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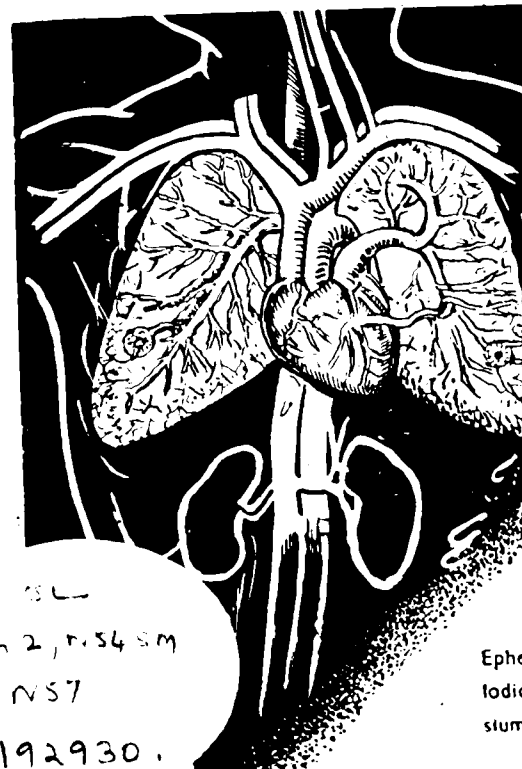
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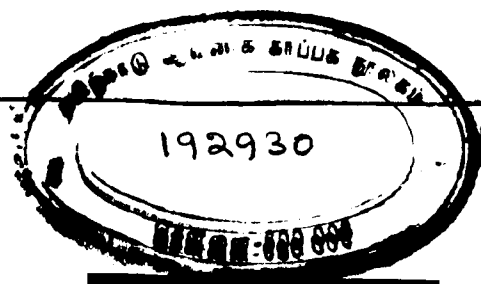


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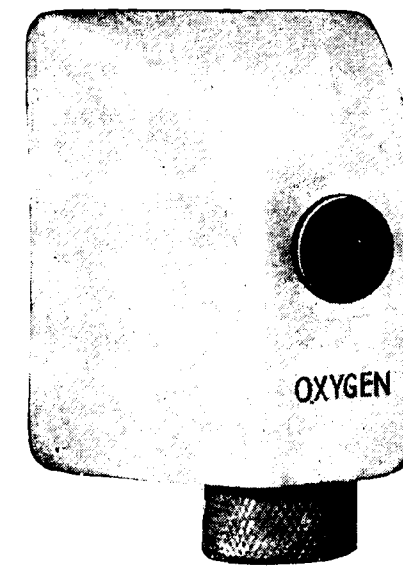
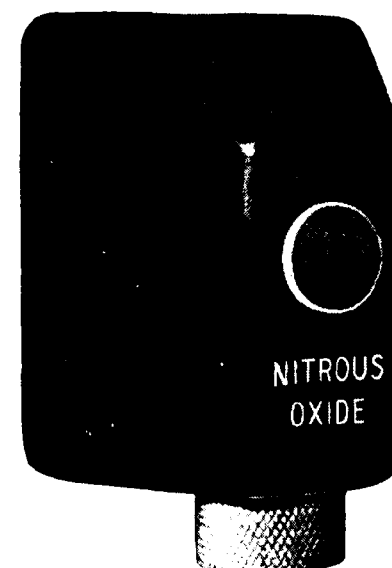
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ON SHIFTING THE RESPONSIBILITY

"I DO not know anything about it. I have informed my senior"! How often you hear that remark! But can responsibility be ever shifted absolutely? When one is in charge of a patient, is informing a senior a magic act which exonerates one from further blame and the bother to care for a patient's welfare?

Yet, we find today this magic phrase repeated again and again and it appears to confer some extraordinary immunity on the person who says it. It is as if he has passed on the buck. So a difficult clinical problem is referred to a higher and higher authority for a decision. It would appear that at the very highest stage authority is inviolable. Nothing presumably can be wrong when an order drifts down from above. So, if anything disastrous happens, it is as though no one can be held responsible because the highest authority has been informed and he himself can never get into trouble. The King can do no wrong! But is this right?

I believe that the cause of this sort of approach to clinical medicine lies in the completely distorted approach we adopt towards medical teaching and training. Unless people are taught to shoulder responsibilities under the friendly and protective guidance of a senior, the trend will always be governed by an instinct for self-preservation. No one will wish to do anything himself, but endeavour instead to pass it on to higher and higher levels. That is what is happening today. How can this responsibility be taught? Let me quote some instances.

I went to learn anaesthesia at a certain hospital abroad. I was new to endo-tracheal techniques and the use of relaxants in anaesthesia. I was a member of the medical staff but came under the immediate authority of a highly qualified and senior consultant in anaesthesia. He said to me, "You are here to do a job. While doing it, no doubt you wish to become better at it. For the first few operating sessions you will watch how I do it. Later you will do it and I will watch you. There are several little points which you can learn from me. I know these as a result of experience. When I think you can be left to get on without supervision I shall leave you to it. Whenever you have any doubt, never hesitate to call me. Don't think you are worrying me unnecessarily. If you are here to help me, I feel I have a duty to teach you."

Here was an ideal teacher. His primary object was not to leave most of the hospital routine work, especially during odd hours of the day and night to me so that he could take it easy. He believed that part of his duty lay in teaching me how to do the job properly and not just anyhow, and to see that I become self-reliant. The result was that I had grown to like this consultant and to admire him not only as a man but as a skilled anaesthetist. When I left the hospital, I felt a sufficient measure of confidence in myself, to do things in the correct way. While I was learning, I knew that if anything went wrong he would stand by me and not let me down unless it was obviously due to my own neglect in which case he would advise me as to what I had failed to do or what I should have done.

I recollect another occasion in my early days in anæsthesia, when a consultant asked me to watch the complicated Boyle's machine and the patient. The patient was an elderly man of about 76 and was having a serious operation (a prostatectomy). He was having controlled respiration and my main object, as I understood at that time, was to squeeze the bag containing the anæsthetic gases every now and then. The only way I was to know that this patient was alive was to find out if he had a pulse. The consultant anæsthetist instructed me to call him immediately if there was any difficulty and went to the adjoining room to arrange about another case. The events that followed, all took place within the space of a few minutes. The surgeon turned to me and said, "The patient is blue this end". I felt the pulse. It was absent. I summoned the anæsthetist. He came. The patient was already dead. Presumably the patient had silent coronary insufficiency the presence of which had been overlooked at a carefully performed pre-operative clinical examination, and a sudden bout of local blood loss and a steep drop in blood pressure had killed the patient. I felt responsible and offered to go to the Coroner's court! "Certainly not, you merely did what you were asked to do. I shall answer for it" said the anæsthetist. Although all the members of the surgical team were filled with gloom because a death on the table is not a very pleasant occasion, the surgeon said in the ante-room, "I cannot see how any one person can be responsible for this. We all are. I don't see how it could have been helped". Subsequent post-mortem study showed that the cause of death had in fact been due to myocardial insufficiency due to atherosclerosis.

I found the same sense of co-operation and helpfulness when I was working on the surgical side. The surgeon would say, "This week I shall let you close an abdominal wound and I will assist you. Next week you can close the peritoneum. Later you can open the abdomen. Before you leave me you would have done several operations under my supervision quite apart from assisting at very major procedures which are far too complicated to let you do until you have been with me for several years".

Contrast this attitude to what we find happening so often in many of our hospitals throughout the land. The boss is an important man. What he says is correct. Sometimes even what he says over the telephone without a proper personal assessment of the case is accepted as infallible. The people in immediate charge of the case are always afraid of trouble. Once instructions have been given by him there is no one to challenge them. Obviously the instructions which he can give over the telephone will be based to a great extent on what findings are communicated to him by the doctor. If these are erroneous the treatment the boss will order will be wrong. You may ask why he cannot come and see the case for himself. Now no boss can possibly be in a hospital day and night and see every single case. He has to leave a great many decisions to his junior staff.

The real trouble is this. If he left them a considerable measure of responsibility, it is possible that they will have the self-confidence to tackle a clinical problem on their own initiative. Yet the deplorable system exists by which they have to communicate their findings over the telephone to their boss who will take major decisions without having himself seen the case, and the juniors think that once the orders have been issued from above

they can never be held responsible for anything, and obviously the boss cannot get into trouble himself. The King can do no wrong!

When this is the attitude towards the practice of clinical medicine these are the sort of disasters that quite often come to pass.

Baghyavathi is such a nice name. Isn't it? It means good fortune. But good fortune is far from what she had when she came to have her child at a hospital. She cannot have any more babies, poor thing, but she ascribes it all to fate.

Let us consider what happened to her. She was admitted with labour pains. She had already had four children. The first two had been delivered by forceps. The third and the fourth had been normal deliveries. Her second and fourth child had died soon after birth. Her present child was healthy and alive in the womb. The head had engaged, but about an hour after admission, although she complained of moderate pains, the foetal head was still high. Then suddenly she developed œdema of her feet. The presentation of the child was normal and the beat of the child's heart was audible and regular. The fact that she developed œdema must have put the obstetrician on his guard. Three hours after admission she experienced strong pains and slight bleeding. When vaginal examination was performed, the cervix was found to be two fingers dilated. The membranes were absent. 3½ hours after admission the child died. Four hours after admission, the placenta came out and she continued to bleed per vaginum. The head was above the pelvic brim. It became obvious to the attendant that there was something wrong. While one may criticise why nothing was done earlier, the astonishing fact was that the significance of what was happening went completely unnoticed!

It was not known what the boss was told, but his instructions were that Willet's forceps should be applied to the foetal head. The patient's condition was speedily deteriorating and she was given intravenous glucose saline followed by blood and other stimulant drugs customarily used for resuscitation. From an original blood pressure of 160/110, her blood pressure had now fallen to 70/40. Six hours after admission the patient collapsed. In the meanwhile two more bottles of blood had been used in an effort to revive her. About 9½ hours after admission the abdomen of the patient was found to be distended and she began to vomit. The foetal head was still floating above the pelvic brim. The Willet's forceps slipped off. The case had now become a real clinical puzzle.

When a patient who is in normal labour suddenly develops œdema of the feet and the foetal head does not go through the pelvic brim, the foetus dies, she begins to bleed, the placenta comes out, all the amniotic fluid drains away, she collapses, begins to be restless and starts to vomit, and her abdomen begins to distend, even students would conclude that something disastrous had happened inside her if they could not guess that the uterus had probably ruptured.

When the Willet's forceps had slipped off, the boss was informed again and this time the advice came that an intra-venous pitocin drip was to be started. This

was done. The pains came on and off. The foetal head would not descend. As the result of more blood and two bottles of plasma all of which are extremely difficult to come by, the patient's general condition improved slightly. 13½ hours after admission, the boss saw the case and advised that an operation should be performed. 14½ hours after admission a laparotomy was done. The bowels were grossly distended. A dead child was found floating in a blood filled peritoneal cavity. The uterus had contracted but there was a large rent in the lower uterine segment. A sub-total hysterectomy was performed and the patient survived after a somewhat stormy post-operative convalescence. The dead child was recovered from the abdominal cavity. It weighed 8 lbs.

The reason why I have quoted this case to you is not merely to show that mistakes are made in obstetric judgement. Mistakes do occur to even the best people on many an occasion. But here is a case, however, in which the persons were not left to use their own judgement or perhaps felt that it would be dangerous for them to use their own judgement and had referred the case to the highest authority. The highest authority based his decision not on his own personal clinical evaluation of the case but on what he heard over the telephone and took two very major obstetric decisions (although the first had miscarried!) in the management of the case. Yet, no one could be held responsible because it had been referred to the highest authority and every one was blameless. The King can do no wrong!!

It is high time that we in our country discard the old approach of dogmatism by which the head of an Institute or of a Unit whatever he does can remain unchallenged and that all who work under him merely by referring their clinical difficulties to him over the phone acquire complete immunity against trouble for themselves. The repetition of such an episode as this can be avoided by making a sincere attempt to teach the medical staff in a hospital to undertake under supervision considerable graduated responsibility so that in an emergency such as the one above, they would have used their own common-sense instead of becoming complacent, merely because they had informed a higher authority. So often we see in many hospitals, many a surgeon who, although he may lecture to post-graduate students on particular subjects, will never give away any operative work to his juniors; when he does so it is usually under certain unavoidable circumstances by which he himself is unable or does not want to do the operation. In circumstances such as these the juniors blunder along, having never had any practical experience given to them under the direct supervision of their boss.

This is a serious state of affairs and should be remedied immediately in the interest of raising the quality of medicine in surgery in our country. Otherwise, we shall surely find that when the present generation of physicians, surgeons and obstetricians have gone there will be no one left to take their place and our standard of medicine will undoubtedly deteriorate still further.

Steroid Preparations for Topical Therapy of Skin Eruptions

By

DR. HARRY M. ROBINSON, Jr. M.D.

DR. JOHN F. STRAHAN, M.D.

DR. RAYMOND C. V. ROBINSON, M.D.

DR. MORRIS M. COHEN, M.D.

DURING the past three years numerous steroid preparations have been developed for use in the topical therapy of skin eruptions. Previous reports have stressed the fact that local steroid therapy is of value only in the treatment of those conditions where its effectiveness has been demonstrated. Atopic dermatitis, contact dermatitis, seborrheic dermatitis, pruritus ani, pruritus vulvae and erythema solare are improved by the local application of certain steroid preparations; however, relapses of these eruptions are frequent when the applications are discontinued. These compounds have proved to be of no value in the local therapy of psoriasis, chronic discoid lupus erythematosus, alopecia areata and many other conditions. At the present time hydrocortisone free alcohol, hydrocortisone acetate, fludrocortisone acetate and combination of these drugs with various antibiotics are commercially available in lotions, ointments, or creams for use by the practitioner.

Although the mode of action of topically applied steroids has not been determined, Sulzberger and Witten postulated the theory that the beneficial effect may be due to the local hormonal action of the steroid on the skin. Livingood and associates presented evidence that fludrocortisone acetate is absorbed from the unbroken skin and may produce undesirable side effects. Witten, Shapiro and Silber were unable to demonstrate systemic absorption from the local application of hydrocortisone acetate, and recently Smith and Rosenberg supported the results of these investigations. In our experience there has been little clinical evidence of absorption from the local application either of hydrocortisone and its esters or of fludrocortisone acetate, regardless of the vehicle used.

The development of new steroid compounds necessitates intensive clinical and laboratory investigation. This study has been conducted to determine the value of available steroid preparations for topical use, to assay those more recently developed and to compare the action of the new compounds with those presently in use.

METHOD OF INVESTIGATION

Patient Selection

This study was conducted on about 4000 patients obtained from the outpatient departments of the University Hospital and the Baltimore City Hospital as well as on hospitalized and ambulatory private patients. Many of the patients included in this report were also included in a previous study. In a number of cases follow-up was incomplete, and these cases were dropped from the study. Age and sex did not influence the study and are not considered in the results and summary tables.

Diagnoses and Evaluations

Diagnoses were confirmed by clinical consultation and laboratory studies whenever indicated. Only objective changes in the dermatoses i. e. involution of lesions were considered in tabulating results. In most instances, if a patient did not show some improvement after one week of therapy, the preparation was considered ineffective. Every patient was evaluated by a senior investigator, and all reported results were based on blind, controlled studies.

Paired Comparison Studies

This method of study was used primarily on hospitalized cases so that the applications and observations could be more carefully controlled. The preparations were furnished to the house officers with code number labels. The key to the code was kept by the secretary and was not revealed to either house officer or senior investigator until the study was complete. Placebo ointment was applied to one part of the body and active steroid ointment or lotion to another. In the same manner, the newer steroid ointments, creams or lotions were compared with hydrocortisone or fludrocortisone preparations already on the market.

Usage studies

Treatment was initiated with a steroid preparation of proven value, such as 1% hydrocortisone ointment, 1% cent fludrocortisone ointment, cream or lo

improvement was noted, either a placebo or one of the newer compounds, in the same base and in the same size and shape of container, was substituted without the patient's or physician's knowledge, to see if improvement would continue or relapse would occur. The subjective complaints of the patient, especially in regard to pruritus and the objective examination of the examiner were carefully noted and recorded.

In an effort to determine the optimum concentration of steroid, treatment was initiated in one series with a weak concentration (e. g., 0.5%); if it proved to be ineffective, a stronger concentration was used (1.0%); if this proved to be unsatisfactory, the concentration was gradually increased. In another series, treatment was initiated with a higher concentration (e. g., 2.5%) and gradually reduced. The lowest concentration found to be effective was termed the Minimum Effective Concentration (MEC).

Oily Bases

- | | |
|--------|--|
| No. 1. | Liquid petrolatum
Wool fat
White petrolatum |
| No. 2. | Multiwax
Cholesterol
Liquid petrolatum
White petrolatum |
| No. 3. | Liquid petrolatum
Petrolatum |
| No. 4. | Butyl p-hydroxybenzoate
Methylparaben
Multiwax
Cholesterol
Mineral oil
White petrolatum |
| No. 5. | Plasticized hydrocarbon-gel |

Usual Treatment Method

The ointment, cream or lotion was supplied to the patient who was instructed to apply a thin coating over the involved area twice daily. For the duration of treatment with steroid preparations, all other local and systemic therapy was discontinued and the use of soap and other cleansing compounds was forbidden. In dermatoses complicated by secondary pyogenic infection where steroid, antibiotic topical therapy was the method of choice, patients were instructed to remove crusts and other surface debris with warm water or warm saline compresses prior to the application of the medication. The application was not massaged into the site.

Vehicles used

The various steroids and steroid-antibiotic combinations were furnished in a variety of oily base ointments, greaseless base creams, and lotion bases. The following are the formulæ used :

Greaseless Bases.

- No. 1. Sodium lauryl sulfate
Stearyl alcohol
Cholesterol
Liquid petrolatum
Methylparaben
Propylparaben
Propylene glycol
Cetyl alcohol
Petrolatum
Water
- No. 2. Zinc stearate
Polyethylene glycol
Propylene glycol
Distilled water
- No. 3. Zinc Stearate
Propylene glycol
Polyethylene glycol 1500
Polyethylene glycol 4000

Lotion Bases

- | | | | |
|--------|--|--------|--|
| No. 1. | Glycerin
Isopropanol alcohol rubbing compound
Sodium methylparahydroxybenzoate

Diglycol stearate
Petrolatum
Wax
Distilled water | No. 2. | Oil lilac flower
Menthol
Alcohol
Distilled water |
| No. 2. | Diglycol stearate
Cetyl alcohol
Hydrous wool fat
Petrolatum
Olive Oil
Tween 40
Aseptofom
Borax powder
Sodium lauryl sulfate
Glycerin
Sulfatate B | No. 3. | Methylparaben
Butyl p-hydroxybenzoate
Propylene glycol
Polysorbate 80
Tegacid regular
Spermaceti
Deionized water |
| | | No. 4. | Cetyl alcohol
Stearyl alcohol
Polysorbate 20
Span 40
Propylene glycol
Parabens
D. C. antifoam
Distilled water |

STERIOD COMPOUNDS

Hydrocortisone and Hydrocortisone Esters (table 1). This series of compounds was used in the treatment of 1,329 patients. Hydrocortisone free alcohol and hydrocortisone acetate were used in oily base ointments, greaseless base creams and lotion bases. In all of these vehicles concentrations of 0.5 per cent, 1 per cent, and 2.5 per cent were used. Sixty-nine different preparations of these two steroids were used in the treatment of 1,096 patients. A relatively small series of patients were treated with all of the other hydrocortisone esters except hydrocortisone hemisuccinate sodium. A total of 148 patients with various dermatoses normally responsive to local hydrocortisone therapy were treated with hydrocortisone hemisuccinate sodium ointment.

Fludrocortisone (table 2). Only two compounds are included in this series. Fludrocortisone acetate in concentrations of 0.05 per cent, 0.1 per cent, and 0.25 per cent was incorporated in three oily bases and two lotion bases and applied to lesions in 1,067 patients who had dermatoses that normally will respond to local hydrocortisone therapy. 9- α fluoro-hydrocortisone tertiarybutylacetate in the concentration of 0.5 per cent in a lotion base was applied to lesions in 16 patients.

Prednisone Derivatives (Table 3) Four preparations were included in this portion of the study. Prednisone in a lotion base and in an oily base was used in the treatment of 50 patients. Prednisolone succinate in any oily base was used for 24 patients. Prednisolone No. 1 was used in lotion base, two oily bases, and one greaseless base in treating 68 patients, but the percentage of primary irritation from this compound was so high that further study was discontinued. Prednisolone No. 2 is a purified compound which was used in two oily bases and one greaseless base in the treatment of 60 patients.

Allo Compounds (Table 4) The allo compounds are a group of synthetic Steroids having complex chemical formulæ. These compounds were used for clinical investigation in a limited number of patients. Use was restricted to the treatment of those dermatoses normally responsive to hydrocortisone or fludrocortisone.

Steroid-Antibiotic Combinations (Table 5) In this portion of the study, combinations of one or more antibiotics with hydrocortisone acetate, hydrocortisone free alcohol, fludrocortisone acetate, and prednisolone have been used in the treatment of 1,753 patients. These preparations were dispensed in several oily base ointments and several lotion bases.

Other Combinations of Steroids (Table 6) Combinations of hydrocortisone with Caligesic Lotion, Prantal Cream (brand of diphenmethanil methylsulfate) coal tar

solution, crude coal tar, crude coal tar and Quinolor Compound Ointment, and pyridoxine hydrochloride have been used in the treatment of 226 patients.

