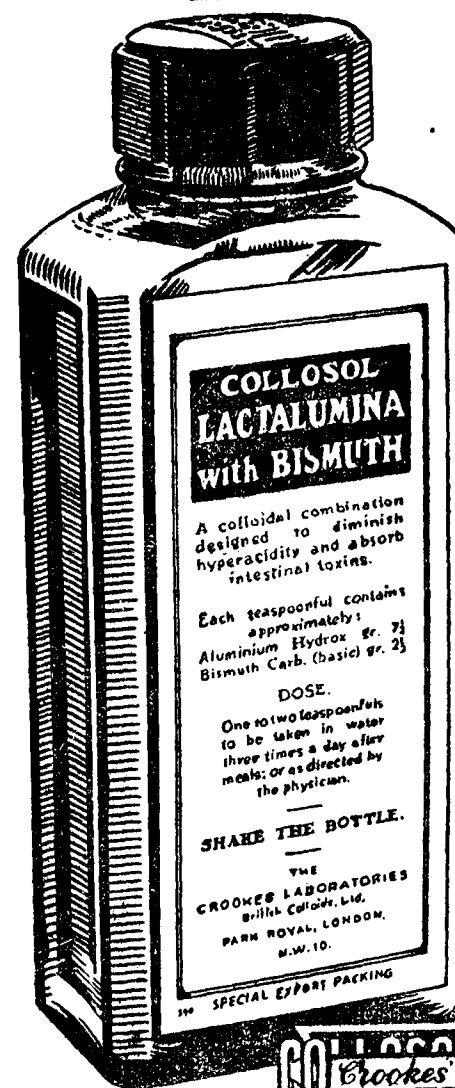
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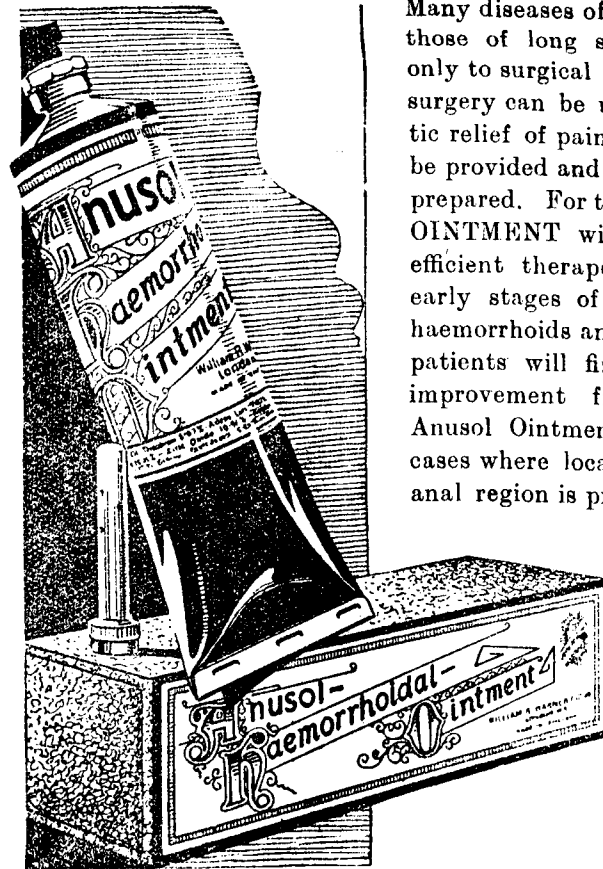
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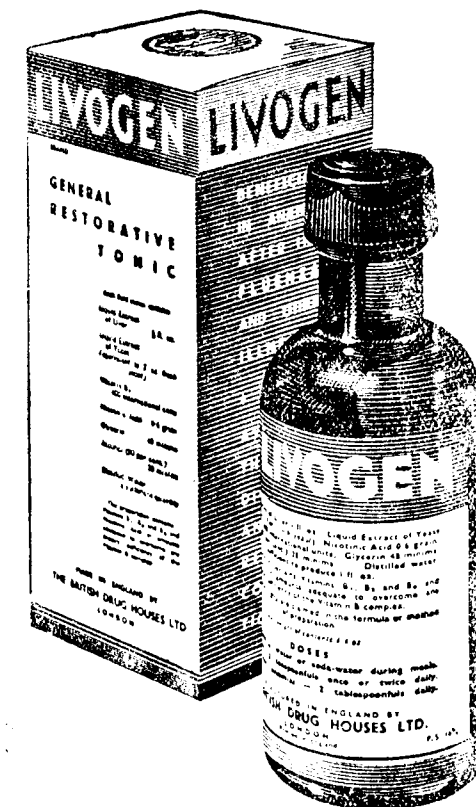
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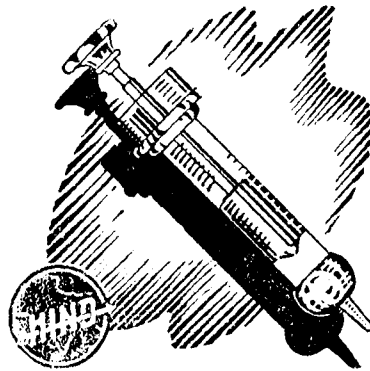
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to take the view of "Let's give him some Sulphonamide" or "Better do a laparotomy" rather than to make an accurate diagnosis before treating the case. In this respect the so-called "Systems" of Medicine are particularly pernicious—Homeopathy, Ayurveda, Allopathy, or whatever the system may be called. It will be a good day when there is only one system of medicine, founded on scientific observation and sound pathology, and served by the best drugs and therapeutic methods that all present systems can provide. Our Ayurvedic friends have much to teach us in the realm of dietetics and physiotherapy, and even village quacks know here and there of useful drugs which are at present unknown to scientific medicine. Just as we look forward to a world of united nations, so may we not look forward to a time when all conflicting and competing "Systems" of medical science shall pool their knowledge and be willing to find out their shortcomings, and work together as one system of Scientific Medicine, founded on knowledge, and not on guess work or tradition and qualified by examinations, the passing of which gives diplomas uniformly recognised throughout the civilised world.

Abdominal Pain.—The localisation of pain as a symptom of organic disease is the first thing to be considered. Pain arising from the stomach is felt in the chest, or if the disease is low down in the stomach, in the mid-epigastrium. Involvement of the lesser sac of the peritoneum in inflammatory trouble gives rise to pain in the left flank, and if the diaphragm is involved, to pain in the tip of the left shoulder. Pain arising from the liver is felt in the epigastrium, and the back of the right thorax. Again, if the diaphragm is involved, the pain is felt in the tip of the right shoulder.

Pancreatitis is felt as pain in the epigastrium, the middle of the back, especially between the shoulder blades, but not at the tip of the shoulder.

Small intestine pain, due to colic or painful contractions of the gut, is felt at or very near the umbilicus. If there is any inflammation present, the pain will at once migrate to the site of the inflamed portion.

Pain arising from appendicular colic, the first stage of most attacks of appendicitis, is felt at the umbilicus. But immediately there is inflammation, the pain, as we all know, is definitely to the right of the middle line, often in the right iliac fossa, and only on the left side in those rare cases in which the tip of the appendix is over on the left side of the abdomen.

All non-inflammatory pain from the colon is felt in the lower abdomen, vaguely localised, and bearing no relation to the side of the gut affected. Thus, colic in the sigmoid is felt in the same place, very often, as colic in the ascending colon. In both cases the pain is hard to localise, being near the centre of the abdomen. But immediately the colon is inflamed, the tenderness and pain migrate to the site of the inflammation.

Rigidity.—Although there may be a certain amount of rigidity of the abdominal wall in early cases of non-inflammatory lesions such as intestinal obstruction, a real board-like rigidity is symptomatic of peritonitis, local or general. In obstruction, the abdomen is held by the patient in a condition of defence against pressure from without, but often peristalsis can be seen inside the wall of the abdomen. If the case has progressed far enough to cause peritonitis, the rigidity may be so intense as to stop all visible peristalsis. Local inflammatory trouble, such as cholecystitis and acute

appendicitis in the early stages, will cause rigidity which is strictly local. Increase in the area of the rigidity is of importance as showing that a local peritonitis has become generalised. If the rigidity spreads all over the abdomen, it is possible that there is a generalised purulent peritonitis. This is of importance to the general practitioner, for it may be his duty even if he has no facilities for surgery, to open such an abdomen and drain it, putting in a tube or two, before evacuating the case to a hospital.

Tenderness.—Tenderness as opposed to pain is of importance as indicating to some extent the position and the extent of the trouble. As a guide to the site of disease, tenderness is much more reliable than pain. Tenderness is nearly always directly above an inflammatory condition, and is only intense when the inflamed organ is actually in contact with the abdominal wall. For example, acute pancreatitis shows tenderness rather than rigidity in the upper abdomen, the site of the trouble being at the back of the abdomen. But the tenderness is not intense, for the lesser sac is not in contact with the front of the abdomen at any point. The tenderness of acute cholecystitis, on the contrary, is intense, and very localised, the organ being close to the anterior abdominal wall. We must remember that the sensation of pain in the abdomen is due almost always to one of three things—colic or peristalsis against opposition; distension of hollow organs; and inflammation. The first two are felt by means of the nerves in the organ concerned; the last is felt only in the parietal peritoneum. Tenderness is felt almost entirely by the nerves in the parietal peritoneum. An inflamed organ is always painful as well as tender if it touches the parietal peritoneum, but may be much less so if it is a distance away from the peritoneum of the abdominal wall, or separated from it by some healthy organ.

With these general principles to guide us, we can very often make a diagnosis of the organ at fault, and roughly of the condition it is likely to be in, when we find ourselves confronted with a patient who has acute abdominal disease. Let us now look at several types of "acute abdomen" and consider their special characteristics. We will try to adopt a clinical rather than a pathological classification.

Upper Abdomen.—In the presence of pain and acute symptoms in the upper abdomen, the first question to ask ourselves is: Was the onset sudden or gradual? The following conditions are of sudden onset:—

I. Perforated Gastric Ulcer.—There is usually a history of gastric symptoms over some months or years, though occasionally perforation may be the first symptom. A few days or weeks before perforating, a gastric ulcer often has appeared to the patient to have become definitely worse.

(a) The first sensation of the patient is usually a sense of something "giving way" in the upper abdomen. This is rapidly followed by intense pain, on the left of the epigastrium in gastric, and on the right on duodenal perforations. The patient becomes rapidly in a condition of extreme prostration. He lies rigid, afraid that the slightest movement will cause him more pain. He is cold, and sweating.

The pain rapidly becomes general, as the gastric contents fill the general peritoneal cavity. Temperature is low, 95 to 96°F. The diaphragm is fixed, and the breathing is entirely thoracic.

This stage is similar in cases of both gastric and duodenal perforation, except for the side on which the pain is most intense. The pain is constant, not colic, and is thus distinguished from the pain of gallstones in the common duct.

(b) After a few hours, a stage of reaction sets in, the very acute pain passes off, and the pulse and temperature may return to normal. At this stage errors in diagnosis are often made, but there can be no mistaking the condition if attention is paid to the *rigidity*, which is extremely persistent.

In this stage, duodenal perforation tends to be followed by gravitation of the stomach contents to the right iliac region, whereas gastric perforation leads to the contents going into the whole of the greater or lesser sac of peritoneum, according to the position of the ulcer. If gastric contents have already penetrated to the lower parts of the peritoneal cavity, there will be extreme tenderness of the pelvic peritoneum as felt per rectum.

(c) The third stage is that of peritonitis. Once more the patient starts vomiting, and hiccough. He becomes extremely thirsty, and may do much harm to the spread of gastric contents in the abdomen by drinking large quantities of water, etc., if not prevented from doing so. The abdomen only at this stage becomes distended, and the case may simulate a case of intestinal obstruction. His pulse becomes thready, and he may be acutely conscious, and feeling the pain severely. Rigidity is rather less than in the early stages. If unrelieved by operation death will, probably, take place within two days.

The question that the general practitioner must ask himself in confronting this condition is—"Is this a perforated ulcer, or may it be some medical condition?"

Renal colic: little or no rigidity. No gastric history.

Biliary colic: rigidity only in upper abdomen. Pain not so continuous, patient restless, not still.

Lead colic: history of trade; examine the blood for basophilia.

Food poisoning: rigidity if present is not continuous.

Pneumonia and diaphragmatic pleurisy: high temperature, 103 or so.

Other surgical conditions simulating perforation are:—

Acute appendicitis: onset more gradual, or at least not sudden. Initial pain not epigastric, but in middle or lower abdomen.

Acute pancreatitis: This may simulate a perforation of a gastric ulcer into the lesser sac almost exactly. Its pain is even more intense, and the pulse is more rapid.

Acute intestinal obstruction: The rigidity is less marked, and the onset usually less sudden, and not felt in the upper abdomen.

What can the doctor do for a perforated ulcer? The ideal treatment, and the only hope of a cure, lies in laparotomy, the sewing-up of the ulcer (using omentum to reinforce the suture), gastro-enterostomy and drainage of the abdominal cavity. During the first 12 hours after a perforation, it must be remembered that an imperfectly performed operation for perforated ulcer, in which only the essentials (sewing up the ulcer with omental

reinforcement, and drainage of the abdominal cavity) are done, is far more likely to save a patient's life than the best possible surgery after those 12 hours have been passed. But if there is no facility for doing this, and the case has to wait for transport to a hospital where it can be done, there are several things the doctor can do. Briefly they are:—

- (1) Sit the patient up in Fowler's position and keep him still and quiet.
- (2) Pass a stomach tube and confirm the diagnosis (not necessary if there is much vomiting).
- (3) Give Morphia in repeated small doses.
- (4) Under a local anæsthetic, drain the lower abdomen through an incision in the right iliac fossa.
- (5) Arrange for speedy and comfortable transport, as by a motor-car or upper class carriage in a train.
- (6) Give an intravenous Saline, continuously, until transport is ready; or an intramuscular Saline into the vastus externus muscles of both thighs. Up to 1000 c.c. into each thigh can be given in this way in a period of six hours or so. All drinks must of course be withheld.

II. **Acute Cholecystitis.**—Diagnosis depends on its onset not being sudden, intense tenderness over the gall-bladder and for a small distance only around it, and intense continuous pain, not griping in character; no rigidity in lower abdomen, but marked rigidity of upper left abdominal wall. Some of these cases are associated with a gall-bladder which rapidly becomes gangrenous, active treatment is best. Any doctor who can do surgical work at all is able to tackle a case of this; with a local anæsthetic, 1% Novocain for choice, an incision is made directly over the gall-bladder, and its tip is brought out through the wound and held there firmly with forceps while the wound is sewn up with a drainage tube in its lower end leading into the abdominal cavity. After sewing up the wound, the tip of the gall-bladder is opened and a tube is inserted into it. If the gall-bladder is found to be gangrenous, a swab can be left in the wound leading down to the gangrenous portion, and this must be withdrawn and replaced by a large rubber tube after 24 hours.

III. **Acute Pancreatitis.**—Onset is sudden, but not quite so sudden as a perforation. Pain and tenderness are always confined to the upper abdomen, the part of the back behind and just above the pancreas (upper lumbar region), and sometimes the left flank, where the lesser sac approaches nearest to the parietes. Exudate practically never leaks out of the Foramen of Winslow, so the general peritoneal cavity is never involved. (Occasionally an abscess in the omentum may cause some general abdominal tenderness and secondary peritonitis; a very rare event).

Treatment.—Immediate laparotomy and drainage of the lesser sac either above or below the stomach, or in the left loin. This can be done under regional Novocain anæsthesia, and with the minimum of equipment, and if the diagnosis is fairly certain a moderately good surgeon should do this rather than waiting for transport to a distant hospital, where the "really good" surgeon will receive a moribund patient.

IV. **Acute Intestinal Obstruction.**—Under the most ideal conditions, such as in large city hospitals, the mortality of this condition is 40%,

showing no improvement on the statistics of 20 years ago. The reason for this is that doctors have been taught in medical colleges the signs and symptoms of *advanced* cases of obstruction, and not the *early* signs. If we wait to diagnose obstruction until the patient has faecal vomiting, a rapid, running pulse, cold, sweaty extremities, and a distended abdomen, we wait until his condition is already almost hopeless.

A patient usually takes notice of an obstruction when peristalsis begins to be painful, and no faeces or flatus can be passed. The actual thing that happens to the intestine, be it volvulus, kinking, or intussusception, may produce only a dull pain, due to mesenteric pulling.

In suspected cases, the first rule whether for general practitioner or consulting surgeon is to give enemata. An enema every hour or two does not exhaust a patient in the early stages of obstruction, and as half at least of all these cases are due to faecal impaction, or impaction by worms, there is a good chance of undoing the damage by enema alone. Once I was called to an obstruction case 150 miles away; my car broke down on the way and I was 6 hours late; but during those hours the doctor in charge of the case had given him 8 enemata. The eighth was successful and relieved the faecal impaction, and thus saved the patient from an unnecessary operation, which I, no doubt, would have been tempted to perform had I arrived a few hours earlier.

For a period of up to 12 hours, repeated enemata and colon washes may be given. If enemata are returned unchanged immediately and invariably, the trouble is probably a volvulus of the sigmoid. In this condition, the patient should be operated upon within 24 hours of the onset; after that the sigmoid may become gangrenous, and general peritonitis may set in with vastly increased danger to life, and the necessity of resecting the whole sigmoid. If transport to a surgical centre cannot be done within 24 hours, a country surgeon is justified in making a small incision over the volvulated part (2 inches to left of umbilicus) under Novocain, and fixing the tough sigmoid wall to the rectus sheath with a continuous suture of intestinal catgut; then opening the sigmoid and inserting a large rubber tube. Be careful that no faecal matter gets into the peritoneal cavity. The case is not fully dealt with until the volvulus is reduced, which requires a large incision under general or spinal anaesthesia; but the operation of drainage of the sigmoid described above is very likely to save the sigmoid from over-distension and therefore from gangrene; radical treatment must be done within 48 hours of onset, if possible.

Volvulus of the small intestine *must* be reduced; there is no other treatment, and full operation alone is indicated. Jejunostomy and such practices are usually useless. This is a very fatal condition; in it shock and "faecal" vomiting come on early. Intravenous or intramuscular Saline, 1% (*i.e.*, slightly hypertonic) should be given in all cases in which vomiting comes on early, for the chloride balance soon gets upset; the latter (intramuscular) can be done with a patient in an ambulance car or a train, and up to 1000 c.c. every 12 hours can be given into each vastus externus muscle.

Other obstructions of the small intestine, as by *adhesions* (usually to the pelvis, after appendicitis) or *bands* (may be anywhere, after chronic or mild peritonitis), or impacted *worms*, or *intussusception*, or *tuberculous enteritis* (ulcerative form), are usually more gradual in their onset than is

volvulus, and less likely to lead to gangrene; in them the symptoms are purely those of obstruction; gradual distension; the passage of one or two motions followed by stoppage of faeces as well as flatus; griping pain felt first at the umbilicus, later at or near the site of obstruction; later, vomiting (and hiccough if the obstruction is high up in the intestine). Faecal vomiting and the so-called "ladder peristalsis" are late symptoms, as is leucocytosis; treatment should be done before these occur, and consists of laparotomy with a right paramedian incision, regional Novocain being used for anaesthesia. Look for the caecum first, and if this is undistended follow the undistended small intestine (ileum) along in the upward direction, until the obstruction is reached. If it is due to a band or adhesion or to worms, this may be easily relieved. If worms must be removed, the coil of intestine containing them should be drawn outside the abdomen and there opened longitudinally along its free border. The worms are removed, and a single layer of continuous Connell's suture unites the cut edges. Use smallish stitches only, or the gut will be narrowed. If this suture has been done well, no serous suture is necessary.

A general practitioner who feels diffident about taking on a laparotomy can in these obstructed cases do an enterostomy tying a tube by WITZEL'S method into the lowest easily available *distended* coil, under local Novocain anaesthesia.* The tube should be the size of a pencil, and 4 oz. of intestinal contents each hour should be withdrawn. If the tube is blocked, a little normal Saline can be injected along it, and if it is not recovered it does the patient no harm. This can be repeated whenever the tube is blocked. The simple manoeuvre gives many patients a chance of recovery and allows his safe transport (with an attendant, removing 4 oz. of intestinal contents every hour all the time) to a surgical centre. Whatever you do, do not wait for faecal vomiting or great distension or rigidity before you diagnose obstruction.

V. Peritonitis.—All the lesions mentioned may sooner or later lead to peritonitis, but the main chance the patient has of survival is that he will be dealt with competently before peritonitis begins. Once it has occurred his chances of survival are much less. Besides these conditions, are appendicitis, perforation or wounding of the gut, diverticulitis, and inflamed Meckel's diverticulum. Any of these are capable of killing a patient by general peritonitis.

But if the patient can be treated while the disease is still *local* in its effects, by the insertion of a fair-sized drainage tube under local anaesthesia, the chances of life for the patient are immensely increased.

In these inflammatory conditions all pain is invariably felt at or near the diseased organ itself, and tenderness is in the same place as the pain. Leucocytosis goes up rapidly, and in every hospital which has a haemocytometer and a microscope, a leucocyte count (actual number, not differential) should be taken. Always remember that an unnecessary operation under local Novocain does a patient little or no harm, whereas neglecting to open a suppurating lesion of the peritoneum may kill the patient. Do not therefore hesitate, if your diagnosis tells you there is pus anywhere in the abdomen, from pulling in a tube at the tender spot, and sitting the patient up for transport in Fowler's position.

A form of mild peritonitis, usually following abdominal operations, or

* The distended coils must not be pulled about or over-manipulated.

skill of the very elect. The pain is not invariable. The severity of the pain when present differs in degree. The site of the pain also differs. It is long-lasting unlike 'angina' and renders the malady very distressing.

With the pain, dyspnoea and collapse appear. Blood pressure usually falls rapidly and dilatation of the heart on percussion increases. Prognosis in any case, where the systolic blood pressure has been lowered to near 100 m.m. of hg., is always extremely grave even when pain and dyspnoea have been controlled spontaneously or with treatment. The lower the pressure, the greater the damage to the myocardium, it is to be assumed. Even during convalescence, rupture of the cardiac wall can bring about sudden death.

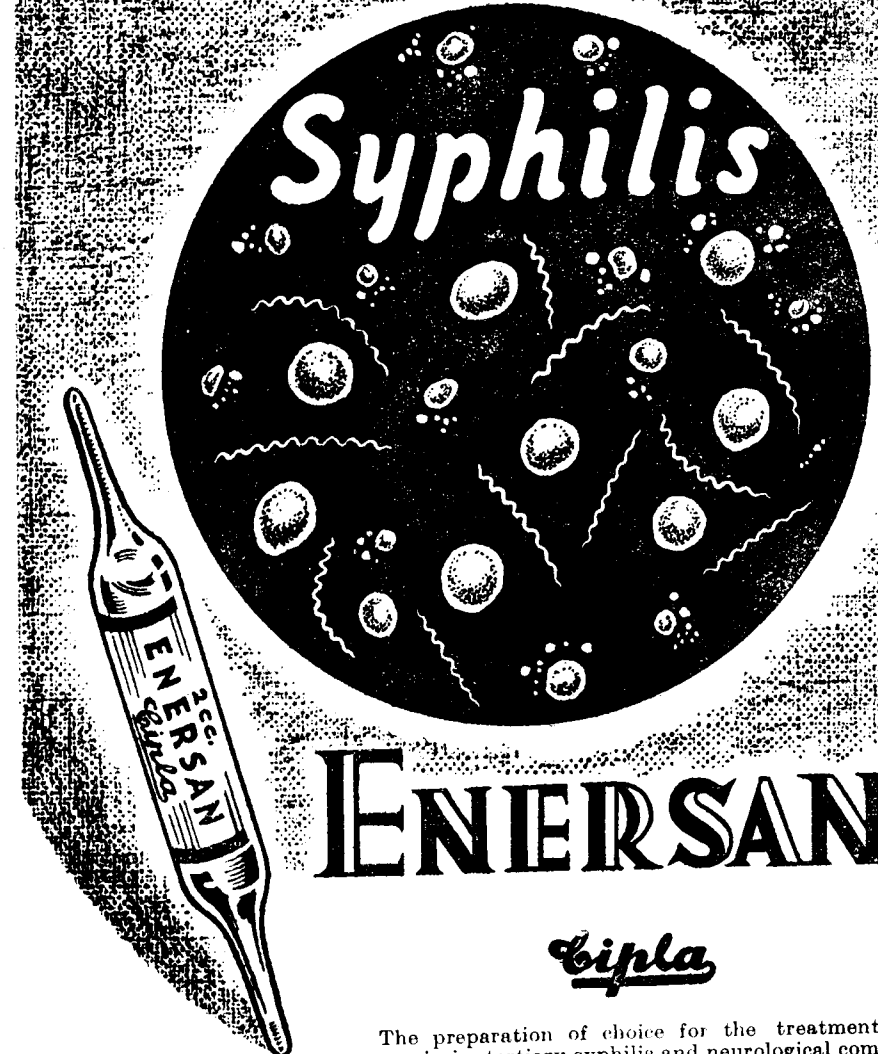
The treatment is directed to relief of pain and dyspnoea and there is no drug which can equal Morphine in this respect. It is given subcutaneously in the dose of gr. $\frac{1}{4}$ or even $\frac{1}{2}$. If $\frac{1}{4}$ grain is given and there is no response in half an hour, a second injection of $\frac{1}{4}$ grain should be given. If the pain be relieved by one injection but recurs, a second injection may be given. There is no harm if it is to be repeated every 12 hours two or three times and it should be so given without any hesitation to relieve the pain. Intravenous Glucose is given. The benefit seems doubtful. If the acute phase is tided over, the patient should be treated by complete rest, attention to his sleep and his bowels and very light diet. Rest is of very primary importance and four to six weeks' rest in bed is rigidly enforced even when the patient feels strong enough and therefore insists on leaving the bed.

Digitalis is not to be used in coronary thrombosis except when decompensation demands it. Some patients develop soon after the cardiac infarction, extra systole or auricular flutter, fibrillation etc. Even with fibrillation, digitalis is better avoided if decompensation is absent, as the infarcted area of the heart may be more damaged by the increased force of contraction due to an effective dose of Digitalis.

So far are described such cardiac emergencies which are more or less widely known. There is one, now to be mentioned, which has received recognition very recently. It is vagal neuritis acute or chronic. The chronic variety is seen only as paroxysmal attack of cardiac decompensation—without any cause of decompensation, e.g., valvular disease, high blood pressure, thyrotoxicosis, etc., being made out. It is very likely that the cause in such cases is beri beri—neuritis of the vagus and such patients improve the Vitamin B therapy. The good effect is seen both in the actual attack and also on the recurrences. What particularly needs mention is about apparently acute attacks of cardiac decompensations due to acute beri beri. These are real cardiac emergencies and the diagnosis must be made to enable us to give the treatment by very large doses of Vitamin B. The literature on Vitamin B therapy is much conflicting. Some say that larger doses are a waste as only a small portion of them produces the effect and the rest is excreted. Some firms have marketed the preparations of Vitamin B with a preservative, which makes intravenous administration beyond a certain dose unsafe. Some preparations claim benefit by small and continuous doses even by mouth. The best method of giving Vitamin B in a cardiac case of beri beri, particularly when it is acute, is to give daily about 100 mgms. of Vitamin B by intravenous and as much by intramuscular route. These doses are necessary. They are found efficient and without them such cases die. To decide whether these doses should be given or not is to decide whether the patient should be saved or not saved.

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some mild infection as from gastric perforation, leads to *paralytic ileus*. This is best treated by Morphia, in 3-hourly doses of $\frac{1}{4}$ grain; water only should be given by mouth. The stomach tube or Ryle's duodenal tube should be passed, and enemata given every 4 hours or so. Sooner or later one of these will probably "work" and produce faeces and flatus. If the stethoscope reveals no sound of moving intestine, this treatment is continued; if there is some gurgling sound, however slight, Acetyl-choline or Pituitrin may be tried—but never try them in a truly "paralysed" and quiescent gut.

VI. Hæmo-peritoneum.—This may be caused by gun shot, etc., injury of the mesentery, liver, spleen, or of any fair sized blood vessel (such as the gastro-epiploic artery). But a ruptured ectopic pregnancy is by far the commonest cause. The chief signs are those of a mild peritonitis—a slightly elastic, resistant feel of the whole (especially lower) abdominal cavity, without ileus or stoppage of flatus.