TABLE 1

Hydrocortisone free alcohol and hydrocortisone esters

Steroid	Bases used	Total No. of patients	Concentration of steroid Per cent	MEC * per cent	Results	
					Good	Poor
Hydrocortisone free alcohol	Oily bases 1, 2, 3, 4, 5	747	0.5, 1.0, 2.5	1.0	701	46
	Greaseless bases 1,2,3,4		0.5, 1.0, 2.5			
	Lotion bases 1, 2, 3, 4		0.5, 1.0, 2.5			
Hydrocortisone acetate	Oily bases 1, 2, 3, 4, 5	349	0.5, 1.0, 2.5	1.0	328	21
	Greaseless bases 1, 2, 3		0.5, 1.0, 2.5			
	Lotion bases 1, 3		0.5, 1.0, 2.5			
Hydrocortisone t-butylacetate	Oily base 3	37	0.5	0.5	18	19
Hydrocortisone palmitate	Oily base 3	23	0.05, 1.0	1.0	20	3
Hydrocortisone hemisuccinate sodium	Oily base 3	198	0.25, 0.5	0.5	186	12
Hydrocortisone diethylamino-acetate hydrochloride	Oily base 3	19	0.5	0.5	16	3
14-hydroxy-hydrocortisone	Oily base 3	16	1.0	1.0	7	9

TABLE 2

Fludrocortisone

Steroid	Bases used	Total No. of patients	Concentration of Steroid per cent	MEC * per cent	Results	
					Good	Poor
Fludrocortisone acetate	Oily bases 3, 4, 5	1,067	0.05, 0.1	0.1	962	105
	Lotion bases 1, 4		0.25			
9-alpha-fluoro-hydrocortisone tertiary-butyl-acetate	Lotion base 1	26	0.5, 1.0	0.5	19	7

* Minimum effective concentration

TABLE 3

Prednisone derivatives

Steroid	Bases used	Total No. of patients	Concentration of Steroid per cent	Results	
				Good	Poor
Prednisolone No. 1	Lotion base 1	68	0.5	40	28
	Oily bases 3, 4				
	Greaseless base 3				
Prednisolone No. 2	Oily bases 3, 4	60	0.5	55	5
	Greaseless base 3				
Prednisolone	Lotion base 1	50	0.5	23	27
	Oily base 3				
Prednisolone succinate	Oily base 3	24	0.5	16	8

TABLE 4

Allo compounds

Steroid	Bases used	Total No. of patients	Concentration of Steroid per cent	MEC (%)	Results	
					Good	Poor
Allodihydrohydrocortisone acetate	Lotion base 1	13	0.5 & 1.0	0.5	8	5
9-alpha-fluoro-allodihydro-hydrocortisone acetate	Lotion base 1	31	0.5 & 1.0	0.5	22	9
9-alpha-fluoro-allodihydro-hydrocortisone tertiary-butylacetate	Lotion base 1	16	0.5 & 1.0	0.5	5	11
Allodihydrohydrocortisone tertiary butylacetate	Lotion base 1	12	0.5 & 1.0	0.5	8	4

TABLE 5

Antibiotic-steroid Combinations

Steroid.	Antibiotic.	Bases.	Total No. of Patients.	Concentration of steroid per cent.	Results.		MEC (per cent)
					Good.	Poor.	
Hydrocortisone free alcohol & hydrocortisone acetate.	Oxytetracycline	Oily base 3	575	1.0	526	49	1.0
	Erythromycin	Oily base 3	38	1.0	33	5	1.0
	Tetracycline	Oily base 3	200	1.0	182	18	1.0
	Hydrochloride						
	Chlortetracycline hydrochloride	Oily base 3	6	1.0	5	1	1.0
	Neomycin	Oily bases 3, 4 Lotion base 3	215	1.0	200	15	1.0
Fludrocortisone acetate.	Neomycin-bacitracin	Oily bases 3, 4 Lotion base 3	70	1.0	62	8	1.0
	Neomycin-bacitracin-polymyxin B Sulfate	Oily base 4	62	1.0	54	8	1.0
	Oxamycin	Oily base 3	50	1.0	45	5	1.0
	Oxamycin MK63	Oily base 3	39	1.0	34	5	1.0
	Neomycin	Oily base 4 Lotion base 1	67	0.1 and 0.25	61	6	0.1
	Neomycin-tyrothricin	Oily base 3 Lotion base 1	32	0.1 and 0.25	30	2	0.1
	Neomycin-bacitracin	Oily base 3 Lotion base 1	71	0.1 and 0.25	66	5	0.1
	Neomycin-gramicidin	Oily base 5 Lotion base 4	250	0.1	222	28	0.1
	Nystatin	Oily base 5	20	0.1	18	2	0.1
Prednisolone.	Neomycin-Bacitracin	Lotion base 1 Oily base 3	28	0.5	16	12	0.5
	Neomycin	Lotion base 1 Oily base 3, 4	30	0.5	21	9	0.5

TABLE 6
Other steroid combinations

Steroid	Bases	Total No. of patients	Concentration of steroid %	Results.	
				Good	Poor
Hydrocortisone	Caligesic				
	Lotion	22	0.5	13	9
Hydrocortisone	Prantal				
	Cream	68	0.25	60	8
Hydrocortisone	Coal tar				
	Solution	22	1.0	18	4
Hydrocortisone	Crude Coal tar	10	1.0	6	4
Fludrocortisone	Crude Coal tar & Quinolol compound				
	Ointment	60	0.1	53	7
Hydrocortisone	Pyridoxine				
	Hydrochloride	44	1.0	31	13

TABLE 7
Dermatoses definitely benefited by topical steroid therapy

Dermatoses	Number of patients		Most satisfactory vehicle
	Improved	Unimproved	
Erythema solare	60	0	Lotion, greaseless base cream
Atopic dermatitis	735	95	Lotion, oily base, greaseless base cream
Atopic dermatitis complicated by pyogenic infection	300	30	Antibiotic-steroid preparation in lotion or oily base
Dermatitis venenata (all causes)	450	70	Lotion, greaseless base cream
Dermatitis venenata complicated by pyogenic infection	301	20	Antibiotic-steroid preparation in lotion or oily base
Seborrheic dermatitis	128	23	Oily base, or greaseless base
Seborrheic dermatitis complicated by pyogenic infection	92	9	Antibiotic-steroid preparation in lotion, or oily base
Intertrigo	91	4	Lotion, greaseless base
Pruritus ani	242	31	Oily base lotion
Pruritus vulvae	135	22	Oily base lotion
Lichen simplex chronicus (neurodermatitis)	175	32	Oily base, greaseless base
Eczematous eruption of hands	330	41	Oily base, antibiotic-steroid combination in oily base
Nummular eczema	37	3	Oily base
Stasis dermatitis	123	23	Oily base, greaseless base
Eczematized epidermophytosis	22	4	Oily base

Results

Topical steroid therapy has proved to be of definite value in the management of erythema solare, atopic dermatitis, dermatitis venenata, seborrheic dermatitis, intertrigo, pruritus ani, pruritus vulvae, lichen simplex chronicus, eczematous eruption of the hands nummular

eczema, stasis dermatitis and eczematized epidermophytosis (Table 7).

One portion of this study was devoted to selection of the most suitable vehicles for treatment of the various dermatoses. The results tabulated in table 7 are based on objective findings by the examiners and not on the

patients' personal preference. Two patients treated with the base containing hydrous wool fat developed evidence of hypersensitivity to that ingredient. One preparation, not mentioned in the charts, contained 1 per cent hydrocortisone in a compressed air shaving cream container, but the base proved to be a severe primary irritant and after several patients developed adverse reactions, further study with this compound was discontinued. The vehicles used in the major portion of this study were found to be satisfactory.

Hydrocortisone free alcohol and hydrocortisone acetate (table 1) in oily base, greaseless base, or lotion base was found to be equally effective in the treatment of responsive dermatoses (table 7). The optimum concentration in the vehicles used is 1.0 per cent. Relief of pruritus and involution of the eruption is only temporary, however, and when the applications are discontinued relapses will occur in the majority of cases. Relief of symptoms may be maintained by continued local therapy with these drugs, gradually reducing the frequency of the applications to once daily, and in some cases once every other day.

Six additional esters of hydrocortisone were studied, and of these hydrocortisone hemisuccinate sodium and hydrocortisone diethylaminoacetate hydrochloride were effective. The MEC of those two compounds in any oily base was 0.5 per cent. By paired comparison studies and usage tests, each of these esters is as efficient as hydrocortisone or hydrocortisone acetate in a similar vehicle.

Fludrocortisone (table 2) was used in the treatment of 1,067 patients with responsive dermatoses and had an MEC of 0.1 per cent. The comparative studies between fludrocortisone and hydrocortisone indicated that the difference between the two compounds was quantitative and not qualitative. A new derivative, 9-alpha-fluorohydrocortisone tertiary-butylacetate had an MEC of 0.5 per cent; However, the relatively low efficiency of this preparation indicated it to be of little value in dermatologic therapy.

Studies on the local efficacy of the delta-1 steroids (table 3) included observations on lotions, greaseless base creams, and oily base ointments containing prednisolone No. 1, prednisolone No. 2 and prednisolone succinate. Prednisone proved to be of little value in the treatment of normally responsive dermatoses, and in many instances (31 per cent) was productive of primary irritation on local application. The initial studies with prednisolone (prednisolone No. 1) indicated that this

steroid was of value in the treatment of normally responsive dermatoses, but 25 per cent of the patients treated with this ointment developed evidence of primary irritation. Because of such reactions further studies with these compounds were discontinued. A purified compound, prednisolone No. 2 was developed for clinical investigation, and this compound was found to be efficient with an MEC of 0.5 per cent. By paired comparison and usage tests 0.5% prednisolone No. 2 is as efficient as 1.0% hydrocortisone or 0.1 per cent fludrocortisone. Prednisolone succinate was effective in a concentration of 0.5 per cent.

In the search for new and more effective steroid compounds for local therapy, a group of compounds with complex chemical formulae called "allo compounds" (table 4) have been developed for clinical investigation. One of these, 9-alpha fluorol-allodihydrocortisone acetate, was found to be the most effective and the least irritating. 9-alpha fluoroallodihydrocortisone tertiary-butylacetate was effective but produced a high incidence of primary irritation. No reactions of specific hypersensitivity have been produced by the members of this series which have been studied. More definite conclusions relative to the ultimate efficacy of these compounds cannot be formed on such a small series of patient. At the present time the results indicated that the members of the allo series that have been studied will be of little value for topical therapy because of the high incidence of primary irritation.

Antibiotic-steroid combinations (table 5) were valuable in the treatment of responsive dermatoses complicated by secondary pyogenic infection. The fact that the antibiotic does not inhibit the action of the steroid was demonstrated by using the various preparations on normally responsive dermatoses which were not secondarily infected. The fact that the steroid does not inhibit the action of the antibiotic was demonstrated by the prompt response of pyogenic infection to the application. There was a low incidence of adverse reactions to any of these preparations. Gratifying results were obtained in the treatment of secondarily infected contact dermatitis of the hands of housewives.

Six different combinations of hydrocortisone and fludrocortisone with coal tar, Prantal Cream, Caligesic Lotion, and pyridoxine hydrochloride were available for study (table 6). A combination of hydrocortisone and Caligesic in a lotion base was not effective in the treatment of normally responsive dermatoses because of

the high incidence of primary irritation. A combination of hydrocortisone with Prantal in a cream base proved to be particularly effective in the treatment of intertrigo. In the treatment of chronic lichenoid dermatitis, combinations of hydrocortisone with coal tar solution and fludrocortisone with crude coal tar and Quinolol Compound Ointment were effective in producing relief of symptoms. A combination of hydrocortisone with pyridoxine was used in the treatment of seborrheic dermatitis, but comparative studies and usage tests indicate that this preparation is not superior to hydrocortisone ointment or lotion. It is evident that the addition of pyridoxine hydrochloride to a preparation containing a steroid does not add to the efficacy of the steroid ointment.

In the course of this investigation, topical steroid therapy proved to be of NO value in the treatment of:

Psoriasis	Alopecia areata
Lichen planus	Epitheliomata
Chronic discoid lupus erythematosus	Acne vulgaris
	Cutaneous fungus infections.
Morphea	Pustular bacterid
Keratosis follicularis	Herpes simplex
Pityriasis rosea	Verrucae.

Comment

The local preparations of hydrocortisone free alcohol, hydrocortisone acetate, fludrocortisone acetate, steroid-antibiotic combinations and some of the other combinations of hydrocortisone were found to be valuable additions to the armamentarium of the physician provided that he takes into consideration the fact that these preparations seldom produce more than temporary relief from symptoms. In many instances, the necessity for systemic steroid therapy has been obviated by the proper use of the topical preparations. It has been possible to discontinue systemic administration of steroids in some individuals by the use of the ointments, creams or lotions containing hydrocortisone, hydrocortisone acetate and fludrocortisone. Dramatic relief has been afforded many patients with pruritus ani, pruritus vulvae, localized neurodermatitis, atopic dermatitis and contact dermatitis.

Conclusions

Hydrocortisone free alcohol and hydrocortisone acetate are effective in the treatment of responsive dermatoses when applied locally in concentrations of 1 per cent or greater and in suitable vehicles. Hydrocortisone hemisuccinate sodium and hydrocortisone diethylaminoacetate hydrochloride in concentrations of 0.5 per cent are both effective in the treatment of responsive dermatoses. By paired comparison studies

and usage tests, a concentration of 0.5 per cent of these two compounds is as effective as 1 per cent hydrocortisone free alcohol or hydrocortisone acetate.

Fludrocortisone is effective in the treatment of responsive dermatoses when applied locally in concentrations of 0.1 per cent or greater and in suitable vehicles. The difference in action between hydrocortisone, hydrocortisone esters, and fludrocortisone is quantitative not qualitative.

Prednisone is relatively ineffective on topical application. Initial studies on prednisolone indicated this compound to be therapeutically effective but productive of primary irritation in 25% of the patients treated. Recent studies with purified prednisolone indicate that this steroid is consistently beneficial in the treatment of responsive dermatoses without the production of primary irritation.

The allo compounds included in this study have proved to be of little value because of the high incidence of primary irritation produced by the topical applications. The addition of antibiotics to ointments, creams, or lotions containing topically active steroids does not alter the effect of the steroid and has the additional therapeutic advantage of eradicating any secondary pyogenic infection that may be present. These steroid-antibiotic combinations proved to be of value in the treatment of responsive dermatoses complicated by secondary pyogenic infection.

Combinations of hydrocortisone with Caligesic Lotion proved to be of little value because of primary irritation produced. Hydrocortisone added to Prantal Cream was of value in the treatment of uncomplicated intertrigo. Combinations of fludrocortisone and hydrocortisone with coal tar are valuable in the treatment of lichenified dermatitis.

Topical steroid therapy proved to be of no value in the following conditions: psoriasis, lichen planus, chronic discoid lupus erythematosus, morphea, keratosis, follicularis, pityriasis rosea, alopecia areata, epitheliomata, acne vulgaris, cutaneous fungus infections, pustular bacterid, herpes simplex and verrucae.

In self-limited inflammatory conditions, the topical application of the steroid offers immediate relief to the patient and may prevent such a dermatosis from becoming chronic. In responsive chronic dermatoses, topical steroid therapy may offer a maximum relief to the patient, but in these eruptions it does not produce permanent involution of lesions. In many instances, topical steroid therapy may obviate the necessity for systemic steroid therapy.

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INTESTINAL OBSTRUCTION

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Analysis of 100 personal cases

THERE has been a general decline in the death rate from intestinal obstruction as reported in the Western Journals over the last quarter century.

Vick in 1932—reported 26% in 6,892 cases.

Michel in 1950—reported 16% in 258 cases.

and it has been found of interest to analyse 100 consecutive personal cases, operated on over a period of approximately one year at this hospital in one surgical unit with 2 emergency days a week and every fourth Sunday—(This also gives an idea of the incidence of this disease—because the other surgical units also have been dealing with practically a similar number of cases at the same time).

TABLE I

	Number of Cases.	Number of death.
1 (a) Strangulated Hernia (External)	55	0
(b) Strangulated Hernia (Internal)	1	0
2 BANDS AND ADHESIONS—		
(a) Post-operative	5	2
(b) Post-Inflammatory	5	1
(c) Tubercular Abdomen	8	4
(d) Associated with Meckels Diverticulum	3	0
3 Volvulus Sigmoid	7	1
4 Volvulus Small gut	3	1
5 Thrombosis of Mesenteric Vessels	1	1
6 Congenital Abnormalities	2	2
7 Intussusception	3	1
8 Imperforate Anus	3	1
9 Spastic Ileus	1	0
10 Obstruction due to Cancer Rectum.	2	0
11 Obstruction due to Cancer Colon.	1	0
	100	14

There are some obvious differences from Western statistics. The preponderance of strangulated external hernia as a cause of obstruction and the lower mortality (0 out of 55) compared with the total. The reason I think is that all these patients know they have a hernia—and when they do get an attack of strangulation they tend to come to hospital earlier than those with the obscure cause of the obstruction. Rodrey states that in America and Britain bands and adhesions are becoming the more common cause of obstruction and the population tend to get their hernias repaired earlier.

SYMPTOMATOLOGY

Symptoms due to blockage of the lumen of the bowel are:—

- (1) Pain in the abdomen.
- (2) Vomiting
- (3) Distension of the abdomen.
- (4) Constipation of varying degrees.

In diagnosis, I pay more stress on the first 3 rather than the last—for faecal matter distal to the obstruction can be passed—or got out with an enema even after the obstruction has occurred. More important is often the fact that the patient has passed *neither flatus nor faeces*—and the rural patients will often volunteer the statement that their “wind” has got stopped up.

As the obstruction continues, signs and symptoms due to reflex effect on the nervous system—(such as collapse) and of absorption of toxins appear. Peritonitis with superadded paralytic ileus appears and the terminal phase is that of a dehydrated patient with a very distended abdomen, pinched facies, vomiting out large amounts of faeculent matter. Death eventually ensues due to exhaustion or circulatory collapse.

DIAGNOSIS

Intestinal obstruction is suspected with presence of the above symptoms. It is important from the point of view of treatment to distinguish between simple obstruction and strangulation.

TABLE II

Simple Obstruction	Strangulation
1 Usually of gradual onset.	Usually sudden.
2 No evidence of shock for sometime.	Early shock.
3 Less Abdominal tenderness.	Severe pain. Rebound tenderness.
4 Response to consecutive treatment is good. (Gastro-duodenal Suction efficiently performed-relieves the pain.)	Bad.

A straight X-Ray of the abdomen is of help in diagnosing intestinal obstruction. Small bowel obstruction-[X-Ray No. (1)] Dilated loops of small bowel are seen



X-ray No. 1. Small Bowel Obstruction. Note the large dilated loops of small bowel.

and later fluid levels form. Large bowel obstruction—The distension is mainly peripheral.

TREATMENT

Given early diagnosis, successive treatment depends upon the prompt commencement, the efficient management and adequate continuation of gastro-duodenal suction and intravenous fluid administration. This is followed by the choice of a proper moment and method for operative correction of the obstruction.

Gastro-Duodenal Suction:—A Ryles' tube has been inserted as a preliminary in all cases and half hourly aspiration performed in all cases. Given a conscientious nurse—amounts of upto 100—200 cc have been aspirated at a time and this has been preferred to the Wangenstein method of continuous suction—as a blocked tube can pass unnoticed too long. The use of the Miller Abbott tube has not met with much success in the unit—mainly because of the difficulty of passing the pyloric sphincter.

Intravenous Fluid:—Every patient suffering from intestinal obstruction will benefit from some intravenous fluids administered preoperatively and post-operatively. Alternate bottles—(540 cc) of 5% glucose and 5% Glucose Saline are employed as in this way some calories are provided without increasing the salt intake unduly. Also this routine is easily followed by the nursing staff.

A careful intake and output chart is maintained. The basic need—(counting for normal fluid loss) has been found to be about 2½ litres per 24 hours. In addition, is added the amount got out in vomit, aspiration, drainage etc.

Suction and drips is continued till the patient passes flatus and/or faeces.

OPERATION

Anæsthesia:—A lot of the reduction in mortality is due to the better anæsthesia now being given. It has been a great advantage to have as resident anæsthetists, persons of capability and who are prepared to give the poor risk patient a chance—(for without operation—there is no chance).

Where laparotomy has been necessary—intubation has always been done and relaxants always used. This has been of considerable help in closing the abdomen after a difficult case.

Strangulated hernias have usually been done—(40 cases) under spinal anæsthesia. In the others where spinal has been undesirable or it has failed, full general anæsthesia with thiopentone, gas, oxygen, ether and the use of relaxants where necessary has been used.

STRANGULATED HERNIA

An inguinal incision is made over the sac—which is opened. The constriction ring is divided and the gut examined for viability—keeping it moist with hot abdominal swabs

TABLE III

Viable Gut	Non-Viable Gut
1 Quickly regains its pinkish colour.	Black, grey or chocolate colour.
2 Arteries in the mesentery can be felt pulsating.	Has lost its glossy sheen Arteries in mesentery do not pulsate.
3 Peristalsis transmitted.	There may be areas of necrosis.

Plum-coloured intestine is doubtfully viable—but if it regains its colour on warming with hot abdominal swabs, it may be returned to the abdomen.

In this series resuction has had to be done on 3 occasions.

The mortality has been negligible because they usually tend to come in within 24 hours—though the last came with a Richter's type of hernia of 4 days duration. At operation—there were two constricting rings gangrenous—as also the apex of the loop—and about 8 inches of bowel had to be resected. Taxis is not tried as a routine. Though in 5 cases spontaneous reduction has occurred after preparation and giving the premedication—Operation is performed all the same—because the waiting list for hernias is long and they are liable to strangulate again before their turn comes for admission.

BANDS AND ADHESIONS

This is the second largest groups in this series. 5 cases had the scar of a previous operation—2 for appendectomy and 3 a laparotomy scar. One of these patients had had 3 laparotomies in 18 months for intestinal

obstruction. This shows the problem—one does not really like to operate as there is a tendency for adhesion formation again—yet if gastric suction and intravenous fluids do not succeed—operation must not be delayed too long. At operation an effort is made to free the bands and adhesions if possible. If this is not possible as in two cases—a by pass operation (anastomosing a loop of dilated small bowel to collapsed large bowel) is performed with good results.

Tubercular Abdomen with obstructive bands and adhesions is a special entity. Most of these cases have had subacute obstruction for some time and have been having medical treatment. They then get an episode of acute intestinal obstruction. In spite of the poor risk patient—I feel that laparotomy must not be refused as

In (2) cases, there were single tubercular stincures which were resucted.

2 cases which were apparently hopeless at laparotomy (masses of bands and adhesions—practically frozen abdomen) recovered unexpectedly even though nothing drastic was done—and they were ultimately discharged home. For this we possibly have to thank the oxygen one lets into the peritoneal cavity.

4 cases who were in a very bad way died after operation—but this mortality of 50% must not dishearten one.

Preoperative and post-operative chemo-therapeutic drugs like streptomycin, P. A. S. and Isoniazide are a useful adjunct.



X-ray No. 2. Volvulus of the Sigmoid. Note the enormously distended large loop of sigmoid colon on the left side. The large dilated gut on the right side was found at operation to be dilated proximal colon.

VOLVULUS OF THE SIGMOID

There have been 7 cases in this series—This condition is characterised by early massive distension of the abdomen—associated with absolute constipation. The diagnosis is usually easy. A straight X-Ray of the abdomen shows an enormously dilated sigmoid colon—often going as high as the Xiphisternum. See X-ray No. 2.

Reduction has been attempted by passing a sigmoid-scope and flatus tube in all these cases before operative correction. Through a lower left para median the abdomen is opened and an attempt made to untwist the volvulus. If there is any difficulty whatsoever I have no hesitancy in decompressing the loop (A purse string suture is applied at the apex, and the loop deflated with a large bore needle attached to a sucker tube. The purse string is tied as the needle is withdrawn).

Every single case had an unduly large sigmoid loop—All the cases were in males over the age of 40. Primary re-section has not been thought advisable. One case has occurred after a month and was admitted and re-operated on in another unit. It is felt that if more than two attacks of volvulus occur—the surplus sigmoid should be re-sected and an end to end suture performed as a planned operation.

VOLVULUS OF THE SMALL GUT AND OBSTRUCTION ASSOCIATED WITH MECKELS DIVERTICULUM

This has been associated with a small band on one occasion and on two cases a loop of ileum was twisted on itself and lying beneath a fold of mesentery. In 2 of the 3 cases where obstruction was associated with a Meckels diverticulum, a band was passing from the apex of Meckels' diverticulum to the umbilicus and round this a loop of small bowel had got twisted.

Preoperatively—the diagnosis has been small bowel obstruction—and at laparotomy the loop of small bowel has been undone to relieve the obstruction.

THROMBOSIS OF THE SUPERIOR MESENTERIC VESSELS

The only case in this series occurred in a lady of 55 with evidence of arteriosclerosis elsewhere. She was admitted with severe abdominal pain and vomiting which had started 24 hours before admission. She had not passed stool since the onset of the pain.

She was markedly collapsed, the Blood Pressure was 85/50. The abdomen was distended with marked rebound tenderness all over and X-Ray showed dilated loops of small bowel with fluid levels. A diagnosis of Intestinal Obstruction with strangulation was made—and laparotomy performed under general anaesthesia after setting up a blood transfusion.

The last 3 feet of ileum and the caecum were found to be gangrenous and there was no pulsation throughout the length of the superior mesenteric artery. Resection was rejected on the grounds of general condition and the gangrenous bowel exteriorized. The patient improved in the next 24 hours—then suddenly collapsed and expired.

Post mortem revealed a pulmonary embolus.

Mortality of this condition is high and some authorities recommend that if a diagnosis of this condition is made—the treatment should be conservative with massive blood transfusion, chemotherapy, heparinization, gastric suction and intravenous fluid therapy.

SPASTIC ILEUS

This condition first described by Murphy (1896) has been met with on one occasion. A boy of 16 was admitted with severe abdominal pain and distension with vomiting. He has not passed flatus or faeces for the last 24 hours. X-Ray showed distended coils of small intestine and fluid levels. Ryles tube suction and intravenous fluid therapy gave no relief so a laparotomy was performed.

Large dilated loops of small bowel were found above the last 2 feet of ileum. The actual site of obstruction was a segment of ileum contracted down on itself *without any mechanical factor*. There was no effect of local procaine so the abdomen was closed.

Post-operatively there was not much improvement during the next 12 hours. Then intravenous procaine—(10 cc of 1% Procaine in a vacuolator of 5% Glucose) was tried with a very good result. The patient passed flatus and faeces and was discharged on the twelfth day.

He has been followed up for one year and is well except for occasional attacks of intestinal colic. It is felt that spastic ileus is a form of intestinal colic going

to a severer degree and not being relieved by antispasmodics. The e-tiology in some cases is an irritative lesion in the bowel—and in some (as in this case) no definite pathology is found. If we could be confident of the diagnosis—we would recommend persistence with conservative treatment, otherwise laparotomy must be done.

INTESTINAL OBSTRUCTION IN INFANCY

In a new born, the cause of intestinal obstruction is a congenital abnormality—either an imperforate anus, or an atresia or malrotation of gut—Later on intussusception is an important cause—There have been 2 strangulated hernias in male infants which have been operated on successfully.

IMPERFORATE ANUS

There have been 3 cases in this series. 2 were of the low type—and are opening could be made from the perineum.

In the third case—the rectum had not formed at all. A colostomy was done—but the patient expired the next day.

MALROTATION

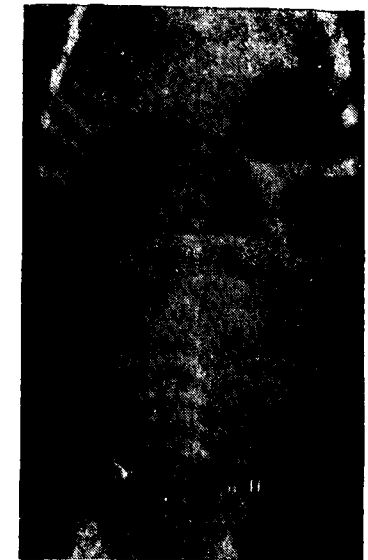
There has been one case of partial herniation—with the small gut lying in a sac adjacent to the umbilical cord. Here unfortunately the midwife had included the whole sac in stout black silk while ligaturing the umbilical cord, thus causing strangulation and gangrene of a loop of small bowel operation was performed and continuity restored but the patient expired 12 hours later.

X-Ray 3 is that of the abdomen of a newborn with normal anus—but atresia of bowel from beyond the ileo-caecal junction. An ileostomy was performed but the patient expired.

INTUSSUSCEPTION

All the 3 cases have been in male infants.

One infant (aged 6 months) had been treated as gastroenteritis for 2 days but mother gave the classic story of pain, vomiting, distension and passage of blood tinged stools (red current jelly type). A sausage shaped lump could be felt in the Right hypo-chondrium.



X-ray No. 3. *Atresia of the gut*. Note the distended gas shadow in the upper abdomen, and the absence of gas in the lower abdomen.

Operation was performed and the intussusception reduced but the patient expired 2 days later.

The next infant also aged 6 months was admitted within 12 hours of the onset of the disease—and at operation the intussusception was easily reduced.

The third case in a child aged 5 years who was admitted with severe pain in the Right Fliac Fossa and vomiting for 10 hours. Examination revealed local tenderness & rigidity but no lump was palpable. The preoperative diagnosis was acute appendicitis but on opening the abdomen an irreducible ileo ileal intussusception was found which had to be resected—Fortunately post-operative convalescence was entirely uneventful and the child was discharged on the 10th post-operative day.

INTESTINAL OBSTRUCTION DUE TO CANCER BOWEL

In this series, 2 cases with cancer rectum have been admitted with a casualty diagnosis of intestinal obstruction and showing all the signs and symptoms of pain, vomiting, distension. This is a sad commentary on the late stage patients allow their cancer rectum to get to. All too often bleeding per rectum is diagnosed and treated as piles without a full rectal examination being done.

In one of these cases—emergency colostomy had to be done. In the other enemas resulted in evacuation of the bowel and the colostomy was done as a set operation. In neither of the cases was the growth operable.

There has been one case of carcinoma of the sigmoid-presenting as intestinal obstruction. Here a transverse colostomy was done at emergency operation and later the growth was resected at a planned operation.

SUMMARY

- 1 An analysis of 100 cases of Intestinal Obstruction is presented with a mortality of 14%.
- 2 Strangulated external hernia is the commonest cause followed by bands and adhesions.

In this country tuberculosis of the abdomen frequently ends with intestinal obstruction. There have been no cases of strangulated femoral hernia in this series which is unusual.

- 3 There has not been a single case of diverticulitis—and this disease (as compared with the West) is much rare here.

- 4 Early diagnosis and treatment is important if the mortality is to be reduced—for in some conditions the mortality remains shockingly high.

If strangulated hernias are excluded from these figures the mortality figure rises to 31.1%. This can be reduced if cases are referred for treatment early—All too often cases of intestinal obstruction are treated by all the different systems of medicine with different medicines—including harsh purgatives) and accept surgery only in the last stages—when the mortality is bound to be high.

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WHAT PEOPLE EAT AND WHY

BY DR. W. R. AYKROYD,

Director, Nutrition Division, U. N. Food and Agriculture Organization.

The diversity of food patterns in various communities of the world, and the geographical, economic and cultural factors determining them, make food consumption a fascinating subject of study. Successful measures to improve diet call not only for knowledge of what people eat, but also why they eat what they do in the way they do. "Food and Health" is the theme for the 1957 World Health Day (April 7th), which this year is jointly sponsored by WHO and FAO.

THE question "Why do we eat what we do in the way we do?" seems a simple one, but a moment's thought shows that there is no simple answer. In fact, human food habits depend on a variety of factors, historical, geographical, cultural, economic and so forth.

Foods can be divided into a number of main groups such as cereals, starchy roots (potatoes, yams), pulses (peas, beans, etc.), sugar, fats and oils, fruits, vegetables, meat, eggs, fish, milk. All human diets consist of these foods in varying—very varying—proportions.

The list reflects in the first place the way in which man has adapted himself to the environment presented to him by our planet at a particular stage in its existence. Given that environment, and the need for food created by the expansion of the human race from a few scattered groups into a population of 2,500 millions, it is difficult to imagine any very striking differences in the main human foods.

Man might have domesticated other grasses into cereals, surrounded himself with different domestic animals and birds, and hit on wild roots, tubers, vegetables and fruits which, after centuries of cultivation, would have rivalled or surpassed cassava, potatoes, cabbages and oranges. But this would mean differences within the food groups rather than entirely other sources of food.

The development of science may, of course, enable other sources to be tapped or created. Enthusiasts tell us that algae and grass, suitably processed, could provide human food in large quantities. There is also the prospect, somewhat remote, of "synthetic food". At the present time however, we must make do with the foods and food sources we have inherited.

PROCESSED FOOD IS NOT NEW

"Food technology", in a broad sense of this term, has been as important a factor in the development of food sources as domestication, selection and careful husbandry and cultivation. Beginning with the use of fire for roasting meat, man has learnt to 'process' most of his foods in various ways, the invention of bread being a striking example. Out of domestic and local processing have grown the food industries which turn the raw material from fields and plantations into the elegant products familiar in our shops and on our tables today.

Large-scale food industry is not new; for example, sugar has been a factory product for centuries and in ancient Rome there were great bakeries which made the bread for the proletariat. But within the last century or so the food industry has expanded to such a degree that it now exercises a profound and, on the whole, beneficial influence on human food patterns.

This was not always the case before the modern science of nutrition was born and its main findings became fairly common knowledge. The transformation of oil seeds into the widely-consumed, cheap, palatable and easily stored and transported product we call margarine is among the remarkable achievements of food technology.

Margarine as such is inferior in nutritive value to butter only because it lacks fat-soluble vitamins, but another development in food technology has made enrichment with the missing vitamins possible and qualified it to compete with butter—all too successfully from the standpoint of the dairy industry—not only in price but also in nutrient content.

WIDENING CHOICE OF FOODS

Geography or locality naturally influences food patterns. Since rice, but not wheat, flourishes in South-East Asia, the inhabitants of that region are in general rice eaters rather than wheat eaters. But during recent centuries the effect of geography has been steadily reduced. In the first place, the useful food plants and food-producing animals originating in one region have spread round the world. Maize is today so characteristic a crop in Egypt that one is almost surprised not to find maize cobs depicted in ancient Egyptian tombs; the turkey of the Americas has become, by a curious sequence of events, a symbol of the English Christmas.

Secondly, the development of transport and technology has decreased dependence on local food supplies. Many countries such as, for example, Cuba, Israel and Venezuela, today rely heavily on imported foods, though few surpass in this respect that great food importer, the United Kingdom.

Through refrigeration and other technical devices, well-to-do people anywhere in the world have an almost unlimited choice of foods. On the other hand, the majority of people in what are nowadays called the under-developed countries still live on foods which they themselves produce locally. In such circumstances, food patterns are less flexible and the diet in general more monotonous than in modern urbanized civilization.

INFLUENCE OF CUSTOM AND HABIT

Although human food patterns are based on the main food groups I have listed, other elements in these patterns cannot be ignored. Scientifically speaking, a diet is satisfactory if it provides calories, proteins, vitamins and minerals in sufficient quantities. People in general do not hold that view.

There are certain 'extras' in most human diets—tea, coffee, alcoholic drinks, flavouring agents, etc.—which contribute little to dietary requirements but are in practice almost as essential commodities as staple foods. Their production influences agricultural economy in many parts of the world and they figure significantly in family food budgets. People *will* have their 'extras' even at the expense of more nutritious articles of diet.

Books could be written about the influence of custom and habit on food patterns. Every cultural group has its strong preferences for certain kinds of foods and cooking and for a certain timing, size and sequence of meals, eaten according to a local ritual.

Taste and flavour have a physiological basis—about which surprisingly little is known—and hence we can assume a certain rough uniformity in human palates; sweet is sweet and sour is sour to all normal human beings. But we also know that taste can be educated or conditioned so that one man's meat is another man's poison.

Apart from the underlying factor of taste, preferences stem from an interplay between tradition, food supply and the necessities imposed by the material and social environment. Each group tends to regard its food patterns as the normal and natural ones; they are, in fact, set rather deeply in national or regional cultures.

MALNUTRITION BY SUPERSTITION

A discussion of food superstitions and taboos—also cultural phenomena—would again require a volume to itself with illustrations drawn from all types of human society, civilized and primitive.

Dr. Cicely Williams, who introduced the word 'kwashiorkor' (a form of protein malnutrition) into medical literature, writes:* 'In East Africa, where kwashiorkor is alarmingly common, there are places where meat and milk are available but the women and children do not get them. The women are told that if they eat eggs they will become sterile, if they eat fowls they will crow, if they eat goat they will grow beards'.

These are extreme examples, but there would be no difficulty in finding less picturesque ones nearer home.

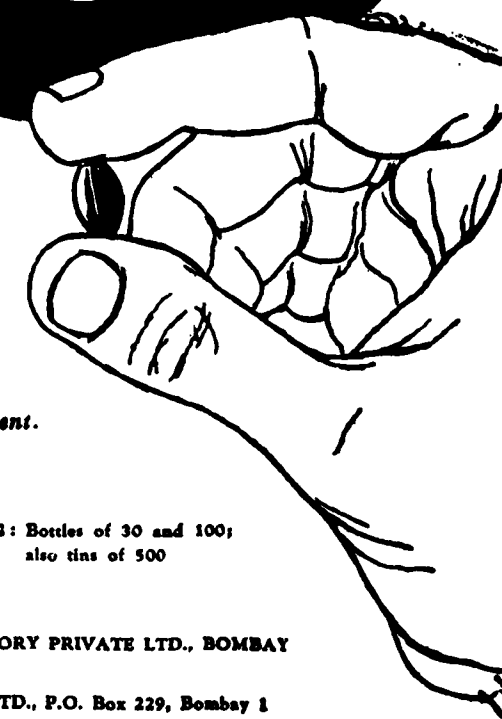
Food production, processing and transport, wage levels, food prices—all these are only one side of the picture; on the other are human beings and their incalculable behaviour. But, of course, economic factors do exert a fundamental influence on dietary patterns.

ECONOMIC FACTORS

In return for a given sum of money, certain kinds of foods yield more calories than others. In the first group are cereals, starchy roots and sugar, and in the second milk products, meat and eggs. Less land and agricultural effort are needed to produce a given number of cereal calories than the same number from foods of animal origin, which are richer in some essential nutrients.

'Enough food' is a primary human necessity. When people are poor they must, to obtain sufficient calories,

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rely mainly on the cheaper foods. Investigations in many countries have shown that in general family diets become more varied and nutritious with increasing income and what is true of families is also broadly true of countries and regions.

In poor agricultural countries, particularly those with a high density of population per unit of cultivated land, cereals usually provide 65 per cent. or more of total calories. But here again there are the inevitable provisos and complications. Thus, while the consumption of some valuable foods rises with increasing income, that of other valuable foods may fall. Again, some poor agricultural countries obtain a better diet than others from approximately equivalent and limited food production resources.

FOOD CONSUMPTION STUDIES

Many studies have been made to show what people eat and whether their diets are satisfactory in quantity and quality. On a national scale, what are called "food balance sheets" have been prepared for many countries in the world. These show the average composition and value of national diets but, on the other hand, do not reveal variations in patterns of food consumption within countries due to locality, economic status and numerous other factors. They are often inaccurate because the food supply and population statistics on which they are based are faulty and incomplete.

The direct study of family food consumption by dietary surveys supplements the data provided by food balance sheets and gives a clearer picture of food habits. Techniques for making dietary surveys in both urban and rural areas have been devised. Unfortunately such surveys are expensive and time-consuming and in only a few countries have they been made on an adequate scale.

The main object of food consumption studies is to find out whether diets fulfil requirements and to apply this knowledge in practical efforts to raise nutritional levels. These should include programmes of educate people in better habits of diet. Successful measures to improve diet call not only for knowledge of what people eat—some understanding of why they eat what they do in the way they do is also essential.

Within population groups of similar composition there are often fairly similar food consumption patterns,

influenced in a fairly regular way by economic factors. But in the world as a whole, the diversity of food patterns is more striking than their uniformity, and the complexity of factors which influence them is abundantly apparent.

The man-of-all-work for a doctor friend in New England had sent a part of each month's salary to a small bank in his home town in the South.

After Two years of this he went to New York for a gay weekend. He ran out of money and induced a friend to cash a cheque for him. About a week later the friend showed up with the cheque marked "*Insufficient Funds*". The man-of-all-work dug up the money to buy the cheque back and immediately sent an angry letter to the bank pointing out that he must have had much more money in his account than the cheque called for. He got this reply from the bank:

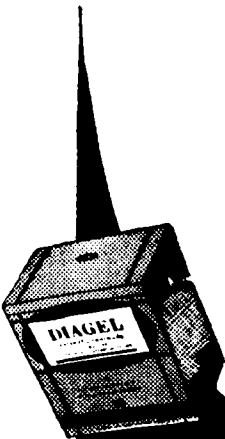
"Dear Sir: When we say 'insufficient funds' we don't necessarily mean you got insufficient funds. It could also mean we got in sufficient funds."

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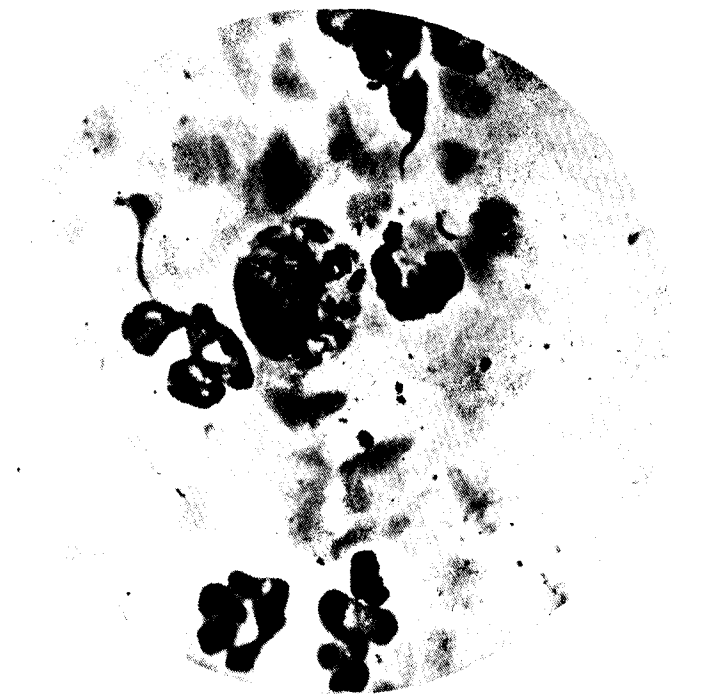
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QUMARESH HOUSE SALKIA HOWRAH

AN INTERESTING CASE OF DERMAL LEISHMANIASIS

BY DR. R. K. PAL, D. Sc. (Edin), M. Sc., M. B. (Cal.), M. R. C. P., F. R. S. E., F. N. I.

THE patient, Mr. P. K., a Hindu male aged 38 years, complained of two ulcers, one on the back of the right elbow joint and another on the posterior aspect of the middle of the right arm for about four months which did not respond to any treatment so far. In the beginning he sustained a bruise on the skin over the olecranon process of the right ulna on the posterior aspect of his right elbow joint as he tried to scale into a room through the window as the door was closed with the latch-key left inside the room. He touched it with Tr. Iodine and thought that it would heal, as usual within a few days. But unfortunately the scab acquired a yellowish tinge with very little inflammation and did not fall out even in a month's time and it appeared to be increasing in size. There was no pain or swelling associated with it and the only symptom was slight itching. About that time two reddish nodules of the size of a pea appeared discreetly on the outer aspect of the right arm, on which yellowish scales soon appeared and ultimately the two scaly scabs grew thicker, enlarged and coalesced without any sign of their coming out as it happened with the first one. He consulted two local doctors one after the other but without any effect.

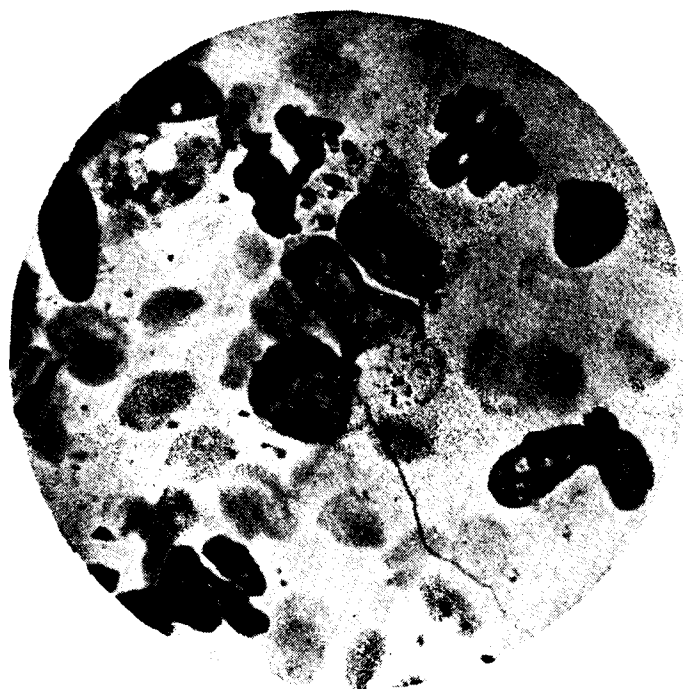
At the time of consultation the dry and yellowish fibrotic ulcer on the back of the elbow joint was about the size of a rupee coin, and there was another similar one, oval in shape, about one inch long and three-fourth of an inch broad on the outer aspect of the middle of the right arm. When examined by a magnifying glass the two sores revealed dry yellow scaly fibrotic encrustation. As that on the arm had its border partially dislodged from the skin bed after pouring some warm sterile water over it slowly and steadily the scab was up-rooted with a blunt forceps, when it came out as a whole with several tiny thread-worm like roots, leaving a shallow cup-shaped ulcer covered with a thin parchment like membrane, with a clean margin slightly raised and indurated, encircled by a red areola. The covering serous membrane of the ulcer had a punctate appearance because of the coming out of the roots with the crust, but was free from any purulent or non-purulent serous discharge.



Photomicrograph of a smear preparation of the serous fluid taken from the edge of an ulcer, showing a macrophage cell containing L.D. Bodies, confirming diagnosis.

The raised and indurated reddish edge of the decrusted ulcer was sterilized with alcohol and when it was dry it was scraped with a fine scalpel. The slightly blood-stained fluid that ooze d out was spread on a slide as a smear and stained with leishman stain. When examined under the microscope with oil emersion lens, typical L. D. bodies inside macrophage cells were seen, as the accompanying micro-photograph would show. Another portion of the serous fluid taken out with a sterile capillary pipette was diluted with sterile normal saline and then innoculated into the N. N. N. medium which a few days later showed growth of L. Tropica.

Blood was taken for Wasserman and aldehyde tests as also for total and differential counts at the same time. The first two tests were negative. The blood picture was as follows:



Photomicrograph of a smear preparation of the serous fluid taken from the edge of an ulcer, after treatment for more than two months, still showing some monocytes packed with L.D. Bodies.

REPORT ON BLOOD EXAMINATION:

Hæmoglobin—70 p. c. (11.90 gm. per 100 c. c.)

Total R. B. C. Count—4,600,000 per c. mm.

„ W. B. C. „ —5,250 „ „

DIFFERENTIAL:

Neutrophiles —56 p. c.

Lymphocytes —38 „

Monocytes — 2 „

Eosinophiles — 4 „

Basophiles — Nil

Abnormal cells—Nil

Parasites — „

Thus when the diagnosis was made and confirmed by the smear and culture local application of carbon dioxide snow with intravenous injection of the time-honoured drug antimony tartrate 7.5 mgm. dissolved in 10 c.c. of pyrogen free distilled water twice a week for a month and a half intravenously. After each injection there was a severe reaction and the temperature shot up to 102—

103 F., which subsided after 3—4 hours. But unfortunately there was no improvement what-so-ever. Next was given a course of urea stibamine, beginning with 0.1, then 0.2 and lastly 0.25 doses intravenously, every third day for a month but as ill luck would have it, the results were no better. Repeated smear preparations revealed the presence of a large number of monocytes packed with L. D. bodies. So something more effective had to be thought about and treatment of the ulcers by ionisation with zinc sulphate was decided upon, which resulted in complete cure after two applications at the interval of two weeks, so far as the disappearance of the L. D. bodies in smear preparation was concerned. Subsequently application of zinc ointment twice daily over the sores for a month effected the complete healing of the ulcers leaving only two white scars.

The points of interest in this case are:

- (1) A typical infection through an abrasion without any history of any sandfly or any other insect-bite. Probably some sandflies crushed on the window-frame due to pressure by the hard olecranon process of the right ulna caused the mischief by allowing the parasites to get into the body through the raw surface of the bruise. This possibility finds corroboration from the experiments by Sergeant *et al* (1921), Adler and Theodor (1926) and Adler and Ber (1941).
- (2) Failure of the antimony preparations to afford any relief what-so-ever and a very quick and effective response to treatment by zinc ionisation method.

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CAN ATHEROSCLEROSIS BE PREVENTED?

BY PROFESSOR ALEXANDER MYASNIKOV

FOR the past ten years the incidence of cardiovascular diseases—atherosclerosis, coronary insufficiency, cardiac infarction—has been showing an upward tendency in all countries. This presents modern therapy with a very serious problem and it was to it that the recent Fourteenth Congress of Soviet Therapists gave most of its attention.

Atherosclerosis is a disease of the arteries which must be recognised as a distinct form of sclerosis markedly different from all others. It can occur even at an early age and is not to be confused with the natural hardening of the arteries that comes with old age. Many old people have very good health; although their blood vessels do undergo certain changes (thickening of the walls, loss of elasticity), they remain free of the typical symptoms of atherosclerosis, i. e., the deposition in larger or smaller patches of a fat-like substance called cholesterol on the inner coat of the arteries, and the thickening of connective tissue in the area of these deposits.

The most dangerous are atherosclerotic changes of the arteries of the brain, heart, kidneys and limbs.

METABOLISM THE DECIDING FACTOR

For many years now Academician Nikolai Anichkov (Leningrad) has been successfully devoting his efforts to the problem of atherosclerosis. He and his collaborators have evolved a theory explaining its genesis and development and devised a classical experiment. Atherosclerosis in animals was reproduced by giving them food containing an excess of cholesterol. Diet is known to play an important part in the treatment and prevention of this disease. It is generally believed that food rich in fat and cholesterol promotes the deposit of fat-like substances (lipoids) on the walls of blood vessels. This view is supported by many scientists both in the U. S. S. R. and other countries. According to data collected in many countries by the American cardiologist A. Keys (who recently visited the U. S. S. R.), there is a direct connection between atherosclerosis of the coronary arteries, excess intake of fat and an increased cholesterol content in the blood.