In these cases it is more important to stop the bleeding, than to empty the patient's abdomen of blood or clot. Under regional Novocain, the abdomen is opened by a paramedian incision, and if blood is found the bleeding point should be rapidly searched for and tied. All clot is removed from the abdomen, and in the lower end of the wound a drainage tube is put—as short and as wide as is conveniently possible. The patient is put into Fowler's position. If the bleeding point cannot be found, a large cigarette drain may be better, and the patient should be given $\frac{1}{4}$ grain Morphia every 2 or 3 hours and nursed in the recumbent position, with the foot of the bed raised, until her condition improves.

To sum up—it is the duty of every doctor, whose practice is a considerable distance away from a surgical centre or district hospital, to be prepared to do some active treatment on the lines suggested above, while his patient is awaiting transport to the "better" surgical aid; for in most of these acute abdominal conditions the best chance of the patient is *early* surgical treatment rather than very good surgery applied too late. And as in so many matters, early diagnosis is all-important. Don't wait for the "classical picture" to appear; get going with enema can, intravenous, or Novocain. Many doctors are frightened of operating on patients who have a likelihood of dying, afraid of their reputations. But many a doctor *ought* to have lost his reputation by *not* operating, and by passing on a patient who is dangerously ill to someone else, only for the patient to arrive at his destination no longer dangerously ill, but moribund.

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Cardiac Emergencies

BY

G. B. MANKAD, M.D., M.R.C.P., F.C.P.S.,
Ahmedabad.

THE heart, lungs and brain form 'the tripod' of life. Diseases of the heart are both interesting and important in medical practice—interesting because the work that has been done in this realm has only stressed the need for a lot more to be done to elucidate many of its problems, and important because a person lives as long as his left ventricle lives. In cardiac emergencies, the diagnosis and prognosis are arrived at not by a mere knowledge of the existence of signs and symptoms but by a very exact assessment of these signs and symptoms.

Any of the various conditions called heart attacks are cardiac emergencies. We can include in the list the following:—

(1) Angina. (2) Coronary thrombosis and its sequelae. (3) Pulmonary oedema. (4) Cardiac asthma. (5) Stokes Adam's syndrome. (6) attacks of paroxysmal tachycardia. (7) Auricular flutter or fibrillations. (8) Acute pericarditis with or without effusion. (9) Vagal neuritis diphtheritic, beri beri etc. (10) Ventricular fibrillation, rupture of a cusp of a valve, rupture of heart aneurism, etc.

In all these attacks, characterised as they are by urgent symptoms, the nature of the basic disturbance is any of the following:—

(1) Weakness of the contractile muscle tissue of the heart—myocardial degeneration. (2) Impediment to the normal smooth and supple action of the heart. (3) Mechanical structural defect. (4) Disorders of cardiac rhythm. (5) Defective nerve regulation. Deficient vascular supply to the cardiac muscle.

Acute pulmonary oedema—not infrequently met with—is the usual cause of the condition being a sudden and temporary failure on the part of the heart to maintain an efficient circulation in the pulmonary circuit. Respiratory distress with cyanosis of rapid onset with cough and copious frothy expectoration, sometimes tinged with blood, cold sweat on the face and feeble pulse—are the features. The treatment consists in judicious administration of Morphine usually with Atropine. Oxygen inhalation is a good adjunct. It is always helpful and never hurtful. Bleeding to about 15 ounces may be necessary. Coramine is usually tried as a cardiac stimulant: Caffeine Sod. Benzoate is worth trying.

A condition similar to the acute pulmonary oedema is what is called cardiac asthma. The attacks of cardiac asthma are asthma-like paroxysms, usually nocturnal, of dyspnea with cyanosis. These are associated with enlarged hearts—e.g., in essential hypertension—interstitial nephritis, thyrotoxicosis, aortic regurgitation. They are due to temporary left ventricular failure. The suffering varies according to the severity of the attack—in some cases there is very great distress. Severe paroxysm requires Morphine to allay the suffering. In between the attacks the basic condition should be treated. Digitalis may be needed, and if indicated, should be properly given to prevent the recurrence of such attacks. In essential hypertension, drugs to reduce the blood pressure like Sod. Nitrites or Serpina are recommended.

The diagnosis of cardiac asthma is to be made from renal or bronchial asthma by the comparative stillness of the patient in the cardiac versus the restlessness in the latter and the cyanosis is more marked in the cardiac form.

E. D. 5.

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AS SUPPLIED TO THE GOVERNMENT OF INDIA

E. N. T. Emergencies In General Practice

BY

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I. **Ear.**—1. *A foreign body in the ear* is one of the commonest emergencies met with by a general practitioner. The patient, usually a child, is brought in a frightened condition, with a history of a piece of slate-pencil, glass-bead or vegetable matter such as a pea or a gram, stuck up in the meatus. To make matters worse, unsuccessful attempts are made by the grand-mother, with abrasions in the external auditory canal, or the foreign body is pushed beyond the isthmus. With the child struggling, if the practitioner attempts to remove the foreign body with forceps, he is likely to drive the same into the middle ear, necessitating a radical mastoid for its removal; or if he syringes unsuccessfully, in the case of a vegetable foreign body, it may swell and get impacted, requiring surgical interference to gain an entry into the external auditory canal, behind the pinna of the ear. So, the meatus has to be thoroughly examined under direct vision and every case has to be dealt with on its individual merit, viz., its nature, position, etc., with proper instruments and with facilities of anaesthesia, etc. In this connection, it is worth while to remember that an impacted wax, due to sudden swelling by the entry of a little water during an ordinary or a dive bath, may give rise to deafness or tinnitus of sudden origin, for which the family physician may be consulted at first.

2. *Acute External Otitis* may be so painful as to rob the patient of his night sleep. The tragus is extremely tender and accompanied by redness and considerable swelling sometimes. This condition may appear as a simple furuncle or a mild cellulitis or purely as an aspergillus infection with pain, deafness, itching, and a thin watery discharge. On general principles, if an incision is made, it makes matters worse. Dry heat and dry fomentations give prompt relief, along with an application of Glycerine Ichthyol 10%. One or two injections of Collosol Manganese abort the trouble. For the aspergillus infection, Salicylic acid or even Boric acid dissolved in rectified Spirit, is the ideal treatment, after complete removal of the blotting-paper-like mass. It is liable to recur in the presence of moisture. So, the drops have to be used for a pretty long time.

3. *Rupture of Tympanic Membrane* is usually due to an external blow on the ear, or a sudden compression of air by a blast, or a misdirected syringe, or an attempt at removal of a foreign body, or even a fracture of petrous portion of temporal bone. It is attended by pain and bleeding. Treatment consists in non-interference, except some boric dusting. Absolutely no syringe should be permitted. If it goes septic, it is treated as otitis media.

4. *Acute Otitis Media*:—A restless child crying and screaming, especially at night, with slight constitutional disturbance, is brought to the physician at first. It may give a further clue by putting the hand frequently over the affected ear. Even in adults, after an attack of influenza, or a vigorous blowing of the nose, driving the nasopharyngeal infection into the middle ear, through the eustachian tube, or in submarine workers, or with a predisposing debilitated constitution, the condition is an extremely painful affair. The pain is of a sharp lancinating

character. On inspection, the membrane will look red and congested, bulging outward, showing the tension of the fluid within the middle ear cavity. This gives rise to some deafness too, and rarely tinnitus and vertigo, unless the inflammatory irritation extends to the inner ear.

The severe pain due to the irritation of the nerve endings in the tympanic membrane is to be promptly relieved even by the general practitioner, by application of local anæsthetics such as a 10% Cocaine or 5% Carbolic in Glycerine. Drainage should be established through the eustachian tube by shrinking the mucous membrane by steam inhalations with menthol. Calomel at bed time, and Sulphanilamide, remembering that pneumococcal infection is commoner in children and streptococcal in adults, may promote resolution in early cases. Failing the above line of treatment, an immediate paracentesis should be arranged for.

5. *Acute Mastoiditis*:—Even after perforation or a successful paracentesis, if the pain should continue or should it relapse after some time with a sudden diminution or a sudden profuse discharge, the pain at present being of a dull aching nature, one should suspect acute mastoiditis. This is further corroborated by a slight displacement of pinna of the ear, tenderness behind the pinna over the tip or posterior border of the mastoid. On inspection of the external auditory canal, one would find a slight sagging of postero-superior part of the canal. There will be the general constitutional symptoms accompanying, with temperature, foul tongue, and especially a rapid pulse, whose sudden fall may be of grave prognostic value pointing out further intracranial complications.

With the advent of Sulphanilamide, one does not find any reason why a general practitioner in mofussil should refuse to render at least a first aid in early mastoiditis, with the aid of that valuable drug, augmented by Antiphlogistin over the mastoid and the usual constitutional and local treatment as indicated under acute otitis media. But, in spite of this treatment, if the pulse rate should steadily rise up, or drop suddenly, the specialist should open the mastoid immediately.

Further complications of the vestibule or intracranial complications attended with vertigo, nystagmus, vomiting, rigors or comatose condition, etc., are beyond the scope of a general practitioner. Meningitis and otitic septicaemia may be met with in general practice; but apart from general lines, lumbar puncture for the former and anti-streptococcal serum and blood transfusion for the latter, nothing further can be done by him.

II. *Nose*.—1. *Foreign Bodies* in children are usually found in the inferior meatus. Unsuccessful attempts at removal will push them into the pharynx with a possibility of these being inhaled. Glass pieces or the common slate pencil, gives rise to bleeding; and vegetable products swell easily, causing unilateral nasal obstruction and a discharge later on. They are to be removed under direct vision with a small scoop. In adults, besides the chronic rhinolith, even rarer types like dead fish are found in the nasopharynx, probably the result of a dive bath with mouth open.

2. *Injury* to the nose by a fall or blow may dislocate or fracture the nasal bones, which can be easily set right by any small flat instrument. Severer forms require a plastic surgery.

Epistaxis, even apart from injury, is of pretty common occurrence

in general practice. The causes are more often of general constitutional disturbance than local. In an apparently healthy adult, sudden epistaxis may be a safety valve action of high blood pressure, chronic Bright's disease or other cardio vascular or pulmonary disturbance; even altered blood states such as purpura, haemophilia, scurvy, leukaemia, anaemia, or even typhoid and whooping cough give rise to epistaxis. Locally, adenoids in children, trauma, foreign body, polypi malignant growth, vicarious menstruation in women and even an acute rhinitis, give rise to epistaxis. Treatment depends on the cause; otherwise on general lines, by the administration of Calcium or the dull red cautery at the Little's area. Usually, a little pressure with a swab of H_2O_2 gives prompt relief; but in the intractable cases, a post nasal packing is necessary.

A *Large Haematoma* may appear suddenly giving rise to an acute nasal obstruction necessitating aspirations or it may go septic requiring drainage. Even a small boil in the vestibule or the floor of the nose cannot be lightly overlooked, as it may easily give rise to acute cerebral complications due to the direct communication of the angular vein at the side of the nose. Early incision is contraindicated. Frequent application of heat and a 10% solution of Glycerine ichthyol or soaks of Magnesium Sulphate invariably give relief.

Acute Nasal Obstruction coupled with an acute rhinorrhea, and a sudden fit of sneezing, are found frequently as allergic manifestations and vasomotor derangement, causing much discomfort to the patient. Adrenalin, or preferably Ephedrine locally, with Calcium and Magnesium Sulphate constitutionally, give relief. Later on, sensitive spots in the nose may be required to be touched with an electric cautery.

3. *Acute Rhinitis* is erroneously regarded as a negligible disease. Besides the discomfort it gives, it is most intractable and produces far-reaching complications which slowly undermine the health of the individual. Acute rhinitis is the potent source of acute otitis in children and sinusitis in adults. It easily spreads to the bronchi in the debilitated. Deviation of sputum, polypi, chronic nasal obstructions, chronic headache, catarrhal deafness, chronic bronchial changes, are all results of repeated attacks of neglected rhinitis. A simple alkaline nasal douche, followed by a light oily spray of Menthol, constitutes the local treatment. Constitutionally, besides the temporary Hexamine, Sodi. Salicylate, Belladonna, Quinine and a host of other drugs of doubtful value, Calcium and Cod-liver oil, for a long time, increase the power of resistance. Vaccines, autogenous or the stock ones, are rarely successful. The causes of nasal irritation, if any, should be removed. Nasal diphtheria is not so commonly met with as the pharyngeal variety, nor of much prognostic importance. All the same it is always safer to administer Serum immediately, at least to prevent its spread into more dangerous areas. It is usually attended with a blood-tinged discharge, but without any marked constitutional symptoms. Klebs Löffler bacilli could be (and should be) easily identified for preventing further spread.

4. *Acute Sinusitis* of the maxillary antrum is a very painful condition; but in the case of ethmoidal and sphenoidal sinus, the disease is fraught with grave dangers in adults, as infection of mastoid antrum and cells in children, due to close anatomical relations of many important and delicate structures. Besides the acute pain and headache, there may

be constitutional symptoms for which the general practitioner may be approached. The presence of discharge in the middle meatus is diagnostic of sinusitis.

With the advent of Sulphanilamide preparations combined with a nasal cleaning, steam inhalations, and oily sprays, there is no reason why a first aid cannot be rendered even in general practice.

III. **Throat.**—1. *Major Injuries and Foreign Bodies* in the food and air passages are beyond the scope of a general practitioner. All the same he should remember certain elementary principles, as he is the first one to be consulted. Small abrasions get easily healed with any mild antiseptic gargle, and the application of Glycerine boracis or Glycerine Carbolic 5%. Small and superficial foreign bodies such as a pin or fishbone or a tooth-bristle, in and about the tonsil tissue, or at the base of the tongue, can be, and should be, easily removed by direct vision. It should be remembered, in this connection, that even after the removal or dislodgment of such a foreign body, the abrasion caused by it, gives rise to an irritating sensation for some time more. This may mislead the medical attendant for unnecessary and harmful meddling. It should also be remembered that a foreign body in the air passages is more urgent an affair than one in the oesophagus. A coin in the oesophagus gives rise to a flat antero-posterior view in a skiagram which is very very essential for locating the same, but a sideways view in the air passage. A foreign body in the oesophagus may give rise to a simple dysphagia, but the same in the respiratory passages, gives rise to dyspnoea, usually a stridor, cough and a metallic wheezing, rendering the diagnosis pretty easy. In both the cases, as usual, vegetable matters give rise to more acute obstruction as they easily get swollen by moisture. It may be the experience of many to have heard stories of children having swallowed a pin, and castor oil administered immediately by the granny. The vigorous peristalsis thus caused may get the pin stuck up in the intestines, with serious consequences. Bread and plantain, the good old advice, convert the foecal matter into a bolus which should be carefully watched for the suspected pin.

2. *Oedema Glottis* is an acute condition due to infiltration into the loose cellular tissue, either due to local septic inflammatory invasion, or due to general causes, such as angio-neurotic condition, as a part of anasarca and especially in Bright's disease. Sudden dyspnea, inspiratory stridor and even dysphagia, are the characteristic features. If emetics, Cocaine spray, or scarification do not relieve the patient immediately, tracheotomy cannot be delayed.

3. *Laryngismus* stridulous or nervous croup is a paroxysmal inspiratory dyspnea. It is a spasmodic affection of the nervous system of rickety children, usually associated with convulsions, and may end fatally. Commonly, it comes at night, with a crowing inspiration. This has to be distinguished from laryngitis stridulosa (catarrhal laryngitis or false croup) by the fact, that the child is free from cough or hoarseness in the intervals in the case of nervous croup; nor any evidence of inflammatory membrane is seen as in diphtheria. During an attack, alternate hot and cold douches to the face, inhalation of Chloroform, and artificial respirations are to be tried. Failing these, tracheotomy has to be considered. In the intervals, reflex causes of irritation in the gums, teeth, alimentary canal, worms, rickets, etc., have to be attended to. Bromides and Chloral in small doses allay the nervous irritability.

Hysterical Dysphagia or "bolus" can be easily detected by the fact that bougies can be easily passed under Chloroform. Hysterical dyspnea is rare, though *aphonia*, i.e., bilateral adductor paralysis is very common. Of the various varieties of *laryngeal paralysis*, one has to remember that abductor paralysis is commonly of organic origin due to mediastinal tumours, and in the case of left recurrent laryngeal nerve, it is almost diagnostic of aneurysm of aorta giving rise to the typical respiratory stridor and the brassy cough.

4. The acute variety of *Nasopharyngeal Abscess*, involving the retro-pharyngeal lymph gland, is commonly met with in children. It produces acute symptoms with an inspiratory stridor, dysphagia, aphonia and rigidity of the head. This kind of abscess is opened through the mouth, the child being held with head down, and no anaesthesia being administered.

Quinsy or peritonsillar abscess is an extremely painful condition with acute dysphagia, trismus and salivation. There may be some constitutional disturbances too. If conservative treatment, viz., hot fomentations, hot gargles and streptocide, does not give relief, the abscess has to be opened with a guarded knife or special quinsy instruments.

5. *Acute Tonsillitis*, pharyngitis or even laryngitis, are all associated with certain amount of dysphagia and constitutional symptoms. Sub-maxillary glands are inflamed in the case of the former. Hot fomentations, hot gargles with Sodii Bicarb or Pot.-Chloras for the pharynx, and steam inhalations with Menthol, along with oily sprays, especially for the larynx, is the routine line of treatment, besides the specific treatment for the streptococcal variety. It should be remembered, that the rare 'membranous type,' commonly known as 'hospital sore throat,' is of grave prognosis.

Diphtheria, besides having the above characteristics of sore throat, is easily recognised by the presence of an ashy grey patch of exudation (membrane) and when found over the soft palate, it is diagnostic. On account of its fatal consequences, administration of large quantities of Serum should not be delayed even for bacteriological confirmation. Laryngeal diphtheria is graver still. It is not easily detected but the croupy cough, respiratory stridor, dyspnea, and the constitutional symptoms in a child are sufficient indications for a general practitioner for immediate administration of Serum which is quite harmless, before it is confirmed by a specialist. Occasionally, however, in spite of Serum treatment, intubation or tracheotomy may be necessary.

Unconsciousness

BY

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As an emergency, "unconsciousness" occupies the foremost place along with "convulsions", not only by virtue of its ability to strike awe and consternation in the minds of the relatives of the patient, not only by reason of its sudden appearance or of its medico-legal importance but also by its perplexing and varied etiology and the vast number of investigations to be done before arriving at a correct diagnosis. Though essentially it is a clinical state to be dealt with in hospitals, the general practitioner is the first to come across a comatose patient before he could be transferred to a public institution for further investigations and treatment. He may have to decide the cause of unconsciousness.

Consciousness is the appreciation of the stream of afferent impulses which pass to the cerebrum, and depends on: (1) Physical integrity of the cerebrum. (2) Blood supply of the cerebrum. (3) General circulation of blood. (4) Maintenance of oxygen carrying power of blood and (5) Balance of inhibition and excitation.

The disorders of consciousness are of three types:

1. *Sudden, transient attacks of Unconsciousness* which is partial (stupor) or complete (fainting).
2. *Sudden, prolonged complete Unconsciousness*:—(Coma). In this type all signs of vitality except pulse and breathing are absent. The patient is deprived of the power of movement and sensation.
3. *Unconsciousness attended with Convulsions* either local or generalised.

Etiology.—I. **Sudden Transient Attacks are due to.**—(1) *Syncope*: due to cerebral anæmia or vasomotor instability or deficiency of blood. (2) *Epilepsy Minor*. (3) *Senile Vertigo*: due to arteriosclerosis or arterial degeneration. (4) *Aural Vertigo*: due to middle or internal ear diseases. (5) *Meniere's Disease*: due to hæmorrhage in the internal ear.

II. **Coma.** 1. *Trauma*:—(a) a blow or hit on the pit of the stomach. (b) *Head injury*—concussion, compression of brain. The cerebral compression may be due to: (1) Fracture of skull with depression and (2) Hemorrhage into or upon the brain.

2. "*Apoplexy*" or "*Stroke*" due to: (a) Cerebral hemorrhage (b) Thrombosis. (c) Embolism and (d) Spasm of vessels.

3. *Poisons*:—(a) *Metabolic Errors* (Auto-intoxication): (1) Diabetic coma. (Acetonuria). (2) Starvation. (3) Uræmia. (4) Cholæmia due to portal cirrhosis or acute yellow atrophy of liver.

(b) *Chemical Poisons*:—(1) Opium Poisoning. (2) Acute alcohol intoxication. (3) Cobra Venom. (4) Overdosage of Insulin. (5) Narcotic poisons like Chloral, Chloroform, Cannabis Indica, Datura, Belladonna and HCN. (6) Poisoning by Carbolic Acid, Thymol. (7) Asphyxiating gases like CO.

4. *Parasites*: Cerebral Malaria (Imp).

5. (a) Severe and profuse hemorrhage. (b) Profound anæmia.

6. Shock, collapse and Anaphylaxis.
7. (a) Heat or sun stroke. (b) Exposure to extreme cold.
8. *Typhoid State*:—Coma supervening in certain fevers.
9. *Functional Disorders*:—(a) Hysteria. (b) Fright. (c) Malingering.
10. Rarely Acute Dilatation of the stomach.

- III. **Coma attended with Convulsions.**—1. *Post-Epileptic Coma*.
2. *Intra-Cranial Inflammation*. (a) Tuberculous meningitis (commonest in children). (b) Post-basal meningitis (common in children). (c) Cerebro-spinal meningitis. (d) Sinus thrombosis (in children). (e) Encephalitis lethargica.
3. *Cerebral Tumours and Abscess*.
4. *General Paralysis of the Insane*.
5. *Rarely Disseminated Sclerosis*.
6. *Uræmia and cholaemia*.

Investigations.—I. **The Clinical Investigation** is of paramount importance, as coma is an emergency of gravest significance.

1. A complete and accurate *History* is of immense value but at times it is not possible.
2. *Note the Age of the patient* (child, middle aged or old).
3. *Note the Depth or Degree of Coma* and whether the patient can be roused. (a) Can be roused in (i) Concussion of brain. (ii) Alcoholism. (iii) Opium poisoning. (b) Cannot be roused—cerebral compression. (c) Transient and slight degree of coma—Syncope.
4. *Look for Marks of Injury to the Head* (depressed fracture of skull) and other parts of the body. The injury may be due to the patient falling in a drunken state or in a state of epilepsy or syncope or apoplexy. So it is necessary to find out whether the injury was the cause of coma or a result of it. Moreover coma may be brought about by a blow on the head or pit of stomach without any evidence of external injury.
5. *Look for presence of Convulsions*:—(b) for conjugate deviation of head or eyes (in all intracranial lesions). (c) For the escape of blood or C. S. F. from nose and ears.
6. *Note the Odour of the Breath*:—(a) Sweet ethereal odour of acetone—Diabetic. (b) Smell of urea—uræmia. (c) Heavy odour of opium—opium poisoning. (d) Smell of Alcohol—Drunkenness. But this may be fallacious, as alcohol might have been given as a restorative for shock or syncope, by the neighbours.
7. *Look at the Tongue*:—Heavily coated and flabby—Uræmia.
8. *Examine the State of each Pupil* and see whether the conjunctival reflexes are present. (a) Sluggish Reaction—cerebral concussion. (b) Unequal and insensitive—1. cerebral compression. 2. cerebral malaria. (c) Contracted and insensitive:—(i) Opium poisoning (Pin Point) (ii) Carbolic Acid Poisoning. (iii) Pontine Hemorrhage. (d) Dilated Pupils—(i) Intracranial lesions. (ii) Cobra bite. (iii) Insulin overdosage. (iv) Uræmia. (v) Datura and HCN Poisoning. (vi) Epilepsy. (e) Size of pupils changing:—In alcoholism they are dilated when patient is roused and contracted in the passive state.
9. *Count and Observe the Respiration*: (a) Quiet and shallow—cerebral concussion. (b) Slow, deep and stertorous:—(i) Head injury, (ii) Apoplexy (iii) Opium poisoning. (c) Cheyne-Stokes—(i) Uræmia (Sighing)

(ii) Apoplexy. (iii) Sun Stroke. (iv) Tub. Meningitis, etc. (d) "Air-hunger"—Diabetic coma (sighing).

10. *Look for Distension of upper part of Abdomen*:—It occurs in Acute Dilatation of Stomach.

11. *Note the Skin Condition* (Moist, dry, hot, or cold) and take the temperature. (a) High temp.—(i) Sun Stroke. (ii) Pontine Hemorrhage. (iii) Cerebral Malaria. (iv) Meningitis. (b) Low temp.—(i) Uraemia. (ii) Opium poisoning. (iii) Cerebral concussion. (iv) Early stage of Apoplexy (v) Drunkenness. (c) Dry Skin—Diabetic coma. (d) Moist Skin—(i) Opium poisoning. (ii) Cobra Venom. (iii) Insulin overdosage. (iv) Concussion of brain.

12. *Look for Paralysis of limbs or face*. See whether there is hemiplegia.

13. *Count the Pulse, examine the arteries and then the Heart*: (a) Slow Pulse—(i) uraemia. (ii) cerebral tumours. (iii) cerebral compression. (b) Rapid Pulse—(i) Drunkenness (first strong and later weak). (ii) Syncope (feeble pulse). (iii) Cerebral concussion (feeble). (c) Rapid at first and slow later—Opium poisoning. (d) Hypertrophied heart—(i) Uraemia. (ii) cerebral Hemorrhage. (e) Valvular disease of heart—Cerebral Embolism.

14. *Take the Blood Pressure*:—High B. P.—i. Uraemia. ii. Cerebral Compression. iii. Cerebral Hemorrhage. Low B. P.—collapse.

15. *Make a Fundus Examination* and look for Albuminuric, Diabetic Retinitis, and Optic Neuritis.

II. Laboratory Investigations.—1. *Urine*:—Procure urine by a catheter and examine. (a) Peculiar smoky or olive green tint and Smell of Violet—carbolic poisoning. (b) Trace of Albumin—Apoplexy. (c) Albumin and casts—i. Uraemia. ii. Cerebral Hemorrhage. (d) Sugar and Acetone—Diabetic Coma. (e) Acetone only—Starvation. (f) Presence of alcohol—Drunkenness. (g) Presence of Morphia—Opium poisoning.

2. *Look at the Blood Smear*:—(a) Presence of M. T. parasites—cerebral malaria. (b) Leucocytosis—meningitis etc.

3. *Estimate Blood Urea*:—High blood urea—Uraemia.

4. *Do a Lumbar Puncture* and examine the C. S. F. This is useful in meningitis and also uraemia.

III. In cases of suspected poisoning preserve the vomit or stomach wash for chemical analysis.

Symptoms and Signs.—1. *Syncope*:—Suspended animation preceded by giddiness, feeling of faintness and nausea. Pallor of face. Pulse and respiration feeble. The attack is of short duration and recovery is gradual.

2. *Epilepsy Minor* is preceded by aura, unattended by convulsions and not followed by the stage of stupor. Recovery is sudden and complete. Pallor of face and dilated pupils are present.

3. *Meniere's Disease*:—Sudden loss of consciousness followed by recurrent attacks of paroxysmal vertigo associated with nerve deafness.

4. *Cerebral Concussion*: Coma—Patient can be roused. Skin—pallor, cold and clammy. Pulse—weak and irregular. Resp.—slow and shallow. Pupils—equal and sluggish. No paralysis of limbs.

5. *Cerebral Compression*: Coma—complete. Patient cannot be roused. Pulse—slow. Resp.—stertorous due to falling back of tongue. Pupils—unequal and insensitive to light. Conjunctival reflex—Lost. There is paralysis.

6. *Apoplexy*: Coma—patient cannot be roused. Resp.—stertorous; at times Cheyne-Stokes. Pupils—unequal (dilated on the side of lesion). Conj. reflex—lost. B. P.—High. There is paralysis.

7. *Diabetic Coma*: Breath—sweet ethereal odour of acetone. Skin—dry. Pulse—slow. Resp.—slow and sighing (Air-hunger). B. P.—low. Urine—sugar and acetone present.

8. *Uraemia*: Coma—rarely deep; the stupor alternates with convulsions or muttering delirium. Breath—smell of urea. Tongue—heavily coated and flabby. Pupils—normal or dilated. Conj. Reflex—present mostly. Pulse—slow. Resp.—expiratory dyspnoea, sighing. B. P.—high. Blood urea—increased.