There is, however, one but. It all depends, evidently, on the general level of metabolism, on the intensity of energy expenditure.

I have had occasion to observe a fifty-year-old man who worked in a fishery on the shore of the Okhotsk Sea for more than ten years. All those years a good part of his diet was made up of caviar which is extremely rich in cholesterol. It was estimated that he consumed from ten to fifteen times more cholesterol daily than did the average Muscovite. Nevertheless, he showed no signs of either disturbed cholesterol metabolism or of atherosclerosis. Presumably, the life he lived (hard physical work in a northern climate) was such that the excess of fat-like substances was assimilated in full, none of it being retained in the blood or deposited on the walls of his arteries. Hence, diet plays a role in the development of atherosclerosis only when metabolism is disturbed. In itself, cholesterol is a necessary component part of our cells and tissues and is not harmful. Besides, foods contain many substances which can in some measure prevent the deposit of cholesterol on the walls of blood vessels even when it is present in excess in food.

Neural, endocrine and hormone influences also deserve serious attention in relation to atherosclerosis. Vsevolod Tsinzerling and Vasily Tatarsky (Leningrad) have found that the injection of a thyroid hormone retards the development of experimental atherosclerosis in rabbits. The findings of research workers in the Institute of Therapy show that the progress of atherosclerosis in animals and the state of lipid metabolism in man can be substantially altered by pharmacological agents affecting the central parts of the nervous system.

Vitamins actively influence cholesterol metabolism. My collaborators have found that vitamin C (ascorbic acid) retards the development of experimental atherosclerosis and produces favourable changes in the biochemical content of the blood of patients.

Atherosclerosis is by no means always accompanied by an increased content of cholesterol in the blood. Its proportion to lecithin—another lipid—and also the protein content of blood plasma are likewise important factors. Active, progressive forms of atherosclerosis are characterised by the prevalence of definite groups of lipoproteins (complex compounds of cholesterol and protein). Observations show that hypertension also conduces to the development of atherosclerosis.

ATHEROSCLEROSIS CAN BE PREVENTED

All these findings were thoroughly discussed at the soviet therapeutists' congress as providing the basis for the prevention and treatment of atherosclerosis. A rational diet, the prevention of adiposity, physical labour and sports, treatment of the nervous system, especially the prevention and treatment of vascular neuroses and hypertension, the periodic administration of certain special substances (ascorbic acid, lecithin, choline and iodine which has a good effect on the thyroid gland) are all important factors in combating this disease.

Much attention was given at the congress to one of the most serious forms of atherosclerosis, namely, atherosclerosis of the coronary arteries which nourish the cardiac muscle. This form of the disease can lead to angina pectoris and cardiac infarction. The Soviet school of therapy (Georgi Lang and others) ascribe a very important role to functional nervous factors in the development of these diseases. Attacks of angina pectoris (stenocardia) are caused by a spasm of the coronary artery and a temporary decrease of the blood supply to some area of the heart. Atherosclerosis is only a contributory factor.

The various causes and forms of this disease were analysed at the congress by Miron Vovsi. It was also shown that there is a direct connection between angina pectoris and cardiac infarction. The infarction results from the formation of a lasting obstruction in one of the coronary arteries which causes injury to the relative area of the cardiac muscle. Although atherosclerosis of the coronary arteries is found to be present in nearly all cases of the disease, it merely paves the way for the final disaster which is frequently the result of a nervous reaction. Functional disturbance of the cardiac muscle is indubitably another contributing factor. The experiments performed by Anatoly Strukov and Vladimir Vinogradov, and also those of Nikolai Kipshidze, showed that when the heart is overburdened by high blood pressure or physical exercise infarction results.

Much attention has been given of late to the problem of coagulation of the blood in coronary diseases. Observations suggest the administration of an anti-coagulant, that is, a substance that retards clotting, as a means of preventing and treating cardiac infarction. This subject was discussed at the congress by Pavel Lukomsky and Evgeny Iareyev and also by the

pioneer in this trend of Soviet medicine, Professor Boris Kushelevsky of Sverdlovsk.

In conclusion I should like to stress that atherosclerosis is not the fatal lot of old age; it can be prevented or retarded. Given earlier and correct diagnosis and prompt treatment, the number of fatal issues can be greatly reduced.

A young man stood on the curb mopping his brow and looking nervously up the street. A Ford convertible came slowly around the corner, a girl of about twenty grasping the steering wheel and gazing fixedly ahead. As she approached, the young man gestured and yelled: "Keep more to the right. Shift into high. Don't forget the clutch".

The car passed out of sight and he relaxed for a moment. Then he started looking up the street again. Soon the Ford rounded the corner once more.

"Choke her" he shouted. The car leaped forward.

"Brake down and shift to second at the corner" he called as the car passed. Turning to the interested observer he explained:

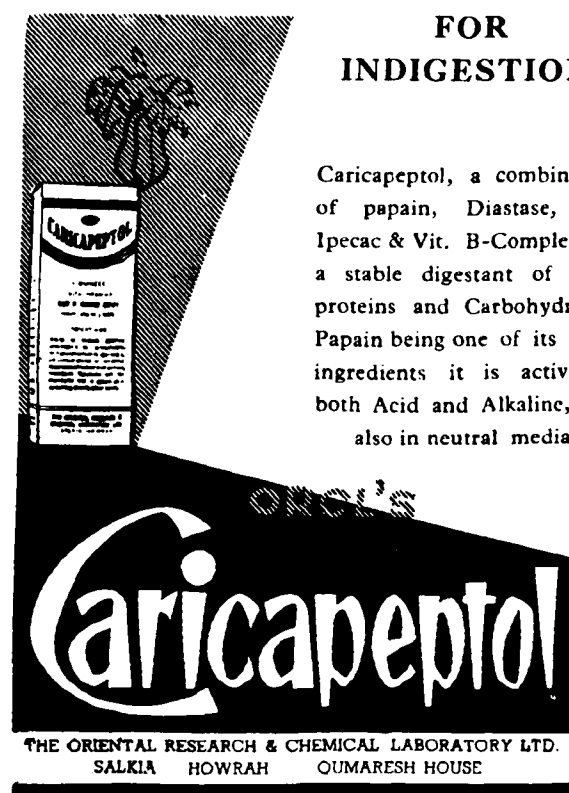
"It's my wife learning to drive".

"But couldn't you teach her better if you were in the car?"

"May be," he replied "but the car's insured and my life isn't."

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Mellon Institute's Industrial Hygiene
Foundation Activities in U. S. A.

INDUSTRIAL Hygiene Foundation is a non-profit research association of industries for advancing occupational health, improving working conditions and bettering human relations. Organised in 1935 at Mellon Institute to assist in solving the silicosis problem the Foundation has since had wide experience in the whole domain of occupational health. It has grown from a nucleus of 20 members companies to more than 400 supporting companies and trade associations representing leading industries of the nation.

Companies and associations affiliated with the Foundation are entitled to the services of its industrial health team, plus the technical facilities of Mellon Institute, where the Foundation has its headquarters and laboratories.

THE I-H-F—STAFF AND ASSOCIATES

Physicians, Chemists, Engineers, Industrial Hygienists, Bio-chemists and research technicians—all specialists in occupational health problems.

Five professional committees—medical, preventive engineering, legal, chemical-toxicological, and air pollution control—whose members supplement the staff in supplying facts and counsel.



Separating respirable dust into size fractions.



Quantitative determination of composition of dust by x-ray diffraction.

A Board of Trustees comprised of top echelon leaders in technology, science, and education, who administer the Foundation's affairs in general.

SERVICES TO MEMBER COMPANIES

1. Study and solution of specific industrial health problems.
2. Environmental surveys.
3. Control of hazards.
4. Development of health and medical programmes tailored to individual company requirements.
5. Basic research in physiology, toxicology and bio-chemistry and in the field of air pollution.
6. Specific toxicological studies.
7. All types of air-pollution investigations.



Studying biological responses to air contaminants.

8. Collaboration in operations researches.
9. Reports on legal developments in industrial health.
10. Technical information service.
11. Publications.
12. Annual meetings and technical conferences.

FOUNDATION ACTIVITIES

Medical Services: General information is available from the Foundation on all matters pertaining to health maintenance services and to specific industrial medical problems. Consultation is provided dealing with the establishment, expansion and conduct of medical programmes in industry.

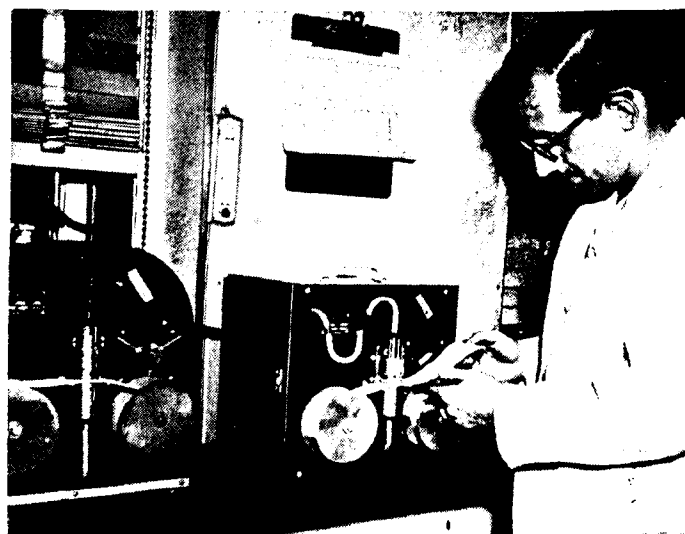
Medical evaluations made by the Foundation for member companies serve to determine what is adequate for the health maintenance needs of an organisation and its component plants, and to assure that the greatest amount of efficient, proper service is obtained

for a given outlay of money. Such audits include studies of organisational and administrative practices in industrial health services, inspection of medical facilities, interview of personnel in all areas relating to medical services and thorough examination of records of employment, illness and injury, with tabulation of costs where possible. Potential hazards are evaluated and physical examinations are designed with these and other pertinent factors in mind. In every instance recommendations are made with respect to a medical programme suited to the needs of the company.

Epidemiological studies are conducted to determine the relationship of certain diseases to occupation. Incidence rates of those diseases are related to possible causes by statistical methods.

Industrial Hygiene Services: Environmental surveys—many on an industry-wide scale—are conducted for members, as are plant studies on specific phases of industrial health problems. The nature and magnitude of hazardous exposures and the effectiveness of control measures are appraised.

I-H-F industrial hygienists and chemists measure and analyze dusts, fumes, gases, vapors and odors, noise and radiant heat; and, together with the medical staff, evaluate the hazards involved. The engineering division is equipped to advise on control requirements for specific operations and on modifications in processes to minimize or, whenever possible, to eliminate environmental hazards.



I-H-F automatic sampler for use in air pollution surveys.



Mobile Laboratory for field studies.

The Foundation's industrial health specialists are called on to:

1. Give specialised advice on new plant design and construction and reconstruction in existing plants in order to make health protection an integral part of operations.
2. Conduct field tests for new control measures.
3. Review plans for ventilating systems, as to design, capacity, etc.
4. Advise on special air-cleaning problems.
5. Develop new data and design procedures for exhaust hoods.
6. Provide information and advise on toxicity of chemical and physical agents; on hazards of particular processes; and on sampling and analytical procedures, choice and availability of equipment.
7. Conduct basic research in the field of industrial hygiene to develop new sampling and analytical methods and techniques.

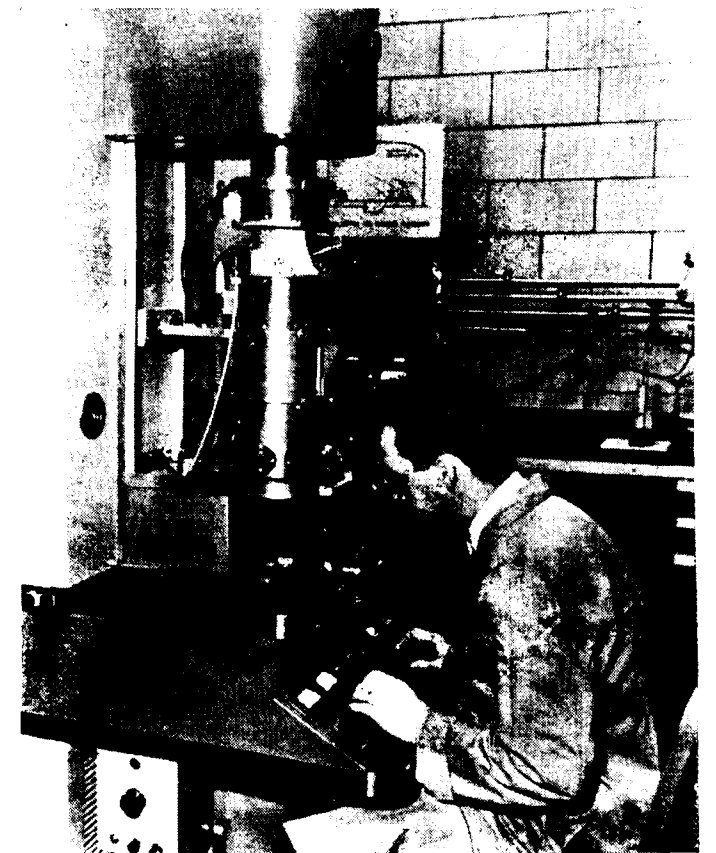
AIR POLLUTION INVESTIGATIONS

Closely allied with the industrial hygiene and engineering activities of the Foundation are its investigations into industrial air-pollution problems. Important parts of this activity are:

1. City, community and regional surveys.
2. Advise on specific problems—investigational procedures and criteria.
3. Development of methods, apparatus and techniques for collecting and measuring air pollutants.
4. Investigations of air pollution potentials of plants—measurement of stack dusts, fumes, gases and odours. Estimation of neighbourhood effects.
5. Assistance in engineering measures for controlling excessive stack emissions. Study of particle size and other characteristics of stack dusts and their relation to appropriate dust collectors.

TOXICOLOGICAL RESEARCH

The Foundation's toxicological laboratory makes studies in the physiology, toxicology, and biochemistry of physical and chemical agents, their mode of entrance



Electron microscope magnifies particles more than 100,000 times

(Continued on page 34)

PREGNANCY AND HEART DISEASES

By DR. N. K. RANGARAJAN, M.B., B.S.

R. G. Kar Medical College, CALCUTTA-4.

Physiological changes affecting the Cardio Vascular System in Pregnancy.

As the pregnancy advances the uterus gradually enlarges pushing the heart upwards and rotating it to the left. At about 36th week the apex beat can be palpated in the fourth left inter Costal Space one inch outside the midclavicular line.

The work done by the heart is considerably increased. The work of the heart depends on cardiac output and peripheral-resistance. There is no appreciable change in Blood pressure during pregnancy. So work of the heart increases as a result of increase in the cardiac output. The burden on the heart increases from 10th week onwards to 29th week after which there is a fall. The output increases about 30% more than the normal. The incidence of heart disease is maximum during 10th to 29th week. After 29th week the disease can be expected to improve. The question arises why should there be an increase in the cardiac output during pregnancy. This may be due to an increase in the blood volume. It is estimated that the blood volume increases about 45%. The increase is mostly in the plasma volume. Hence there is dilution of blood. This disproportionate increase in the blood volume causes retention of salt and water in the tissues. Probably

there is an endocrine factor which brings about these changes. Burwell suggests that the increase in the output may be due to the presence of arterio venous fistula at the placental site. This cannot be accepted as true because in that case the cardiac output cannot be expected to go down before term.

Classification

The heart diseases may be classified into :—

- (1) Functional
- (2) Organic Organic again into
 - (a) Congenital
 - (b) Rheumatic
 - (c) Hypertensive
 - (d) Coronary and others.

Functional

Even in normal pregnancy various circulatory disturbances may occur. They occur as a result of pulmonary ventilation which reduces the respiratory reserve. The chief symptoms are Cardiac pain, dyspnæ and signs are increase in pulse rate extra systole and functional murmurs. The symptoms appear towards the later stage of pregnancy. After labour they disappear rapidly.

(Continued from page 33)

into the body, and their subsequent possible toxic action. The findings serve as a basis for evolving proper control measures to protect the health of workers.

Short and long term toxicity studies on new chemicals to indicate nature of problems which may be encountered in manufacture and use are carried on in the laboratory. Range finding toxicity tests are made on new compounds

LEGAL ASSISTANCE

The Foundation through its General Counsel and its Legal Committee, keeps in contact with legislative activities pertaining to occupational diseases and compensation. Specific information desired by members is obtained. Summaries of new compensation laws,

revisions and additions are prepared. New codes pertaining to health hazards and related problems are analyzed for members.

TECHNICAL INFORMATION SERVICE

Member companies are invited to tap the rich source of accumulated knowledge and experience represented by the Foundation's executive staff. A letter, telephone caller visit to the I. H. F. Offices will turn up an elusive bit of technical information or get to the roots of a perplexing problem. The staff aids members in securing desired literature, prepares bibliographies, conducts literature searches, and secures information from other sources, as for example, companies having related problems.

Congenital

Congenital heart diseases are uncommon in pregnancy. They are divided into two groups 1) Cyanotic and 2) Acyanotic. It is rare for a cyanotic patient to become pregnant. If at all they do chances of heart failure are more and pregnancy have to be terminated. Patients without cyanosis bear pregnancy well.

With the advent of modern techniques in cardiac Surgery it can be expected more and more cases of congenital heart patients can have safe pregnancy.

Rheumatic

Nearly 90% of heart cases occurring in pregnancy belong to this group. The most common rheumatic lesion met with is Mital Stenosis. Then comes Aortic Stenosis. Other Valves may also be affected.

Mital Stenosis

Diagnosis may be sometimes very difficult because of the normal signs and symptoms of heart in pregnancy. There is usually a past history of Rheumatic fever, joint pain or chorea. The symptoms are dyspnæ which may be slight or severe depending on the degree of heart disease. There may be history of hæmoptysis.

Dyspnœa and hæmoptysis are due to pulmonary congestion. As the mital valve is stenosed there is stagnation of blood in the left atrium. At the same time the Rt. Ventricle pumps in more blood in to the lungs than the left atrium can hold. In pregnancy because of the increased cardiac output pulmonary congestion can easily be precipitated. Paul Wood has pointed out that there is a protective function of the pulmonary arterioles. The pulmonary arterioles constricts and prevents the congestion of blood in the pulmonary veins and left atrium. This brings down dyspnæ, paroxymal tachycardia and pulmonary œdema. Paul Wood says "This behaviour of the pulmonary vascular resistance is the most important physiological event in mital stenosis; which to a large extent determines the course of the disease." High pulmonary resistance is not an end result of pulmonary stenosis. It comes early in disease thereby saving the patients from drowning. Those cases where the pulmonary resistance is low from the very beginning symptoms of pulmonary venous congestion develops early.

Signs

Pulse rate is regular and small. Apex beat is not forceful. There may be palpable thrill, in the mital

area. Auscultation reveals a pre-systolic on diastolic murmur. Second sound in the pulmonary area may be accentuated. Radiography shows evidence of enlargement of left atrium and pulmonary venous congestion. E. C. G. is confirmatory.

Mital in competence

Symptoms resemble that of mital stenosis. The following signs favour mital incompetence. (1) Apex beat shifted down and out. (2) Systolic thrill in the mital area. (3) Systolic murmur in the mital area harsh in character radiating to the inferior angle of the scapula. Radiology and E. C. G. help in diagnosis.

Acute Rheumatic Cardities

It is very difficult to diagnose this during pregnancy as the leucocytic count and blood sedimentation rate are increased normally in pregnancy. If diagnosis is made early in pregnancy it is better to terminate pregnancy. But if the diagnosis is made after 12 weeks it is better to allow the pregnancy to continue. Salicylates are very good.

Hypertensive

The subject of hypertension and pregnancy is vast hence I do not want to deal with it in detail. Except mentioning some salient points.

Hypertension can be malignant or essential. The former is very rare in pregnancy and the latter is not uncommon. The diagnosis of hypertension occurring in pregnancy is not easy. The blood pressure which is raised over 160 m. m. of Hg. systolic and 90 m. m. of Hg. diastolic is probably due to essential hypertension.

This has to be differentiated from preeclampsia. It is customary to take 20th week as a line dividing essential hypertension and preeclampsia. In 50% of cases of essential hypertension there is a fall of blood pressure during the middle of 3 months of pregnancy. In long standing cases there may be enlargement of heart and arterio sclerotic changes in peripheral and retinal vessels.

A word about management:—When the blood pressure goes over 160/100 S/D m. m. of Hg. the patient should be hospitalized. If the symptoms does not aggravate better allow the pregnancy to continue till 37th week when labour can be induced.

Drugs. Hexamethonium Bromide and (Ravwolfia) Serpentina are nowadays used to bring down blood pressure.

Coronary Thrombosis

This is also rare in pregnancy. Diagnosis of these cases are not difficult.

Management : Coronary Thrombosis during pregnancy presents special problems. Non-interference of any sort for six weeks following myo-cardial infarction is the rule. But if there is severe hypertension with renal and retinal drainage pregnancy has to be terminated.

Special care should be taken when administering anti-coagulants. The drugs pass through placenta causing hypo-pro-thrombinæmia and hæmorrhage in the body. Once labour begins the therapy should be withheld and vitamin K administered. Anti-coagulants may be resumed after delivery. The baby should be given vitamin K by injection soon after delivery.

Prognosis

Prognosis of heart diseases in pregnancy depends on various factors.

(1) Diagnosis

A correct diagnosis is highly essential. At times it becomes very difficult because, as already pointed out, even in normal pregnancy the patient complains about heart troubles.

(2) Functional capacity of the heart

It is of great importance to know the capacity and reserve power of the heart. The American Heart Association has classified the heart patient into the following groups according to the limitation of the heart.

- Class I* No limitation of activity on discomfort on ordinary activity.
- Class II A* Slight limitation of activity and some discomfort on ordinary activity.
- Class II B* Moderate limitation of activity and discomfort on ordinary activity.
- Class III* Gross limitation of activity and discomfort on less than ordinary activity. Comfortable at rest.
- Class IV* Discomfort on any sort of physical activity. Symptoms of cardiac insufficiency at rest. Evidence of congestive heart failure.

Previous history of heart failure

It is always a very serious prognostic significance for pregnancy. Sometimes the true symptoms of heart failure may not be sufficiently appreciated by the physician and wrong diagnosis of bronchitis may be given.

Other factors

AGE

Older the patient bad is the prognosis. The cardiac reserve power is less and more over they are likely to have obstetrical difficulty.

SOCIAL CLASS

People belonging to poor class will not be able to rest during pregnancy and puerperium to the same degree as the rich.

SIZE OF HEART

Larger the heart worse the prognosis. Auricular fibrillation is a sign of advanced disease. Pulmonary venous congestion and œdema bear bad prognosis.

Management

Early diagnosis of heart disease and prevention of heart failure should be the aim in treating patient belonging to class I & II. These patients can be treated in the out-patient department. However more advanced cases should be hospitalized.

At each visit early signs of congestive heart failure should be looked for. Fresh air, moderate exercise and nourishing food should be advised. Anæmia if any should be corrected. The patient should be advised to take as much rest as possible. At least 2 hours in the afternoon and 10 hours at night. She should on no account overstrain. Work which does not bring about overstrain is permissible. Bad teeth should be removed. Penicilline should be given to prevent sub-acute endocarditis.

Those cases belonging to class III & IV should be hospitalized and treated.

Congestive failure

COMPLETE bed rest is essential. Salt and fluid should be restricted. An output input chart should be maintained. Mercurial diuretics are given intramuscularly. The patient should be digitalized; 10 to 15 mins. of Tr. Degetalis T. D. S. If any toxic

symptoms like nausea vomiting and constriction around the chest arises the drug should be discontinued. In case of auricular fibrillation Quinidine should be given.

Acute Pulmonary œdema

Pulmonary œdema is to set up at any time $\frac{1}{4}$ gr. of morphine should be given immediately and oxygen should be administered by mask. If no improvement takes place venesection should be done. Aminophylline can also be given 0.25 gr. to 0.5 gr. I. V. slowly. On no account should labour be induced unless it is considered that the stage of maximum improvement has reached and there is chance of further deterioration if pregnancy is allowed to continue. However acute pulmonary œdema occurring near term requires induction labour because subsequent attacks are liable to recur very suddenly and may prove fatal.

Failure in later months of pregnancy

The best treatment will be to allow labour to come spontaneously. Most cases go to labour prematurely.

Termination of pregnancy

Serious failure occurring in early months of pregnancy which fails to respond to medical treatment should be terminated. If the period of gestation is within 14 weeks pregnancy can be terminated vasaally after which termination is not advisable because the risk of hysterotomy outweighs that of continuation of pregnancy. When congestive failure has occurred in later months of pregnancy the question of induction labour may arise. Any procedure which requires instrumentation and anaesthesia should be discouraged. The risks are great. Anyhow high rupture of the membrane is quite harmless. This should be done about 37th week. Alternatively Cæsarian section should be considered. This is not needed unless there are some other indications for Cæsarian section.

Valvotomy

The whole outlook of mitral stenosis in pregnancy has changed by recent advances in cardiac surgery. In cases of Mitral stenosis where termination of pregnancy had been considered valvotomy should be advised.

Indication of Valvotomy

- (1) Symptoms must be present (class IIB and worse cases)

- (2) Typical Mitral Stenosis cases uncomplicated by incompetence.

Sinus arrhythmia, auricular fibrillation are no contra indication. Rt. Ventricular failure and gross cardiac enlargement contra indicates the operation.

Management during Labour

First Stage. The patient should be kept at rest as much as possible with the head and shoulders propped up. The chief danger is exhaustion from loss of sleep and this can be prevented by giving sedatives. Nourishment should also be given at regular intervals.

Second Stage. During strong expulsive effort there is rise of blood pressure which may cause acute dilatation of the heart. So the strong bearing down should not be permitted. It is best to have the patient in the semi recumbent position. If there is any distress, when the OS is fully dilated and head low in the pelvis forceps should be applied. But the use of forceps as a routine method should be condemned. Caudal anaesthesia is ideal. But gas and oxygen can be given provided skilfully administered and anoxæmia avoided.

Cæsarian section is going out of date.

Third Stage. Sometimes patient suddenly collapse after the baby has come out. The actual cause is not known. The blood from the placental sinus is suddenly thrown in to circulation. The Rt. auricle will not be able to bear the excess of blood and it is paralyzed and the Rt. Ventricle is not properly filled. This results in deficient blood in the pulmonary circulation and left side of heart receives no blood. The left ventricle receives no blood to pump and acute anæmia of brain results. So it is advisable to allow plenty of time for the separation of the placenta and a little postpartum hæmorrhage should be encouraged.

PUERPERIUM

The patient should be kept in bed for at least 3 weeks. In mild cases breast feeding may be allowed unless she is severely disabled. Subacute bacterial endocarditis may occur during puerperium. The diagnosis is made on blood culture, massive dose of penicilline should be given.

The patient should be advised to avoid pregnancy for 2 to 3 years.

ALLOY ACTINOTHERAPY

BY DR. I. FEDOROV, Physician.

TEN years ago I proposed a method of treating patients suffering from obliterating endarteritis and some other diseases by alloy irradiation. The treatment is given by means of a powerful electric arc and electrodes.

It is known that disease of the vessels and nerves of the extremities is not local but affects the whole organism. It has different names: obliterating endarteritis, spontaneous gangrene, obliterating thromboangitis, arteriosclerotic gangrene, angiospasm, senile gangrene, cold feet, etc.

Diverse authors have established several forms and stages (from 3 to 7) of this very serious disease. We have adopted a three stage classification of obliterating endarteritis. The first stage does not produce any marked changes in the skin of the feet and hands, but the patient feels a pain in the calf muscles while walking.

With time the pain is felt even when the patient is at rest. The skin cracks—in most cases on the big toes and the skin of fingers and toes takes on a bluish tint. This is the beginning of the second, pre-gangrenous stage of the disease.

After that the disease often progresses in spite of treatment: the cracks turn into ulcers, necrosis sets in, the pain becomes racking, depriving the patient of sleep. This is the beginning of the third, gangrenous stage of the disease.

In the second and third stage pain becomes continuous and so agonizing as to necessitate an amputation of the limbs. But the operation, while it cripples the patient, does not necessarily ensure complete recovery; the process may go on and gangrene set in in another limb. We have often observed cases when patients suffering from obliterating endarteritis had first one leg or arm amputated, then the second and so on, until all four limbs were amputated.

According to world statistics the number of amputations in the best medical establishments varies through a wide range of from 6 to 71 per cent of all the cases.

Scientists usually hold that in the third, gangrenous stage, a complete cure is impossible and in advanced cases, when the clear space in the arteries is filled in with tissue, it cannot be restored.

Incontestable facts prove that excellent results can be reached even in the third, gangrenous stage of the disease when it is treated with alloy irradiation. After numerous irradiations the pain stops, dead tissues drop off, ulcers cicatrize and the clear space in the arteries is restored.

After the treatment patients practically regain their normal health and return to work. The number of amputations falls as low as 2.7 per cent of all the patients treated by alloy irradiation for obliterating endarteritis.

Besides its good effect on diseased organs the new method has several additional advantages, namely: it is painless, it does not cause skin pigmentation, it is an effective bacteria killer and it has no effect on the healthy organism.

The apparatus used for this treatment has been designed and built in three models: for manual operation, semi-automatic and wholly automatic. One of the electrodes is a ferromanganese alloy, the other a rod made of ferromanganese alloy mixed with carbon.

The disadvantage of the method proposed by us is the great number of irradiations and length of time required for the treatment, which takes from 2 to 6 months and sometimes more.

Our method has been studied in many research institutes, hospitals and general clinics. Its good effect in cases of obliterating endarteritis has been proved for all the stages of the disease.

Patient F. entered hospital in a serious condition, with obliterating endarteritis in the third, gangrenous stage, with moist gangrene beginning in the left hand and absence of pulsation in the radial artery for the past 5 years.

Ten years before the patient had both legs amputated up to the upper part of the thighs in consequence of obliterating endarteritis and 5 years ago his right arm was amputated for the same reason. The question now arose of amputating the last of his limbs.

In the course of 6 months patient F. was given 124 irradiations with the alloy apparatus. As a result the ulcers on the fingers of his left hand cicatrized and only the top phalanx of the fourth finger dropped off as a result of dry gangrene. The pain in the arm disappeared, the pulse in the radial artery was restored after 40 irradiations and became easily detectable by touch and on oscillograms. Pulsation was also restored in the arteries of the thighs, where it had been absent for 10 years.

This patient now drives about in an invalid car, using his right, artificial arm and hand to start the car and driving it with his left.

In January 1953 patient P. was brought to the wards of the V. F. Vladimirsky Research Institute with

obliterating endarteritis in the third, gangrenous stage. The third toe of his right foot was amputated in the institute because necrosis had set in, but the process continued to spread nevertheless. Amputation of the whole leg was advised, but the patient refused it.

In April 1953 this patient began a treatment of alloy irradiation in an out-patients clinic and was later transferred to the wards of the A. V. Vishnevsky Surgical Institute. Where he was given 142 irradiations in 94 days. As a result of the treatment the ulcer on his foot cicatrized and the pain disappeared.

Pulsation in the arteries of the foot was restored 8 months after the alloy actinotherapy. Patient P. is now working in a factory, walks about without difficulty and considers himself practically in normal health. We could quote many similar cases.

The practice of alloy irradiation has shown that patients who were cured by the treatment have had no relapse for a period of 5 to 7 years.

ANNOUNCEMENT

INTRODUCING A SURE REMEDY
For both Bacillary & Amoebic Dysenteries

Entero-sulpha-zyme

Composition:-

Iodo chloro oxy	Quinoline	1.5 gr.
Sulphaguanidine	4.5 gr.	
Papain	1.0 gr.	
Diastase	0.5 gr.	
Ext. Bact (Solid)	1.5 gr.	



Radio-Active Isotopes as Applied to Medicine

BY DR. D. P. GUPTA, M.B., B.S.

Pathology Deptt., S. M. S. Medical College, Jaipur.

THE subject has received great importance in recent years mainly through research in nuclear physics which ultimately resulted in the discovery of the atom bomb and the pile. Before going into the medical aspects of the subject, it might be worthwhile going over as to what these radioactive isotopes are and what are their properties in brief. Till a few years back, it was believed that atom is the smallest element of matter. But it is now known that the atom has a complex structure. It consists of a central core or nucleus about 10^{-13} c.m. in diameter surrounded by a relatively large empty space about 10^{-8} c.m. in diameter outside of which is the electron cloud. The nucleus contains practically the entire weight or mass of the atom and is composed of protons which carry a positive charge and neutrons which carry no charge. Each neutron or proton weighs approximately 1840 times the electron which carries the negative charge and which thus has a relatively small mass. The number of electrons in the electron cloud is the same as the number of nuclear proton so that the complete atom is electrically neutral. Changes in the outer zone of the electron cloud give rise to optical spectra while changes in the inner zone of the electron cloud give rise to the characteristic X-rays of the element. The neutrons in the nucleus lend mass but no charge to the atom, and hence variation in the number of neutrons in the nucleus does not affect the chemistry of the atom since the electron cloud remains unaltered. The number of protons in the nucleus is called the atomic number, whereas the number of neutrons and protons in the nucleus is called Mass number or Atomic mass. Atoms of the same atomic number but differing atomic mass are called 'Isotopes', the name being derived from the Greek, "Isos" meaning same and "topos" meaning place. Between 700 and 800 different isotopes of the 96 elements are now known, all elements having 3 or more known isotopes. They are called radioactive because they emanate radiations. Energy is propagated, in 2 main forms viz. electromagnetic radiation and particulate radiation. Three main forms of rays are known, alpha, beta and gamma. The alpha and beta rays are now believed to be in the nature of particulate radiation and the gamma rays are the true electromagnetic rays or waves. These radioactive isotopes, however, should not

be confused with stable isotopes of the various elements which are not radioactive and which were previously used as 'tracers' in the study of various biological and metabolic processes in the body but have now been replaced by their radioactive counterparts.

Radioactivity was discovered by Becquerel in 1896 and occurs in two forms :—

1. Natural radioactive substances and
2. Artificial radioactive substances—

certain naturally occurring substances such as radium, thorium, actinium and their decay products give off radiant energy spontaneously. A certain part of this energy may be in the form of gamma rays but the major portion appears as alpha and beta particles.

Artificial radioactivity was discovered by Joliot and Curie in 1933 and the development of the cyclotron by Lawrence whereby artificial radioactive isotopes of most of the elements could be produced with relative ease initiated a new phase in biologic investigations. The transmutation of elements in the cyclotron is usually affected by bombarding atoms of one element with positively charged particles that have been accelerated to energies sufficiently high to penetrate the nuclear barrier. When an accelerated particle enters a nucleus, it forms an unstable nucleus that undergoes spontaneous decay. Both natural and artificially produced radioactive substances give off radiant energy as a result of spontaneous disintegration or decay of individual atoms. Each radioactive element or isotope has its own rate of decay which is generally expressed in terms of its 'half life' or the time necessary for one half the original number of unstable atoms to disintegrate and this may range from a few seconds to centuries.

Alpha particles have little ability to penetrate tissues and thus they give up their large energies within a very short distance. Most beta radiations are more penetrating and the particles may have an average penetration in tissues of a few mms. upto a c.m. before they are absorbed. When radium is used in the treatment of cancer, it is customary to place it in a metal applicator

with walls thick enough to absorb the alpha and beta radiation allowing only the much more penetrating gamma rays to reach the tissues. Therefore the alpha and beta radiations from radium have little practical use in medicine and are important chiefly as a hazard to those who prepare radium needles and applicators.

Uses of Radioactive Isotopes:—There are three main uses of radioactive isotopes in medicine :—

- (i) Isotopes as tracers (ii) Isotopes in diagnosis and (iii) Isotopes in Therapy.

Isotopes as tracers:—A radioactive isotope of an element is chemically identical with the non-radioactive form and can thus be substituted for it in any chemical compound or reaction and thus it will undergo the same changes in the body as its non-radioactive counter-part. The presence of radioactive isotopes can be detected quantitatively and their course through the body can be followed by such instruments as Gieger Muller counter. Thus it is possible to trace the course of molecules and radicles "tagged" with radioactive atoms through complicated chemical and metabolic processes e.g. thyroid hormone is a product of cellular activity and in making it, a substantial percentage of iodine is incorporated into its molecular structure. The thyroid gland is, therefore, the seat of a considerable turnover of iodine. Because of the availability of radio-iodine, the thyroid has lent itself more than most organs and tissues to investigations by means of the isotope tracer technique. This versatile tracer technique has almost unlimited potentialities in biochemical and physiological research and has already provided valuable information on the metabolism of compounds of sodium, phosphorus, carbon, nitrogen, sulphur, iodine and other elements. Moreover, biological synthesis incorporating radioactive isotopes have furnished investigators with radioactive vitamins, hormones, alkaloids, antibodies, proteins etc. and have also shed much light on the synthetic pathways, intermediary metabolism and degradation of many biologically important substances. In tracer studies, the concentration of radioactive atom is kept so low that the radiation is not likely to disturb the normal biological processes.

II. Isotopes in Diagnosis:—Their use in diagnosis depends mainly on the selective concentration of tracer doses of radioactive compounds in diseased tissues. Thus the presence and location of metastasis from carcinoma of the thyroid can sometimes be demonstrated by administering radioactive iodine and then screening

the body surfaces with radiation detector. Any tumour tissue capable of fixing iodine will reveal itself as a local increase in radioactivity. Radioactive phosphorus has been used to estimate the blood volume. A sample of red blood cells from a patient can be labelled with radiophosphorus P^{32} in a test tube and returned to the circulation within an hour. If a second sample is then withdrawn, the proportion of labelled cells can be estimated by measuring the radiation they emit and it is then possible to calculate the patient's total blood volume. The importance of knowing this volume, particularly after hæmorrhage is becoming more widely appreciated. Radioactive sodium has been used to measure the rate of flow of blood to and from the limbs and to indicate when the new blood supply in a skin graft is vigorous enough for the graft to be safely transferred.

Murly and Dudley have shown the value of radioactive gallium in the diagnosis of bone tumours. They observed a selective and significant concentration of gallium in both metastatic and primary bone tumours. Radioactive gallium was selectively concentrated in osteoid structures both osteogenic and osteolytic and this uptake in malignancies approached 20 times that found in adjacent normal bone. Radioactive iodine tagged to diiodo-flourescence or serum albumin has been used for the diagnosis and localisation of organic lesions and tumours of the central nervous system on the principle that these foreign isotopes are taken up preferentially by intra-cranial lesions.

The methods available for detecting the fate of these isotopes after administration in the body may be discussed as follows :—

1. *'In vivo' techniques:*—The 'in vivo' techniques were some of the earliest methods employed in studying the radio-isotopes by the tracer method. In this method, the pt. is submitted to direct measurement and the labelling isotope is followed by applying a Gieger Muller tube to those regions of the body suspected of accumulating the radio-isotope e.g. the thyroid in the case of radio-iodine. Similarly, the 'in vivo' technique with radiosodium has been utilised to determine variations in the circulatory pattern of the extremities in peripheral vascular diseases. Besides, sodium and iodine, other elements that have been used in various experiments employing this technique include potassium, short lived carbon, bromine,

chlorine etc. If localisation in tumour tissue of a sufficiently high degree is ever achieved for an isotope, the Gieger-Muller tube should prove extremely useful. These tubes can be made small enough to fit into proctoscopes, sigmoidoscopes, bronchoscopes and the like and thereby small lesions impossible to detect externally can be surveyed by intimate approximation of the counter tube. Preliminary studies with radiophosphorous on cancerous lesions have already shown the applicability of this diagnostic approach.

2. *'In vitro' techniques:*—With this method, specimens removed from the patient are assayed for radioactivity by methods suited to the particular isotope. The 'in vitro' method probably comprises the most useful technic for obtaining the precise quantitative data necessary for fundamental investigations.
3. *Radioautographic techniques:*—This method was developed and improved by Leblond and his associates. The method depends upon the principle that emanations from radioactive materials affect photographic emulsions. If an ordinary section of tissue containing the radioactive material is placed in the dark on a photographic plate or film, the plate or film will be affected and on being developed, will indicate by the pattern it exhibits, the site of the radioactive material in the section against which it was placed. Or the section may be coated with photographic emulsion, developed and then seen under the microscope. This method has been largely employed in studying the uptake of radioiodine which has been shown to appear first in the cells of the follicles and somewhat later in the colloid.

Radio-isotopes in Therapy:—The treatment of human disease with radioactive isotopes is still in the experimental stage. Large doses of isotopes administered to patients will liberate biologically effective quantities of radiation in the tissues. Internal radiation has been used so far mainly in attempts to destroy or damage malignant tumours by taking advantage of the selective concentration of certain chemical elements and compounds in particular organs or tissues. Thus radioactive Iodine (I^{131}) like ordinary iodine is concentrated in the thyroid gland and has been used in the treatment of

thyroid hyperplasias and cancers. Phosphorous is concentrated in bones and is also taken up in the nucleoproteins of rapidly growing cells. In patients with polycythemia and leukæmia, radioactive phosphorous concentrates in or near the sites of blood cell formation and interferes with the excessive production of cells. In addition to simple inorganic salts, radioactive organic compounds are being studied in an effort to find out substances which will accumulate with sufficient selectivity in specific tissues or lesions to deliver effective local doses of radiations. Direct local injection of isotopes into the tissues may achieve a similar effect. Radio-isotopes of short half life, i. e. which decay early and deliver the bulk of radiation promptly, like gold, have been used as a palliative measure in, for example, inoperable carcinoma of the prostate. Radioactive isotopes of long half-life may be enclosed in containers and needles and used like radium either for insertion into the tissues or as external sources of radiation. Radioactive cobalt is already replacing radium in many medical uses since it emits similar high energy gamma radiations, is cheaper, available in larger quantities and does not like radium, emit a dangerous radioactive gas in its decay.

India is one of the 36 countries, which have been receiving supplies of radioactive isotopes from Britain's Atomic Energy Research Establishment at Harwell. Radioactive isotopes are still used mainly for medical purposes and new discoveries are continually being made to increase their scope; but they are also daily gaining more significance in scientific research and industrial application. Thus they are being used as a research tool in the study of entomology, artificial fertilisers and diseases in animals due to deficiencies of particular food stuffs.

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CANCER AND ITS TREATMENT

BY PROFESSOR NIKOLAI BLOKHIN,

Corresponding Member of the Academy of Medical Science of the U.S.S.R., Director of the Institute of Experimental Pathology and Cancer Therapy of the Academy.

THE problem of combating cancer is one of the most important problems facing medicine today. Scientists of all countries of the world have been working for many years on studying the causes of this dangerous disease. Much important scientific data has been accumulated, and it has been found possible to cause malignant tumours in animals by artificial means for experimental purposes.

The oncological institutes and laboratories of the Soviet Union are studying the problems of tumours originated by the influence of various factors. Professor Nikolai Petrov, the oldest Soviet oncologist, has shown that tumours of the bone can be artificially induced in monkeys by introducing a radioactive substance into the bone. Tumours have been found to form 8-10 years after the beginning of the experiment.

A number of experiments determining the importance of chemical agents in the development of cancer and the prophylactic possibilities of the elimination of these influences have been carried out at the laboratory of Professor Lev Shabad.

The role played by viruses in cancer development is the subject of particularly active studies at the laboratories of Professor Lev Zilber and Professor Alexander Timofeyevsky.

MULTIPLE CAUSE

Most Soviet oncologists are of the opinion that the causes of malignant tumours are multiple. They consider that in various cases cancer may be the result of different causes which bring about similar metabolic changes leading to the development of the tumour.

As to the partisans of the virus theory, their supposition is that all tumours are caused by viruses. According to them, the virus cannot be discovered in all cases because of the insufficient optical possibilities of modern science. They consider that various factors which are supposed to be pathogenic in the formation of tumours do not cause the disease, but only favour its development.

A great deal of work is being done in the Soviet Union for the prevention and treatment of cancer. Prophylactic steps against cancer are not limited to the study and elimination of various injurious chemical and physical influences on the human organism both at home and at work.

Another important measure is the mass prophylactic examination of the population, aimed at discovering tumours in the early stages and especially the so-called pre-tumoral diseases. It is a well-known fact that cancer does not develop in completely healthy tissues and that it is usually preceded by benign tumours which have existed for a long time. The discovery and treatment of such tumours is of great importance for the prevention of cancer. In our country several million people over 35 years of age annually undergo such examinations.

A special system of oncological institutions works on the discovery and treatment of patients suffering from cancer and conducts subsequent observations of such patients, studying the result of the treatment and collecting statistical data.

TREATMENT

The results of cancer treatment are improving year by year. Great improvements may be observed in the surgical treatment of cancer due to the fact that in recent years operations on the lung, the gullet and some other organs which were previously practically inaccessible to the surgeon, have now become possible. In this connection we should mention the work done by the Soviet surgeons Alexander Bakulev, Pyotr Kupriyanov, Alexander Vishnevsky, Boris Petrovsky, Alexander Savitsky and many others.

In many cases malignant tumours are treated by a combined method, including surgical interference and subsequent irradiation. In other cases the application of X-rays, radium or radio-active isotopes is done without surgical interference.

Methods of medicinal treatment of cancer are now being studied. In some types of cancer hormone-therapy is used. Other anti-tumour preparations are also used, which are mostly related in chemical composition to those which are being studied in other countries.

The Soviet preparations Novæmbichin and Dopan, developed by Professor Leonid Larionov, are used in the treatment of lymphogranulomatosis and some tumoral diseases of the blood. At present Sarcylisin, a new preparation which is effective against some malignant tumours such as seminoma, reticulosarcoma, etc., is now

being studied. Omain, a vegetable preparation, is being used with success against cancer of the skin.

Contacts and exchange of experience among scientists of different countries are very important for the successful solution of the complex questions of combating cancer. The International Union Against Cancer holds congresses and symposia in which Soviet oncologists usually take part. Personal contacts between scientists of different countries and discussion of a number of questions at such congresses help a great deal in research development.

One night William Howard Taft, then a young law reporter, finished a case in Ohio and discovered that he could not get back to his office that night unless he could stop a through express. He wired division head-quarters:

"Will you stop through express at Somerville to take on large party?"

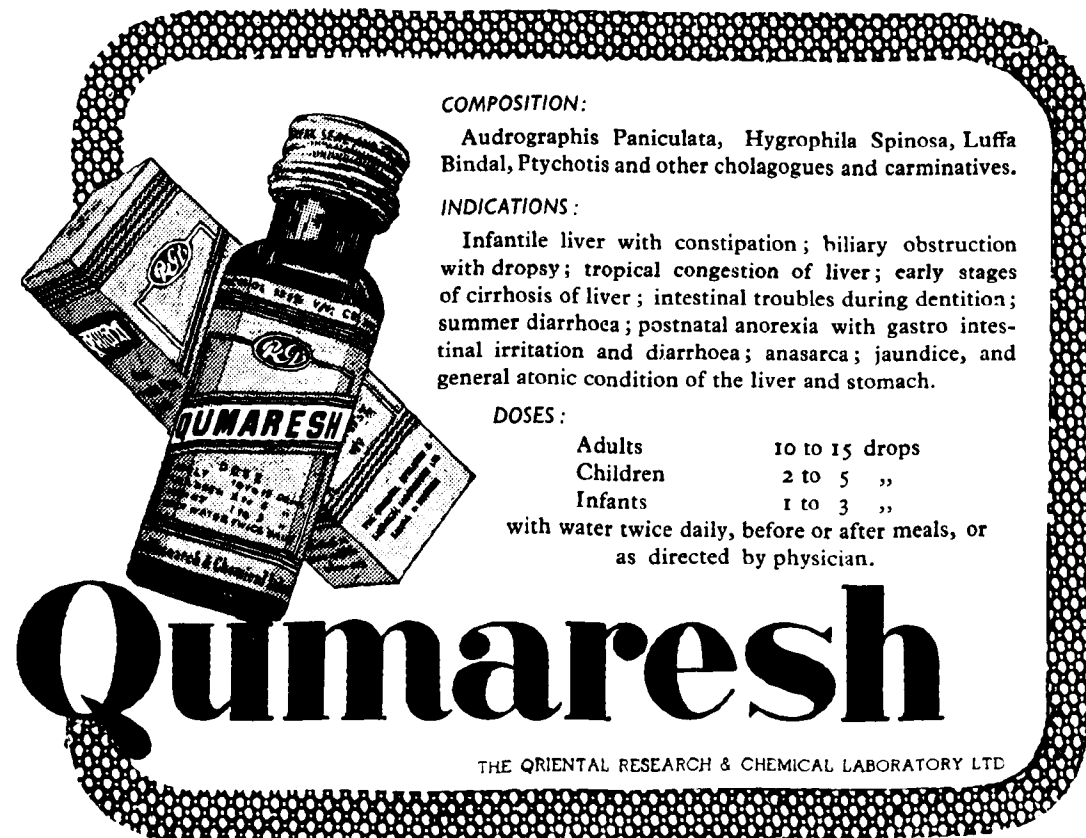
"Yes"

When the train arrived the conductor said to Mr. Taft:

"Where's the large party we were to take on?"