9. *Cholaemia*:—Jaundice is present.

10. *Opium Poisoning*: Coma—patient can be roused; the stupor is progressive. Breath—heavy odour of opium present. Pupils—equal and extremely contracted. Conj. Reflex—present usually. Pulse—slow. Resp.—slow and stertorous. Skin—moist, cold and clammy.

11. *Alcoholism*: Coma—patient can be roused. Breath—smell of alcohol present. Pupils—vary in size. Conj. Reflex—present. Pulse—rapid; strong at first and weak later. Resp.—normal or snoring. No paralysis but there is incoordination.

12. *Cobra Venom*: Pupils—dilated. Skin—cold and clammy.

13. *Insulin Coma*: Pulse—steady and rapid. Pupils—dilated.

14. *Hysterical Coma*: Coma—noisy stupor. Skin—flushed face. Pupils—normal. Quivering condition of eyelids.

Treatment The treatment of unconsciousness resolves itself into the treatment of the causative condition.

1. *Syncope*:—Make the patient lie down with the head low. Throw cold water on the face; apply Ammonia or Smelling Salts to the nostrils.

2. *Vertigo*:—As palliative, Bromides are used.

3. The treatment of *Head Injury* is essentially surgical. (Subtemporal decompression). Lumbar puncture affords temporary relief in cerebral compression.

4. *Apoplexy*: Perfect rest is important. Raise the head and shoulders and turn the patient gently to one side. No alcohol. No food by mouth. Catheterise bladder if necessary. In cerebral thrombosis give stimulants. In cerebral Hemorrhage take active steps to reduce B.P. by a brisk purge, venesection and lumbar puncture. Keep ice bag on the head.

5. *Diabetic Coma*:—Give Insulin promptly.

6. *Uraemia*:—Brisk purgatives. Promote sweating by hot packs. Venesection (10–20 oz). Large amount of Saline I. V. Repeated lumbar puncture and removal of 10 c.c. C. S. F.

7. *Opium Poisoning*:—Wash the stomach frequently. Keep the patient awake by walking him about. Give him coffee. Atropine and Strychnine injections are antidotes.

8. In cases of *Poisoning* give a prompt emetic (Hypodermic Apomorphine is the best) and wash the stomach.

9. In *Acute Dilatation of the Stomach*, pass a stomach tube and remove the stomach contents at once.

10. In all cases of *Coma*, Quinine 7½ grains can be given I. M. without fear, even before beginning the clinical examination in the tropics.

Coma

BY

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COMA is a condition in which consciousness is lost. It comes on more or less suddenly, in its complete form; all signs of vitality, excepting those of organic life, are suppressed. In other words, it is a condition of unnatural, heavy, deep and prolonged sleep, often accompanied by certain changes in respiration, which may be stertorous or irregular. There are a large number of conditions which may give rise to coma. It is convenient to divide these into two classes:—

(1) One in which coma is the primary and early symptom and may be the most prominent feature of the case.

(2) Cases in which it comes on secondarily and not a prominent symptom early in the disease, but only a late terminal stage, when the nature of the disease has already been established by other symptoms.

GROUP A—I. The result of head injuries: (1) Fracture of the base of the skull. (2) Concussion from depressed fractures. (3) Compression by meningeal hæmorrhage.

II. The vascular lesion of the brain: (1) Hæmorrhage. (2) Thrombosis. (3) Embolism.

III. The effects of drugs, poisoning: (1) Alcohol. (2) Carbon monoxide. (3) Petrol fumes, fire dumps. (4) Sewer gases, CO₂, in disused wells.

IV. Effects of extreme temperature: Heat stroke.

GROUP B.—II. Acute inflammatory lesions of the brain or the cerebral meninges: (1) Cerebrospinal meningitis. (2) Meningitis suppurative, tuberculous. (3) Acute encephalitis. (4) Encephalitis lethargica.

II. Diseases in which metabolism is at fault: (1) Diabetese mellitus. (2) Uræmia. (3) Some rare diseases, cholaemia, Addison's disease, Raynaud's disease.

III. Certain less acute lesions of the central nervous system: (1) Cerebral tumour. (2) Cerebral abscess. (3) Disseminated sclerosis. (4) General paralysis of the insane. (5) Post epileptic state.

The clinical investigation of coma is of great importance, as it is an emergency of greatest significance. When called to a comatose patient, seen perhaps for the first time, the question as to the cause is one of the most difficult we have to solve. In some of the conditions there will be some history obtainable of the circumstances antecedent to the onset of coma from which its cause can be presumed with a fair degree of accuracy. In certain cases there may be no symptoms or any history of disease coming and they may pass unrecognised until coma supervenes. In such cases the patient's friends or relations may not be aware of the existence of any disease such as diabetes mellitus, uræmia, cerebral abscess or tumour. There may be some evidence to indicate the cause, which may be obtained from the circumstances which surrounded the discovery of the

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patient. There may be signs of vomit or blood in it, any evidence of poisoning, or, if found out of door, any signs of struggle or external injury.

In any case of coma whether it is primary or secondary, a careful, quick and hurried physical examination must be carried out on the following lines; general appearance, eyes, conjunctival reflexes, pupils, their reaction to light; examine the scalp, ear, nose, mouth and tongue. Examine and notice the breathing, pulse, limbs, blood pressure, urine, etc.

1. Examine the head and other parts carefully to see if there is any sign of injury; if there be an evidence of an injury, then the question is whether the injury has caused the coma or it has occurred after its onset. Examine the ears and nose for any discharge or blood.

2. Notice the change in the general appearance of the patient: pink appearance with foam on the mouth suggests carbon monoxide poisoning. Extreme pallor suggests hæmorrhage, internal or external. Congested face with cheeks puffed out and stertorous breathing suggests cerebral hæmorrhage.

3. Note the odour of the breath, if this be alcoholic, it does not follow that the condition is due to drink, for stimulants are frequently given by the friends to restore the patients. Note also whether the patient's breath has the sweet odour of diabetes.

4. Observe the state of the pupils, particularly with regard to equality and the conjunctival reflexes. Both the pupils are much contracted in opium poisoning and hæmorrhage in the pons, unequal often in unilateral cerebral conditions. Hæmorrhage in other and common situations within the cranium usually causes inequality or dilatation of both the pupils. Notice whether they react to light or not. Conjugate deviation of the eyes would suggest a cerebral or pontine lesion; examination of the fundus oculi may reveal papilloedema which may be due to intracranial pressure, arteriosclerosis, retinitis or uræmia.

5. The limbs should next be examined to ascertain if there is any paralysis present or not, whether the face is drawn to one side or not. Usually in apoplexy the paralysed leg and arm of one side of the body are rigid or flaccid as compared with the other side, and by raising the limbs and allowing them to fall it will easily be found whether one side is more rigid or more flaccid than the other. In nearly all the cases due to gross cerebral lesion (tumour, abscess, meningitis), one side is weaker than the other.

6. Examine the pulse; count it. Examine the arteries and auscultate the heart; high blood pressure suggests uræmia, apoplexy, lead poisoning. Great slowness of the pulse suggests cerebral tumour and opium poisoning. A presystolic murmur suggests cerebral embolism.

7. Count and examine the character and depth of the respiration: a stertorous or snoring quality is simply an indication of the profundity of the coma, it may be due to the paralysis of the tongue and palate, which is common in cerebral hæmorrhage. Hyperpnœa may indicate diabetic coma or uræmia. Rapid shallow breathing may be due to hypoglycæmia. A sighing shallow respiration accompanied by marked pallor suggests hæmorrhage. The respiration is very slow in opium poisoning. In grave cases of apoplexy and uræmia they assume Cheyne-Stokes character. Rapid respiration with raised temperature may indicate pneumonia.

8. Take the temperature. It is very often low in uræmia and opium poisoning, sometimes a little lowered in apoplexy and still more in drink. There is sometimes a tendency for it to run up after an attack of apoplexy and this is of very serious importance.

9. Procure the urine and examine it (by catheter if possible). The absence of albumin is against renal disease, a small amount of albumin does not help one much to distinguish between apoplexy and uræmia. The presence of sugar indicates diabetes.

10. Observe the age. Coma in childhood is almost confined to post-epileptic coma, meningitis, cerebral tumour, sinus thrombosis. About the middle age cerebral hæmorrhage is suspected. If possible in many cases examination of blood, cerebrospinal fluid will give important information. In blood sugar and urea content should be estimated to exclude diabetes or uræmia. Presence or absence of blood noted, the presence of cells and their character and number must be determined. The Wasserman reaction may be required for the diagnosis of general paralysis of the insane.

Group A: The Result of Head Injuries.—As a result of the head injuries, laceration of the blood vessels may take place within the bone at the junction of osseous and dural segments, within the dura, those traversing the arachnoid space and those within the brain and ventricle. The head injuries may result in simple injury of the scalp or depressed fracture of the skull or in major destruction of the important structure of the brain, which may cause coma immediately or at later stage.

In these circumstances dura is nipped between the opposing lips of the fracture. Consequently the separation occurs at the junction of the bony and dural segments of the vessels. The resultant hæmatoma is located in an extra-dural position. Such injuries may produce concussion or compression of the brain and coma. After any severe head injury, if uncomplicated, there is only a temporary loss of consciousness. If there is a prolonged period of unconsciousness, then it is certain that either contusion of the brain or hæmorrhage or both have occurred; a condition of coma in such cases may last for many days or weeks and yet the patient make a good recovery. The head injuries may be accompanied by conjunctival hæmorrhage, paralysis of the cranial nerves and inequality of pupils, bleeding from the ear and sub-conjunctival ecchymosis, which usually indicates fracture of the base of the skull.

The head injuries may produce compression of the brain and coma in various ways—hæmorrhages extra dural, sub-dural, sub-arachnoid. Effusion of inflammatory products, in which case the coma comes on after an interval of a few days. Abscess, where coma comes on after a week or two.

Extra Dural Hæmorrhage:—In an uncomplicated case of extra dural hæmorrhage, the patient may suffer from a transient loss of consciousness, which is followed by a period of recovery and then symptoms of compression make their appearance. The coma of concussive stage passes into that of compression. But generally there is this livid interval from a few hours to 24 or 48 hours. Thereafter the patient deteriorates after an interval of improvement passing through a stage of progressive paralysis associated with increasing drowsiness to coma. The clinical picture of middle meningeal artery is typical—the patient runs a downhill course passing through stages of spacity and flaccidity of the limbs. The pulse is

full and bounding at first, but later on becomes slowed and finally feeble. The blood pressure tends to rise. Respiration becomes Cheyne-Stokes in type and finally fails unless the hæmorrhage is arrested. Paralysis gives the clue to the position and side of the hæmorrhage, but short of this an extensor planter reflex on one side would be informative. Comparable changes are demonstrable in the pupils in which contraction primarily takes place on the side of the lesion, later to be followed by dilatation as paralysis supervenes. The opposite pupil follows tardily in its wake, thus exhibiting variation and differences in the sizes of the two pupils. Pending surgical interference intra-cranial pressure may be relieved by lumbar puncture. Intravenous injection of hypertonic Saline 40 to 50 c.c. of 15% Saline may be of some use.

Sub-Dural Hæmorrhage:—Laceration of communicating vessels running between dural sinuses and the cortex is a more common source of bleeding, thus resulting in sub-dural hæmatoma. It may be acute or chronic. It may not be limited to one side; in fact, the possibility of bilateral lesions is by no means unusual. In the acute form which is likely to be associated with contusion or laceration of the brain the patient will be comatose and blood will be found in cerebrospinal fluid. In the chronic form the onset of symptoms may be delayed for three or four months or more and then give rise to manifestation of general increase in pressure, rather than to focal signs. The patients change mentally, becoming dull, drowsy, inattentive, and frequently incontinent; they become quite comatose, followed by regained consciousness, only to relapse into coma. The history of injury, and then symptoms of compression give the clue to the diagnosis. The treatment is surgical and the clot should be removed.

The patient is comatose in most of the severe head injuries, and the question which will have to be decided would be whether an operation is to be performed or not. The only immediate indication would be the increasing cerebral compression from hæmorrhage. It would require the most careful observations to decide this. A clear cerebrospinal fluid, with raised and rising pressure, increasing pressure, increasing depth of coma with slowing of the pulse would indicate extra dural hæmorrhage and decide the operation. In cases which are seldom so uncomplicated, the best rule to follow is not to operate till there is definite evidence of increasing compression, rising temperature, pulse rate falling; temperature, respiration, and the blood pressure rising with compression must all be watched carefully. If the operation is decided against then the patient should be treated on the general lines.

Sub-Arachnoid Hæmorrhage:—It is most common in the leaking aneurysm. The patient is seized with a violent headache and becomes unconscious. The diagnosis is made by lumbar puncture and finding uniformly blood-stained fluid. If lumbar puncture is delayed the fluid becomes straw-coloured. In the urine often in such cases albumin and sugar are found and thus erroneously, as the result of this, diabetes or uræmia may be diagnosed, but as a rule albumin and sugar quickly disappear from the urine. Absence of diacetic acid should prevent such mistakes. Repeated lumbar puncture gives a lot of relief and it should be repeated as long as signs of compression remain.

The Vascular Lesion of the Brain.—This includes hæmorrhage, embolism, or thrombosis. Sometimes the term stroke or apoplexy is used to indicate a sudden loss of consciousness due to such lesions. It was a common belief that hæmorrhage from the rupture of a cerebral artery

could be distinguished from simple embolism or thrombosis by the occurrence of loss of consciousness in the former and not in the latter. But it has been shown that this distinction is only a matter of degree. Profound coma may sometimes arise from the embolic blocking of a moderately large artery, or from the thrombosis. While, on the other hand, slight hæmorrhage, especially if supervening gradually may be unattended by loss of consciousness. The extent and suddenness of the vascular lesion rather than its nature determine the occurrence of coma. Symptoms of cerebral hæmorrhage: Headaches or giddiness may be the first symptoms which last for a few days accompanied by high blood pressure or the attack may come on slowly, followed later by unconsciousness. The paralysis sometimes comes on with faintness and vertigo only. Sometimes it comes on while the patient is asleep. There may be slight mental disturbance and some difficulty in speaking. In a typical case, where the lesion involves the motor tract, it causes motor paralysis accompanied by flaccidity and rigidity, the face is congested, rapid stertorous breathing, full bounding pulse, raised blood pressure, flaccid limbs with absent tendon reflexes. The pupils are often unequal, the conjunctival reflex is lost. The temperature in large hæmorrhages is usually at first one or two degrees below normal. In the course of 24 to 48 hours, it shows a rise of one or two degrees where it remains for several days. In such a case cerebro-spinal fluid will contain blood which has burst through the cerebral tissues either into the ventricle or externally. Treatment in such cases is of no avail. It should be remembered that cerebral hæmorrhage frequently supervenes in the course of chronic Bright's disease, therefore uræmia and apoplexy may be concurrent. The diagnostic features of the greatest value are the state of the pupils, particularly their inequality, the loss of the conjunctival reflex and the augmented blood pressure.

Thrombosis.—In thrombosis the picture is less dynamic and the period of coma, if it be present, less prolonged. A high blood pressure by no means excludes the thrombosis of a cerebral vessel, but, except in syphilitic cases, the age incidence is later than in cerebral hæmorrhage. The question of syphilis is highly important. It may cause a thrombosis from endarteritis or a hemiplegic attack with coma. It may be the initial symptom of general paralysis. In cases of syphilitic thrombosis, anti-syphilitic treatment begun immediately and pushed energetically may be followed by astonishing results.

Embolism.—Coma from embolism can usually be deduced from the accompanying cardiac lesion. An apoplectic under forty years is almost invariably due to embolism or thrombosis. The age of the patient, the presence of cardiac disease, especially mitral obstruction, aids the diagnosis, but it is important to remember that an embolus may have its origin in an atheromatous plaques.

Diagnosis

	Cerebral Haemorrhage.	Embolism.	Thrombosis.
Age.	Middle and Advanced.	Any age, but frequently early.	Any age.
Cause.	High blood pressure, generally after 50.	Cardio-vascular lesion especially mitral stenosis. Thrombosis in the peripheral vessels.	Syphilitic endarteritis cerebral atheroma. Anemia. Cardiac enfeeblement.
Onset.	Coma, usually sudden; sometimes with concussion.	Sudden onset of paralysis, no loss of consciousness or convulsion.	Often convulsion, vertigo, coma rare.

Treatment.—From the clinical point of view it is often impossible to distinguish between the hæmorrhagic and thrombotic accidents, nor is this discrimination a matter of great importance so far as treatment is concerned. Mainly therapeutic measures must be directed towards the preservation of circulation in those parts of the brain which have not undergone immediate and permanent destruction. Absolute rest in bed with skilled nursing. Whether the patient is conscious or unconscious every endeavour must be made by his attendant to conserve the strength of patient's heart by avoiding all physical and mental efforts. To avoid bedsores day and night nursing is very essential. To avoid tongue falling back, raise the patient's head and shoulder slightly and turn it to one side. If deep cyanosis, remove 10 to 20 ounces of blood which is often a useful stimulant to the circulation. If pulse is slow and respiration rhythmic, free drainage of cerebrospinal fluid from the lumbar region will give great relief. Bowel should be emptied by daily enema; avoid purgation. A careful watch must be kept on the bladder; in the event of retention, urine should be drawn by a catheter, with scrupulous attention to cleanliness and to keeping the patient dry and healthy. Physical and mental restlessness is best controlled by $\frac{1}{4}$ grain of Morphia with Hyoscine Hydrobromide 1/100 grain hypodermically, repeated hourly if required. If the blood pressure is low and is known to have fallen 1/60 grain Strychnine, Coramine 1 c.c. or Camphor in oil subcutaneously may be given. It is a wise thing to give these stimulants in cerebral apoplexy so as to maintain the cerebral circulation and to improve the heart's action.

Diet.—If the patient is conscious, but feeble with low arterial tension, he may be given liquid food or stimulants; if comatose with bounding pulse there is no harm in starving such patients for 24 to 48 hours before light nourishment is commenced. In the presence of difficulty of swallowing, the food must be administered by a nasal tube.

The Effects of Drugs and Poisoning.—1. *Alcoholism*:—The coma which supervenes after heavy drinking closely resembles apoplexy and cerebral compression from head injuries. The coma is rarely so deep and profound as in cerebral apoplexy; the patient can generally be roused, the face is flushed, the pupils are dilated. The absence of inequality, convulsions, and hemiplegia are diagnostic features. The reflexes may be absent or diminished, conjunctivæ are often injected, the pulse usually rapid bounding. Collapse with syncope may occur. Treatment consists in keeping the patient warm. Wash out the stomach, leave half a pint of hot coffee in the stomach. If there is collapse give 1/60 grain Strychnine, or Coramine 1 c.c. subcutaneously.

2. *Poisoning*:—The commonest cause of coma under this heading is probably the result of an overdose of the barbiturate group of drugs—generally the opium group. In opium poisoning patient becomes increasingly drowsy, gradually lapsing into coma. The pupils are equal and extremely contracted, the pulse and respiration are slow. There is no flaccidity or rigidity of the limbs. Treatment lies in frequent washing of the stomach and stimulants, such as coffee, Strychnine.

3. *Carbon Monoxide*:—Carbon monoxide is another common cause of coma. The temperature is usually sub-normal, pulse rapid, some froth about the lips. The pupils are moderately dilated. The tendon reflexes may be increased. The treatment lies in putting the patient in a well

ventilated room, and administering Oxygen and Carbon-di-oxide 5%. When the patient has become conscious continue Oxygen for an hour or so.

Effects of Extreme Temperature.—*Heat Stroke*:—It is classified into cardiac or syncopal variety, in which patient suddenly goes off into a dead faint, with symptoms pointing to failure of respiration and circulation, and cerebro-spinal variety, in which coma gradually supervenes, onset is sudden, during or after exposure to high temperature with moisture. Symptoms are headache, malaise, which pass into a short stage of delirium, and this passes into coma. There is always high fever 106° — 107° . During the stage of delirium the patient is restless, with muscular twitching and spasms, stage of coma is marked by very hot skin, rapid pulse, flushed face, heavy or stertorous breathing and contracted pupils. Treat the patient by reducing the temperature at once by iced water, cold sponging, cold enema, and thereafter diaphoretic mixtures. In malaria intramuscular injection of Quinine grain vii should be given.

Group B: Certain Acute and Sub-Acute Inflammatory Cerebral Lesions.—Such as simple meningitis, tubercular, cerebrospinal meningitis. In such conditions coma is generally a terminal stage; history and other signs are obtainable, but sometimes in cases of fulminating type of cerebrospinal meningitis the patient rapidly becomes comatose at the onset. Lumbar puncture will reveal the presence of diplococci; fever and rash are likely to be present. Prompt treatment by anti-meningococcal Serum intrathecally and intravenously should be administered. Along with this some form of the Sulphanomide group intramuscularly and by mouth should be given. In coma of other forms of meningitis, repeated lumbar puncture may relieve the symptom.

Certain less Acute Lesions of the Central Nervous System.—

Epilepsy:—The unconsciousness is not so complete as in cerebral hæmorrhage, but the patient may remain comatose for a variable, but usually short, period of time. There is no hemiplegia. It is important to remember the possibility of a head injury as a result of a fit. There is usually a history of previous attack. Treatment consists in endeavouring to stop the convulsions; $\frac{1}{4}$ grain Morphia may be given subcutaneously; if temperature is high, it may be lowered by sponging; liquid and Glucose must be given by nasal tube.

Cerebral Abscess and Tumours:—May give rise to attack of coma. There is generally history of giddiness, headache, vomiting; moreover, in such gross lesions of the brain, there may be paralysis of the cranial nerves, optic neuritis, and hemiplegia. Coma is unlikely to be the first symptom in these conditions.

Disseminated Sclerosis:—In certain cases of this disease, attacks of coma occur, lasting a day or two, and then passing into deep stupor. In these, the face is flushed, pulse rapid, temperature elevated to 104 to 105° F. Treatment is on general lines. Arsenic therapy and liver injection have given good results.

General Paralysis of the Insane:—This condition sometimes at certain stages is almost invariably accompanied by fits of various kinds, either loss of consciousness amounting even to complete coma, or of convulsions with or without loss of consciousness. Treatment is that of syphilis.

Diseases in which Metabolism is at Fault.—*Uraemia*:—It may lead to coma in the advanced stages of kidney diseases. It is rarely so deep as in

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apoplexy. It is more of stupor or drowsiness. In many cases stupor alternates with convulsions, and in many cases muttering delirium. There is no rigidity or paralysis of hemiplegic type. There is albuminuria but the previous history of kidney disease will reveal the real cause of coma. By way of treatment, eliminate the poison by purging, hot-packs, Saline injection, hot enemas.

Diabetic Coma:—Still this occurs in great frequency in this country. For various reasons some of the patients get tired of continuous Insulin treatment and they just give it up not realising the bad consequences. In others the intercurrent infection, carbuncles, fevers, cough, cold, etc., suddenly give rise to it. The patient in diabetic coma is dehydrated. Blood pressure and cerebrospinal fluid pressure are low. The intra-ocular tension is diminished. There is a history of diabetes, the breath smells of acetone; urine contains sugar and diacetic acid; the blood sugar is raised. Treatment: the patient is collapsed and severe dehydration due to which there is severe cardio-vascular collapse. Give at once 2 litre $3\frac{1}{2}$ pints of Saline intravenously in an hour. 50 units of Insulin and 50 gms. of Glucose should be given in the first pint and heart stimulants—Coramine or Caffeine—may be added to it. In addition, 2 to 3 m. of Adrenalin has a very beneficial, though temporary, effect on the circulation. If the pulse still is not strong, continue to infuse $\frac{1}{2}$ litre of 7% Gum Acacia solution. Insulin and Glucose must be repeated 3 hourly. If the patient is unable to swallow, more fluid subcutaneously, per rectum, should be administered. If, however, circulatory collapse threatens, and the cause appears to be dehydration, more intravenous fluid, less than before, should be given only for 2 pints.

Certain Rare Diseases in which coma is a terminal stage, there is generally a history of the original disease—hepatic diseases, where there is a wide destruction of liver tissue, the later stages of cirrhosis and acute yellow atrophy. This is differentiated from the rest by the presence of jaundice, more or less clinically. The symptoms and signs resemble those of uræmia. *Addison's disease* and *Raynaud's disease* are occasionally attended by coma. Malignant form of malaria is attended by coma which coming on suddenly may lack history. Blood is generally positive for M.P. An energetic Quinine therapy, intravenous and intramuscular, along with general treatment of the case gives good results.

struggling, the forceps pushes it still deeper. The best and the most convenient way is to administer a whiff of Ethyl Chloride and either with ear-scoop or the Quire's foreign body remover (Mechanical Finger), the foreign body is scooped out; care should be taken to see that the instrument is taken well behind the foreign body before forcing it out.

In the ear, the foreign body is generally grain seed or glass bead; this can be syringed out.

Children generally swallow coin, nails or pins. In case of round objects, they are not dangerous and nothing particular except banana by mouth is advised or a mild laxative is administered and in the case of sharp perforating objects, the best is to locate the place by fluoroscopy and to watch for the symptoms of internal injury and in the latter case early operative interference is advisable.

VI. **Accidental Injury.**—It is better to inject prophylactic anti-tetanic Serum—the wound is washed out with warm Saline and the lacerated wound edge is cut off and the wound sutured, particular care being taken to see that the underlying bone is not fractured and that there is no loose fragment round about in the tissue.

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Common Emergencies in Children

BY

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I SHALL briefly describe the very common emergencies in children; here we have to depend upon the physical signs only to arrive at the cause of the disease.

I. **Imperforate Anus in an Infant.**—The infant in this case is generally 4 to 5 days old and brought for absolute constipation and distended abdomen. There is no anal orifice except a small dimple and when the child cries, there appears a bulge in the area of that depression; the appearance of the bulge is a favourable sign of existing blind anal end under the skin. A small incision is made on the bulge taking special care to incise the mucosa and as the latter is opened, the faecal matter begins to come out. The opening is then dilated with the little finger and this anal dilatation is carried on daily once with Hegar's dilators for at least 15 to 20 days and then the mother is instructed to carry out the same with her finger at home for a few days more.

II. **Congenital Hypertrophic Stenosis of the Pylorus.**—This is not very common but it is worth remembering because it is liable to be missed. In young infants the two chief symptoms of it are persistent vomiting and marasmus. The symptoms begin about the end of the second week and as late as two months (a) Projectile vomiting not affected by any drug (b) Progressive emaciation due to lack of nourishment (c) Constipation (d) Visible peristalsis from left to right (e) Small hard nodule increasing and decreasing in size palpable under the right rectus muscle. Drug treatment may be tried but early operative interference stands many chances of cure.

III. **Convulsions.**—This is a very common emergency. The convulsions are sudden violent clonic or sometimes tonic spasms affecting a greater part or the whole of the body and usually accompanied by some disturbance of consciousness. The convulsions in children are generally of reflex nature and one of the causes may be found from the following:—

1. **Worms:**—A thread worm or the round worm is the common cause of convulsions. In one of my cases the child got high temperature with convulsions and nausea. In evening, the temperature came down a little and the child vomited out two round worms. A dose of Santonin and Calomel and a diaphoretic mixture set everything right. Below I cite two more interesting cases of worms. A woman of 28 years of age was admitted as an indoor patient for acute pain in the right iliac fossa, vomiting and no fever; the bowels were costive. The provisional diagnosis was of acute appendicitis. After 3 to 4 days, a lump appeared in the R. I. F.; the patient then one day passed a round worm and a dose of Santonin with Calomel was then administered with the result that in the stools a big mass of entangled round worms, was expelled with the disappearance of the lump in R. I. F.

Another was a case of a woman aged 25 years complaining of acute pain in R. I. F. and fever. I diagnosed it as acute attack of appendicitis and advised her complete rest and to withhold any purgative. On the third day, she became unconscious. The physical findings were practically of

no help to arrive at the real diagnosis; there was no rigidity of neck, no pupillary changes, fever of remittent type, bowels were costive, nothing abnormal detected in nervous system examination, no paralysis, no m. p. in blood, incontinence of urine. The diagnosis could not be arrived at and hence symptomatic treatment was resorted to—inj. Glucose 25% 25 cc. with Hexamine 40% 10 cc. intravenously twice daily for 3 days and on the sixth day she became conscious and talked a little. In the evening the same day, she got very high fever and died suddenly. This I afterwards doubted to be a case of worm.