Mr. Taft regarded his own ample bulk ruefully.

"I'm it," he said stepping aboard the train.



COMPOSITION:
 Audrographis Paniculata, Hygrophila Spinosa, Luffa Bindal, Ptychotis and other cholagogues and carminatives.

INDICATIONS:
 Infantile liver with constipation; biliary obstruction with dropsy; tropical congestion of liver; early stages of cirrhosis of liver; intestinal troubles during dentition; summer diarrhoea; postnatal anorexia with gastro intestinal irritation and diarrhoea; anasarca; jaundice, and general atonic condition of the liver and stomach.

DOSES:

Adults	10 to 15 drops
Children	2 to 5 "
Infants	1 to 3 "

with water twice daily, before or after meals, or as directed by physician.

Qumareash

THE ORIENTAL RESEARCH & CHEMICAL LABORATORY LTD

FEVERS IN GENERAL PRACTICE

BY K. N. RAMAN, M. B., B. S.,

Anaimalai (South India)

PYREXIA of uncertain origin (P. U. O.) is a convenient label and sounds scientific when used in discussions, away from a patient's bedside. When confronted with a case of fever in practice, however, the physician has to exert himself to arrive at the correct diagnosis. Fever is one of the commonest symptoms for which medical aid is sought, but the treatment given is more often than not an example of "meddlesome doctoring".

While many of the fevers are easily diagnosed (or subside before a correct diagnosis is made!), a prolonged fever may baffle the best of clinicians, and elude diagnosis in spite of elaborate investigations.

GENERAL PRINCIPLES

Fever, especially if the onset has been sudden, is a dramatic incident in a patient's life, and he is likely to be upset and worried. The relatives are equally anxious, and quite a lot of pressure is applied to the physician to adopt immediate and active treatment to bring the fever down. It is essential for the doctor not to be hustled by the agitated patient and his relatives. Unless the general condition of the patient is serious, there is no need to hurry, and the patient will not be seriously handicapped by having fever for a day or two. Armed with this knowledge, the doctor proceeds with his examination and treatment calmly and methodically. He will thus ensure that no salient points are overlooked, and he will find that the difficult psychological atmosphere eases as he proceeds. It is better to reassure the patient that a rise of temperature by itself is not bad for him than to raise false hopes of early defervescence.

A boy, ten years of age with fever (104 F) had been treated as follows. 8 a.m.—pencillin 4 lakhs intramuscular; 10 a.m.—niyaquine 1 tablet; 12-noon sulfadiazine 1 tablet; 4 p.m. and 8 p.m.—chloramphenicol 250 mgm. At 10 p.m. the temperature was still 104. Aureomycin was being considered. On examination, the general condition was very good. Physical signs negative except for an inflamed throat. The parents were reassured. A blood smear was taken for examination, and no drugs were given during the night. Smear showed no M.P., no marked changes in blood picture. The boy recovered in two days. Only aspirin was given three times a day.

Every doctor comes across instances of such needless and haphazard treatment. In order to avoid such error, it is useful to have a scheme of approach to the management of fevers. The first step is to get the history of the illness carefully, and make a note of all points including some which may appear trivial. A thorough clinical examination follows, not skipping anything, even though the diagnosis appears obvious. A temperature record is maintained. A chart of the pulse rate is as important as that of temperature. It is preferable to take thick and thin blood smears in all cases before any drug is given. These may be examined immediately in cases of serious illness and in cases where any doubt regarding diagnosis is to be cleared up at once. Such cases will comprise a small percentage in general practice. In the majority of cases, the blood smears may be kept aside for examination later if the fever does not respond to treatment as expected.

Urine is collected for examination if there are indications—for example, fever of over one week's duration, elderly patient, pregnancy, or symptoms referable to the genitourinary system.

A reasonable clinical diagnosis is made, and treatment is commenced on that basis.

"TEST DRUGS"

The action of some of the drugs used in treatment is so specific that this property is often of value in diagnosis. The last decade has seen the introduction of a large number of specific drugs, and now, early and correct diagnosis has become very important. Obviously, if the response to the drug is to be of diagnostic value, it should be given alone and in adequate dosage, and reasonable time allowed for therapeutic results to appear. Quinine, and now chloroquine, are drugs which if given in adequate dosage and if absorbed, produce evidence of response in twenty-four hours in all types of malaria.

Emetine is a drug (used less now) which has a similar specific action on post-dysenteric conditions producing pyrexia—intestinal and extra-intestinal amœbiasis.

arsphenamine (also less used now) is a specific for chaeetal infections—relapsing fever, syphilis.

Sodium salicylate or preferably aspirin in adequate dosage is similarly a test drug for rheumatic fever.

Occasionally, santonin may be used when helminth infestation is suspected to be the cause of pyrexia.

Pencillin, the more recent drug is specific in so many different clinical conditions that response is of limited value in diagnosis. Lack of evidence of response, however, is likely to be a pointer to the diagnosis. Pyrexia during puerperium, that does not respond to penicillin is almost certainly not an uncomplicated puerperal infection.

Fever with physical signs of consolidation in the lung which fails to respond to penicillin is likely to be a tubercular pneumonia.

One advantage with penicillin is that it acts in a matter of hours. It is therefore pointless to persist with this drug for days in the absence of clinical improvement in twentyfour hours—the diagnosis should then be reviewed.

“KEEP THE MIND OPEN”

“Common things are common” is a sound principle on which a good clinical approach is built up. It is as well to remember though, that surprises are not rare in general practice. Unless the clinician has his mind tuned to notice the unusual or even the bizarre, he cannot hope to spot the uncommon condition. He is also likely to miss some of the intellectual satisfaction which is one of the rewards of a good general practice. Fever during the puerperium is a common example. Although commonly the cause is puerperal infection, any type of fever may be met with during the period—malaria, typhoid and tuberculosis may, and often do, occur.

A diabetic patient with a carbuncle on the face was being treated with penicillin. There was improvement in the lesion, but fever was persistent. A blood smear revealed M.T.—malaria, and fever responded promptly to appropriate treatment. Another patient had been treated at a number of stations with penicillin for “broncho pneumonia”. On examination, blood showed B.T. malarial infection and sputum showed large numbers of acid fast bacilli.

A third example is that of a patient with fever and a large hard spleen. He was treated for nearly six months with a variety of injections and medicines, mostly anti-malarial,

with poor or no response. It proved to be a case of Kala—azar. Although it looks surprising that the diagnosis should have been missed so long, the area was non-endemic, and no practitioner recalls seeing a case in the locality. The place was highly endemic for malaria.

PROLONGED FEVER

If fever persists for over a week, it may be termed “prolonged fever”. If the physician has followed a scheme, he would now be in possession of sufficient data to help in the diagnosis. The short fevers, so common in the tropics are excluded. Malaria would have been excluded by blood examination and by test drugs—say, chloroquine for three days. Pencillin is sure to have been tried, so infections by susceptible organisms are excluded. It is worth noting here that in the presence of necrosis or suppuration, penicillin does not reach the avascular tissues in sufficient concentration, and pyrexia may thus be maintained.

The result of urine examination would be available, and also the record of temperature and pulse.

Difficulty is not likely to arise in cases with obvious signs and symptoms referable to a lesion in a particular organ or system. Wasting, purulent expectoration and physical signs in the lung point to pulmonary tuberculosis; coma and neck rigidity point to meningitis; shifting arthritis, indicates rheumatism. It is the patient whose main symptom is prolonged fever, with little or no localising signs, who poses a diagnostic problem, and the following conditions have to be considered.

TROPICAL FEVERS

Filariasis and tropical eosinophilia are recognised during examination of blood film.

Early diagnosis of Kala-azar remains a difficult problem. History of residing in an endemic area, double rise of temperature, progressive anaemia and leucopænia are pointers.

Amoebic hepatitis is recognised by careful examination of the abdomen for evidence of tenderness in the liver area and in the caecum and sometimes sigmoid-colon. Emetine and chloroquine are test drugs.

Typhus and brucellosis are recognised only by serological studies. The incidence is not so rare as was believed.

ENTERIC FEVER

Many cases of enteric fever seen now do not present the classical picture, nor do they run the typical course. Probably the first investigation for fever prolonged over a week should be a Widal test, as we now have specific treatment available.

TUBERCULOSIS

If the Widal test is negative, an X-ray of the lungs and examination of sputum (laryngeal swab and stomach washings) are necessary. Fever may be the only sign in miliary tuberculosis, in early pneumonitis, and in early tuberculosis in a “silent” area like the kidney, spine, or even the meninges. A lumbar puncture and examination of the cerebro-spinal fluid need not be postponed till the onset of vomiting and neck rigidity. Persistent head-ache tender neck muscles, vague ocular signs and symptoms are early pointers to tubercular meningitis. Early diagnosis gives the best chance of a good functional recovery.

BACTERIAL ENDOCARDITIS

A clinical picture compatible with this diagnosis is an unexplained fever of over a week, with a cardiac murmur or evidence of decompensation in a patient with previous rheumatic or congenital heart disease. The appearance of embolic phenomena like petechial hæmorrhages under the skin and nails, infarct of brain, lung or spleen and occasionally of the kidney, leading to microscopic or naked eye hæmaturia, makes the diagnosis clear.

SEPTIC FOCI

Suppuration in the middle ear, sinuses, perinephric abscess, pelvic abscess, cerebral abscess and septic teeth may not present obtrusive symptoms and may be revealed only on careful enquiry and examination.

BACILLURIA

Bacillus coli infection of the urinary tract is no doubt a cause of some of the obscure fevers especially in children and women. Examination of urine including microscopic examination of the centrifuged deposit for pus cells and organisms, (and culture if necessary) are required for diagnosis.

LYMPHADENOMA

Unless the glands involved are palpable (as in the neck), the diagnosis is likely to be missed. There is no sure and certain sign or laboratory examination for diagnosis. The outlook remains poor, so the diagnosis is more of academic than practical importance.

MALIGNANT DISEASE

An obscure fever may be the only sign in some cases of malignant neoplasm in its early stages. But the diagnosis is likely to be made only when clinical evidence of disease of the organ involved appears.

ENCEPHALITIS

The incidence in our country is more common than is suspected. Central nervous system signs—somnolence and ocular palsies in E. lethargica, and convulsions in Japanese B. encephalitis—call one's attention to the condition. Lumbar puncture and examination of the cerebro-spinal fluid aid in the diagnosis, but sometimes no definite changes may be noted. Glucose content of the fluid may be high, and when present, this finding is of importance in differential diagnosis from meningitis.

NON-SPECIFIC CAUSES

Specific causes are carefully excluded before pronouncing the fever as non-specific.

Moderate and severe anaemias are sometimes the sole cause of fever. Great care should be exercised to exclude co-existent infections like malaria, helminths, and tuberculosis.

Psychological causes may occasionally cause fever. Fever is usually not high, the general condition of the patient is good, and the temperature chart does not suggest any specific fever. The patient's personality should be estimated to help in arriving at this diagnosis.

SUMMARY AND CONCLUSIONS

A scheme of approach and the use of laboratory aids are essential for the correct management of fevers. The scheme need not follow a rigid pattern but may vary according to local conditions. Unsystematic treatment will only result in confusion and make the diagnosis more difficult. The following laboratory aids are to be sought as required.

1. Blood smear for parasites, leucocyte picture, anaemia.
2. Urine examination.
3. Motions for helminths and protozoa.
4. Sputum examination.
5. Blood serum for (i) Typhoid (ii) Typhus (iii) Brucellosis (iv) Kala-azar.
6. C. S. F. examination.
7. Erythrocyte Sedimentation Rate: a guide to the progress and prognosis in prolonged fevers.

SYPHILIS BREAST

By DR. GANENDRAKUMAR CHAKRAVARTHI, M. B.

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A commonplace disease with its characteristic signs and symptoms can be diagnosed by the clinicians easily no doubt, but when such a disease appears in an atypical form, it may some time happen, that the finest diagnostic acumen of great clinicians may not clinch the diagnosis if unaided by laboratory pathological investigations.

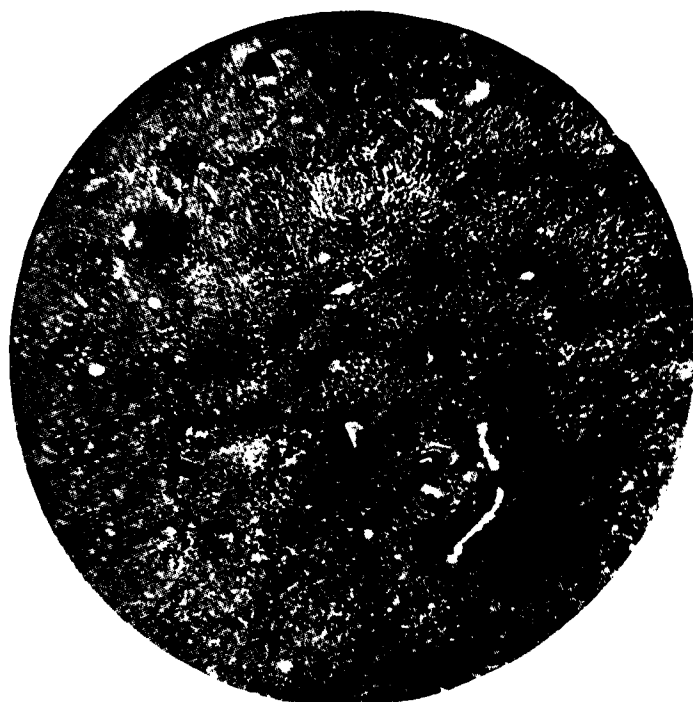
The following case report is detailed below to illustrate this point and to add one more proof to justify the validity of Boyds' dictum that Syphilis is the master simulator of diseases;—and as such, it should always be borne in mind whenever any case is confronted with anomalous or unexplainable clinical manifestations.

CASE

Patient's name—K. Bibi 36 M. F. Admitted on 26-10-53 in Burdwan Fraser hospital. Patient said that she had got a painless lump in her left breast for about three months. The advent of the lump was accompanied by a rise in her temperature the nature of which was unknown. The lump continued to grow in size gradually but without any pain.

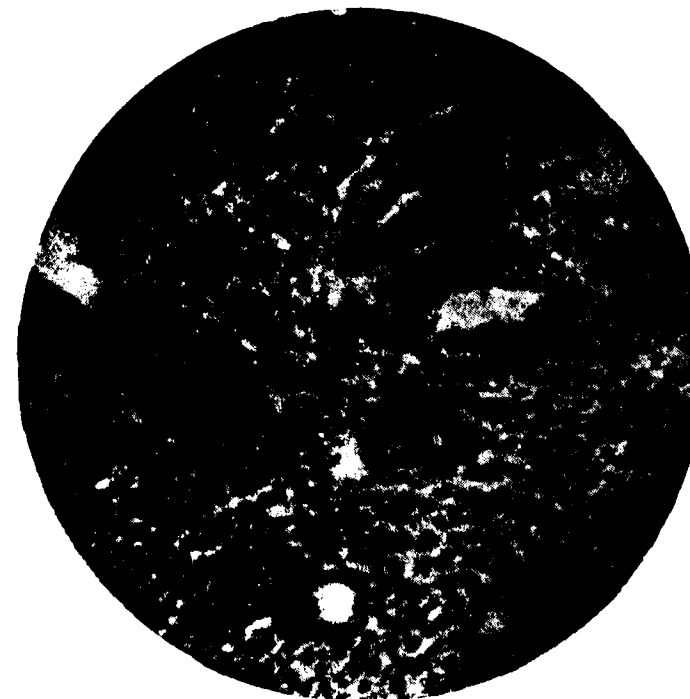
On physical examination, the left breast was found enlarged and a large hard mobile lump was palpated in its substance. The nipple and the skin over the lump was free and looked normal. It was not tender. Right axillary glands were not enlarged, but the left axillary glands were enlarged hard, mobile and not tender. Temperature was normal. Heart, lung, tongue, liver, spleen were examined and no abnormality was detected. Anemia was present in moderate degree. Clinical diagnosis rested between (1) Chronic interstitial mastitis and (2) Carcinoma breast. On 18-11-53 operative removal of the whole of the left breast was done and the specimen was sent to me for histopathological examination.

The removed breast showed just under the skin a homogeneous greyish white hard mass as a sheet of 3"



Whole field showing mainly plasma cells and numerous young blood vessels some of which are showing thickening of their intima. No trace of normal breast tissue is seen.

thickness extending throughout the whole extent of the anterior aspect of the removed organ whose dimension was 8"×6"×3" (at nipple level). On the outer aspect of this thick sheet—like mass was the normal skin with the nipple. Tissue sections were made from four different parts of this homogeneous mass and the histological pictures seen were all similar. The sections showed a picture of densely packed infiltration by plasma cells with a sprinkling of lymphocytes and monocytes. Scattered here and there were a few small areas of degenerated tissue. A few small blood vessels showed much narrowing of their lumina by thickening of their intima. Histological diagnosis—syphilitic infection of breast was made on the basis of the overwhelming plasma cell infiltration & obliterative endarteritis condition of the small blood-vessels. The serological examination of the blood of the patient was done and the result



High power magnification of the plasma cells and the almost occluded lumen of one of the small blood vessels in Syphilis breast.

was W.R. 1/8. The patient was discharged on 3-12-53 after a course of 6 megaunits of Penicillin injections.

DISCUSSION

The peculiarities of the case was, that, microscopically it did not conform to any one of the three or four so called stages of syphilis. Thus, for an extragenital chancre on the breast with draining lymph-glands enlarged, the formidable points against were (1) the huge size (2) The situation in the depth of the breast & not on the skin which was without any ulcer or nodule. (3) No tendency to spontaneous healing even after four months. The points against a secondary stage lesion were (1) Lesions not multiple nor wide-spread (2) Asymmetrical distribution of lesion, (3) Only axillary glands of one side were enlarged, other characteristic gland—enlargements not present e. g.

A film beauty who shall be nameless, was applying for a visa. She came to the blank "Single..... Married.....Divorced....." She hesitated a moment then wrote "Everything".

epitrochlear and suboccipital. (4) The lesion huge in size & not on the skin and no tendency to heal spontaneously even after 4 months. The points in favour of a tertiary lesion were (1) Asymmetrical distribution (2) huge individual size of the lesion, (3) situation in the depth of the breast tissue, (4) persistence & progressive enlargement of the lesion for at least 4 months. But against a tertiary lesion were the following points:—(1) Presence of enlarged draining lymph-glands (2) Absence of tissue destruction in the central part of the lesion as in a gumma (3) Absence of fibrosis as in a diffuse type of tertiary lesion (4) Scarcity of reference in medical literature of such a thing as gumma breast with intact and non-ulcerated overlying skin. For these reasons the clinical diagnosis rested between carcinoma breast and chronic interstitial mastitis, although a routine examination of blood for K. T. showed result +++ positive, for which four mega units of Penicillin were injected, which made no impression on the size or consistency of the lump. It was argued that either the K. T. +++ was a false positive reaction, or the positive reaction might be incidentally present without any aetiological significance for the lump in the breast. Operative removal of the breast was then decided upon with the idea that it was either carcinoma or chronic interstitial mastitis. It was by the subsequent histological examination of the removed breast that the real diagnosis was clinched which was further confirmed by the serological test of W.—R. = 1/8.

SUMMARY

An unusual case of syphilitic lesion of breast which appeared as a huge granuloma but without much tissue destruction or fibrosis and simulating a carcinoma is reported.

ACKNOWLEDGMENT

I express my indebtedness to the teacher of Surgery of this institution for furnishing me with the clinical data of this case and for giving me permission to publish the case report.

Treatment with Corticoids and ACTH in the light of Recent Clinical Investigation

By DR. MARTIN VERMEHREN, M.D.,

Frederiksberg Chemical Laboratories Ltd., Copenhagen.

Exclusive to "Surgical & Medical News", Bombay.

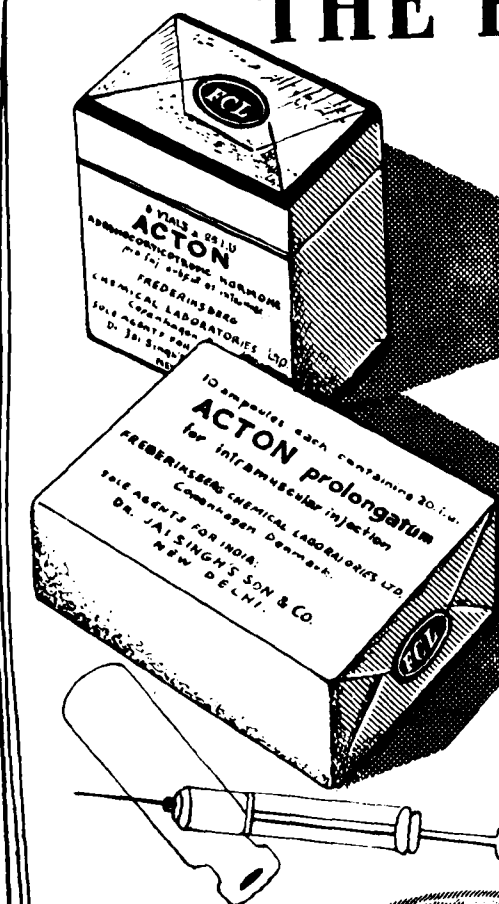
SINCE the corticoids were introduced into therapy they have become very extensively used, and today they are used both in hospitals and by the general practitioner. The best known are today Cortisone, Hydrocortisone and Prednisone. It is well established that long-term treatment and overdosage may produce undesired side-effects, which do limit the therapeutical use of these drugs but, on the other hand, are so well known that they are generally found before they have given rise to serious complications. It is different with a property that is common to them all and which cannot be removed from these substances, as it is associated with the pituitary adrenocortical regulation. Already INGLE (1) showed that administration to animal subjects of extract of adrenal glands might cause atrophy of the animals' own adrenal glands. SAYERS and SAYERS (2) showed later that a number of corticosteroids were able to inhibit the corticotrophin production of the animals in cases of stress. Later a hypofunction of the adrenal glands in man has been ascertained in the case of prolonged use of cortisone [FRASER *et al* (3) SALASSA *et al* (4)]. This hypofunction has been fatal after surgical operations owing to the lacking capacity for response of the adrenal glands. At autopsy, complete atrophy of the adrenal cortex has been found in certain cases. A number of authors consider that an insufficient response to stress (accidents, surgical operations, acute infections etc.) may be observed in patients who have received for a prolonged period corticoids, especially the more powerful "anti-inflammatory" steroids, such as prednisone. This condition has often been fatal, even in cases where the adrenocortical atrophy could not be ascertained at autopsy. It is, of course, difficult to furnish conclusive evidence as to the cause of death in the cases concerned. It would, however, be of the utmost value if a decrease of the adrenocortical function could be demonstrated in patients who have been treated with prednisone in particular.