2. Second cause of convulsions in children is *Teething*—the child is generally 6–8 months old and there may be accompanying diarrhoea.

3. *High Fever* in children is usually accompanied by convulsions: Cryogen or a diaphoretic mixture with a little Bromide is all that is necessary.

4. *Colic*:—Child cries at intervals and doubles up during the paroxysmal attack. Warm fomentations on the abdomen and glycerine enema or Calomel in repeated doses is the best. Opium in very small doses is said to be good in children.

5. *Infantile Paralysis* as the cause of convulsions in children is worth remembering. Where no cause could be found to account for convulsions or where the Santonin fails and the convulsions with fever continue in a child—infantile paralysis is to be suspected. The convulsions gradually disappear to be replaced by paralysis and the diagnosis then becomes clear.

6. *Tetany and Rickets*:—Deficiency of calcium in infants and children manifests in itself the form of convulsions with typical condition of hand in tetany. Recently I saw a case of 20 days old infant going into attacks of spasms with typical "accoucheur's hand."

To complete the list of the causes of convulsions one has to bear in mind the *Phimosis and Ear-ache*.

IV. **Retention of Urine.**—It is another emergency and the common cause is phimosis. Before the actual act of urination, the urethra and the end of the organ swell up and there may be dribbling of urine with no forcible stream. The continuous straining at urination leads to hernia, etc.—circumcision is the only course. If phimosis is not present, look for narrow urinary meatus and if both are absent stone is to be suspected and screening or X-ray advised for further treatment.

V. **Foreign Body** may be either in the nose or ear, or the child may have swallowed it and in the latter case, it may pass on to the stomach or may get blocked in the pharynx or oesophagus depending on the size of it. The common foreign body in the nose is the tamarind seed and as time passes on, the seed swells up and becomes friable or it may be a piece of "soopari"—a chewing nut. If these foreign bodies happen to remain in the nose unnoticed for a long time, it leads to the appearance of a foul, purulent nasal discharge or at times nasal bleeding suggesting polypus.

It is no use trying to get it out with the ordinary forceps which generally does not hold it properly but on the contrary if the child is

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Biochemical Aids in Medical Emergencies

BY

A. S. MANNADY NAVAR, M.B., B.S., PH.D.,

Professor of Biochemistry, Medical College, Madras.

OUR knowledge of bio-chemical facts underlying physiological functions and their alterations in pathological changes is still not adequate to enable us to utilize bio-chemical findings for the diagnosis, prognosis and treatment of all medical emergencies. Yet an attempt shall be made to briefly outline the bio-chemical facts known in some of the important medical emergencies and to indicate the usefulness of bio-chemical tests in the diagnosis, prognosis and treatment of these conditions.

Coma with or without convulsions is one of the important emergencies one has to deal with. In these cases although it may not be possible to get a complete history, all the history that is required may be gathered from the relatives or friends of the patient. A careful examination of the patient from head to foot, especially that of the pupils, tension of the eyeball and retina with an ophthalmoscope, skull, nose, ears and throat for the presence of injuries and examination of the body and limbs and the reflexes, should be made. A careful physical examination should never be omitted. Examination of urine and special laboratory examinations are the problems that will be particularly stressed in this article.

There are generally two broad types of coma. In the first, coma will be a prominent feature and may come on early. In the second it may appear late in the disease and may not appear or be a prominent feature early in the diseases. Under the first type comes coma from—

- (1) Head injuries, concussion, compression or fracture of the skull.
- (2) Vascular lesions, hæmorrhage, thrombosis or embolism.
- (3) Poisoning from alcohol or drugs.
- (4) From the effects of extremes of temperature—Heat stroke.
- (5) From excessive loss of blood, hæmoptysis, hæmatemesis or other types of internal hæmorrhage.
- (6) Sudden nervous shock or hysterical trauma.

The second type of coma may be due to :

- (1) Metabolic errors like diabetic coma, and uræmia.
- (2) Inflammatory lesions of the brain or cerebral meninges as in acute encephalitis, encephalitis lethargica, different types of meningitis.
- (3) Lesions of the central nervous system like cerebral tumour, cerebral abscess, cerebral syphilis or disseminated sclerosis.
- (4) Cerebral malaria or sleeping sickness.
- (5) Coma in severe fevers and acute infectious diseases.

Bio-chemical findings are of considerable importance in diabetic coma and uræmia.

Diabetic Coma.—Before the advent of the insulin, coma was the cause of death in more than 60% of diabetic deaths; but now after the regular use of Insulin the mortality from diabetic coma has been reduced to about 6%. Diabetic coma is often brought on by dietary indiscretion,

or omission of Insulin in Insulin treated cases or by infection. Diabetes is a disease in which carbohydrate, fat and protein metabolisms are deranged due to defective Insulin secretion or excessive anterior-pituitary diabetic hormone. Carbohydrate storage and oxidation are defective. Fat oxidation is also defective. The fatty acids are not completely oxidized. Protein metabolism is also deranged. Diabetic coma may be attributed to (1) accumulation of poisonous aceto-acetic acid formed from defective fat oxidation which again is in consequence of defective Carbohydrate oxidation; (2) very slight acidæmia which may be present and (3) failure of the kidneys and circulatory system.

Accumulation of aceto-acetic acid and B-hydroxybutyric acid and possibly other organic acids lowers the bicarbonate content of the blood; because bicarbonate reacts with these acids forming carbon-di-oxide and the alkali salt of the acids, the extra carbon-di-oxide formed in the blood thereby stimulates the respiratory centre, producing hyperpnoea which gets rid of the excess carbon-di-oxide from the blood. This hyperpnoea thus lowers the alveolar carbon-di-oxide content. Normal alveolar carbon-di-oxide content is 4.7%—6.4% average being 5.6% when the CO₂ content falls below 2%, coma may supervene within 24 hours. Therefore determination of alveolar carbon-di-oxide helps to gauge the onset of coma.

A much more useful test is determination of the bicarbonate content of the blood. This has been called "Alkali Reserve" or the carbon-di-oxide combining power or capacity of the blood. For a normal person, carbon-di-oxide combining power of blood is 55-65 c.c. per 100 c.c. of blood or stated as 55-65 volumes %. For a diabetic patient under perfect control "Alkali Reserve" is the same as the normal value. But when there is accumulation of aceto-acetic acid, B-hydroxybutyric acid and other acids, alkali reserve shows a marked fall. When it falls below 20 volumes %, diabetic coma sets in. However there is individual variation in the relationship between the alkali reserve and the development of unconsciousness. Age appears to play a part in this matter. In individuals between 12 years and 45 years, tolerance to a low alkali reserve appears to be higher than in older and younger patients. Generally when the alkali reserve falls below 12% consciousness is usually lost. Again infection appears to play a very important part. It is found that infection produces unconsciousness at higher levels of alkali reserve. Cases are on record where alkali reserve has been reduced to 2-4% in cases of diabetic coma.

Thus we see determination of alkali reserve or carbon-di-oxide combining power of blood is of considerable diagnostic importance. From a prognostic point of view, however, the actual figure is not so important as was thought before. In pre-insulin days any alkali reserve below 15% was considered fatal. But now prognosis depends upon effective therapeutic treatment, infection and age.

Estimation of blood sugar is another important bio-chemical test to be carried out. Normal blood sugar in healthy individuals during the fasting period ranges between 70 mgs.% and 90 mgs.%. In diabetics fasting blood sugar will vary between 120 mgs.% and 250 mgs.% generally. In diabetic coma the range will be much higher, between 350 mgs.% and 500 mgs.% on an average. Even the extreme limit of 800 mgs.% has been recorded. But it must be admitted that the level of blood sugar is not related with

the depth of coma. However alkali reserve and blood sugar are of considerable importance in noting the response to treatment and following the progress of the case. Not only that, they help us to differentiate an apparently similar but entirely different condition called "Insulin shock" or hypoglycæmic coma. Insulin shock is due to hypoglycæmia produced by excess of Insulin. This excess of Insulin may be due to therapeutic administration in Insulin treated cases, or may be found in individuals with so-called "hyperinsulinism". In some of these individuals it has been possible to demonstrate adenomas of the islet of Langerhans, removal of which cured the condition of "hyperinsulinism". But it has not been possible always to demonstrate an organic lesion in pancreas. In Insulin shock the blood sugar will be generally lower than normal—about 50 mgs.% or lower. In some cases normal values may be encountered. But alkali reserve will always be within normal limits, that is, between 55%-65% and not reduced as in diabetic coma—below 20%.

In clinics where laboratory facilities are not available, examination of urine for sugar and acetone bodies will be helpful. Presence of sugar and acetone bodies is generally encountered in diabetic coma while they are absent in Insulin shock. Further in diabetic coma renal impairment is met with and therefore excretion of acetone bodies may be progressively less.

This renal impairment is evidenced by albuminuria, presence of various casts in centrifuged deposit, high blood urea and non-protein nitrogen and diminished urea clearance. Therefore estimation of blood urea and non-protein nitrogen and examination of urine are useful to note the renal impairment.

Uræmia.—In uræmia coma supervenes in later stages of uræmia. Uræmia may be extra-renal or renal. Extra-renal uræmia may be due to alkalosis, *i.e.*, increased bicarbonate content or carbon-di-oxide combining power of the blood plasma. Alkalosis may be caused by giving too large doses of sodium-bicarbonate or other alkali, or some idiosyncrasy to ordinary therapeutic doses or may be brought about by repeated vomiting or severe diarrhoea. The diagnosis may be established from the history and also by determination of alkali reserve and blood urea. Alkali reserve may be higher than normal and may even reach 90 vol. per cent. Blood urea may be raised to be 60-80 mgs.% and may even go much higher. The Chloride content of both blood and urine may be low.

Renal uræmia results from an entirely different cause, a severe kidney damage, and therefore may be a complication or end-phase of kidney diseases. It is accompanied by a high blood urea content. Coma or convulsions may follow the early symptoms of anæmia, headache, nausea, dizziness, lethargy and obstinate constipation. Besides retention of nitrogenous products in the blood, there is a disturbance of acid-base equilibrium producing acidæmia. Acidæmia like alkalosis damage renal tissue and thus a vicious cycle is set up. There is also retention of phenols, guanidine and inorganic phosphate. When the inorganic phosphate rises, serum calcium falls and also there is a fall in bicarbonate content or alkali reserve of the blood.

Blood urea may rise to 300 mgs.% compared to the normal level of 20-50 mgs.%. Blood creatinine may go up to 30 mgs.% while the normal level is 1-2 mgs.%. Inorganic phosphate also is raised generally from 7-15 mgs.%—[normal 3-4.5 mgs.%]—and even values as high as 40 mgs.% have been recorded as a result of hyperphosphatæmia; some degree of

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hypocalcæmia is generally present. There is also present a decrease in serum proteins. As a result of vomiting and diarrhœa, commonly present in uræmia, chloride is drained from the body and consequently plasma chloride concentration is somewhat diminished from the normal level of 570—620 mgs. per 100 c.c. of plasma. Alkali reserve or plasma bicarbonate content is also lowered in uræmia. This is on account of retention of acid radicals like inorganic phosphate, sulphate and undefined organic acids, and loss of basic radicals in vomiting and diarrhœa and also in urine, as the body has apparently lost the power of conserving the base and kidneys have lost the power of forming ammonia to replace the basic radicals brought to the kidneys for excretion. It will be found, blood urea clearance values will be extremely low—generally below 5% of the average normal—and plasma cholesterol also may fall to low levels (50-60 mgs. per 100 c.c.)

Estimation of blood urea, blood creatinine and inorganic phosphate will be helpful in the diagnosis of uræmia.

Bio-chemical changes in inflammatory lesions of the brain or cerebral meninges are found in the cerebrospinal fluid. In inflammatory affections of the meninges, meningitis, a greater amount of cerebrospinal fluid is formed in the subarachnoid space and consequently there is an increased pressure of the cerebrospinal fluid. The cell content of the fluid is increased as there is an outpouring of polymorphonuclear cells, lymphocytes and phagocytic cells as a result of inflammation. Increase in protein content may be due to increased permeability of the meningeal and cerebral blood vessels. Diminished blood sugar may be due to glycolytic enzymes present in the infective organisms or cellular elements. Change in the chloride content is not sufficiently well explained. However, besides noting the pressure, cell content, sugar content, chloride content, total protein content and globulin test are the usual bio-chemical investigations carried out.

Inflammations of the brain—encephalitis—is not usually attended with much change in the cerebrospinal fluid constituents unless the meninges are also involved. Blood sugar is found either normal or increased, as pathological lesion affects the region of hypothalamus. The changes in cerebrospinal fluid in different pathological conditions of the brain and meninges are given below. The figures are from Harrison's chemical methods in clinical medicine. The analysis of cerebrospinal fluid is of some assistance but it should be combined with bacteriological and serological examination to complete the diagnosis.

Changes in Cerebro-spinal Fluid

Type of fluid	Total protein mgs. %	Chloride mgs. %	Sugar mgs. %	Cells: No. of cells per c.mm.	Nature of cells.	Globulin Test.	C. S. F. Pressure.
Normal	10—35	700—760	45—100	0—5		—	
Purulent Meningitis	100—400	750—600	0—45	1000—2000	Polynuclear	+	60-200 mm.
Tubercular	30—400	700—500	0—45	1000	Lymphocytes & Polynuclear	+	
Brain Abscess	10—120	700—760	45—100	6—850	Lymphocytes & Polynuclear	+	
Tumor Brain	Majority normal	700—760	45—120	0—80	Lymphocytes	±	
G.P.I.	40—100	700—760	25—60	50—500	Lymphocytes	+	
Tabes	20—60	700—760	45—100	10—80	Lymphocytes	+	
Spinal Tumors	30—2000	700—760	45—100	0—14	Lymphocytes	±	
Disseminated sclerosis	10—35	700—760	45—100	0—10	Lymphocytes	—	

Cerebral malaria cases may show coma, convulsions, aphasia paraplegia, hemiplegia, meningismus and perhaps hyperpyrexia. It appears to be due to internal sporulation of malignant tertian parasites and clumping of corpuscles causing plugging of the visceral capillaries in the Brain. Fatal epidemics are caused by malignant tertian malaria as experienced now in Assam and North Burma borders. Except that there is urobilinuria there is no bio-chemical test characteristic of this condition. Examination of blood smear, especially thick smears, is essential. In sleeping sickness or trypanosomiasis which is prevalent in Africa, coma or convulsions appear at the terminal stage when increased pressure in the cerebrospinal fluid, an increase in globulin and lymphocytes—15—100 cells per c. mm. will be found.

In cases of cerebral hæmorrhage pressure of cerebrospinal fluid will be increased above 200 mm. in the majority of cases while in great majority of cases of cerebral thrombosis the pressure may be normal or very slightly elevated. In hæmorrhages the fluid may be bloody or yellow in the great majority of cases while in thrombosis the fluid need not necessarily be so. The protein may be increased in both types of cases. Sugar and chlorides will be normal in both.

Simple loss of consciousness with or without convulsive fits is encountered in epilepsy. All bio-chemical investigations have not produced fruitful results. There is no satisfactory evidence to support the view that the convulsions are due to increased hydration, nor any significant alteration in the water metabolism of the epileptic from that of the normal has been found. Blood sugar estimations and Glucose tolerance tests failed to show any definite change from the normal. Alkali reserve, Ph. and lactic acid content of the blood are normal in epileptics. Cerebrospinal fluid also is normal in a great majority of cases—in about 90%. A slight decrease in serum magnesium during convulsions is noted. Its significance is doubtful. We may conclude that the bio-chemical studies have not explained the mechanism of epilepsy.

Circulatory failure is one of the important medical emergencies. This may be central, affecting the heart muscle with a defective outflow of blood or peripheral affecting the vascular part of the circulation leading to a defective inflow of blood to the heart.

A brief summary of our knowledge of bio-chemical facts of heart failure may be given, fully acknowledging the failure of bio-chemical tests in clinical application in this type of cases. The cardiac output per minute under resting conditions is 4—5 litres. There is of course considerable individual variation depending on the size of the individuals. This difference can be eliminated by calculating the cardiac output per sq. metre of body surface; normally cardiac output per sq. meter of body surface is 1.9—2.5 litres.

A low cardiac output is the rule in congestive heart failure and this value is restored to normal with recovery. Generally in diseases of the heart, without heart failure, basal metabolic rate is normal or very slightly raised; but with development of heart failure it is definitely raised, + 25% to + 50%. This is a point to be remembered and should not be inferred to be due to thyrotoxicosis. In heart failure oxygenation of blood in lung capillaries is interfered with and consequently oxygen saturation of arterial blood is lowered. A fall of 81.4% has been recorded,

but when congestion of the lungs disappears with restoration of the cardiac efficiency, oxygen saturation returns to normal 95—100%. Oxygen saturation of venous blood when at rest is 15 c.c. per 100 c.c. and that of arterial blood 19 c.c. per 100 c.c. Arterial venous difference is therefore normally about 4 c.c.%. However individual variation of arterial venous difference occurs between 2.5 c.c.% and 9 c.c.%, but on cardiac failure the arterial venous difference increases to 9.7 c.c.—15.2 c.c.%.

Lactic acid is constantly produced in the body as a result of muscular activity. This is resynthesised and oxidized normally. Yet a small trace of lactic acid is constantly present in the blood which is normally 10—20 mgs. % at rest. In heart failure, low cardiac output, insufficient oxygenation of the blood in the lungs, peripheral stasis and increased metabolic rate lead to oxygen debt and in consequence lactic acid fails to be oxidized at the normal rate and accumulation of lactic acid takes place in the blood. In cardiac failure therefore lactic acid is found raised between 30 and 110 mgs. per 100 c.c. according to the degree of heart failure present. The level of blood lactic acid is found to be closely associated with the degree of heart failure although this inference has not been accepted by all workers. In congestive heart failure a fall of plasma proteins also has been noticed.

Besides, there appears to be some degree of functional impairment of the kidneys. The volume of urine is diminished, specific gravity of urine is increased to 1025—1030 and albumin in the urine is usually found with white and red blood corpuscles and granular and cellular casts in the centrifuged deposit. As heart failure seldom affects nitrogen excretion, blood urea and non-protein nitrogen remain normal in pure congestive heart failure without renal involvement. Heart failure appears to affect only elimination of water and chlorides. But uric acid is often found to be increased in congestive heart-failure but there is no increase in blood creatinine. Hyperbilirubinemia *i.e.* increased bilirubin content of the blood is a common finding in congestive heart-failure, sometime the increase producing visible jaundice. It may be due to increased production of bilirubin or diminished excretion by the impaired hepatic cells. Blood sugar in cardiac failure is normal. But diabetics are liable to have heart affection and in their treatment it is a point to be remembered not to lower their blood sugar too much by insulin treatment. A safe rule for keeping a basic level of blood sugar is $\text{age} + 100 = \text{mgs. per 100 c.c.}$

In peripheral circulatory failure found in postoperative and traumatic shock, basal metabolic rate is diminished, to 30% below normal, and because of the decreased heat production, body temperature falls and also plasma bicarbonate is lowered. This may be due to hyperpnea and entry into blood of acid substances from incomplete oxidation of fat and carbohydrates. Reduction of blood volume from loss of blood or fluid seems to be a significant factor in shock. Production of chemical depressor or vasodilator agents may also be a factor.

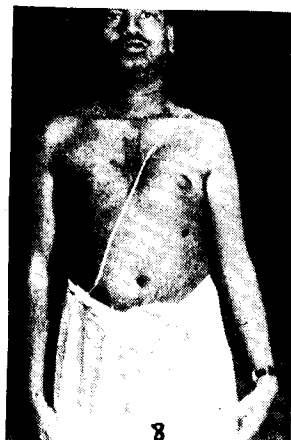
Colic or severe paroxysmal pain of a griping character and so intense that it radiates from its origin is another medical emergency. The history of the patient, the location of the pain and direction of its radiation are helpful in the diagnosis of the condition. It may be renal colic, biliary colic or intestinal colic. Renal colic may be due to renal calculus, blood clot in the ureter as in renal neoplasm or hydronephrosis or acute

pyelitis. Renal calculus is the commonest cause and may be diagnosed by X-ray or pyelography. However examination of the centrifuged urinary deposit under the microscope is also helpful. Calcium oxalate crystals and red blood corpuscles are often seen in oxalate calculus. The passage of large blood casts of the ureter is almost diagnostic of renal neoplasm. Hydro-nephrosis is rarely a cause of renal colic. Pyelography helps the diagnosis. High fever, rigors and sweating and subsequent passage of large quantities of pus help the diagnosis of pyelitis.

Biliary colic is often due to the impaction of the stone in the neck of the gallbladder close to the cystic duct. Jaundice occurs when the stone reaches the common bile duct. A positive direct Van Den Bergh reaction and presence of a trace of bile in the urine give strong evidence that the attack of pain is due to gall stones. Even though visible jaundice may not be present always in biliary colic, hyperbilirubinemia and therefore a positive direct Van Den Bergh reaction are present; cholecystography is helpful in the diagnosis. Biliary colic without gallstones also occurs in otherwise healthy young adults, due to anatomical abnormality of cystic duct or due to a disturbance of neuro-muscular mechanism.

Intestinal colic may be due to indiscretions of diet and flatulence or poisons or may be surgical emergencies like acute appendix. It is associated with diarrhoea and vomiting and consequently may result in alkalosis and consequent changes in the blood constituents like increased bicarbonate content and diminished chloride content of blood plasma.

Poisoning is a medical emergency but it is too big a subject to be dealt with and bio-chemical data concerning them are not sufficient to explain the poisoning symptoms. Nor is there sufficient information of bio-chemical facts in sudden insanity and delirium tremens that may be considered in this article. Therefore it is concluded with a pious hope that sufficient bio-chemical data will accumulate of all pathological changes, that their elucidation will be possible on chemical basis and diagnosis, prognosis and treatment can be carried out on accurate scientific information.



8



9

8. Clinical photograph of an old unreduced dislocation. The manipulation improved the movement at the shoulder. Note the flattening of the shoulder (Case No. 24).
9. Side to which the radiograph refers is reversed while reducing it by the mistake of the photographer not knowing the side to which it belonged. Note the fracture of the tuberosity and its union with the shaft (Case No. 24).



10



10. Is a sub-coracoid dislocation with fracture of the tuberosity. This was reduced by manipulation though it was of 30 days' duration. This picture was taken from a lantern slide as the original film was lost. (Case No. 7).
11. Radiograph showing the result after reduction (Case No. 7).



12



13

12. Is a clinical photograph showing an old unreduced dislocation with the amputation stump of his leg (Case No. 19).
13. Is an X-ray photograph showing an unreduced sub-coracoid dislocation (Case No. 19).

Posterior dislocations of the shoulder are very rare and may occur as a result of falls on flexed elbows associated with fracture of the acromion and the glenoid rim. No case of such a nature was met with in the experience of the author. The most common dislocation met with in the experience of the author was the anterior sub-coracoid dislocation.

The following types of dislocations are described :—

1. *Anterior Dislocations* of which the sub-glenoid is the most common and unstable. This usually becomes sub-coracoid and in severe cases may become sub-clavicular. In a few cases of hyperabduction, the sub-glenoid dislocation may remain as such with abduction of arm and this dislocation is called *luxatio erecta* (Not seen by the author).

2. *Posterior Dislocations* :—These are usually of the supra-spinus and sub-spinus types and are rare. None of these types was seen by the author.

3. Sometimes, in the anterior dislocations, they may be associated with fracture of the surgical neck of which there was one case associated with basal fracture of the neck of the femur on the same side—result of a motor accident.

Diagnosis.—The most important aim of every practitioner should be to diagnose this condition without the help of X-rays. He can easily do so if he uses the general signs and symptoms of dislocations with particular reference to the shoulder joint bringing to his mind the anatomy of the shoulder joint.

First, the posture of the dislocated shoulder will be typical. Here the elbow is abducted from the side of the chest and the flexed elbow is supported by the other arm. The shoulder is flattened with marked prominence of the acromion, a characteristic appearance which occurs in dislocated shoulders. Associated with this there is lowering of the anterior axillary fold with a marked prominence appreciable in front and below the coracoid process and the clavicle. (see picture No. 1).

On further examination, it will be found that the patient cannot move the point of elbow to the side of the chest and put his outstretched palm on the opposite shoulder (Duga's test).

With the loss of rotundity of the shoulder as a result of displacement of the head from the socket, a ruler can be made to lie flat on the top of the acromion and the lateral epicondyle of the humerus which in normal cases cannot be done (Hamilton's ruler test). On palpation, the head can be found in its abnormal position with loss of movement at the shoulder joint.

The diagnosis should always be confirmed by X-rays, where available.

Complications of these Dislocations.—1. These dislocations may be associated with the rupture of the supra spinus tendon (rare). None was found in the series.

2. Flake fractures of the tuberosity with separation of the supra spinus tendon. There was only one case in the series (Case no. 18).

3. Fractures of the greater tuberosity with or without marked displacement—common. Found in seven cases in the series (Case nos. 1, 2, 5, 7, 15, 19 and 24).

Surgical Emergencies Arising as a Result of Dislocations of Shoulder

BY

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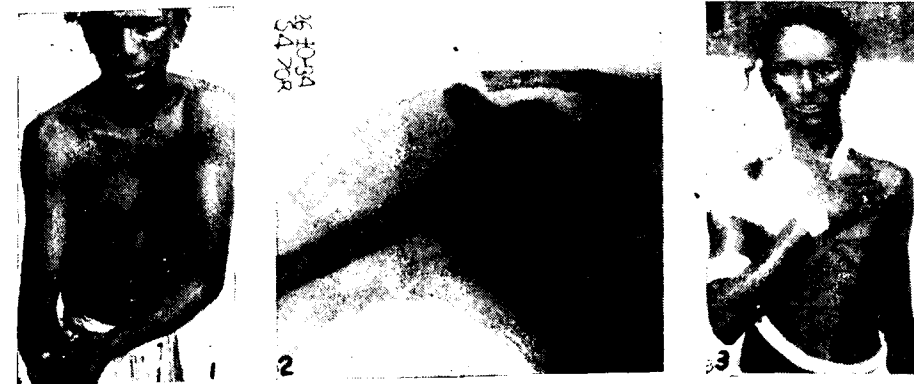
THIS is a frequent injury which commonly occurs after the age of 30. The youngest in the series was 14 years and the oldest was 65 years, the average age being 36 years. It is more common in males. Out of a total of 26 cases, 23 were males and 3 were females. Right shoulder was affected in 21 cases and left in 5 cases.

Often practitioners leave these dislocations without reducing them resulting in gross functional disability, and this affords a serious problem to the specialist when they seek his advice. 8 out of the 26 cases in the series were unreduced. Symptomatic treatment for the reduction of the swelling by lotions and plasters of the practitioner and the lone setter for relief of pain delays the seeking of advice for proper treatment with the result that the deformities get well established.

The shoulder joint depends for its stability on its musculature. Though it is a ball and socket joint, the socket is deficient and the capsule of the joint is weak in the antero-inferior aspect and it is through this part that the tear occurs favouring a dislocation. What is lost in stability is gained in the range of movement of this joint.

The pathological anatomy of the various dislocations vary. Very simple tears of the ligaments of the anterior capsule with the detachment of the labrum glenoidale associated with or without a fracture of the glenoid rim have been found. BANKART^{1, 7, 17} was the first to describe the fracture of the glenoid rim with separation of the glenoid ligament in dislocations of the shoulder due to epileptic conditions. The recent anatomical studies of A.L. EYREBROOK from a case of recurrent dislocation of the shoulder show that he found the detachment of the capsule of the Glenoid Labrum from the rim of the Glenoid and a large posterior notch in the head of the humerus with reduction in the size of the anterior lip of the glenoid cavity. This cannot be true in all cases of dislocation of an indirect nature. Associated with this, there might be a rupture of a supra spinus tendon, flake fractures of the tuberosity with avulsion of supra spinus tendon or avulsion fracture of the great tuberosity with or without much displacement.

A perusal of the causes of anterior dislocation is seen from the list of cases appended to this paper makes it clear that a variety of causes operated in the production of these dislocations. Out of the 26 cases, 5 were the result of direct violence, 11 were the result of indirect violence due to fall on outstretched hands, 1 was due to doubtful type of violence, 1 occurred during an epileptic seizure, 2 occurred while sleeping, 1 was due to the forcible twisting of the shoulder, 2 were due to blow directly hit on the back of the shoulder, 2 were the result of violent massage for pain and one was the result of a motor accident. Of these, those that are due to the twisting of hand and forcible massage are interesting. In the cases that are due to massage, the treatment for the disease was worse than the disease itself for which he sought relief, viz., pain.



1. This is a clinical photograph of a dislocated shoulder in a young man. Note the deformity and the posture (Case No. 10).
2. This is a radiograph showing the anterior sub-coracoid dislocation (Case No. 10).
3. Same case after reduction. Note how the shoulder is fixed (Case No. 10). Note the sling for the arm to prevent abduction.



4. This is a radiograph showing the dislocation of shoulder with chip fracture of tuberosity and avulsion of supra spinatus (Case No. 18).
5. This is a radiograph showing the anterior sub-coracoid dislocation with fracture of the greater tuberosity and its union with the shaft of the Humerus. (Case No. 21).



6. Shows similar condition, but this patient had a fair range of movements due to the false joints formed between head and the displaced tuberosity which had united with the shaft (Case No. 2).
7. Shows simple anterior sub-coracoid dislocation with fracture and union with the shaft (Case No. 5).

Involvement of Nerves.—WATSON JONES¹⁹ has stated in his book that one case in seven of dislocation of shoulder suffered from nerve involvement and the nerves commonly involved are the axillary and the posterior cord of the brachial plexus. Of the 26 cases given in the list, not one had any involvement of nerves in spite of associated fractures of tuberosities and the bad treatment accorded to them. Clinical investigation, however, has to be done to exclude this possibility.

Recurrent Dislocations frequently occur after the first dislocation. There were 4 cases in the series. (*Case Nos. 4, 14, 16 & 26*). This may either be due to—

1. Improper primary post-reductional treatment due to over-anxiety to restore movement of the shoulder quickly. In all these cases abduction movement should not be undertaken until the capsule has permanently healed. It takes about three to four weeks for the rent to heal by plastic granulation tissue to consolidate as firm fibrous tissue. Or

2. The pathology described by BANKART is responsible for the frequent and easy dislocations in certain cases of direct injury or in epileptic conditions. It was not possible to verify this, as only one case came for treatment and in this case NICOLA'S^{8,12,22} operation was done.

Treatment.—The practitioner in the mofussil who has no facilities for X-rays must entirely depend upon his clinical acumen for diagnosis and should always examine the patient under an anaesthetic when he will be able to palpate the dislocated head in its abnormal position and at the same time will be able to ascertain whether the head moves with the shaft in the abnormal position. After ascertaining this, he can proceed to reduce the dislocation. Wherever X-ray facilities are available, X-rays have to be taken and checked both before and after reduction. Unfortunately, in one of the cases in the series (*Case No. 24*) in one district headquarter hospital where X-ray facilities are available, the patient was not X-rayed, with the resulting serious disability.

Anterior dislocations may be reduced with or without an anaesthetic after confirming the diagnosis by X-rays when possible. The author has reduced 9 cases of anterior sub-coracoid dislocations without anaesthetic in the outpatients (*Case Nos. 1, 8, 9, 10, 14, 18, 20, 22 & 23*).

Anaesthesia has to be used in serious types of dislocations or in cases where the patient is very sensitive. The author has reduced 9 cases using anaesthesia (*Case Nos. 3, 4, 6, 7, 11, 12, 13, 15, & 16*). In all these cases Kocher's method of reduction was used.

Hypocratic method has been used in conjunction with Kocher's method in cases where difficulty was experienced in old cases under an anaesthetic (*Case Nos. 7 and 15*).

Miller's method has also a definite place in the reduction of dislocations. This has not been employed by the author.

Whatever method is employed, the most important thing to note is that the manoeuvre should be done intelligently and gently to prevent—

1. Extensive tears of the sub-scapularis muscle by forcible external rotation or extension.

2. Injury to the nerves, especially the circumflex and nerves arising from posterior cord of brachial flexes.

3. Fractures that might occur in the surgical neck of the humerus. This accident occurred in one when attempting to reduce an old persistent sub-coracoid dislocation in a man (*Case No. 17*).

After reduction, the shoulder joint is strapped to prevent effusion and the limb is fixed to the side by a band to prevent abduction (*See picture No. 3*).

While reducing a persistent dislocation in a man, fracture of the surgical neck occurred and this limb was put in 60° abduction in an abduction frame, slightly in an anterior plane as in the case of arthrodesis of shoulder. The result of this was interesting. The patient was able to abduct the shoulder without pain when the fracture united (*Case No. 17*).

In recent times, plaster of paris is used as a splint after reduction instead of strapping the shoulder. A shoulder cap with a pad in the axilla is made by moulding plaster of paris bandage over the shoulder without padding and is fixed to the chest with plaster spica bandage. This can be kept for two weeks. Later, movements of flexion, extension and rotation are permitted. After 4 weeks, abduction is permitted under guidance. Physio-therapeutic measures are essential to restore function.

4. The problem of old fracture dislocation is really very serious. Attempts at close reduction must be tried and have been tried with success by the author in two cases of 30 and 40 days' duration respectively (*See pictures 10 and 11, Case Nos. 7 and 15*). Dislocation was reduced in each case in the third attempt under anaesthesia.

5. Arthrodesis of shoulder joint for bad and painful shoulders after dislocation is suggested, though not one operation of this type was done (*Case No. 21 was suggested this operation*).

Treatment of Recurrent Dislocations.—This is a great problem and a variety of operations have been devised and each has got its own value. (1) Plicating the capsule; (2) Clairmont's operation; (3) Facial slings of HEYGROVES¹⁸ and HENDERSON.^{5,14}

Various other operations have also been devised. This just illustrates that when for one disability there are varieties of operations, it indicates the inefficiency of the results of treatment. In recent times, the operation devised by BANKART to fix the glenoid ligament to the glenoid cavity and the NICOLA'S operation of slinging the upper end of the humerus by the long head of biceps through a $\frac{1}{4}$ " burr tunnel specially made are the methods of choice. The author has performed Nicola's operation with very satisfactory result in a recurrent dislocation in a young man aged 20 years (*Case No. 26*).

Clairmont's operation is a failure. Though the author has not done this operation, yet he has seen the results of the operation done by others and is not satisfied with the post-operative results.

It is unfortunate that many of the cases of recurrent dislocations who seek advice do not submit themselves for operative procedures as they are afraid of the results but with the modern methods of aseptic surgery, shoulder joint surgery has become a practicality and the results are very encouraging.

List of Cases

Year.	Sex.	Age.	Type of dislocation.	Duration.	Cause.	Treatment adopted.	Results.
1 1930	Fe. male	40	Anterior sub-coracoid fracture; dislocation of the right shoulder	Few hours	Fell down with a giddy sensation. Probably epileptic	Reduced without anaesthesia by Kocher's method	Result at time of discharge good. Follow up—no reply to letter written.
2 1931	Male	40	Old do. do. with fair movements	Six mths.	While sleeping	Massage advised	Result fair. No reply to letter.
3 1931	Male	40	Anterior sub-coracoid dislocation of the right shoulder	One day	History of a fall. Recurrent dislocations	Reduced under N ₂ O by Kocher's method	Result good at time of discharge. No reply to letter.
4 1931	Male	40	do. do.	One day	History of a fall. Recurrent dislocations	do. do.	do. do.
5 1931	Male	46	Old anterior sub-coracoid fracture; dislocation of the right shoulder	Two mths.	Fell on right shoulder while crossing a ditch	Manipulation done under anaesthesia with fair movements; Reduction was not possible.	Fair. No reply to letter written.
6 1932	Male	40	Anterior sub-coracoid dislocation of the right shoulder	A few hrs.	Fell down from a jukka	Reduced under anaesthesia by Kocher's method	Result good at time of discharge. No reply to letter.
7 1933	Male	45	Anterior sub-coracoid fracture; dislocation of the left shoulder	One mth.	Fell on outstretched palm	Reduced after repeated manipulations	Good. Follow up also good.
8 1933	Fe. male	55	Anterior sub-coracoid dislocation of the left shoulder	Three hours.	Fall on extended shoulder.	Reduced without anaesthesia by Kocher's method	Good at the time of discharge. No reply to letter.
9 1933	Male	30	Do. right shoulder	One day	Slipped from a bicycle and supported himself on extended arm	do. do.	Good. Follow up good.
10 1934	Male	20	Anterior sub-coracoid dislocation of the right shoulder	Two days	Arm was forcibly twisted in a quarrel	Reduced without anaesthesia by Kocher's method	Good at the time of discharge. But no reply to letter.
11 1934	Male	24	do. do.	Few hrs.	Fall on right shoulder while carrying a pot of water.	Reduced under anaesthesia by Kocher's method	do. do.
12 1934	Male	39	do. do.	Ten days	He was descending a ladder. Fell down on his shoulder	do. do.	do. do.
13 1934	Male	55	do. do.	Two days	Due to blows with fist on the outer aspect of shoulder	do. do.	do. do.
14 1935	Male	23	do. do. left	12 hours	Recurrent dislocations in sleep	Reduced without anaesthesia by Kocher's method	do. do.
15 1937	Male	29	do. do.	40 days	History of epileptic fits. During one of these fits, shoulder joint was dislocated	Reduction was possible after three attempts	do. do.
16 1938	Male	30	Sub-clavicular dislocation of right shoulder	A few hrs.	Occurring for the second time	Reduction under anaesthesia by Kocher's method	do. do.

17 1938	Male	35	Anterior sub-coracoid dislocation of right shoulder.	2½ mths.	Result of a cycle accident	There was a fracture during manipulation. The limb was put in abduction frame and fracture allowed to unite. Reduced with anaesthesia by Kocher's method.	A letter received from the patient states his function is fair but has a painful shoulder.
18 1938	Male	35	do. do.	A few hrs.	Fall from bandy	do.	Good at time of discharge but no reply to letter.
19 1939	Male	40	Anterior sub-coracoid fracture; dislocation of the right shoulder	One mth.	Beggar with amputated left lower limb fell on flexed elbow resulting in the fracture dislocation	Manipulation was done with fair improvement of the range of movement of the shoulder. Reduction was not possible	He was not followed up as he was a beggar with no address.
20 1940	Male	14	Anterior sub-coracoid dislocation of the left shoulder	Two days	While doing dunda exercise, he got sudden pain and for this pain was massaged. Afterwards he could not move his shoulders	Reduction was done without anaesthesia by Kocher's method	Good at the time of discharge. No reply to letter written.
21 1940	Male	38	Do. unreduced dislocation of the right shoulder	Five mths.	History of direct violence as a result of fall on left side	Refused operative interference. Arthrodesis of shoulder was suggested	Address not known.
22 1940	Male	40	Anterior sub-coracoid dislocation of the right shoulder	Two hrs.	Fall on extended palm	Reduction without anaesthesia under Kocher's method	Good at time of discharge, but no reply to letter.
23 1940	Male	35	do. do.	Three days	History of a blow by a stick	do. do.	do. do.
24 1941	Male	28	Anterior unreduced sub-coracoid fracture dislocation left shoulder	Two mths.	Had inoculation for cholera. Did exercises advised. Was massaged for pain resulting in severe pain. Electric massage given in a hospital. No relief.	Manipulated. Thrive. Reduction not possible. Range of movement improved	Recent letter says he has pain. He has been asked to come back.
25 1941	Male	65	Fracture surgical neck of the femur and fracture anterior sub-dislocation of right shoulder	One day	Was old. Had a pneumonia	Reduction under anaesthesia not thought advisable. Left in that position with arm in abduction without reduction.	Address imperfect—not written to.
26 1943	Male	20	Recurrent dislocation of the right shoulder	—	When he was playing volley ball, he hurt his shoulder joint as he was throwing the ball over the net. Was not able to move the shoulder and it was very painful. Was plastered the same day in the outpatient department. No relief. Later he got admitted.	Nicola's operation was of no use with satisfactory results	Good at the time of discharge. Has gained full movements and keeping fit after 7 months of the operation.

It is also unfortunate that we are unable to judge the results of cases after reduction of dislocations which occurred for the first time. Attempts at follow-up have not been successful except in some cases. It is not possible to say, when dislocations occurring for the first time are properly reduced, that they will remain firm without recurrence. This requires a good follow-up to justify an assertive statement.

Bibliography—According to Chronology of Publications

1. Bankart—Glenoid Fibro Cartilage Suture. British Medical Journal, 1923, ii, 1132.
2. Robert Jones—Injuries of Joints. Oxford Medical Press, 5th Edition, 1924, 78.
3. Keller—Capsular Application, Annals of Surgery, 1925, lxxxi, 143.
4. Thomas—Capsulorrhaphy. Journal of the American Medical Association, 1925, lxxxv, 1202.
5. Henderson—Facial Sling. Surgery, Gynaecology and Obstetrics, 1926, xxxiii, 1.
6. Speed—Glenoid Bone Peg. Surgery, Gynaecology and Obstetrics, 1927, litiv, 468.
7. Bankart—Dislocation of Shoulder Joint. Robert Jones Birthday Volume, Oxford Medical Press 1928, 307.
8. Nicola—Transposition of Biceps Tendon. Journal of Bone and Joint Surgery, 1929, xi, 128.
9. Tavenier—Recurrent Luxation of Shoulder. News Notes. Journal of Bone and Joint Surgery, 1930, 12, 458.
10. Malkin—Myositis Ossificans of Shoulder. Proceedings of the Royal Society of Medicine, 1933, xxvii, 1265.
11. Cubbins Callahan and Scuderi—Irrducible Shoulder Dislocations. Surgery, Gynaecology and Obstetrics, 1934, Iviii, 129.
12. Nicola—Transposition of Biceps Tendon. Journal of the Bone and Joint Surgery, 1934, xvi, 663.
13. Nash—Kocher's Method of Reducing Dislocation of Shoulder Joint. Journal of the Bone and Joint Surgery, 1934, xvi, 535.
14. Henderson—Tendon Sling. Journal of the Bone and Joint Surgery, 1935, xvii, 978.
15. Bennet—Old Dislocation of Shoulder. Journal of the Bone and Joint Surgery, 1936, xviii, 594.
16. Newton—Shoulder Dislocations During Sleep. British Medical Journal, 1936, ii, 1117.
17. Bankart—Pathology and Treatment of Recurrent Dislocations. British Journal of Surgery, 1938, July, 26, 23.
18. Heygroves—A Plea for Simple Operations for Recurrent Dislocations of Shoulder. British Journal of Surgery, October 1938, 375.
19. Watson Jones—Fractures and Bone & Joint Injuries. Livingstone, 1941, 319.
20. Eyrebrook—Morbid Anatomy of the Shoulder in Recurrent Dislocations. British Journal of Surgery, Vol. xxx, 117, 1942.
21. Bost and Inman—Recurrent Dislocations of Shoulder. Journal of the Bone and Joint Surgery, xxiv, 1942, 595.
22. Nicola—Anterior Dislocation of the Shoulder. Journal of the Bone and Joint Surgery, xxiv, 1942, 614.

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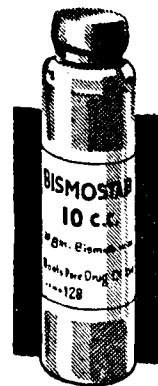
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A Review of Cases of Spontaneous Pneumothorax

BY

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The Tuberculosis Sanatorium, Perundurai.

IN the Tuberculosis Sanatorium, Perundurai, 675 cases of pulmonary tuberculosis were admitted during the period 16-8-1938 to 30-11-1942. Of these, 19 were cases of spontaneous pneumothorax. 9 patients had spontaneous pneumothorax before coming to the sanatorium. One developed latent spontaneous pneumothorax as inpatient. 9 developed spontaneous pneumothorax during pneumothorax therapy. One idiopathic spontaneous pneumothorax case that attended the sanatorium as out-patient is included in this series, making a total of 20. All these can be grouped as follows:—

(1) Idiopathic spontaneous pneumothorax	1
(2) Silent or latent spontaneous pneumothorax	1
(3) Spontaneous pneumothorax with acute symptoms..	8
(4) Localised spontaneous pneumothorax	1
(5) Spontaneous pneumothorax on the contralateral side during pneumothorax therapy	2
(6) Spontaneous pneumothorax in unilateral artificial pneumothorax	4
(7) Spontaneous pneumothorax in bilateral pneumothorax	3
Total	20

Idiopathic Spontaneous Pneumothorax.—Idiopathic spontaneous pneumothorax occurs in the apparently healthy and is "non-tuberculous". It has no demonstrable aetiological factor. X-ray photos Nos. 1, 2 and 3 are those of an idiopathic spontaneous pneumothorax whose physical examination, sputum, and X-ray findings were negative to tuberculosis. Picture No. 2 shows spontaneous pneumothorax of the right lung. It is partially cut off in its lower half.

Case Reports:—A well-nourished individual aged 32 years, male, car driver by profession, was having mild cough off and on for the last 3 years. He was X-rayed here on 14-7-41 (Photo No. 1). His sputum was then negative tubercle bacillus.

He was suddenly attacked with chest pain on the right side during rest in bed at about 10 p.m. about the middle of December 1941 and became breathless. His condition became alarming with shock, and increasing dyspnoea and he was given 2 injections of Adrenalin that night. Two days later he was examined by one of my colleagues. Physical examination showed spontaneous pneumothorax on the right side. After his acute symptoms were over he was brought to the Sanatorium and X-rayed on 26-12-41. His Photo (No. 2) though cut off in its lower half, shows collapse of the right lung. There was no fluid on the side of the pneumothorax. A month later he was fluoroscoped. The right lung had meanwhile expanded to its original size.

Laboratory Findings:—Red blood corpuscles 62,00,000, white blood corpuscles 5625. Haemoglobin percentage 140. Sedimentation blood 1st hour 7 mm., 2nd hour 15 mm. Blood pressure 124/78. Sputum by ordinary smear and concentration, negative to T.B. Tuberculin test not done.

TABLE

No.	Case Serial No.	Sex.	Age.	Date of admission.	Sputum.	Stage of Tuberculosis.	Side of involvement.	Sedimentation of blood on admission. 1st. 2nd Hr. Hr. mm.		Blood Index.	Urine.
1	243	Male	26	16-9-40	Positive to T.B.	IIIC	Left	62	92	121	Albumin Negative
2	344	Male	60	24-1-41	+	IIIC	Right	90	115	141	Albumin Sugar Acetone all positive
3	380	Male	25	10-3-41	+	IIIC	Left	69	95	123	Albumin Positive
4	450	Male	27	7-7-41	+	IIIC	Right	42	72	148	Albumi-nuria
5	582	Male	25	5-2-42	+	IIIC	Right	100	135	153	Albumi-nuria
6	588	Male	31	10-2-42	+	IIIC	Left	61	98	132	Albumin Negative
7	617	Male	27	14-4-42	Not examined	IIIC	Left	Not taken.		—	Not examined
8	625	Male	26	22-4-42	+	IIIC	Right	75	100	115	Albumin Negative
9	775	Male	30	12-11-42	+	IIIC	Left	50	79	98	Albumin
10	786	Male	30	30-11-42	Negative	IIIC	Left	100	138	166	Albumin

I.

Effusion	Symptoms	Treatment, date of discharge, condition on discharge, and ultimate result
Left side	No breathlessness	A. P. failed on the left side. Had one course of Sanoerysin. Left Phrenic operation failed. Phrenic nerve not identified. Discharged on 7-2-41. Improved. A case of localised pneumothorax.
Right side	Breathlessness	A case of diabetes mellitus. Insulin injections. No aspiration of fluid done. Discharged on 8-2-41. Conditions stationary. Diet two weeks after discharge. Upper one third of lung adherent to chest wall.
Left. Slightly cloudy. Negative to T.B.	Breathlessness	Aspiration of effusion twice and air six times. Discharged on 9-6-41. A small adhesion from the apex to the chest wall. Condition stationary. Ultimate result not known.
Right. Positive to T.B. Cloudy	Dyspnoea Oedema feet	Air 5 times. Pleural lavage. Aspiration of fluid 6 times. Patient became delirious. Died on 28-7-41. Total collapse of lung.
Right. Purulent Positive to T.B.	Dyspnoea	Course of Sanoerysin incomplete due to albuminuria. Aspiration of fluid 13 times. Air 6 times. Pleural cavity washed with Iodine solution. Condition stationary. Total collapse of lung. Still in-patient.
Left side. Serous Negative to T.B.	No dyspnoea. No chest pain No symptoms of shock	Aspiration of fluid 3 times. Developed a quiet spontaneous pneumothorax. Total collapse of lung. Aspiration of fluid 3 times. Left A. P. continued. 10 refills. Had one course of Sanoerysin given. Gained 10 lb. Improved. Walking 2 furlongs morning and evening. Discharged on 16-8-42. Ultimate result not known.
Left	Dyspnoea Oedema legs Toxic. General condition very bad	Aspiration of air once. 2 or 3 strands of adhesions from the apex to the chest wall. Died on 15-4-42.
Right Pus positive to T.B.	Breathlessness slight	Aspiration of fluid 11 times with pleural lavage by closed method. Fluid getting clearer. Lung expanding. A small thick adhesion from the upper part of the Lung. Pleural fluid negative to T.B. in the last 3 aspirations. Gained 16 lb. in weight. Still in-patient.
Left Cloudy. Positive to T.B.	Breathlessness slight	Aspiration of fluid twice by closed method and air allowed in to control cough. Aspirations to be continued. A small adhesion from the apex. Still in-patient.
Left. Foul-smelling pus Negative to T.B.	Dyspnoea Toxic	Aspiration of fluid twice by closed method. After the 1st aspiration developed abscess of chest wall. During the 2nd aspiration became cold and clammy. Weak rapid pulse. Given Digitalin 1/100 gr. Strychnine 1/60 gr. 01-Camphor 2cc. Died four hours after aspiration on 9-12-42.

Photo No. 3 was taken on 26-11-42. It shows a few scattered calcified spots. The patient is apparently in good health and has had no recurrence of the attack. It is said that idiopathic spontaneous pneumothorax is benign in its course and is liable to recur. A small emphysematous bulla might have caused the pneumothorax or a small subpleural tubercle that is too small to be seen in the X-ray pictures, might have ulcerated the visceral pleura. The term "idiopathic" means "self-originated" and implies a pneumothorax without a pathological lesion. With the present ideas of pathogenesis of spontaneous pneumothorax the usage of the term "idiopathic" is disputed by some. The patient has no active tuberculosis. Further follow-up of this case is necessary to establish the cause. This may be the first manifestation of latent tuberculosis.

In *Table I* are grouped 1 case of localised spontaneous pneumothorax, one case of silent pneumothorax, and eight cases of spontaneous pneumothorax with acute symptoms. They are arranged according to sex, age, stage of tuberculosis, side of pneumothorax, blood picture, treatment and outcome.

Sex:—All the 10 patients are men. We are yet to see a woman patient with spontaneous pneumothorax though during this 4½ years' period 3391 cases have been examined as out-patients. Spontaneous pneumothorax occurs more often in men than in women, the ratio being 5:1. It is not clear why women are spared this dreadful complication. It may be accidental (SCOTT). The disproportion between men and women can be ascribed to the fact that male patients predominate in hospitals and figures on spontaneous pneumothorax are obtained from hospital records (NORRIS and LANDIS). It can be attributed also to the more strenuous and exposed life of males (LORD). Pneumonoconiosis and emphysema are more common in men and they add to the disparity.

Age:—Tuberculosis being the cause of the whole series, 9 of them are in the age group—25 to 31 years. The only exception is a 60-year old man who was a tuberculous diabetic. Spontaneous pneumothorax can occur at any age, depending on the original cause. In emphysema and cancer it occurs at a late age. The trend in idiopathic cases is towards younger age. Pneumothorax has been reported even in new-born infants.

Side of Spontaneous Pneumothorax.—It will be seen from *Table I* that 6 patients had spontaneous pneumothorax on the left side and 4 on the right. The left lung is more often involved than the right, the percentage being approximately 60 on the left and 40 on the right. None had pneumothorax on both sides simultaneously. Various theories have been advanced to explain the left sided pneumothorax. The constant impact of the heart on the left lung makes it the most motile portion (WEIL). WILSON advanced a theory "that in the normal chest the sudden systolic emptying of from 40 to 90 c.c. of blood from each ventricle is compensated for by an increase in the size of the aorta, pulmonary vessels, a slight lift of the diaphragm, some shift in the position of the pericardial fluid, probably a slight shift of the mediastinum and last, by a change in the intra-pulmonary pressure and some shift of pulmonary tissue immediately over the heart. This sudden change in the intra-pulmonary pressure is probably to some extent distributed throughout the lungs".

The heart action causes an additional pulmonary mobility on the left side. In left-sided artificial pneumothorax one can see wide oscillations of

the monometer. In left-sided artificial pneumothorax with effusion the rhythmic movements of not only the left lung but also of the fluid due to impact of the heart can be seen during fluoroscopy. On the right side these movements are not so visible.

Stage of Disease:—Tuberculosis is the commonest cause of pneumothorax. Spontaneous pneumothorax occurs when the disease is far advanced and also when the disease is very active (POTTENGER). All the 10 patients had extensive pulmonary tuberculosis and were in the ill stage according to the anatomical extent of lesions in the lungs. Their systemic disturbances were of severe degree (C) as shown by their temperatures, blood sedimentation rates ranging from 42 to 100 m.m. in the 1st hour and from 72 to 138 m.m. in the 2nd hour, and blood indices from 121 to 166. Except 2 patients, all had albuminuria.

It is said that rupture of lung is common in the anterior and lateral aspects of the upper half of lung. Rupture of lung is usually due to a sub-pleural tubercle or an emphysematous vesicle. Rarely a peripheral cavity may burst into the pleural cavity. Perforation is single or multiple and of the size of a large circular rent or of a pin hole. It is analogous to gastric or intestinal perforation with the difference that in pneumothorax disturbance of pressure relations between mediastinum and lung comes first into play rapidly. In gastric or intestinal perforation infection, i.e., peritonitis, is the first chief manifestation.

The clinical picture of spontaneous pneumothorax is characteristic. The onset is sudden and unexpected. The patient first experiences chest pain and there is the feeling that "something in the chest has given way". A fit of cough or any slight exertion is the exciting cause. It can occur without any exciting cause during rest in bed. He sits up in bed and is afraid to move and to speak. Dyspnoea and symptoms of collapse—cold clammy skin, and rapid pulse develop rapidly. Temperature falls down and his expression is one of intense mental anguish. With increasing dyspnoea he becomes restless. In a few minutes or hours death may happen as a result of shock and cardiac failure. Usually the acute symptoms subside but breathlessness, though relieved, persists.

In a valvular opening air collects between the two pleurae and the increasing tension displaces the mediastinum. On examination the affected side is immobile, vocal fremitus is diminished, and percussion note is resonant or tympanitic. Heart is displaced to the opposite side. It is the disturbance of the cardiovascular system that causes his distress. On auscultation there is absence of breathsounds or weak breathsounds. Sometimes tubular breathing is heard over the upper part of the back. Metallic tinkling and succussion splash are heard if there is fluid. Bell sound can be elicited and in extreme cases even heart sounds assume metallic character.

On admission 8 out of 10 patients had positive sputum to tubercle bacillus. In one case (*Serial No. 617*) there was no time to examine the sputum as he died a few hours after admission. Only one (*Serial No. 786*) showed negative sputum by ordinary smear and by concentration method. His effusion also was negative to T.B. and highly foul-smelling.

Nine out of 10 patients had pneumothorax and effusion before they were admitted. One had a quiet pneumothorax as inpatient and developed effusion which was serous throughout his stay in the sanatorium. In three,

no tapping of fluid was done. Among 7 cases that had tapping of fluid, 5 were purulent effusions and 2 serous fluids. 4 of the 5 purulent effusions were positive to T.B. The 2 serous fluids and the foul-smelling pus contained no tubercle bacillus.

The collapse of the lung was complete in 4, incomplete in 5 due to adhesions mostly from the apex of the lung to the chest wall, and localised in 1.