The Thorne test (eosinophil count after ACTH tolerance test) was previously used as a measure of the

pituitary adrenocortical function, but unfortunately it did not prove to be fully reliable. However, after it has become possible to determine the corticoids in the blood, with comparatively great accuracy, this method of analysis has been used for determination of the cortical function under various conditions. The 17-OH-corticosteroids in plasma of normal human beings have been found to vary between about 5 and 25 mcg. per 100 ml. of blood, determined according to SILBER and PORTER's method. After intravenous injection of 25 mg. of corticotrophin A the 17-OH-corticosteroid plasma level rises, so that after 4 hours it is between 35 and 55 mcg. per ml. [Christy, Wallace and Jailer (5)]. If the cortical function is diminished in the same manner as in patients with Addison's disease, plasma levels of 17-OH-corticosteroids will be either at the lower limit of the normal, or even below this. Secondly, it will be found that after ACTH tolerance test the 17-OH-corticosteroids will either not rise, or only rise to subnormal values. If the patients have received corticosteroids for even a short period, it will appear that, regardless of a normal or lowered 17-OH-corticosteroid level, the adrenal cortex after ACTH tolerance test will not be able to respond with a rise in the 17-OH-corticosteroid level in approximately the same manner as in normal individuals. This insufficient response from the adrenal cortex is of a highly varying duration, from a few days to weeks, and the adrenocortical atrophy in corticoid treatment must therefore be supposed to be of individual determination.

In ACTH treatment from 20 to 40 I. U. daily for 3-10 days it seems to be possible to quicken the normalization of the adrenocortical function, though this was not managed in one of CHRISTY, WALLACE and JAILER's cases, even after intensive treatment for 10 days. These results are in accord with those reported in other publications (Sprague and co-workers). Prednisone therefore seems to exert a "depressive" effect on the adrenal cortex which is 4 times greater than that of cortisone.

ACTH THE HOPE ACTON



is a highly purified ACTH-preparation, containing about 30 I.U. per mg. standardized according to the method of Sayers and Sayers. Even though ACTH (corticotrophin) has only been known for a comparatively short term of years, the progress made both in production and in therapy is very great.

In contrast with cortisone and similar preparations, ACTON does not cause adrenocortical atrophy. As a rule, the effect of ACTON does not cease when treatment is discontinued, but persists for a short or longer period afterwards.

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20 I.U. box of 6 vials Rs. 29-10-0
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However, the studies mentioned also show that it will almost always be possible to normalize the adrenocortical function with ACTH after treatment with steroids has been concluded. It should, however, be borne in mind that when a normal response can be obtained with a single ACTH tolerance test, this does not imply that the adrenal cortex is normal. What is decisive in clinical examinations is that the adrenal cortex is able for days to give a satisfactory response to stress of normal occurrence. Results of such examinations, however, are not available, and presumably such examinations cannot be made.

Until the effect of corticoids on the 17-OH-corticosteroid plasma level has been more thoroughly elucidated, it must presumably be considered absolutely necessary to support the adrenocortical function of the organism by the administration of ACTH. As a lowered adrenocortical function has been found already after one week's treatment with prednisone, it must be definitely recommended to administer ACTH at maximum intervals of 1 week. Prednisone treatment must in no circumstances be discontinued without preceding administration, during the last week before discontinuance, of ACTH in minimum doses of 20 I. U. daily, followed by at least 2 weeks' administration of the same dose. If, however, patients with uncompensated shock owing to prolonged corticoid treatment without simultaneous treatment with ACTH are to be dealt with, it should be attempted to raise the corticoid plasma level as quickly as possible. Since, however, as already mentioned, it may take from days to weeks to normalize the adrenocortical function by the administration of ACTH, hydrocortisone should be given intravenously, either as free alcohol with the infusion solution added, by permanent drip infusion, or, better still, water-soluble hydrocortisone undiluted intravenously. It may, however, be pointed out here that 100 mg of hydrocortisone only produce a rise in the 17-OH-corticosteroid level corresponding to about 20 I. U. of ACTH. Such treatment should therefore be repeated 3-4 times in 24 hours for several days, whilst at the same time the adrenocortical function is supported by ACTH administration. We have noticed that it has been recommended somewhere to administer ACTH intracutaneously and in the form of inhalation. It must be most urgently advised not to use these forms of administration, as the former has not yet been thoroughly tested, and the latter gives a highly varying resorption.

Even though it is easy to give the patients a pleasant treatment by prescribing tablets, and even though the

individual physician who has prescribed the tablets has not had the opportunity to observe uncompensated stress, it must first of all be recommended in the case of normal adrenocortical function not to lower this by a one-sided treatment with corticoids, but to combine the treatment with ACTH. Secondly, it must be recommended where a lowered adrenocortical function is suspected in advance to attempt stimulation of this by exogenously administered ACTH.

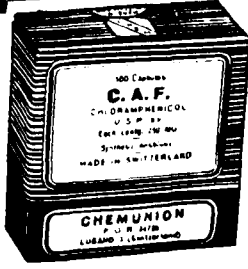
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PUBLIC HEALTH AND FIVE YEAR PLAN

BY DR. B. B. RAI, M.B., B.S., O.B., ST.J., R.S.,

M. O. I/C Government T. B. Clinic, Bareilly, U. P.

IT is a well-known axiom that the health of the people is the real wealth of a country. During the First Five-Year-Plan period, a good deal of work was done for increasing food, clothing and water-supply. In the plan frame of the Second Five Year, greater importance is given to the development of various heavy and light industries including cottage and small-scale industries as well as handicrafts. Provision has also been made to construct houses to replace the old type of village mud-houses, construction of more roads and canals and distribution of water and electricity to a wider area. Industrialisation will provide more employment, and, consequently, improve the standard of living of the people. The essential importance of these development plans for the socio-economic uplift of the masses in a welfare state cannot be denied but it must also be recognised that at least on par with them in importance to the community is the improvement in health services. Such improvement is urgently called for as it is indispensable for the development of the common man who is not only the cardinal centre and the measuring rod of democracy but the base as well as the summit of social pyramid in a welfare state.

The present condition of the people in our State should cause concern to the people in charge of health and sanitation. Gastric diseases, cholera, enteric, diarrhoea and dysentery alone have accounted for the premature death of 45,614, malaria 1,19,223 and tuberculosis 10,896 people in the year 1953. Thus about 1,75,733 people lost their lives from diseases which are of a preventable nature. These figures are over and above the large number of infant mortality, death from female mortality during child-birth etc.

If we examine the comparative position of health services personnel etc., in India and England, we are struck by the glaring disparity which gives us an idea of the roadway that has to be made in the vital sphere of this nation-building activity.

	In India.	In Great Britain.
1 Hospital Bed for	3,000 people	141
1 Doctor for	5,000 people	1,000
1 Nurse for	43,000 people	300
1 Mid-Wife for	66,000 people	618

These figures will be an eye-opener to those who talk of our efforts during the successive plan periods for improving the standard of living of the people. This so-called improvement is generally taken as increase in the earning capacity of an individual will have no meaning so long as there are no human beings left to enjoy the national wealth. Therefore, the criterion of a prosperous State should be based on its facilities for protecting the health of the people. With this end in view, we have to consider the various measure we have to adopt to protect the lives of the vast multitude of our countrymen. Some of the measures to be immediately taken are:—

- (a) Rendering scientific medical relief irrespective of individual financial resources.
- (b) Undertaking measures for achieving positive health.
- (c) Spread of medical education and medical research.
- (d) Supply of pure drinking water to the people.
- (e) Proper Sanitation.
- (f) Neat houses.
- (g) Open lawns, gardens and parks.
- (h) free supply of milk to expectant mothers & school-going children.
- (i) Periodical medical examination of school children, factory workers and agricultural labourers.
- (j) Free treatment, including free supply medicines and hospitalisation to be provided to the poor and the needy.
- (k) Segregation of people suffering from contagious diseases to prevent the spread of the disease to their neighbours.
- (l) Educating the masses about the preventive measures to be taken to maintain health—this can be best done by providing health centres in different parts of the State wherein a special information room containing pamphlets, bulletins, charts, pictures, etc., on health problems should be kept for the benefit of the people. Periodical lectures by medical men and social works including lantern slides

and cinema shows should be arranged on a wider scale.

- (m) Health-Service schemes should be so formulated that their benefits go straight into the villages rather than making these schemes a monopoly of urban areas.
- (n) Stricter control of the sale of spurious drugs and, last but not the least.
- (o) The prevention of quacks in various system of medicines in the country to pose as doctors and swindle the innocent people.

The Doctor's profession is the noblest, yet the most taxing in the world. He has no rest nor timely meal and sleep. Every minute he should be at the beck and call of the patient in his struggle with life and death. To prevent unnecessary strain on the medical men, it is necessary that we should provide an army of men in the medical profession such as physicians, surgeons, nurses, mid-wives, welfare-officers, sanitary officers, etc., and also more hospitals, clinics and operation theatres furnished with modern equipments and adequate supply of medicines. Nothing should stand in the way of improving the facilities of medical care in the State, even if it means additional taxation or a medical cess from the people. More facilities should be provided to train sufficient number of men in the medical profession by starting more colleges and reducing the cost of training. Medical men should be given more remuneration to attract more people to the profession.

When we are able to get more medical men, our aim should be to distribute their work street-wise or say mohalla-wise. In some of the Western Countries, this system has been working satisfactorily. A physician is only next to God. He is the Brahma—the Creator, Vishnu—the Protector; but he can also be sometimes Shiva—the destroyer, if he is not mindful of his duties and responsibilities to the patient. In the course of our handling many patients, we are coming across many undiagnosed ailments of a baffling nature. There are the mental, the hysterical, the asthmatic, and the tubercular cases which we are dealing with. In the medical science, there is a "FAITH-CURE". This cannot be done by a doctor who is a stranger to the patient. A family doctor often works miracles to his patient by waving his magic wand, that is, suggestions, advices and infusing confidence in the patient about the mild type of ailments with which his patient is passing his days temporarily. In this respect, the doctor should be a friend and a philosopher to his patient. Sometimes certain diseases can be cured by regulating the diet or a few doses of distilled water slightly coloured

to appear as a wonder drug! This is popularly known as "Faith-Cure". Therefore, the doctor will have to be acquainted with the family history of his patient before he handles the case. This is the reason why the work of the medical practitioner should be distributed street-wise or Mohalla-wise.

Renascent and resurgent India today is facing many tasks of National reconstruction, but hardly any of them is more urgent or more vital to her present and future well-being than an effective control of Tuberculosis havoc. Conditions in the country are such as to preclude ideal measure being adopted on the adequate scale and administered efficiently. But before we can tackle the problem in right earnest, we must understand its back-ground and motivation. It, therefore, behoves every well-wisher of India actively contributes to, and considerably handicaps any attempt at effectively controlling, the dread scourge whose immense ravages we can but estimate and have as yet no means of accurately ascertaining.

Tuberculosis is a baffling problem, which is responsible for heavy mortality and morbidity in our country. Luckily, it is receiving active consideration of the Government, which is always trying to find ways and means effectively to control this scourge. The research workers are also out to discover or invest such specifics as may control this disease.

However, those of us who have fought the long fight together for so many years, know from experience that final struggle will not be easy. "Tuberculosis Control" is one of the first activities of the Health Department in which the co-operation of the public and the profession led to substantial advances. This disease can mainly be controlled not by specific immunization or quarantine, but essentially by the power of public education. Luckily there is a nation-wide interest in the control of tuberculosis, and a substantial programme is now under way with gratifying results. Recent technical advances make it possible to find them in their early stages. Now the Government and the public should launch a co-ordinated attack with the object of eradicating; and not merely controlling Tuberculosis. This is more than an altruistic dream; it is an urgent necessity, a practical goal.

These schemes in regard to the developments of public health and medical services are no doubt comprehensive but they need to be supplemented by the measures indicated in para 4(a) above for they seek to create ideal conditions and atmosphere for the successful working of the public health programme.

THE ANENCEPHALIC MONSTER IN OBSTETRICS

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DERIVED from two Greek words, Anencephalus is the condition of having no brain. In this malformation the head of the foetus is imperfectly developed. The derivatives from the anterior part of the neural tube is malformed and exposed.



Figure 1.
Anencephalic monster with craniorachischisis.
(Courtesy, The Govt. Women and Children's Hospital Museum, Egmore, Madras)

The high incidence of females among anencephalic monsters has been known since the time of Morgagni. Females make up about 90% (Potter 1953).

The gonads show no abnormality. The adrenals are usually hypoplastic and may sometimes be absent.

The malformation is a genetic one and passed on as a recessive character. Most authorities believe that an anencephalic monster is born once in every thousand births. Since ancient times it is known that the majority of these monsters are of the female sex. (Figure 1). Most authorities put the incidence down to about 75% but Potter found it to be as high as 90% in her series.

Anencephalus is a relatively common malformation. As with all other malformations the aetiology is in doubt,

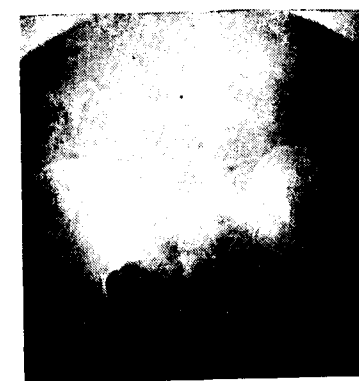


Figure 2.
(Courtesy, Radiology Department, The Govt. Women and Children's Hospital, Egmore, Madras)

The presence of hydramnios makes identification of foetal skeletal parts difficult. It is quite obvious that the bony outline of a normal foetal skull is absent. Anencephaly should be suspected in such cases and the X-ray repeated. With good films the precise nature of the bony malformation of the skull may be made out.



Figure 3a.
(Courtesy, Radiology Department, The Govt. Women and Children's Hospital, Egmore, Madras.)

The increased soft tissue opacity is caused by the presence of excessive amniotic fluid within the uterus (hydramnios). The radiological appearance of this antero-posterior film is suggestive of anencephalus. The lateral film (Figure 3 b) leaves no doubt whatever about the diagnosis. Always both A-P and Lateral films should be taken to ensure that foetal abnormalities are not overlooked.



Figure 3b.

(Courtesy, Radiology Department, The Govt. Women and Children's Hospital, Egmore, Madras.)

This is a lateral film. It shows the typical anencephalic malformation. The bones of the cranial vault are absent. The base of the skull is well developed. The lower facial bones are well formed.

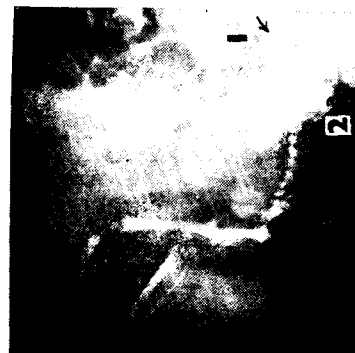


Figure 4.

(Courtesy, Radiology Department, The Govt. Women and Children's Hospital, Egmore, Madras.)

This X-ray has been deliberately published sideways to bring out some features of the anencephalic fetus as seen in utero. The greater part of the mass of bones which represent the skull are in fact made up of the lower facial bones(1). The bones of the cranial vault are absent. The dense mass of bone(2) represents the base of the skull. The cervical spine is underdeveloped. The malformed base of the skull seems to be at the level of the shoulders. There are some developmental defects in the lower part of the spine. The limbs seem to be relatively large and well ossified, and tend to fall away from the body. The excessive amount of liquor amnii which is almost always found associated with this condition, makes it possible.

but presumably several factors play a part. The condition is probably due to a local disturbance to normal development at the time when the anterior portion of the neural tube normally closes. Possibly it is the result of some form of mechanical disaster in early

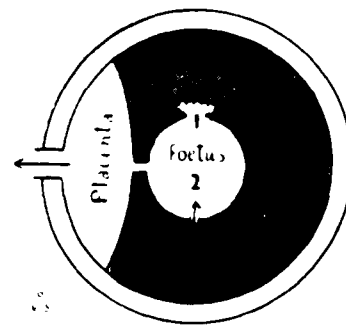


Figure 5.

Two theories are put forward to account for excess of amniotic fluid (hydramnios) when the uterus contains an anencephalic monster.

1. Excessive fluid is secreted by the malformed brain.
2. There is failure on part of the abnormal fetus to ingest amniotic fluid.



Figure 6.

(Courtesy, The Govt. Women and Children's Hospital Museum, Egmore, Madras)

The appearance of the head of an anencephalic monster.

fœtal life. One authority has suggested that the condition may be the result of rupture of an early hydrocephalus. In cases where several abnormalities are found in addition to anencephaly, perhaps it is one local manifestation of a generalized disturbance.

There is no doubt that it is the Obstetrician who comes across this malformation because he is usually present at the birth. Sometimes it is possible for him to suspect the presence of anencephaly and have it confirmed by radiology. If anencephalus is present the X-ray features are quite characteristic. One of the features about a pregnancy which might rouse his suspicion is the presence of hydramnios. In a large proportion of cases when an anencephalic has been delivered, hydramnios has been present.



Figure 7.

Anencephalic monster

(Courtesy, The Govt. Women and Children's Hospital, Egmore, Madras.)

The greater part of the occipital bone is well developed.



Figure 8.

(Courtesy, The Govt. Women and Children's Hospital, Egmore, Madras.)

Anencephalic monster with cranio-spinal rachischisis.

The malformation predisposes to abnormal presentations, notably face presentation. This is particularly the case where the malformation involves the cervical spine (Iniencephaly) because in these cases the head is hyperextended and cannot but present by the face. Whether the anencephalic monster is going to produce labour dystocia or not depends on the relative size of the monster and the birth canal. When labour is premature as is sometimes the case, there is an easy delivery. On the other hand, if the fetus is post-mature and the shoulders are extraordinarily wide, serious dystocia results which may call for instrumental methods of delivery, to overcome it.

ANTE-NATAL DIAGNOSIS OF THE ANENCEPHALIC BY RADIOLOGY

Although in cases of hydramnios, anencephalus may be suspected because the malformation is very common, radiology alone enables a certain diagnosis to be made. The presence of excessive fluid within the amniotic



Figure 9.

Anencephalic monster.

(Courtesy, St. Bartholomew's Hospital, London.)

The forehead and vault of the skull is replaced by a degenerate mass of neural tissue which looks like granulation tissue. It is covered by imperfectly formed membranes and skin. The base of the skull and sella turcica can easily be palpated through this tissue. The orbits are grossly deformed. There is some degree of posterior extension of the skull defect. There is no foramen magnum and the spinal canal is partially or completely open (Cranio-rachischisis).

cavity makes good contrast pictures difficult to obtain (Figure 2.). Nevertheless by skilled radiographic techniques not only can the defective bony development of the skull be recognized, but also other malformations such as spina bifida. The bones of the cranial vault are absent (Figures 3a, 3b.). The base of the skull is well developed. The facial bones are well formed, except for the orbital roofs. The cervical spine is under developed. It is shortened by lordosis. This makes the malformed base of the skull appear at or below the level of the shoulders. The interpeduncular space is widened. The limbs are large and well developed and tend to fall away from the trunk of the fetus. The excessive amniotic fluid which is present within the uterus makes this possible. The limb bones are well ossified (Figure 4.).

Why hydramnios is so commonly found associated with this particular malformation is not known but two theories have been advanced to account for it

(Figure 5). One is that the exposed part of the brain which is largely composed of choroid plexus, secretes excessive amounts of fluid into the amniotic sac. The other is that a normal foetus swallows and inhales amniotic fluid. Evidence for this is lent by the fact that mucus hairs are often found within the intestinal tract of a normal foetus. It is believed that in the anencephalic the malformed brain interferes in some way with the normal swallowing and inhaling reflexes and that this prevents the absorption of amniotic fluid.

APPEARANCE OF THE MONSTER

The appearance of a malformed anencephalic foetus is quite characteristic. The forehead and the vault of the skull is replaced by a mass of degenerative nerve tissue which is not unlike granulation tissue. It is covered by imperfectly formed membranes and skin. (Figure 6). The base of the skull and sella turcica may sometimes be palpated through this. The frontal bones are absent above the supra-orbital ridge. The parietal bones are absent; or if present they are grossly under developed. The defect may sometimes extend to involve the spinal canal also. At times most of the occipital bone is present (Figure 7). More often all the squamous part is missing. Then there is no foramen magnum and the spinal canal is wide open (craniorachischisis) (Figures 8, 9).

The bones of the lower part of the face tend to be well developed. The orbital roofs are defective. The ears are thick and protrude from the sides of the head. The eyes tend to bulge and the eyelids are thick and oedematous. (Figure 10). The eyes look normal but microscopically degenerative changes may be detected in the retina (Duke-Elder). The tongue protrudes so that the whole appearance of the monster is far from pleasing. The cerebral hemispheres may be seen on the exposed part of the base of the skull. They may be represented by reddish soft amorphous masses made up largely of thin walled vessels engorged with blood and separated by islands of degenerative nerve tissue. Structures which may be proved histologically to be choroid plexus are usually prominent.

The neck is poorly developed (Figure 11). The head looks as if it is mounted straight on the shoulders. The chin often lies low over the sternum. In the condition of iniencephaly the malformation mainly involves the cervical spine. The occipital bone is defective and there is usually a meningocele and rachischisis (Figure 12).

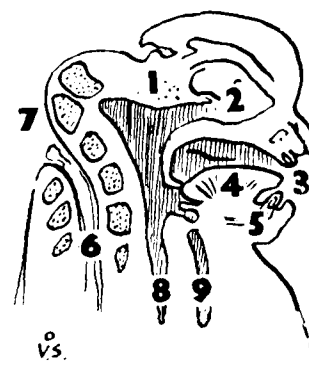


Figure 10.
Anencephalic monster.
(Courtesy, The Govt. Women and Children's Hospital, Museum, Egmore, Madras.)

The bony vault of the skull and scalp are defective. The forehead is deficient. The face itself looks normal. The eyes tend to bulge. The eyelids are thick and oedematous. The tongue protrudes. The short neck makes the head look as if it is mounted on the shoulders.



Figure 11.
Anencephalic monster.
(Courtesy, The Govt. Women and Children's Hospital, Museum, Egmore, Madras.)



The diagram on the right shows some of the structures seen on sagittal section.

- (1) Base of skull (2) Cartilage of nasal septum (3) Incisor tooth bud (4) Tongue (5) Mandible (6) Spinal cord (7) Exposed cervical cord (8) Oesophagus (9) Trachea.

Other abnormalities are sometimes found in addition to anencephaly. The most common are spina bifida and talipes equino-varus deformity of the lower extremities.



Figure 12.
Iniencephaly.
(Courtesy, The Govt. Women and Children's Hospital Museum, Egmore, Madras.)

The most prominent feature about this anencephalic monster is the defective development of the region of the cervical spine which makes it lordotic. The hyperextended neck makes the face point upwards. Face presentations are inevitable unless the foetus presents by the breech.



Figure 13.
(Courtesy, The Govt. Women and Children's Hospital Museum, Egmore, Madras.)

An anencephalic monster with a ventral abdominal defect and bilateral talipes equinovarus deformity of the lower limbs. Although spina bifida is the most common malformation found in association with anencephaly, ventral hernia, iniencephaly, harelip and cleft palate may all be seen from time to time.

umbilical hernia and sometimes more severe defects of ventral abdominal wall development (Figure 13). Harelip and cleft-palate are also met with from time to time (Figure 14).

Visceral malformations may or may not be found in anencephalics. According to Potter, the lungs and the glands of internal secretion usually reveal characteristic



Figure 14.
Anencephalic monster.

(Courtesy, The Govt. Women and Children's Hospital, Egmore, Madras.)

Harelip and cleft palate are not common abnormalities to find in anencephalics. This monster presented several other interesting characteristics. The greater part of the occipital bone was present. The liver was enlarged and polycystic kidneys were found. Although the external appearance of the genitalia of the monster is that of the female sex, the gonads when sectioned proved to be of the male sex.



Figure 15.
Anencephalic monster.

(Courtesy, The Govt. Women and Children's Hospital, Egmore, Madras.)

A 28 year old patient was delivered of this anencephalic monster at the end of her 10th pregnancy. The monster presented by the face. Failing to deliver it with forceps the attending accoucheur delivered it after performing an internal podalic version. The bilobed placenta with a battledore insertion of the cord is of additional interest.

The lungs are hypoplastic and show a relatively primitive type of architecture. Interstitial hæmorrhages are present in interlobular connective tissue and around the large bronchi. The thymus is large. The thyroid contains large acini distended with colloid. The adrenal glands are hypoplastic and the degree of maldevelopment is said to be related to the severity of cerebral malformation. The pituitary gland is never found but tissue which may be identified as anterior lobe tissue may sometimes be identified.

OBSTETRIC MANAGEMENT

Apart from recognition of the abnormality, unusual presentations and positions may also be discovered by radiology near term. When the malformation is recognized early in pregnancy, the correct thing is to end the pregnancy and get the uterus to evacuate itself of its abnormal foetus.