Figure 4 represents a total collapse and Figure 5 is that of Case No. 243 that had localised pneumothorax. The upper half of the lung is adherent to chest wall and the mediastinal displacement slight. A localised pneumothorax may simulate a large cavity.

While a small adhesion may give rise to spontaneous pneumothorax by its tugging to a superficial vesicle, extensive adhesions prevent the lung from complete collapse and an entirely adherent lung has no chance of perforation.

Silent or quiet pneumothorax.—Occurs in a small proportion of tuberculous patients, with insidious onset, little pain and little dyspnoea. We have had a Case (Serial No. 588) whose pneumothorax was not diagnosed until he had his initial artificial pneumothorax.

Case Report:—A male aged 31 years was admitted in the general ward on 10-2-1942. His general condition was fairly good. His X-ray photo showed fibrocaceous disease of the upper halves of both lungs with multiple cavities. There was a fairly big cavity in the midzone of the left lung. He had no albuminuria and so a course of Sanocrysin was first started.

On 6-3-1942, initial artificial pneumothorax was done on the left side. The initial pressure was $-6-2$ and after giving 100 c.c. of air the terminal pressure became -4 ± 0 . This might be due to extensive adhesions. There was no succussion splash. On screening the patient on 7-3-42 we found complete collapse of the left lung with fluid upto the seventh rib. His temperature ranged from 99.2 to 100.2 (rectal) for 10 days after his admission. The only clinical indication of pneumothorax was the gradual rise of temperature to 103 noticed from 20-2-1942. This raised temperature continued for two weeks. This was taken to be due to activity of the lung disease and artificial pneumothorax was started on the side of spontaneous pneumothorax. Aspiration of serous fluid was done thrice and it got absorbed within 6 weeks, and his pneumothorax was converted into a therapeutic one. When he was discharged in improved condition, he had gained 10 lb. in weight and was walking 2 furlongs in the mornings and evenings. Temperature was then 98 to 99 (rectal).

Treatment.—The aim of treatment is to relieve dyspnoea, mediastinal displacement, to get the fluid absorbed, to render purulent effusion serous and negative to tubercle bacillus and to attain closure of the perforations, and expansion and functional capacity of the lung. Treatment consists of first sanatorium regimen and aspiration of fluid and air from time to time as indicated by clinical conditions, temperature, dyspnoea, pain, the mediastinal displacement and the amount and nature of fluid. No aspiration of fluid was done in the case of localised pneumothorax. The diabetic patient did not remain here long. He had only a few Insulin injections before he was discharged. Lavage of the pleural cavity with Iodine solution was employed for purulent effusions. Artificial pneumothorax was

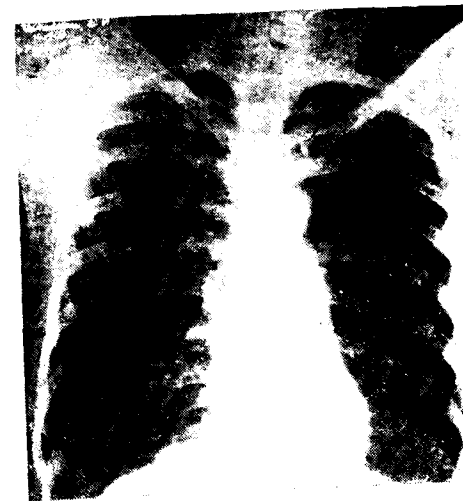


Fig. 1

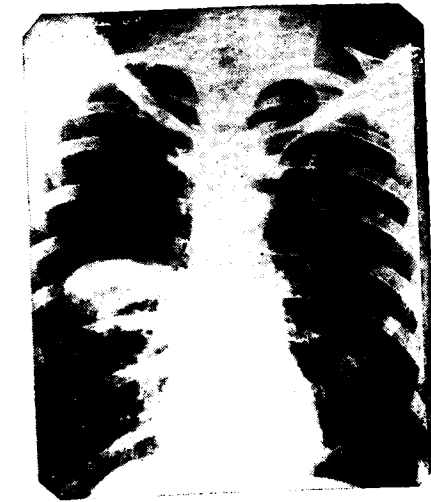


Fig. 2

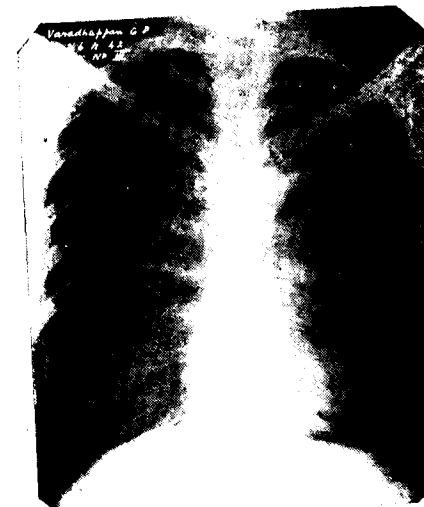
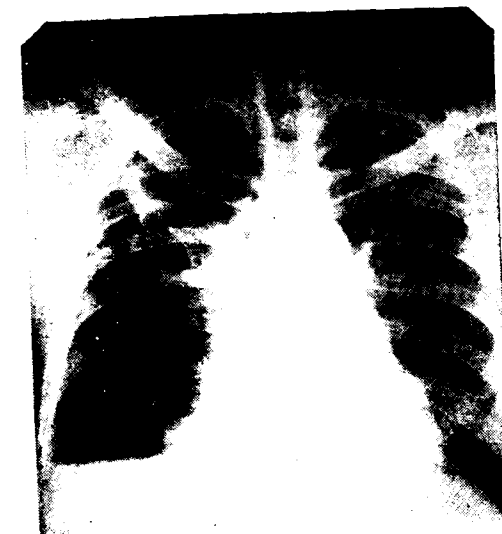
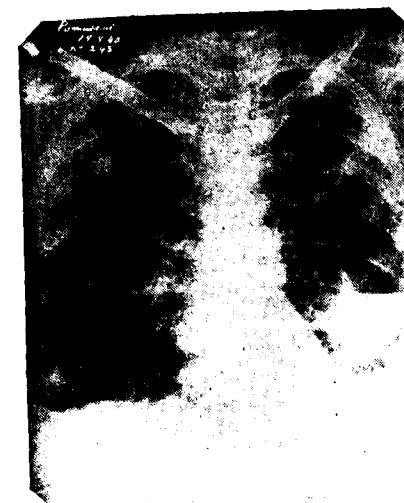


Fig. 3



Fig. 4



A Review of Spontaneous Pneumothorax—By K. A. Arumugam

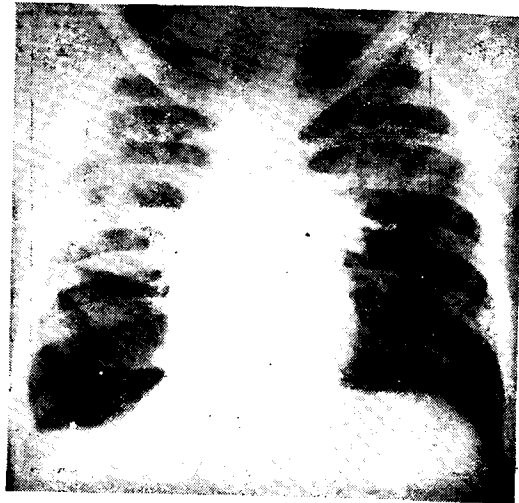


Fig. 7



Fig. 8

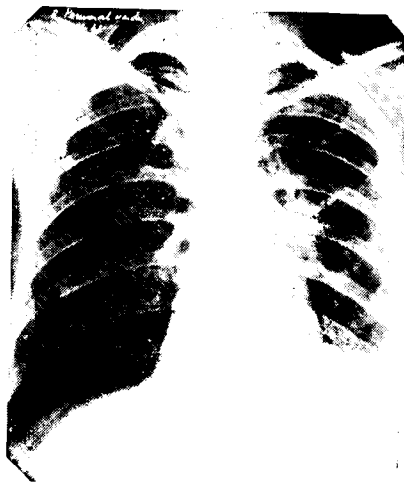


Fig. 9



Fig. 10

- Fig. 1. 14-7-41. Varadappan, G. P.
 Fig. 2. 26-12-41. Varadappan, G. P.
 Fig. 3. 26-11-42. Varadappan, G. P.
 Fig. 4. S. No. 58, 5-2-42. Thumba Gowder.
 Fig. 5. S. No. 243, 19-9-40. Ponnuswami.
 Fig. 6. S. No. 625, 7-2-42. Jayasundaram.
 Fig. 7. S. No. 625, 14-11-42. Jayasundaram.
 Fig. 8. S. No. 322, 31-12-40. R. Perumal Naidu.
 Fig. 9. S. No. 322, 6-6-41. R. Perumal Naidu.
 Fig. 10. S. No. 322, 3-7-41. R. Perumal Naidu.

continued in the silent pneumothorax. Only two had a complete course of Sanocrysin. Phrenic operation was tried in the case of localised pneumothorax but it had to be abandoned as the nerve was not identified.

Figures 6 and 7 show the expanded lung of the patient (Serial No. 625). His purulent effusion has now become serous and is negative to T. B. in the last three aspirations.

Prognosis.—Is always bad in spontaneous pneumothorax, as it occurs mostly in advanced disease. On discharge the condition was improved in two, stationary in two and three are still in-patients. It is possible to improve the condition of the patient No. 582 by repeated aspirations. The other two in-patients can be expected to do well. Four of them died.

Spontaneous pneumothorax on the contra lateral side.—The occurrence of spontaneous pneumothorax on the contra lateral side of induced pneumothorax is rare. We have had two Cases (Table II, S. Nos. 218 and 322) among 250 patients that received unilateral A. P. treatment. Man has no intercommunication through the mediastinum between the two pleural cavities for exchange of air. There is no patent mediastinum as in some animals. Such cases have been ascribed to a caseating bronchial gland or tubercle breaking through the arteria mediastinum. The Case S. No. 322 had finished his 18th refill on the right side when he developed spontaneous pneumothorax with effusion on the contra lateral side. Air was absorbed within a month. In photo 10 the right lung is artificially collapsed and the left lung collapsed spontaneously. The middle of the left lung is adherent to the chest wall.

TABLE II
Spontaneous Pneumothorax on the Contra-lateral Sides

No.	Case S. No.	Sex.	Stage of disease.	Sputum	Date of admission	Condition on admission.	Treatment	Side of pneumothorax.	Date of discharge	Condition on discharge.	Ultimate result.
1	218	Male	IIIC	Positive to T.B.	4-8-40	Extensive disease of both lungs. More marked on the left. Albuminuria.	No Sanocrysin due to albuminuria A. P. on the left side on 9-9-40. Dyspnoea on 10-9-40. 2nd refill on 13-9-40.	Spontaneous pneumothorax with effusion on the right side on 17-9-40. Fluid level below 10th rib.	18-9-40	General condition bad. Dyspnoea increased.	Died 15 days after discharge.
2	322	Male	IIIC	Positive to T.B.	29-8-40	Infiltrations over upper half of right lung with a cavity scattered infiltrations over the mid-zone of the left lung.	A. P. right on 9-1-41. Had 18 refills.	Spontaneous pneumothorax with slight effusion on the left side on 3-7-41. Had 3 more refills on the right side. Air and fluid absorbed on 31-7-41.	5-9-41	Stationary.	Not known.

Spontaneous pneumothorax in artificial Pneumothorax.—Spontaneous pneumothorax is more common in bilateral than in unilateral artificial pneumothorax. During this 4½ years' period 250 patients received successful unilateral pneumothorax and in 23 bilateral pneumothorax was attempted. Spontaneous pneumothorax occurred in 4 patients of unilateral pneumothorax (*Table III*) and in 3 of bilateral pneumothorax (*Table IV*.) The 7 patients had advanced pulmonary tuberculosis (*III-C*).

Puncture of the lung is a common occurrence during artificial pneumothorax and "is only rarely productive of symptoms of acute perforation" (KARAN). If the anæsthesia or pneumothorax needle punctures a normal portion of the lung, it is possible that a small amount of air gets into the pneumothorax, through the opening. This opening soon becomes sealed and the breathing is quiet. If, however, the diseased portion of pleura is punctured, closure and healing of the puncture is delayed with symptoms of spontaneous pneumothorax.

TABLE
Spontaneous Pneumothorax in

No.	Case S. No.	Sex.	Age.	Date of admission.	Sputum.	Stage of Tuberculosis.	Blood Sedimentation, m.m.s.		Blood Index
							1st Hr.	2nd Hr.	
1	105	Male	35	10-12-39	Positive	IIIC	48	72	128
2	178	Woman	30	2-6-40	Positive to T.B.	IIIC	60	84	125
3	223	Woman	25	12-8-40	+	IIIC	43	77	129
4	615	Male	28	10-4-42	+	IIIC	120	142	159

The lung is close to the parietal pleura at initial A. P. and is more liable to be punctured. It is mostly during initial A. P. and early part of pneumothorax treatment that this emergency arises. In *Table III* 2 patients (*Serial Nos. 105 and 175*) had spontaneous pneumothorax after their initial A. P. and the other 2 patients (*Serial Nos. 223 and 615*) after the 6th and 3rd refill. In *Table IV* of bilateral pneumothorax, all had spontaneous pneumothorax after their first A. P. on the less affected side. Thus 5 of 7 patients developed symptoms of spontaneous pneumothorax after initial A. P. Ulceration of a pleural tubercle, tearing of a small adhesion at its attachment to the visceral pleura, and bursting of an emphysematous bulla can cause spontaneous pneumothorax but as ALEXANDER says "these causes do not explain its frequent occurrence at initial A. P. Perhaps the lung was not well away from the thoracic wall, in the two cases *Nos. 223 and 615*."

The symptoms do not arise immediately after A. P. There is in every case a symptomless period of 8 hours before the patient becomes

III
Unilateral Artificial Pneumothorax

Condition on admission.	Treatment and result.
Advanced bilateral disease.	Had two courses of Sanocrysin. Had a few drops of bloodstained sputum. A. P. attempted on the left side on 19-9-40. Pressure —12—2: 100 c.c. air given —8+6 Pressure going to positive side. Hence stopped with 100 c.c. Had no pain and no discomfort. On 20-9-40 breathless and extensive surgical emphysema on the left side. Screening on 23-9-40 showed good air space with the mediastinum displaced to the right. Deflation of air at 5-30 P.M. on 23-9-40. Pressure —8+11:400 cc. of air removed —10+4. Survived the attack.
Bilateral disease: Spleen and liver enlarged. Chronic Malaria. Haemoptysis half a pint of blood on 12-12-40.	Sanocrysin course incomplete, due to albuminuria. A.P. Left started on 14-12-40 for haemoptysis. Pressure —8—4: 350 cc. —6—2. At 7 P.M. on 14-12-40 dyspnoea. 200 c.c. of air removed. Pressure —7—4: 200 cc. —10—5. On 15-12-40 dyspnoea increased. Pulse rapid and thready. Pallor of face. Profuse sweating. At 3-15 P.M. 300 cc. of air removed. Pressure —8+8: 300 cc. —14+2. Cold and clammy extremities. Died at 7 P. M. on 15-12-40.
Very extensive lesions in right lung. Left mid and lower zones also infected.	Right A.P. started on 24-8-40. Had 6 refills, 6th on 9-9-40. Pressure, —12—4: 400—6+1. Dyspnoea on 10-9-40 coloured sputum on 11-9-40. Aspiration of air at 2 A.M. on 12-9-40. Pressure —6+3: 350. Terminal pressure could not be taken. Again at 4-30 P.M. 550 cc. of air aspirated. Pressure —11+4: 550—18—4. Haemoptysis about 4 oz. of blood. 200 cc. air given. Dyspnoea increased. 400 cc. air aspirated. Patient breathless and restless. 400 cc. of air removed. Pressure. —10+6: 400—12+0 Pulse, small volume 152. Respiration 52. Died on 14-9-40. Symptomless period 1 full day.
Very extensive disease over both lungs with multiple cavities.	Sanocrysin course incomplete due to albuminuria. A.P. on the left on 24-6-42. Had 3 refills. Last refill on 27-6-42. Pressure —14—2: 250 cc. —9±0. Breathless on 28-6-42. On 30-6-42 screened. A little fluid seen. On 5-7-42 dyspnoea increased. Profuse perspiration. 400 cc. of straw-coloured fluid removed. Pulse rapid 120. Cyanosis present. Digitalin 1/100 gr. and Strychnine 1/64 gr. given. A. P. needle blocked with fluid. So no air and pressure could be taken. Died on 5-7-42.

breathless. This explains that the needle puncture is first closed and then opened after some strain such as coughing, or getting up from bed or straining at stool.

Dyspnoea is gradual in onset. The respiratory rate increases gradually to orthopnoea. Cyanosis is present but at first it may be slight. Pallor of the face, cold clammy extremities, rapid thready pulse and restlessness due to anoxemia, are marked towards the end. We have had a patient (No. 559) who complained of cramps in fingers and hands. Haemoptysis sets in and is increased with deflation of air as in the cases Nos. 223 and 328. Extensive surgical emphysema was noticed in case No. 105.

TABLE
Spontaneous Pneumothorax in

No.	Case S. No.	Sex.	Age.	Date of admission.	Sputum.	Stage of Tuberculosis.	Blood Sedimentation on admission.		Blood Index
							1st Hr.	2nd Hr.	
1	210	Woman	24	28-7-40	Positive	IIIC	104	122	159
2	328	Male	27	1-1-41	Positive	IIIC	76	112	133
3	559	Woman	22	3-1-42	Positive	IIIC	60	92	115

The diagnosis of spontaneous pneumothorax complicating A. P. is easy when the cardinal symptoms are present. The symptoms and signs may be of varying degrees of severity. ALEXANDER says that "any respiratory difficulty appearing in a pneumothorax patient should be regarded as due to pulmonary perforation until proved otherwise by a determination of the intrapleural pressures. Any diagnostic measure that is not at the same time capable of relieving the symptoms is contraindicated." Though we screened two cases, screening should not be attempted and it is not of much help in diagnosis. It is definitely an extra strain to the patient who is very near death. Change of intrapleural pressures from the previous one towards the positive side is the diagnostic point. Pressures exceeding IV

Bilateral Artificial Pneumothorax

Condition on admission.	Treatment and result.
Infiltrations of the whole of the left lung with cavitations. Right lung showed a small patch at the apex.	A. P. on the left side started on 7-8-40. Had 22 refills. X-ray Photo taken on 9-4-41 showed extension of the disease over the right lung in the apical and midzones with a cavity. Sanoecrysin not given, though no albuminuria. Running high temperature and severe cough present. Sputum still positive. So A.P. started on the right on 24-4-41. Pressure. — 11 — 8 : 200 cc. — 6 — 3 Patient breathless at 6 P.M. So pressure noted on the left side — 20 — 10. Pressure noted on the right side — 4 + 6. So spontaneous pneumothorax on the right. 150 cc. of air taken out. Patient felt comfortable terminal pressure — 8 — 1. Patient again breathless at 9-45 P.M. Respiration 68 p. m. Pulse 138 p. m. 200 cc. from the right lung taken out — 4 + 4 : 200 — 12 — 6. Breathlessness not relieved. Oxygen inhalation. At 12-50 A.M. on 25-4-41 patient restless, cold and clammy. Respiration 60. Running pulse. Died at 1-10 A. M. on 25-4-41. Symptomless period = 8 hours.
Extensive consolidation with a big cavity over the upper third of the right lung. Diffuse infiltrations with cavitations over the upper and midzones of the left lung.	Right A.P. Had a course of Sanoecrysin started on 22-1-41. 14th refill on 25-4-41. — 12 — 2 : 250 cc. — 8 + 2. Lesions on the left side did not show signs of regression. A. P. done on the left side on 2-5-41. — 16 — 9 : 250 cc. — 11 — 4. Breathless at 6 P.M. on 2-5-41. Respiration 44. Pulse 140 p.m. 500 cc. of air aspirated from the right side. — 8 + 8 : 500 cc. — 16 — 4. Patient felt comfortable. Again on 3-5-41 aspiration of air from the left side. 400 cc. removed. Pressure — 4 + 5 : 400 cc. — 6 + 0. No hurried breathing. On 5-5-41 600 cc. air aspirated from the left. — 4 + 8 : 660 — 8 + 2 profuse haemoptysis about half a pint. Patient died on 11-5-41.
Very extensive disease on both sides with very large cavities on the right.	One course of Sanoecrysin given. A.P. on the more advanced right side started on 23-4-42. Had the 8th refill on 22-5-42. Patient had severe pain on the left side with pleural friction. A.P. left started 26-5-42. — 14 — 10 : 200 cc. — 12 — 8. Slight breathlessness at 7 P.M. on 26-5-42 and on 27-5-42. Dyspnoea increased on 28-5-42 at 11 A.M. Pulse feeble and rapid respiration 50 p.m. At 3 P.M. patient restless and cramps in fingers. Oxygen inhalation. Digalen m. 5 by mouth. Ol. camphor 2 cc. Digitalin 1/100 gr. Strychnine. 1/64 gr. repeated 4 hourly. 600 cc. of air taken out left side at 8 P.M. Respiration relieved. Again 500 cc. at 7 A.M. on 29-5-42. Respiration 34 p.m. Pulse 124. Survived the attack. Right A.P. continued from 5-6-42 and had on the whole 21 refills, the last one on 7-10-42. Right A.P. abandoned as there was no improvement. Had two more refills on the left side on 18-6-42 and on 14-7-42. Left A.P. stopped. Patient died after 7 months on 16-12-42.

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the atmospheric pressure are not needed to establish the diagnosis. High positive pressures may be noted in respiratory arrest. Analysis of the composition of the intrapleural air is another method of diagnosis.

It is important to decide the side of spontaneous pneumothorax before aspiration of air. In table III of unilateral artificial pneumothorax, all cases had perforation on the same side as A. P. In table IV of bilateral pneumothorax, the lesser affected lung which had initial A. P. got perforated last.

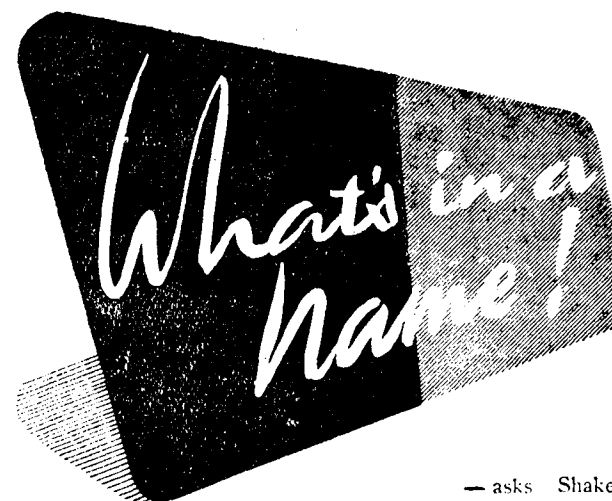
Treatment must be prompt and immediate to control the emergency. The patient is spared all efforts and is put in the semi-sitting position with a back-rest and pillows underneath thighs for support. Even moving the patient from side to side is not allowed. Inhalation of oxygen is continued until the respiratory rate is normal and cyanosis disappears. Oxygen relieves suffocation. The A. P. needle is introduced and air is aspirated with the ordinary Lilington and Pearson apparatus till the patient feels relieved. In large leaks of air the needle is kept and the increasing pressures of air are noted for further aspiration of air intermittently or continuously. Stimulants, Ol. Camphor 2 c.c. Digitalin 1/100 gr., Strychnine 1/64 gr. are needed to support the heart. Two patients (Serial Nos. 105 and 559) survived the attack.

The views expressed in this paper are my own.

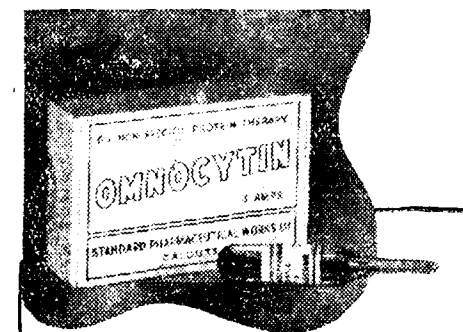
My thanks are due to Rao Bahadur Dr. Y. P. Vasudevan, M.B.B.S., B.S.Sc., the Secretary and Dr. B. S. Viswanathan, L.M. & S., T.D.D. (M) the Medical Superintendent, the C. D. J. Tuberculosis Sanatorium, Perundurai, for their permission to publish this review.

References :

1. The Collapse Therapy of Pulmonary Tuberculosis by John Alexander.
2. The American Review of Tuberculosis, September 1934.
3. The American Review of Tuberculosis, November 1934.
4. The American Review of Tuberculosis, December 1934.
5. The American Review of Tuberculosis, November 1935.
6. The American Review of Tuberculosis, February 1936.
7. The American Review of Tuberculosis, June 1936.
8. The American Review of Tuberculosis, November 1939.
9. The American Review of Tuberculosis, September 1940.
10. The American Review of Tuberculosis, October 1940.
11. The American Review of Tuberculosis, March 1940.
12. The American Review of Tuberculosis, September 1941.



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Dr. A.B.C. Koronah, M.B.B.S.,
Post Box No. 422,
Bombay.

Ram Han,
Dhobi Talao,
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Sept. 22, 1942.

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I must thank you for the sample of Laverain tablets which I tried on a typical case of Malaria. The blood slide was positive and the cure was certainly due to your tablets.

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SSK 42

Retention of Urine

BY

RAO SAHIB DR. A. NARAYANA MENON, M.B., B.S.,

"Menon Clinic" Madurai.

THIS is one of the commonest genito-urinary emergencies the general practitioner has to face in the course of his everyday practice. Mistakes are often made in the treatment of this condition. The object of this contribution is to point out that the difficulties in the treatment of this condition can be overcome if a few fundamental principles are respected.

With a clear and definite preliminary diagnosis, a few selected instruments and a certain amount of patience on the part of the general practitioner the problem of catheterisation and the dilatation of stricture is brought within the limits of simplicity.

It is always very important to remember that failure to pass urine may be due to either retention or suppression of urine. In suppression of urine, the bladder is not distended, there is no pain in the region of the bladder and there is a history of disease of the kidneys. Further, retention of urine may be obstructive or non-obstructive; if due to obstruction, there are spasmodic attempts to pass water; and in non-obstructive cases, there is no desire to micturate and the catheter passes easily.

The common causes of obstructive retention of urine are:—

A. **Bladder.**—(1) Calculus or a blood clot. (2) Retroversion of the uterus and fibroids pressing upon the neck of the bladder. (3) Spasm of the sphincter following rectal or pelvic operation.

B. **Urethra.**—(1) Stricture (usually the result of old gonorrhoea). (2) Acute posterior Urethritis. (3) Enlarged prostate. (4) Stone in the urethra or a foreign body or a blood-clot. (5) Rupture of the urethra with crushing of the walls associated with extravasation of urine and blood into the surrounding tissue. (6) Phimosis.

Causes of non-obstructive retention are: (1) Spinal injuries. (2) Diseases such as tabes and myelitis. (3) Atony of the bladder.

The commonest causes of retention in each of the age-groups are: (1) Phimosis in infants. (2) Acute gonorrhoea and calculus in young adults. (3) Stricture in adults. (4) Enlarged prostate in old people.

The gynaecological condition of retroversion and fibroids is to be considered in the case of women.

In short, the diagnosis of retention can be easily made by a careful history, a routine examination of the genito-urinary system, a rectal examination and the passage of a medium sized catheter with a tapering point. A rectal examination helps in the diagnosis of an enlarged or hypertrophied prostate; the passage of the medium sized catheter is impeded in the penile portion of the urethra or at the commencement of the membranous portion of the urethra in cases of stricture; but in enlarged prostate, the impediment is not encountered until the posterior third of the urethra is reached.

A retroverted gravid uterus by compressing the urethra may cause sudden retention of urine in the 3rd month of pregnancy in the female and it must also be remembered that some cases of retention of urine during puerperium are due to displacement of the uterus and not due to spasm of the bladder sphincter.

In injuries of the urethra, the retention of urine is due to obstruction caused by the crushing of the walls of the urethra and is usually associated with extravasation of urine and blood into the surrounding tissues.

A few salient points to be remembered in the treatment of retention are: (1) Preliminary medical treatment. (2) Strict asepsis. (3) Satisfactory anaesthesia. (4) Avoidance of laceration of the urethra. (5) Slow decompression of the bladder.

1. In every case of retention of urine due to stricture (the common cause), there is a certain amount of congestion of the system and spasm. Preliminary treatment with an enema, a hot hip bath or hot fomentation of the perineum is always useful. The writer has found the application of diathermy very useful. An injection of Doryl, Esmoline or any other substitute should be given.

2. Observance of rigid asepsis is the key-note of success in the treatment of the condition. Catheter fevers, rigors, alarming rise of temperature associated with suppression of urine and even death described in old text books are generally due to infection. These can always be avoided by adopting a correct aseptic technique. The infection is most frequently produced by a septic instrument. The passage of a sound or a catheter must always be considered as an operative procedure of the first magnitude. The sterilisation of sounds and catheters can easily be done by boiling in a suitable steriliser. The gum elastic bougies and catheters which require a special technique in sterilisation are better avoided by the general practitioner. The simple instruments like sounds and catheters are taken out from the steriliser with an instrument forceps and kept on an aseptic table covered by a sterilised towel. Even the sharp instruments like syringes and needles, scissors, and knives need boiling but can be protected by wrapping them in gauze or lint and separating them from other instruments during sterilisation. An aseptic table and a few sterilised towels are very essential requisites.

3. After the preliminary medical treatment and sterilisation of instruments, the patient is prepared and a suitable anaesthetic administered before the passage of an instrument.

The skin of the scrotum, penis, lower portion of the abdomen and inner sides of the thighs are washed with a weak solution of Dettol or Biniodide in Spirit before the sterilised sheets and towels are applied. The glans penis is also cleaned with antiseptic lotion after retracting the prepuce. The sterilised towels must be used freely so that the hands of the surgeon or the shaft of the catheter or sound may be protected from contamination during a prolonged or difficult instrumentation.

As the anterior urethra usually harbours many organisms, it should be washed out as a routine with a weak Dettol solution, Oxy-Cyanide Sol. (1 in 1000) or any non-irritating antiseptic.

A local anaesthetic should always be used as a routine, as the urethra, especially the posterior segment, is extraordinarily sensitive. The difficulties of instrumentation can be easily overcome by adopting a correct anaesthetic technique. Pantocaine 2%, Percain 1 to 15% or the following formula of Cocaine may be used.

Cocaine Hydrochloride	...	gr. 3.
Soda Bicarb	...	gr. 3.
Chlorotone	...	gr. 1½.
Distilled Water	...	oz. 1½.

The solution must be freshly prepared. Half an ounce of this solution is used to produce complete anaesthesia of the urethra. A few drops of Adrenalin are added to localise and prolong the anaesthesia.

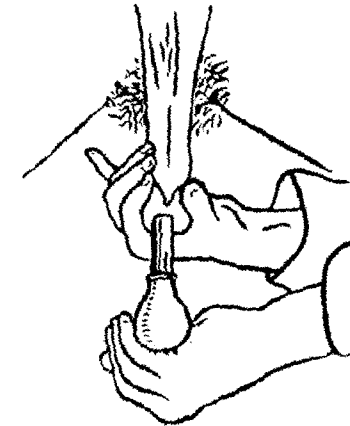


Fig. 1.
The local anaesthetic is injected with a glass syringe to which a rubber bulb is attached. On withdrawal of the syringe the lips of the meatus are held together with the fingers of the left hand.

—Courtesy of 'Practical Procedures'.

escapes. A second drachm of the fluid is injected as before into the anterior urethra and the meatus lips are held by the fingers or by a penile clamp. After a lapse of five minutes the penis is again grasped, the clamp removed and the fluid once again massaged into the posterior urethra. This process is repeated until four drachms have been introduced — the whole procedure occupies nearly 15 minutes. It is absolutely necessary to await these minutes for the con-

—satisfactory anaesthesia.

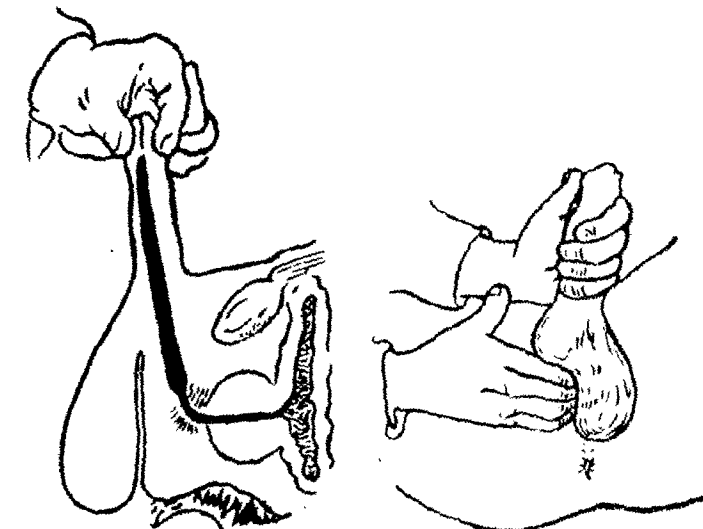


Fig. 2—A.

Fig. 2—B.

A. Anterior urethra distended with local anaesthetic solution.
B. Penis is grasped with the left hand to force the solution backwards. Right hand massages the solution into the posterior urethra.

—Courtesy of 'Practical Procedures'.

minutes. It is absolutely necessary to await these minutes for the con-

The writer uses as an alternative in highly nervous patients sacral anæsthesia either alone or in combination with local anæsthesia. When there are no contra-indications and when an assistant is available, intravenous Evipan is a suitable anæsthesia for the dilatation of stricture.

In doubtful cases and in indefinite cases of stricture, the writer passes first the metallic sound before passing a silver or rubber catheter, as the sound passes easily by its own weight and chances of laceration or injury to the urethra are less. The patient is kept either in the lithotomy position or in the supine position. The supine position is generally preferred; the surgeon stands on the left side of the table and holds the penis in the left hand in the midline position pointing obliquely towards the ceiling. The sound is dipped in sterilised castor oil and the nose of the instrument is passed into the meatus while the shaft lies in a position approximately parallel to the Poupart's ligament. The left hand draws the penis well forward on to the sound. The shaft of the sound is rotated until it lies in the line of the linea alba, between the umbilicus and the pubes. The instrument is now gradually raised until the point has travelled to the region of the bladder. At this stage, if difficulty is experienced, the progress of the sound may be accelerated by pressure on the perineum. The handle of the instrument is vertical; the nose is gradually entering the membranous portion of the urethra. Finally, the handle is gently lowered between the thighs, the tip enters the bladder and free rotation of the instrument is now possible. As a rule, the metal sound overcomes any spasm of the compressor urethra muscle, if slight pressure is exerted and if a few seconds are allowed to elapse; this spasm is seldom experienced when a local anaesthetic is employed. A rubber or silver catheter passes easily after the sound. Force should never be used in passing a sound so as to avoid injury to the urethra or formation of a false passage. The metal bougie usually slides in under its own weight. Once a false passage is made, no further instrumentation should be made. If dilatation of the urethra fails, the following courses have to be adopted:—(1) Suprapubic puncture. (2) Suprapubic catheterisation; or, (3) Wheelhouse's operation.

The suprapubic puncture should be made exactly in the middle line and one finger breadth above the symphysis pubis with a spinal puncture needle. The bladder is allowed to empty slowly; but should not be allowed to empty completely. A few hours after the puncture, a bougie should go in easily. The puncture should not be repeated more than twice.

The next procedure to be adopted is suprapubic catheterisation and not cystotomy in acute retention, as rapid decompression causes shock in elderly people. An ordinary soft catheter can be inserted through a stab.

Wheelhouse's operation (external urethrotomy) is done, if the above-mentioned procedures fail. This is needed only in cases of hard, indurated and unyielding stricture when a bougie cannot be passed even after repeated suprapubic puncture. In these cases the patient should have periodical dilatation after the perinial wound has healed.

In conclusion, it has to be emphasized that no catheter or sound should be passed in anuria and that a sound or a catheter should always be avoided in retention of urine due to acute urethritis.

References:

1. J. Snowman, M.D., M.R.C.P., (Lond.)—*Lenzmann's Manual of Emergencies*.
2. Lt.-Col. A. N. Palit, O.B.E., F.R.C.S. (Edin.)—*Common Mistakes of Surgery in India and How to Avoid These*.
3. Sir W. I. de C. Wheeler—*Catheters and the Avoidance of Sepsis, 'Practical Procedures'*.

Snake Bite

BY

R. K. BHATTACHARYA, M.B.,

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I. **Case Incidence.**—Snake bite constitutes an emergency of the first order. Perhaps it falls to the lot of every medical practitioner to treat a case of snake bite now and then. About 20,000 deaths are annually reported in India to be on account of snake bite. In 1900, the reported mortality was 22,393, distributed as follows:—

Presidencies:

Bengal	10,557
N. W. P. & Oudh	6,056
Madras	2,037
C. P.	994
Punjab	893
Burma	874
Bombay	701
Assam	170
Berar	104
Ajmere and Marwar	4
Bangalore	2
Coorg	1
	22,393

The average death rate per million was calculated in the ten years ending 1869—as ranging from about 45 per million in the Punjab, to about 130 per million in Bengal; and in the district of Burdwan in Bengal it was as high as 173 per million. It will thus be seen that Bengal alone contributes about 50% of the huge number of victims.

The number of cases, all over India, that actually call for medical aid, must be very vast indeed, considering that the accident always includes, along with bites by poisonous snakes, those by non-poisonous snakes, and cases of supposed snake bite.

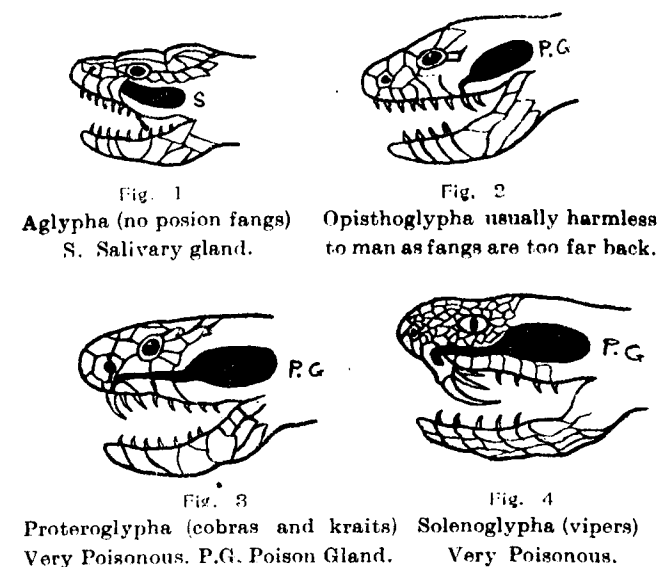
DR. S. K. GANGULY, M.B., D.T.M., Assistant Professor of Entomology, School of Tropical Medicine, Calcutta, estimates that about 25% of all snake bite cases are by poisonous snakes, and that about 100,000 are annually bitten by snakes in India. Of these about 20,000 die, and 80,000 survive. This computation, however, would put the death rate by poisonous snake bites at 80%, which is much higher than the following reckonings. MANSON BAHR says:—The mortality from snake bite, even of the most venomous varieties is not so great as it is popularly supposed to be: it is estimated at about 30 per cent.

KNOWLES says that cobra bite, even if untreated, has a mortality of about 40% only. In the *Medical Annual* 1917, it is recorded with reference to a list of 53 cases of snake bite reported in the Central Provinces, that in cases treated with Antivenene, the mortality was 64.1%. On the whole working out the death rate at 50% of poisonous bites, and reckoning 25% of all snake bite cases as by poisonous snakes, 20,000 deaths would yield 160,000 snake bite cases in the year, all over India.

It therefore needs no apology to press the claim that every practitioner in the tropics should possess a ready and working knowledge about snakes, their poisons, and treatment.

II. **About Snakes.**—*Ophidia* :—About 1,700 species of snakes are known, of which about 300 may be classified as venomous. Within Indian limits including Burma, there are about 330 species of snakes, of which about 70 (40 land species and 30 sea species), are poisonous. There are 7 non-poisonous families of snakes, and the two families to which the poisonous or thanatophidia belong are the colubridae and the viperidae. The diamond shaped head and the narrow neck and the short, sharp, stumpy tail are familiar viperine characters. Colubridae are a very large family and form roughly 9/10ths of all species.

Snakes are sub-divided as follows in reference to poison fangs *i.e.* grooved teeth—(glypha) :—



Viperidae and Crotalidae, all are more or less poisonous and possess large poison fangs. (Fig. 4).

The poison fang is a long conical tooth so inrolled upon itself as to give rise to a deep groove along its anterior aspect. In the viperidae the groove is converted into an acutal canal by the union in front of its bounding laminae, and the tube thus produced opens at the extremity of the fang by a minute fissure. Connected with the poison fang is a poison gland which may be regarded as a specially modified salivary gland and is situated below and behind the eye, one on each side of the mouth. This gland secretes the clear viscid fluid which is the venom, and it is covered by one of the muscles of the cheeks. When the animal bites, the contraction of this muscle forces some of the poison out of the gland into duct of the fang whence it penetrates the wound. It will thus be seen that in the viperidae, owing to the peculiarity of the channel, the poison always reaches the deepest part of the wound.

Behind the poison fang in the solenoglypha and the proteroglypha, are situated reserve fangs destined to take the place of the function fang, if the latter should break. Those who deal with snakes and yet are ignorant of this fact have often paid the death penalty or come to grief with the false sense of security, having once broken off the poison fangs.

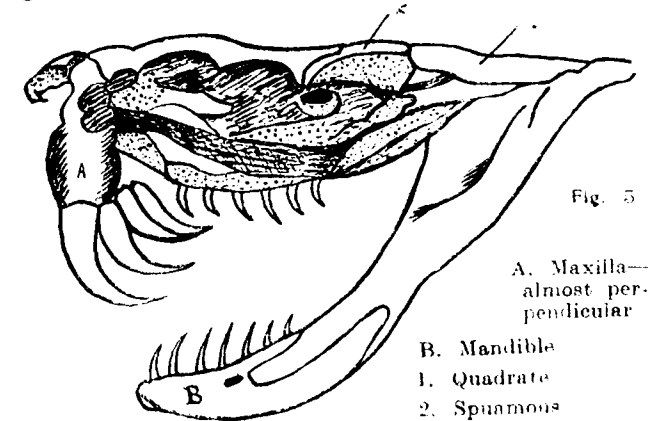
Colubridae :—

- (1) Aglypha—no poison fangs—(Fig. 1).
- (2) Opisthoglypha—some of the posterior maxillary teeth are grooved and connected by a duct with poison gland. Usually harmless because the fangs are too far back (Fig. 2).
- (3) Proteroglypha—the anterior maxillary teeth (fangs) are grooved—(Cobras and Kraits—(Fig. 3).

Viperidae :—

- (4) Solenoglypha—(tube-like groove) the

The two families viperidae and colubridae are separable upon the osteological characters of the skull. In the viperidae the maxilla is short and



Viperine Skull.

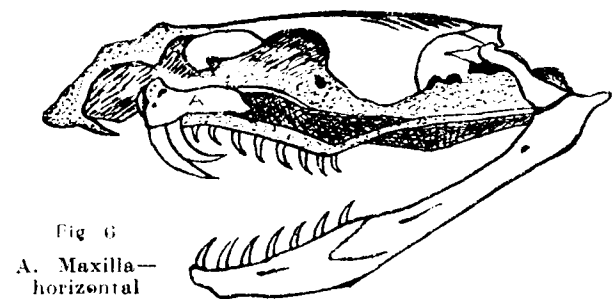
lies obliquely, almost at a right angle, while in the colubridae it is of considerable length and lies horizontally (Fig. 5 & 6). In the former the maxilla can be elevated or depressed by the peculiar lever-like arrangement of the other bones of the skull and mouth (mandible, quadrate, squamous, etc. See Fig. 5). When the mouth is opened

the mandible presses on the quadrate and the fang is elevated, and when it is closed the fang comes to lie nearly horizontally along the palate, hidden between folds of the mucous membrane of the mouth.

In this connection the following general peculiarities in snakes are worthy of mention :—

The ribs are numerous, but a sternum is not developed. The abdomen is covered with transversely elongated scales or "Scuta" or "Ventrals".

The ribs are extremely movable, and are terminated by tapering cartilages, which are attached by muscular connections to the abdominal shields. By means of this arrangement snakes are enabled to glide rapidly along the ground. But they cannot run as fast as one would suppose from their agility.



Colubrine Skull

Their eyes are unprovided with eye-lids, and are covered by a layer of transparent epidermis, which is periodically shed with the rest of the epidermis of the body, they being rendered thereby temporarily blind. Snakes are therefore often sluggish just after moulting.

The head has no tympanic cavity or external auditory meatus. They can, however, feel the vibrations of the earth produced by footsteps or thuds of sticks and the like. It is doubtful whether there is any mechanism to catch airborne sound vibrations.

The tongue consists of two muscular cylinders united towards their bases, but free towards their extremities. It is probably not an organ of

taste but of touch. One wonders whether it also acts to help the eyes in judging distance from the victim, considering the rapidity with which it is alternately protruded and drawn in when a snake becomes circumspect. Its most natural use is of course for licking up liquid.

The two rami of the mandible are connected in front by ligaments and muscles only. The two sides of the lower jaw thus move independently. All the teeth are conical, recurved, and anchylosed with the bones to which they are attached, being suited for killing or holding the prey and not for mastication. Owing to the above peculiarities snakes are enabled to open their mouths laterally as well as vertically, and to swallow large morsels entire.

The left lung is in general rudimentary or absent. The right lung is long and tubular and ends posteriorly in a sack or air reservoir.

III. The Poison.—The venoms vary greatly in degree of toxicity; their lethal action on different species of animals and their physical characters and chemical composition differ to some extent according to the species or family to which the snake belongs. The specific action of the venoms appears to depend upon the ferments and lysins they contain. As far as is known the following substances enter into its composition:—Fibrin ferments; proteolytic ferments; cytolytins acting upon red cells, leucocytes, epithelial cells and nerve cells; agglutinins; and neuro toxins, with affinity for all nervous tissues, and specially for the respiratory centre. The neuro-toxins preponderate in the venom of the colubrids, while those which act upon the blood and cardio-vascular system are most characteristic of the viperines. Colubrine venom also contains haemolysin and cardiac stimulant and viperine venom contains a haemolysin, a coagulin and a cytolytin.

The venom of the cobra when freshly ejected is a light amber-coloured liquid, like clear varnish, feebly acid in reaction: it dries in the air into a yellowish film which tends to split up into bright yellowish scales and granules. This yellow powder has an acrid odour and is an irritant to mucous membranes. It is soluble in water, the solution becoming actively toxic. The dried venom retains its toxicity for several years, and may be heated up to 125° without losing its poisonous properties. Viperine venom is less resistant to heat and more easily destroyed by caustic agents than colubrine venom.

The snake venom has a local as well as a remote action. Locally it acts as an irritant and hence causes immediate burning pain in the wounded part, followed by swelling and inflammation. Its remote action is exerted mainly either on the nervous system or on the circulatory system or on both.

In the Colubrine bite an interval of fifteen minutes to an hour elapses before the appearance of general symptoms. Then appears a feeling of intoxication, dullness, and apathy followed by loss of power in the legs, the patient staggering or falling if he attempts to walk. Nausea and vomiting may appear early. The loss of power gradually spreads to other muscles, those of the tongue and larynx becoming early affected, and the powers of speech and deglutition are lost; the saliva trickles away. The mind remains active to some extent. The paralysis gradually becomes general. Of course minor muscular twitchings are possible and often take

place. The respiration becomes slow and weaker and weaker till death occurs by asphyxia. The heart beats for some time yet. Death seldom occurs before half an hour. The pupil is contracted throughout. Should the patient survive the paralytic symptoms, recovery is rapid.

In Krait venom, in addition to the above, haemorrhage into stomach and bowels may occur, accompanied in many cases by violent abdominal pain. The paralysis may not typically begin in the legs.

In the Viperine bite, the local irritation is very marked. The bite causes severe pain, with rapidly forming and extensive oedema, together with blood-stained discharge from and ecchymoses around the puncture marks. Nausea and vomiting soon supervene. The pupils are dilated and insensitive to light. Loss of consciousness is more or less complete, but temporary recovery may sometimes occur. Should the effect of the toxin wear off, the local condition of the wound continues to give trouble. There are no symptoms of paralysis. In protracted cases, and especially in bites by the Phooras (*Echis Carinata*) the tendency is to haemorrhages—subcutaneous, from mucous surfaces, haematuria, melaena, extravasations, oedemas. The suffering may continue for days and death may ultimately occur by exhaustion and septicaemia, haemorrhages, or other complications. Death may even be almost instantaneous. Very rapid deaths are due to an extensive intravascular thrombosis, especially of the pulmonary arteries. This explains the leading symptoms in the rapidly fatal cases, namely, the gasping with quickened and laboured respiration and violent convulsions. In viperine poisoning nervous symptoms may appear but the peculiar colubrine paralysis of the tongue and larynx with salivation is never seen. Mental shock is also a factor in many cases of snake bite and may be so great as to prostrate the patient in a state of trance; or may even cause death even in a non-poisonous case.

IV. Diagnosis.—An anomalous position often appears after ligation of the bitten limb, especially in colubrine poisoning. If there appear no general symptoms of poisoning and the patient looks all right, people get suspicious whether the bite is by a poisonous snake, and whether the case is one of snake bite at all, particularly when the fang marks and the local reaction are not conspicuous. This has often led people to loosen the ligature and court disaster. The fang marks may not always be the classical two punctures with sanious oozing from them. There may be two scratches, or the marks may even be so indistinct as to require a lens for their detection. On the other hand several teeth marks may appear in some cases.

Unfortunately no test has yet been discovered to know whether the poison has been deposited in the wound in doubtful cases. A popular method is to apply small-sized chickens to the enlarged wound with their cloacal orifices pared with a razor. This is said to serve two purposes:—(1) If the raw surface comes in contact with the poisoned blood of the patient, the chicken would be poisoned and thus succumb; (2) it is popularly believed that contractions of the cloacal orifice would serve to suck the poison out of the wound. The experiment is worth trying if it can be managed.

Sometimes the assailing snake is killed or captured and exhibited along with the patient. Although it is sometimes difficult to ascertain

whether a snake is poisonous or not, some guidance may be obtained from the following notes:—

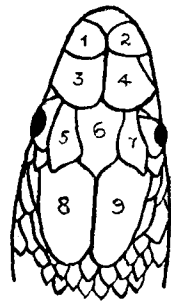


Fig. 11
Head of Colubrine Snake
(Note nine shields)

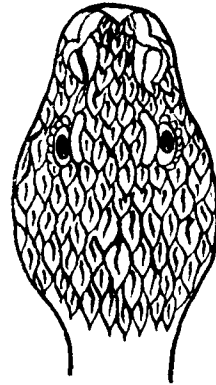


Fig. 9
Head of Viperine Snake

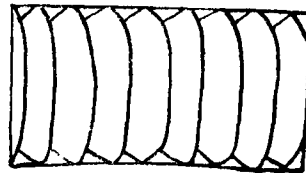


Fig. 8
Ventral scales of
Poisonous snake

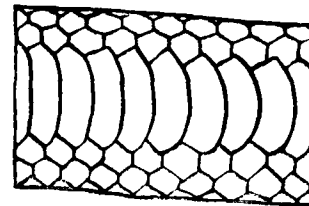


Fig. 7
Ventral scales
of Non-poisonous snake

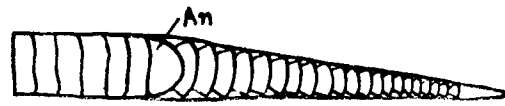


Fig. 12
Tail of Bungarus Candidus (under side)
Note Single row. An—Anal Shield

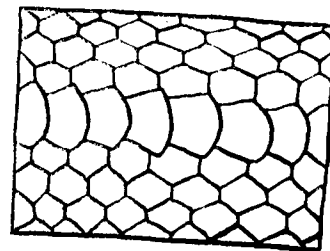


Fig. 10
Back of common Krait (Note
middle row of Vertebral Scales)

on back are definitely the largest—most probably poisonous. (Fig. 10.)

(8) If poison fangs can be discovered—positively poisonous.

(1) Scales on belly similar to those on back, or when broad not extending completely across—non-poisonous. (Fig. 7).

(2) Ventrals broad and extending completely across belly—poisonous. (Fig. 8.)

(3) Scales on top of head all small, head pear shaped, and sharply separated from body by a neck—Viperidae—poisonous. (Fig. 9).

(4) Pit at side of head between eye and nostril—Viperidae—poisonous.

(5) Third supralabial scale not counting anterior central scale, touches nasal scale and eye—poisonous.

(6) Fourth infralabial scale not counting anterior central infralabial scale—is the largest—poisonous.

(7) Central row of scales

(9) Some scales on top of head are large, usually nine in number—probably poisonous (Fig. 11 vide page 122.)

(10) Large scales on top of head, no pit, third supralabial does not touch nasal scale and eye—may be poisonous.

V. Treatment.—The horrible nature of the accident and the appalling mortality demand prompt and vigorous treatment. In the great majority of cases the extremities are the sites of injury and admit of ligaturing to stay the absorption of the poison into the circulation. The all-important first aid is therefore to tie an efficient tight ligature above the part bitten, with anything at hand. A second ligature is to be tied tightly around the next higher upper part having a single bone within, like the femur or the humerus, as around part containing double bones the circulation through deep veins cannot be efficiently impeded. The ligature should not be slender, as that would easily injure the soft parts in its grip, including blood vessels, and lead to necrosis and gangrene easily. If available, rubber tubing or the inner tube of a cycle wheel is the best ligature material. The bitten person must not be allowed to walk or run, for that would accelerate the circulation of the poison.

Amputation of the bitten part may be effective if it can be chopped off immediately. It is of no avail after symptoms have appeared. It is often advised in the text books that the bitten part should be sucked to draw out the poison. The procedure is not without its danger. Besides, it is extremely doubtful whether the poison can thus be cleared out of the interstices of the tissues. It should be remembered that the lethal dose of venom is very small, and the snake injects many times the lethal dose if it can bite well. The Cobra injects about 1 c.c. of venom containing about 370 mg. (5½ grains) of solid matter. It is equal to about 20 lethal doses (½ grain each). MAJOR KNOWLES found in an experiment that the amount of the cobra venom injected at a successful bite averages from 172 to 211 mgs. The daboia can inject about 100 mgs. (1½ grains) at a bite. This is about three lethal doses (3/5 grain each). The estimated minimum lethal dose of echis venom, according to ACTON and KNOWLES, for man is about 10 mgs, whilst the dose given at a bite varies from 1 to 50 mgs., with a mean of 13.3 mgs. estimated in reference to desiccated venom. The chances of natural recovery after echis bite are therefore some 40%. The venom in this case tends to cause more haemorrhage and less thrombosis than is the case with Russell's Viper venom.

Snakes seldom get the chance to inject to their hearts content. In the case of the colubrines the ligature probably has little effect, as the neurotoxins may act whenever it is loosened. But in viperine poisoning the fibrin ferments cause intravascular clotting in the bitten part and the poison is thus localised to some extent. It is a pity that the ligature cannot be left in situ indefinitely, as closed circulation leads on to gangrene. In the great majority of cases after half an hour the ligature begins to give so much pain to the patient that he writhes in agony, and demands its removal even at the risk of losing his life. In such a circumstance it has to be loosened and a fresh one applied next higher up. This procedure eases matters for a few minutes only. Local treatment of the wound must therefore be promptly and thoroughly carried out and the ligature gradually and cautiously loosened, watching for symptoms all the while. At first circulation should be allowed for a few seconds only and the ligature

sometimes ranging far from land. They are adapted for swimming by having the tail vertically compressed and broadened out. These are extremely poisonous.

Viperidæ.—These are divided into Vipers proper—Viperinæ and Pit Vipers or Crotalinae. The notorious rattlesnake of America belongs to the latter class. Pit Vipers mean that they have a deep pit between the eye and the nostril.

- (A) VIPERINÆ:—(1) *Russell's Viper*—Daboia Russelli Vern:—Bora, Tickpolonga, Gunus, growing to 5½ ft. usually reddish brown, with three longitudinal series of diamond shaped, white edged markings on back and sides.
(2) *Echis Carinata*:—Vern. Phoorsa, length upto 2 ft. scales on sides of the body have serrated keels; shields on under surface of tail arranged in single row. A dart shaped whitish dark edged mark on the head.
- (B) CROTALINÆ:—(1) *Ancistrodon*—head covered in front with nine large symmetrical shields. Length up to 3 ft. Vern.—Karawala.
(2) *Lachesis*:—Head covered uniformly with small scales. Length up to 3½ ft.

Sea snakes are credited to be the most poisonous of all. Of land snakes, the hooded colubines head the list; next come the great Russell's viper and the krait, especially the blue krait. The cobra, the daboia, the krait, and the phoorsa, are the four commonest assailants. The cobra, after having bitten, remains attached to its prey for an appreciable time, whilst the daboia darts with incredible rapidity and then releases its victim immediately. But occasionally the latter fails altogether in its strike. In daylight the cobra may strike with closed mouth without biting at all, and even when it does bite, it often mistakes the distance and thus fails. Snakes which are non-poisonous or slightly poisonous often bite freely and ferociously when disturbed. Both the great snakes, when enraged, emit a gruff sound which is much harsher than the ordinary hiss. In the daboia it is like a roar, and one can flee from its presence, thus cautioned. The cobra in spreading its hood raises its head upto one-third of its whole length. It lives in and near human habitations. The keutia (Cobra without spectacles) is of an angry nature and lives in jungles and corn fields. It is blackish or greyish while the spectacled cobra is brownish in colour. The king cobra attains a very large size and is very ferocious, attacking any living creature on the slightest pretext. Luckily they live in deep jungles and feed chiefly on snakes. They are grey in colour and have whitish bands near their tails. They have eleven shields on their heads instead of nine. The krait is very mild natured, and does not bite unless trampled on, but it is deadly to the extreme.

Snake venom is not a secretion of offence only. It has its physiological use in overpowering the prey and aiding in its digestion. Venom is only a special form of the saliva. A snake is probably naturally immune to its own poison. Logically therefore snakes of the same species should be able to withstand bites by their fellows. But it is also a fact that snakes die by snake bite. It is difficult to understand what happens in their natural state. But in captivity snakes of the same species do not quarrel. It stands to reason that if an animal be immune to its own

poison or to the poison of a fellow animal, its serum should have the protective value if injected into some other animal. Those who possess the facility may prepare snake serum and try the effect of injecting it into warm blooded animals, both subcutaneously and intravenously. Experiments may be taken up to try to decide whether and to what extent snakes can withstand the injections of snake venom. All varieties of snakes, both poisonous and nonpoisonous may be used for the experiment. And if naturally immune snake serum be found or if immunity can be built up in snakes easily, snake serum will one day be a great aid in treatment, if it be not antagonist to human blood and tissues.

Summary.—SECTION I.—*Case Incidence*:—(1) More than twenty thousand deaths take place in India annually by snake bite. To this death roll Bengal contributes half the number; and in Bengal the district of Burdwan is the foremost in snake bite mortality. (2) About twenty-five per cent of all snake bite cases are by poisonous snakes, and about 50% of poisonous bites succumb. Thus the case incidence in the year all over India would amount to one hundred and sixty thousand.

SECTION II.—*About Snakes*:—Within Indian limits, including Burma, there are about three hundred and thirty species of snakes, of which about seventy are venomous, comprising forty land species and thirty sea species. Of the poisonous snakes, colubridæ form about nine-tenths of all living species and viperidæ, the remaining one-tenth. Their subdivisions are given together with some anatomical peculiarities of snakes in general.

SECTION III.—*The Poison*:—Venom is the secretion of poison glands that are analogous to salivary glands. Colubrine venom contains a neurotoxin, a haemolysin and a cardiac stimulant. Viperine venom contains a haemolysin, a cytolyisin and a coagulin. Other characteristics of snake venom are detailed. The local and remote actions of the two types of venom are described.

SECTION IV.—*Diagnosis*:—There is no definite way of knowing whether venom has been deposited within the tissues. A popular method of employing small-sized chickens for the purpose is described. Notes are given to help the identification of a poisonous snake by examining its scales and teeth.

SECTION V.—*Treatment*:—Ligature, local treatment, Antevenene, and other general treatment are described in detail.

SECTION VI.—*The common poisonous snakes of India and their habits* are described. The author has hinted on experiments that may be advantageously undertaken to find out if snake serum can be prepared and used as a medicine against snake bite.

The best thanks of the author are due to DR. S. K. GANGULI, M.B., D.T.M., Assistant Professor of Entomology of the School of Tropical Medicine, Calcutta, for some of the illustrations and for much valuable information. The author would take this opportunity also to thank DR. K. C. GHOSH, lately Assistant to Professor of Physiology, King Edward VII College of Medicine, Singapore, who has very kindly drawn all the illustrations taken from different sources.

References:

1. Manson's Tropical Diseases.
2. Lyon and Waddell's Medical Jurisprudence for India.
3. Nicholson's Text Book of Zoology.
4. Medical Annual, 1917, 1934.
5. The Indian Medical Gazette, 1921, 1922, 1924.
6. S. K. Ganguly—Sarpa O Sarphaghat Chikitsa. "Ananda Bazar Patrika", Saradia Sankhya, 1348 B. S.
7. B. W. & Co's Medical Diary, 1931.

tightened again. Then after half an hour, for a longer while, and so on and so forth till the patient gets out of danger.

As for local treatment of the wound the puncture area should be thoroughly opened up, encouraging free bleeding and washed with warm Potass. Permanganate solution 2 to 5%. Then a suitable quantity, according to the site of operation, of the solution or 2 to 5% Gold Chloride solution or Antivenene, should be injected to infiltrate the soft parts around the injury, with a view to neutralizing any poison that may have escaped in the above procedure. But Gold Chloride almost invariably, and Potass. Permanganate to a much less extent, give trouble afterwards by producing necrosis and tissue destruction. The application of Potass. Permanganate powder or crystals does no good.

The part below the lowest ligature should be scarified freely by superficial incisions to let off congested venom-carrying venous blood. The part should then be dipped in hot Potass. Permanganate solution, or hot water poured on the scarified area to promote free flow of blood out of the area of operation. Brisk bleeding may be provoked by rubbing the scarified area with Ammon. Carb. powder at intervals. When bright red blood flows no further local treatment is necessary. The part may then be dressed antiseptically. Now comes the time of loosening the ligatures with caution as described above.

The great antidote to be employed at the slightest sign of toxæmia, is the prompt injection intravenous of the Polyvalent Antivenene in heroic doses; up to 100 c.c. at a sitting is recommended. This should be done as very first step in cases where poisoning symptoms have already appeared.

The Polyvalent Serum used to be prepared before by mixing eighty parts of Anticolubrine with twenty parts of Antiviperine Serum. Work on concentration and standardisation of anti-venom serums is steadily progressing in the continent as well as in India. G. C. MOITRA, B.P.B. NAIDU and M. L. AHUJA have effected a threefold, instead of the former two-fold concentration, and they hope to obtain still better results in time. In the continent equal concentrations of the Anticolubrine and Antiviperine elements have been obtained to four-fold the original strength, and by employing in their preparation detoxicated venoms or 'ana-venoms', stronger serums have been obtained in horses in four to six weeks while formerly it was in twelve to sixteen months. About half the previous doses are now required of the concentrated serums. Delay in treatment requires greater amounts. It is estimated that each 10 c.c. ampoule would neutralise about 20 mgs. of dried venom. Relatively larger doses are necessary in children on account of their lower body weight.

In cases where there is proof that the wound is undoubtedly poisoned, but general symptoms are in abeyance due to the ligatures, it is safe after local treatment, to inject a fair dose of Antivenene and then watch the effect of loosening the ligatures as detailed before. The poison requires venene to be effective should be in the circulation before the minimum lethal dose of venom has been absorbed. It is often necessary to repeat the injection as the case progresses. Unfortunately Antivenene is a costly medicine, and is not readily available except in big hospitals or big cities. It often falls to the lot of the victim to be treated without the specific medicine.

The following symptomatic remedies are useful:—

In Colubrine Poisoning:—To counteract paralysis and respiratory failure—Strychnine, Atropine, Lobeline, Coramine. The last may be given intravenous in desperate cases in big doses.

In Viperine Poisoning:—If there be no symptom of general paresis, strychnine is contraindicated, as there is risk of sudden convulsions. When the danger of immediate thrombosis is fairly over, hæmostasis may be tried with hæmostatic Sera, Normal Horse Serum, Calcium intravenous or intramuscular. HAZRA advises intravenous Iodine treatment to stop hæmorrhage and other complications in viperine bites.

One form of indigenous treatment in viper bite is to induce sweating by an improvised Turkish bath arrangement. A long trench-like pit is dug in the open yard. On this a flat frame of split bamboos is set. A bed of stalks of plantain leaves is prepared. The patient is laid on this and well covered by blankets. Now a big fire is lit within the trench and incantations are chanted for some time. The result is that the patient is drenched in his own sweat. This probably serves to draw off much of the venom from the circulation and hence helps in cure.

In all cases, general diffusible stimulants often do good, but it should be remembered that they also serve to circulate the poison freely. Cardiazol, Adrenalin, Pituitrin, etc., all serve useful purposes. Intravenous Glucose or Saline Glucose may be tried. In cases where the bleeding is persistent and brisk, repeated transfusions of Saline should be resorted to. Artificial respiration should be tried when necessary. Big city hospitals are provided with the useful iron lung apparatus.

In those parts of the body where ligaturing is not admissible, as there is no means to stay the diffusion of the poison, bites more often end fatally than in bites on the extremities. In such cases treatment should be carried on even more vigorously. Extraction of the poison by cupping on the bitten part may be tried if it can be suitably applied.

IV. The Common Poisonous Snakes of India: Colubridæ.—

(A) Neck can be dilated to form a hood—Naja-Cobras.

(1) *Naja Tripudians*:—The common cobra. Vern.—Naga, Keutia, Gokhura,—a pair of spectacles or a circular shield or no mark on head—length up to 6 ft.

(2) *Naja Bangarus*:—King Cobra or Hamadryad. Vern.—Sankerchoor a pair of large shields on top of head—length up to 15 ft.

(B) NONHOODED:—Row of enlarged scales along the mid-line of the back—Bangarus—Kraits (See Fig. 10 vide page 122).

(1) *B. Candidus*:—Common Krait—White arches across back, most distinct across the tail, and irregular towards the head, shields on under surface of tail arranged in single row (Fig. 12 vide page 122). Length up to 4 ft.

(2) *B. Fasciatus*:—Banded Krait—bright yellow with black rings—length up to 6 ft. or more. Vern.—Sankni or Rajsnap.

(3) *B. Coeruleus*:—Blue Krait attaining 4½ ft.

(C) SEA SNAKES:—Hydrophidæ. These are found chiefly in the Indian and Chinese Seas, often frequenting the mouths of rivers, though

Causes of Sudden Death and Prevention if Possible

BY

U. P. GANGULY, M.B.,

Senior House Physician, Medical College Hospital, Calcutta.

Of all announcements in the newspapers of the occurrence of sudden deaths, heart failure is the most dramatic and common. When a medical man is called to the bedside of a patient who has suddenly collapsed, his first attention is always directed to the heart of the patient and his suspicion gets corroborated by various signs of heart failure, of which the most common are symptoms of shock, such as low feeble pulse and cold extremities with clammy perspiration. All cases of coronary thrombosis are not necessarily accompanied by anginal pain and these cases are rather difficult to diagnose. A common mistake of some physicians is administration of stimulants in such cases, which hastens the onset of ventricular fibrillation and death. A dose of Morphine may avert the death of many such patients. Dyspnoea is a common sign of heart failure but this may be absent in some cases of coronary thrombosis. Paroxysms of dyspnoea may occur due to renal or diabetic causes, but leaving aside bronchial asthma which can be easily diagnosed from wheezing and prolonged expiration and relieved in most cases by exhibition of Adrenalin, cardiac sets in rapidly, diagnosed by diminution of respiratory murmur, culminating in bubbling rales. The patient becomes cyanotic. The signs of acute failure of the heart can also be initiated by sudden failure of the right ventricle, as is found in beriberi known as *Shoshin*¹, associated with venous and hepatic enlargement, cyanosis and severe anginal pain in the retrosternal and epigastric regions. In right sided failure, the retrocirculation remains unaffected, if the left ventricle is not involved as well, unless mitral stenosis is present, complicated with auricular fibrillation. In right sided failure, venesection and Pituitrin are as beneficial as Morphine in left sided failure.

Peripheral failure, in pure form, may come on suddenly as well as gradually and is generally associated with the traumatic shock, bleeding, diabetic coma and acute infection. In cholera such a man may die within $\frac{1}{2}$ an hour. It is quite distinct from central heart failure except when they occur together in acute toxæmic conditions, as in diphtheria in which sudden deaths may occur not only within first ten days of acute illness, but also after apparent clinical recovery.

Sudden deaths from peripheral failure are usually due to so-called shock. It has been observed that persons when suddenly plunged in cold water died instantaneously of shock.

Recently DR. ERIC GARDINER² pointed out that some cases of sudden deaths from drowning may be caused by choking as a result of spasm of the larynx. He pointed out that a considerable number of deaths from drowning is not caused by asphyxia due to inhalation of water into the lungs, but by shock due to laryngeal spasm. There are many instances of sudden death occurring among healthy persons, who get choked during a meal. GARDINER states that choking may result in nothing more serious than a fit of coughing, or it may cause death from asphyxia and shock.

Some quite small particles of food may be found to have lodged in the larynx and caused fatal laryngeal spasm. The mechanism of death in these cases is sudden fall of blood pressure, according to GARDINER. Pressure on vagus nerve, carotid sinus, testicle, etc., may cause unconsciousness and even sudden death, by slowing and ultimate ventricular standstill. It is dangerous to feed comatose patients and forcibly feed insane or unwilling patients. The dangers in these cases are not sufficiently recognised, for it is not uncommon for fluid food or water passing through the wrong channel *via* bronchial tubes which may sometimes cause sudden death by choking, and even if that is avoided, they may die of septic pneumonia. Here is a case of laryngeal spasm who died suddenly after he was given Sulphonamide pills titrated in water.

A patient suffering from typhoid was brought from Gouripur, Assam, to Calcutta on the 8th day of his fever in August, 1942. He had low muttering delirium and his pulse rate was 124. Widal was positive, 1/100 against B. Typhosus. Two nurses were engaged at once and he began to improve so that his pulse rate came down to 116 p.m. next day. In the evening he began to show signs of bronchitis and a pill of M.B. 693 was administered as a precautionary measure. The patient though delirious was much quieter and responded to questions and gave more reasonable answers. Five minutes after the administration of the pill which was suspended in water, the patient suddenly rolled up his eyes and died in a few minutes.

This was a case of death from laryngeal spasm for though the nurse titrated the Sulphonamide tablet in a glass containing an ounce of water and administered it after thorough titration, there must have been small particles of undissolved tablet when the nurse administered it.

Sudden deaths may often be the result of extreme joy or grief. King Phillip V died suddenly when told that the Spaniards had been defeated. Napoleon's victory at Austerlitz killed Pitt. It was announced in *Ananda Bazar Patrika* of Oct. 6, 1942, that a Government contractor who made a profit of Rs. 1800/- from a previous contract was so much overjoyed by managing to get another contract of a lac of rupees that he suddenly expired, while in the act of signing the contract. Mental emotion may thus cause sudden death. The famous doctor, JOHN HUNTER, used to say that his life was in the hands of any rascal who chose to annoy him. In a Medical Board, one of his colleagues flatly contradicted him and HUNTER was evidently agitated and rose to give reply when he died suddenly. Although in some of these cases there was degeneration of the heart and blood vessels, the immediate cause was provocation of an abnormal or widely spread depressive reflex, acting on nerve centres, causing sudden fall of blood pressure which in turn produced death from anæmia of brain and spinal cord.

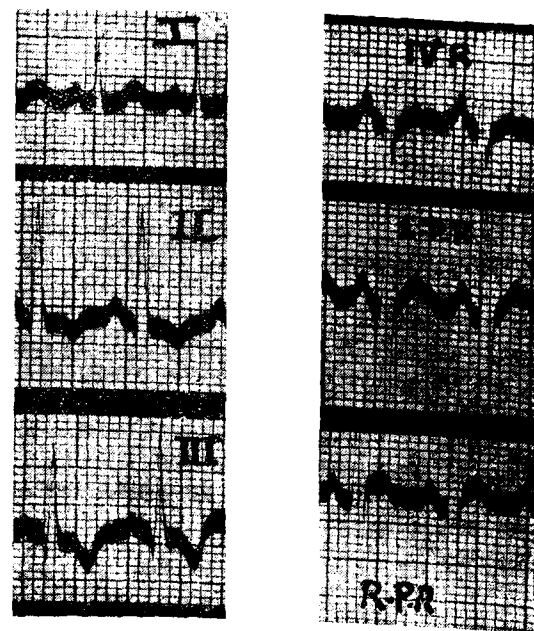
Death on operation table has been reported during anaesthesia and also just before the induction of general anaesthesia. An overdose of anaesthetic may be responsible in some cases of death during anaesthesia but a majority of cases, especially those dying just before anaesthesia, is due to excitement producing vasomotor reaction in the peripheral circulation. It has been said that cowards die many times before death and some of them who are frightened to death are cowards, but there are instances of cases where the bravest of the brave may also die of fright. Col. Bird related his experience about a brave soldier who never feared to face guns several times in his life and had marks of honour all over his body succumbed suddenly from the fear of surgeon's knife before he was actually

operated upon. This man got hernia and when the surgeon was demonstrating what should be the line of incision with the blunt back portion of the knife he suddenly died on the operation table on which he was put preliminary to operation. This was a case of sudden death from peripheral failure due to vasomotor reaction from excitement.

A few cases of accidents during anaesthesia are due to respiratory obstruction due to impaction of epiglottis. In an editorial of the *B.M.J.*, Sept., 1942, attention has been drawn to this form of obstruction explaining a considerable number of unexplained deaths under anaesthesia. Digital examination of epiglottis for respiratory trouble during anaesthesia may save many lives from epiglottis impaction.

Peripheral failure in all cases attended with abnormal fall of blood pressure sounds like a paradox, when we find that in a case of cardiac asthma, due to left ventricular failure, blood pressure is always raised.

Venous blood pressure is raised in all cases of right sided failure and



Graph 1
A CASE OF PULMONARY INFARCT (cor pulmonale). Graph taken 36 hours after onset.
STANDARD LEADS - P₂ - prominent
PR - segment-depressed

CHEST LEADS - IV R. (lead) T - inverted.
P - prominent. L. P. R. (lead) P - prominent.
R. P. F. (lead) - High "Take off" T waves.

of venous pressure is suggestive of pulmonary infarct. In coronary thrombosis the anginal pain radiates to the neck and even to the arms and a pericardial friction often supervenes from the second day, which is, however, usually absent in posterior infarct. So it becomes truly

acute pulmonary oedema. Besides beriberi, sudden pulmonary infarct can cause sudden death from right sided failure. In these cases, morbid excitation of pulmonary vagus causes pulmo-coronary reflex, causing marked diminution of blood supply to heart, especially the over burdened right heart, explaining acute anginal pains, gallop rhythm and rapid heart failure, although the heart is not dilated.

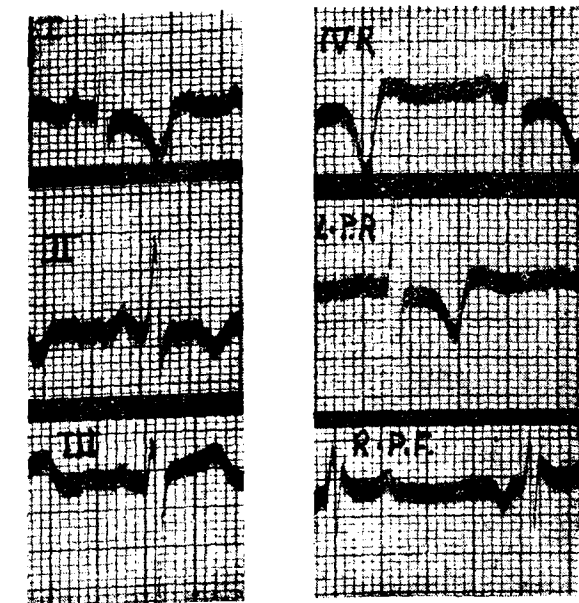
The occurrence of pulmonary embolism is not so rare as ordinarily imagined and it is not easy always to differentiate from coronary thrombosis. Anginal pain, dyspnoea, feeling of constriction in the chest, shock symptoms like sweating, prostration, cold extremities, feeble and rapid pulse, reeling and fainting are commonly found in both these accidents. But an abrupt rise

difficult to diagnose pulmonary infarct from posterior coronary infarct, especially in the absence of any surgical operation previously performed. In these cases, electrocardiographic inversion of T waves in pulmonary infarct is the easiest method of diagnosis (*see graph*), for in posterior coronary infarct, T is not inverted in chest leads, unless the left ventricle is very much enlarged, also P is not so prominent as in pulmonary infarct, unless mitral history is present. PAUL WOOD² lays great stress on inversion of T wave in right pectoral lead (from 4th interspace on the right side of scapula to the right arm), but it has been the experience of CAPT. P. GANGULI of Calcutta, to have it even in the *standard* 2nd and 3rd leads, as well as in lead IV R (from apex of heart to the right arm), but not in the right pectoral lead (*see graph*) in a clear case of pulmonary infarct diagnosed as such both by him and DR. N. R. SEN GUPTA of Calcutta occurring twelve days after appendectomy, in a boy of 12 years of age. In any case, the clinical recognition of pulmonary embolism before the onset of congestive failure is often impossible. Symptoms directly attributable to *cor pulmonale* appear only after the heart begins to fail.¹

Many deaths are reported from accidental electrocution, from contact with leaking A. C. current. The death is due to ventricular fibrillation.

Sudden deaths from inhalation of Chloroform, Benzol or other irritant vapours may also be due to onset of ventricular fibrillation. In these cases, the effect of ventricular fibrillation is to produce anaemia of the brain and to cause death in six to eight minutes.

In sudden death from noise, as in shell explosion, the reflex is from ear. So all the painful stimulation from ear, nose or larynx may cause sudden death by producing shock, due to fall of blood pressure, owing to the diminished volume of blood passing through the heart to the arteries; this diminished blood volume is due mainly to a loss of muscle tone, resulting from depressive



Graph 11
A CASE OF SHELL SHOCK
Graph taken 10 days after occurrence
T inverted in Leads I, II, IV, R and L.P.R.
(The left ventricle is not enlarged. BL. Pr. 20 mm.)

impulses acting on the nerve centre in the central nervous system, reaching them from distant parts of the body and often occasioned by painful stimulation of those parts³. That shell shock can produce profound disturbances of the heart is shown in *Graph 11*—a Chittagong case.

The time of death from colubrine snake bite depends upon the dose of the venom injected by the snake, and the time of absorption of the poison. The minimum death time is at least two hours. In case of death from viperine snake bite, it is longer. But the following case is interesting:--

A man was in the habit of smoking "hookka" in his bed, just after waking up from night's sleep. He used to keep some "chillams" (tobacco pounded in molass) ready in special earthen pipe called "kalka" under his charpoy or bedstead, so that he could get the ready-made "kalka" by extending his hand under his cot, without getting out of his bed. He was found dead one morning by his family, in sitting posture, with his hand extended under the cot. A mark of snake bite was found on the back of his palm and a viper (*chandabora*) was found coiled in one corner of the room.

In this case, the sudden death was due to intravenous injection of viper venom, causing instantaneous clotting of the whole blood of his body.

References:

1. East and Bain—Recent Advances in Cardiology, 3rd. ed., page 40.
2. British Medical Journal, April 18, 1942, Editorial.
3. Paul Wood and A. Selzer—'Chest Leads'—British Heart Journal, 1939, page 64.
4. P. Wood—'Pulmonary Embolism'—British Heart Journal, 1941, page 27.
5. British Medical Journal, April 18, 1942, Editorial.

Book Review

Art in Industry Annual, 1942. Price Rs. 2/8. Can be had from the Organising Secretary, Art in Industry Exhibition, Hongkong House, Calcutta.

This is a Souvenir Volume of the 1942 "Art in Industry" Exhibition, Calcutta, and contains fine specimens of Advertisement-printing and good articles on various subjects allied to Art in Industry. This Annual will be certainly interesting to both Artists and Industrialists alike especially to the artists of advertisements.

Correspondence

Dr. K. D. Ghosh, Lalit Pharmacy, Barharwa (S. P.), writes:—

In the article "Recent Advances and Relative Value of Sulphonamide Preparations" in the January '43 issue of THE ANTISEPTIC, it is written that "Resolution in pneumonia is however slow after M & B 693". I have seen it also in my cases of pneumonia. I wish to ask the readers of THE ANTISEPTIC what is the cause of this delayed resolution.

Errata

In the advertisement of India Syringe Works, appearing on page 7 of this issue of THE ANTISEPTIC, the prices should read as follows:—

REPLACING OF BROKEN BARRELS: 1 & 2 c.c.	5 c.c.	10 c.c.	20 c.c.
Rs. 7/12/-;	10/2/-;	12/8/-;	17/-;
INDIA RECORDS:	Rs. 8/8/-;	11/8/-;	14/8/-;
		19/8/-;	

In the article "Recent Advances and the Relative Value of Sulphonamide Preparations" by Ch. Krishnamurty, L.M.P., published in January '43 issue of THE ANTISEPTIC, the following corrections are to be noted:

On page 17, Line 1, read "cardinal sins" for "cardinal signs"

On page 21, Line 3, under diagram (4), read "tonically contracted" for "tonically counteracted"



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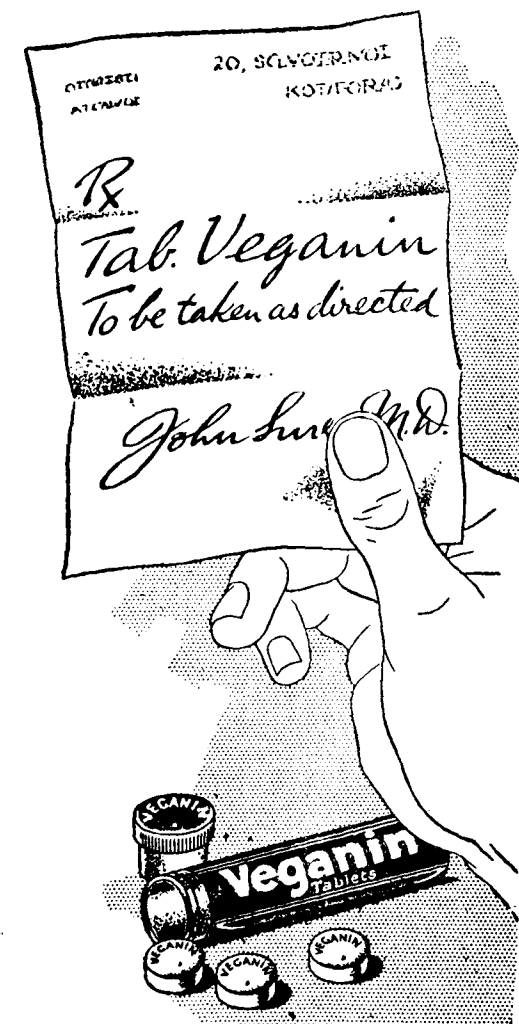
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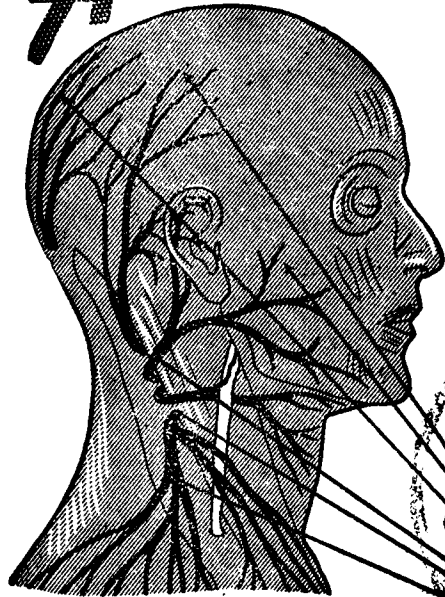
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