The anencephalic monster may present by its face (Figure 15). In iniencephaly, face presentation is inevitable unless the foetus presents by the breech. The face is a bad dilator and the abnormal position may delay labour. If the foetus is immature and therefore relatively small in size there may not be any trouble. If the foetus is well developed or post-mature, the wide shoulders very often give rise to delay. Provided all other conditions are satisfactory, firm traction with the fingers hooked round the posteriorly situated axilla enables the foetus to be delivered (Figure 16). If there is exceptional difficulty a bilateral cleidotomy may be necessary. Before embarking on such difficult procedure it is helpful to make an episiotomy. When labour proves to be difficult the Obstetrician must be prepared to deal with the other hazards of complicated labour in the way of hæmorrhage, injuries to the birth canal and shock. He should also bear in mind that hydramnios which is so commonly associated with anencephalus has its own dangers such as postpartum atony of the uterus and an increased liability to postpartum hæmorrhage.

CONCLUSION

Anencephalus is an interesting malformation which is by no means rare in obstetric practice. Its presence may sometimes be suspected in pregnancy but radiology alone enables a certain diagnosis to be made of the

malformation. Occasionally anencephalic monsters tend to complicate labour. The different aspects of the diagnosis and obstetric management of anencephalic malformation is briefly dealt with, and profusely illustrated with drawings and photographs.

ACKNOWLEDGEMENTS

I am grateful to Dr. Mrs. Abraham, M.D. Professor of Obstetrics and Gynæcology of Madras University and Superintendent of the Government Women and Children's Hospital, Egmore, Madras for her generous consent to my using clinical material from the hospital. I am indebted to Prof. Gaisford for a reprint of his article quoted in the references.

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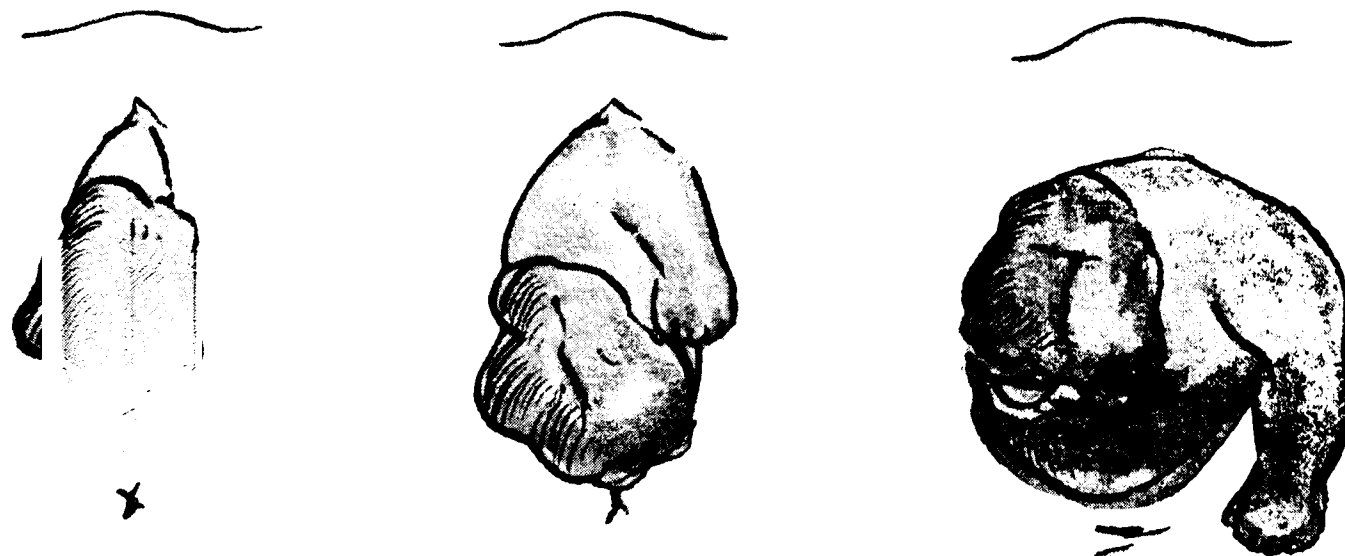


Figure 16.
These drawings were made by the author at the North Middlesex Hospital, London, in 1950 at the birth of an anencephalic monster.
The 31 year old patient was having her first child after 12 years of married life. Her pregnancy had been uneventful. There was no hydramnios. The monster was recognized when a vaginal examination was done to determine the cause of delay in the second stage. The broad shoulders became impacted in the pelvis and had to be delivered by traction with the fingers hooked around the posterior axilla.



BOOK REVIEWS

AUGENSYMPTOME BEI HIRNTUMOREN—By Von Dr. Med. Alfred Huber Augenarzt, Privatdozent für augenheilkunde, An der Universität Zurich, Published by Medizinischer Verlag Hans Huber, Bern und Stuttgart, 1956.

The book is in German and written by Dr. Huber. It deals with the ophthalmological features of brain tumours. The price is not stated. There is a forward by Prof. Krayenbuhl, Director of the Neurosurgical clinic of Zurich University.

The book is divided into six sections. Among other things the diagnostic methods employed by the author at his clinic, the general symptoms and localizing signs of brain tumours and several non-malignant lesions which enter the differential diagnosis are all discussed. There is a long section at the end of the book giving references which will undoubtedly be of use to the practising neuro-ophthalmologist. The book is 404 pages long and is printed on good art paper. There are many illustrations and most of them are of high quality. The composite fundus photograph on page 298 is quite intriguing and depicts the appearance of the fundus of the eye in Angiomatosis retinae.

Altogether this is a well produced and useful book, but the snag is that it is written in German. Presumably the publishers are making arrangements to have it translated into English so that the medical libraries of countries in which English is understood may also derive benefit from this handy volume on the ophthalmological manifestations of intracranial tumours.

* * * * *

A TEXT BOOK OF GYNÆCOLOGY—By K. M. Masani, M.D., (Lond.), F.R.C.S. (Eng.), F.I.C.S., Second edition 1957, (with photographs, micro-photographs and illustrations)—Popular Book Depot, Bombay-7. Price Rs. 25/-. P XVI+775.

Although there have been several books in obstetrics this is the first serious attempt by an Indian author to write a text book of Gynæcology. In doing this, the author has met with a considerable amount of success because this is the second edition of his enterprise. Four collaborators joined Dr. Masani in compiling this book. Dr. B. N. Purandare writes the section on the Ovaries. Dr. E. J. Borges writes a section on malignant growth of genital organs. Dr. J. A. Fernandez writes a section on venereal diseases. Recognition has been given to the importance of psycho-sexual disturbances in gynæcology by Dr. N. S. Vahia who contributes a section on this subject to the book.

Section 1 takes on the conventional arrangement of most gynæcology books and deals with the anatomy, embryology, and malformations of genital organs. Section 2 is devoted to history and examination. Section 3 deals with physiology and applied physiology which includes chapters on the endocrines as well as an account on the different epochs of a woman's life (adolescence, menstruation, conception, climacteric). Section 4 deals with functional disorders. This is further sub-divided into disorders of menstrual function, infertility and dyspareunia, and disorders of psycho-sexual functions. Section 5 deals with injuries to genital organs (child birth and accidental injuries and genital fistulae). Section 6 deals with infections of genital organs. Section 7 is on venereal diseases. Section 8 and Section 9 include both benign and malignant growths respectively. Section 10 is on ovaries. Section 11 is on uterine displacements, prolapse and inversion. Section 12 contains a masterly account of extra-uterine (ectopic) pregnancy by Dr. Masani himself. Section 13 which is labelled "miscellaneous" includes disorders of urinary system, leucorrhœa, Kraurosis, leucoplakia, pruitus vulvæ, backache, collections of blood in and around genital organs, endocrine therapy, radiological diagnosis and therapy, and contraception. This is an interesting section. The chapter on radiological diagnosis incorporates some well taken x-ray films

which have reproduced very well in print. The last section deals with gynæcological operations. This section tends to be somewhat sketchy and the standard of illustrations in it do not keep up with those in the rest of the book. The fact that glossy paper has been used has enabled most of the photographs and micro-photographs to be printed very clearly.

This book is significant in that the author who is a very distinguished gynæcologist, has drawn on clinical material from his own practice and from the museum of his hospital as well as from the Indian cancer research centre, instead of making second class copies of drawings from books published in the West, as many an author who writes a book is apt to do.

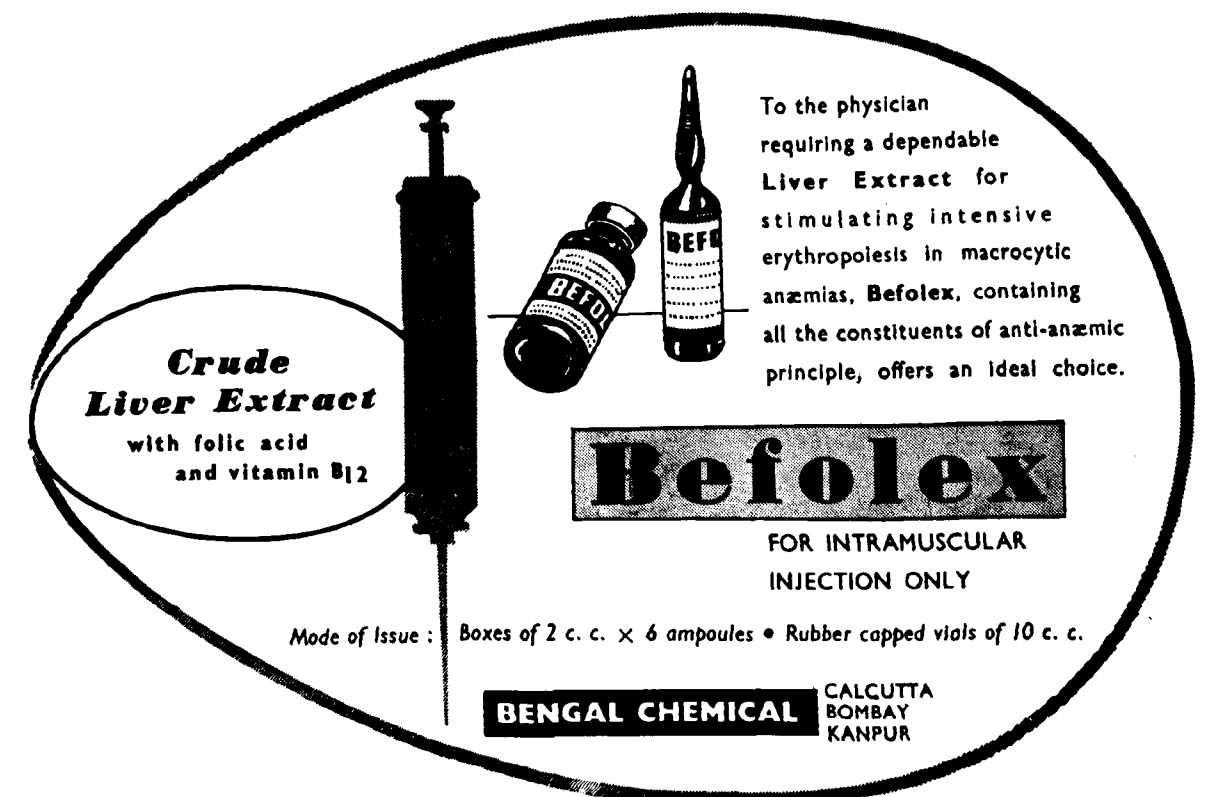
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World Health Organisation regional office for South East Asia, 8th Annual Report of the Regional Director to the Regional Committee for South East Asia, July 1955 to July 1956.

This 112 page cyclostyled book is the annual report of the activities of the World Health Organisation Regional Office for South East Asia.

It is divided into three parts. The first part is a general statement of activities in the region. The second part deals with the activities undertaken by the Government with the help of W. H. O. and the third part deals with the various general aspects relating to organisation, administration, staff-welfare, legal and constitutional matters and different agencies as well as public information.

There is an account of the activities which the organisation has undertaken in India. While wars and other disastrous happenings which befall humanity always receive considerable publicity, constructive work in health matters never invokes sufficient enthusiasm or excitement. There is in this report an account of all the advances which have been made in this subject—for instance, control of yaws in Madhya Pradesh, establishment of a tuberculosis chemotherapy centre in Madras, beginning of a post-graduate course for midwife tutors at the College of Nursing in Delhi and a Trachoma pilot project in Uttar Pradesh. The activities of this body in other South East Asian countries such as, Afghanistan, Burma, Ceylon, Indonesia and Thailand are also listed. This publication is of general interest. The price is not stated.



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DR. WILDER PENFIELD



Dr. Penfield (Right), an eminent Neuro Surgeon of Canada, Shaking hands with H. E. Mr. Escott Reid, the Canadian High Commissioner in India, on arrival at the Palam Airport, New Delhi.

Dr. Wilder Penfield, an eminent neuro surgeon of Canada arrived in New Delhi in the second week of February at the invitation of the Ministry of Health, Government of India.

Soon after his arrival in New Delhi he called on the Union Minister of Health, Hon'ble Rajkumari Amrit Kaur and held discussions. Later he met several senior officials of the Ministry of Health including the Director-General of Health Services, Government of India.

The Minister for Health while welcoming Dr. Penfield on behalf of the Government of India expressed the hope that his visit and the visit of other medical specialists from Canada, who had earlier arrived in India in January this year would strengthen the existing bonds of friendship and goodwill between the two countries. Such visits, she said, greatly benefited the medical profession in the country and the specialists in the various fields.

Dr. Penfield thanked the Government of India for its warm welcome and hospitality. He expressed the view that it was in the interest of India if the facilities in research and higher studies were made available within the country rather than sending young graduates outside. Later Dr. Penfield visited the All-India Institute of Medical Science and showed keen interest in the development of the Institute. He also visited several hospitals and other medical institutions.

Dr. Penfield, O. M., C. M. G., M. A., M. D., D. Sc., F. R. C. S. (C), Hon. F. R. C. S. (Eng.), F. R. C. P. (Eng.), F. R. S. (C), F. R. S. (Lond.), is the Director of the Montreal Neurological Institute and Chairman of the Department of Neurology and Neurosurgery, McGill University. Born in 1891 at Spokane, Washington, U. S. A., Dr. Penfield had his early education at Princeton University and later at Johns Hopkins University, Oxford University etc. He was holder of several scholarships notable among them being Rhodes Scholarship 1914, 1919; Beit Memorial Research Fellowship, London, 1920—21, Post-Graduate study, England, Spain, France & Germany.

Career: Associate in Surgery, Columbia University, New York 1921—26 and Assistant Professor 1926—28; engaged in research and neurosurgery; Assistant surgeon, Presbyterian Hospital and New York Neurological Institute, 1921—28; Assistant Neurologist, Vanderbilt Clinic, 1924—28. Founded Laboratory of Neurocytology 1924. Neurosurgeon to Royal Victoria and Montreal General Hospitals, Montreal, since 1928. Director and Professor since opening of the Montreal Neurological Institute, 1934.

War Service. 1914—1918—Dresser in Hospital Militaire V. R. Ris Orangis, France, 1915. Wounded S. S. "Sussex" 1916. Surgeon Red Cross Hospital (America), Paris, 1917.

Chairman, Committee on Surgery—Canadian National Research Council, 1942—46. Surgical Consulting Mission to U. S. S. R. and Free China, 1943.

Dr. Penfield is the author of several books popular among them being the following editions:—

1. Cytology and Cellular Pathology of the Nervous System. New York, Hæber, 1932—Editor.
2. Epilepsy and Cerebral Localization (with T. C. Erickson), Springfield, Illinois, Thomas, 1941.
3. Manual of Military Neurosurgery, Ottawa, 1941.
4. The Cerebral Cortex of Man (with T. B. Rasmussen), Macmillan, 1950.
5. Epileptic Seizure Patterns (with Kristian Kristiansen) Springfield, Illinois, Thomas, 1950.
6. Epilepsy and the Functional Anatomy of the Human Brain (with Herbert Jasper), Boston, Little, Brown, 1954.
7. No Other Gods—a novel of the time of Abraham in Ur of the Chaldees. Boston, Little Brown, 1954.

* * * * *

DR. PINTO RECEIVES LEDERLE INTERNATIONAL FELLOWSHIP

Dr. C. J. T. Pinto, surgeon at K. E. M. Hospital and pediatric surgeon at the Wadia Children's Hospital in Bombay, has been selected to receive a one-year fellowship for higher study in the U. S. under the International Fellowship programme of the famous Lederle Laboratories.

Dr. Pinto left for the U. S. on February 1, to work at Barnes Hospital, St. Louis, Missouri. He was selected for the annual award by the director of the All-India Institute of Medical Sciences, Dr. B. B. Dikshit. Dr. Pinto is the third Indian to receive a Lederle Fellowship for advanced study and research in their particular field of speciality in U. S. medical institutions.

* * * * *



Dr. C. J. T. Pinto, surgeon at K. E. M. Hospital and pediatric surgeon at the Wadia Children's Hospital in Bombay, who has been selected to receive a one-year fellowship for higher study in the U.S. under the International Fellowship programme of Lederle Laboratories.

Under the programme, a Lederle International Fellowship is granted to the young physician in each country who, in the opinion of top medical authorities of that country, shows most accomplishment and promise in his speciality. The one-year fellowship provides living expenses while the recipient is in the U. S. and cost of travel to the U. S. and return.

In less than two years, 41 outstanding young doctors from 28 countries have been awarded these fellowships. Basic purpose of the fellowships, Lederle Laboratories explains, is to help the recipients prepare themselves for worthwhile contributions to medical knowledge, including teaching, in their home countries.



Dr. R. A. F. Cooper.

At the ninth annual session, held at Jamshedpur recently, Dr. R. A. F. Cooper of Bombay was elected President of the All-India Otto-Rhino-Laryngologists' Conference. Quite and urbane, Dr. Cooper was born in a family of four brothers and three sisters of whom he is the only one in the medical profession. Young Rustom always longed to be a doctor, a surgeon to be true. He passed his M. B., B. S., and M. S. from Grant Medical College. In 1951 he received and

award from the Medical Research Council, London, and proceeded to England for studies at the King's College and National Hospital for nervous diseases at Queen's Square.

Known for his cheerful willingness and wonderful standard of service to the sick, Dr. Cooper is a modest and unassuming member of the profession. He is Senior Honorary Ear, Nose & Throat Surgeon at the Sir J. J. Group of Hospitals, Bombay Hospital and Professor at the Grant Medical College. He was formerly Honorary E. N. T. Surgeon at the Indian Military Hospital and also at St. George's and Parsi General Hospitals.

Speaking about deafness, he said very little had been done in our country to relieve the suffering of millions of deaf people. Government, he felt, should start deaf clubs and audiological centres. There should be a combined paper on ear, nose and throat at university examination. In schools for deaf and mute, Government should start audio-metric checks and group hearing aids. Every University centre should have a hospital for eye, ear, nose and throat.

Talking about Dr. Samuel Rosen's "Stapes Mobilisation", he said, that the Bombay surgeons including himself hoped to start this operation for curing deafness as soon as they gained sufficient practice on cadavers.

Dr. Cooper left by Air-India International for the United States on March 23rd. He will work with Dr. Samuel Rosen of Mount Sinai Hospital, New York, who visited India last December to popularise a revolutionary method of curing deafness discovered by him. The miracle operation enables deaf persons to hear on the operating table itself even as the novel Rosen mobilisation technique is applied. The Bombay surgeon, who will be away for six weeks will also attend the sixth International Congress of Otto-Rhino-Laryngologists to be held in Washington.

A man who'd been browsing in an automobile salesroom off and on, for several days finally came in and announced he was ready to buy. "That's fine" said the salesman. "What was the one dominant thing that made you decide to buy our car?"

The man grinned and replied "My wife".

Studies of Adrenal Cortical Activity in Patients

By DR. K. S. SHADAKSHARAPPA, B.SC., M.B., B.S., M.S.
BANGALORE

(Continued from Vol. 3 No. 2 SMN/January 1957 edition)

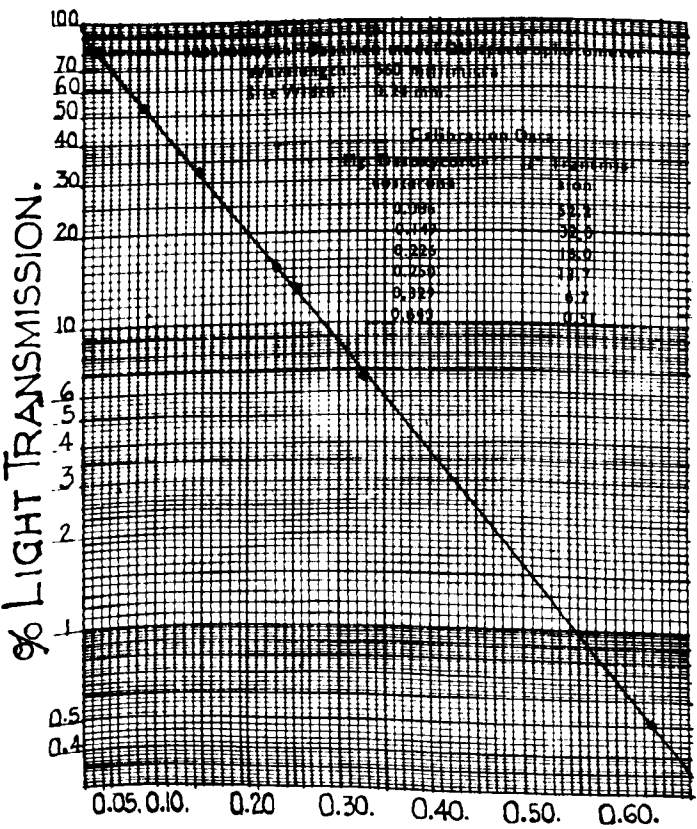
DISCUSSION

GOLDBLATT¹⁰⁰, Page¹⁰¹, and Collins¹⁰² have shown that bilateral adrenalectomy prevents the development of hypertension which is produced by the constriction of renal arteries and conversely that hypertension so induced in this way is not maintained if adrenals are removed. It is also well known that impaired adrenal function is clinically associated with hypotension. It is obvious in experi-

pressure, but its actual role in it is not well known. Goldblatt¹⁰³ thinks that of the endocrine organs the only one that may possibly play a significant role, if only a secondary part, is the adrenal gland. Until the hypertension with its secondary manifestation can be consistently reproduced by disturbing adrenal function, evidence that the adrenals are implicated as primary etiological agent in patients, must be considered as inadequate.

Excessive administration of desoxycorticosterone acetate along with salt causes hypertension in Addison's disease^{104, 105, 106}, in adrenalectomized animals¹⁰⁷ and in normal and hypertensive animals^{107, 108, 109}, although the dog appears to be slightly resistant. However, even very large doses of adrenal cortical extract has failed to produce hypertension. The production of nephrosclerosis, hypertension, periarteritis nodosa, and rheumatic lesions by the administration of desoxycorticosterone acetate^{114, 5} and sodium chloride in several species of animals by Selye^{8, 9, 110}, and his co-workers has been the best experimental attempt to relate the adrenal cortex to hypertension and kidney, and the sensitivity of desoxycorticosterone acetate is considerably increased if the animals are unilaterally nephrectomised and kept on high sodium intake. Selye^{115, 116} has also induced the same pathological lesions in unilaterally nephrectomized rats kept on high salt diet by giving anterior pituitary extract and also by exposing them to various types of non-specific damage, like cold, etc. This was interpreted as being due to liberation of desoxycorticosterone acetate-like compounds and on this Selye has based his concept of "Diseases of Adaptation". Goldman et al¹¹⁷ have shown that desoxycorticosterone acts as a pressor substance and that only in hypertensive individuals. In a normal person it is less impressive and less consistent and even for this an adequate salt intake appears necessary. The administration of salt alone, however, to a normal subject does not alter the blood pressure¹¹⁸. The elevation of blood pressure obtained with desoxycorticosterone acetate is independent of the retention of Na or of an increase in circulating blood volume^{119, 120}. Whether kidney damage or hypertension comes first, following the use of desoxycorticosterone acetate, is not well known,

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Mg. Desoxycorticosterone/10 ml. Phosphomolybdic Acid Rgt.
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mental animals that adrenal cortex is essential for maintenance of normal and also for elevated blood

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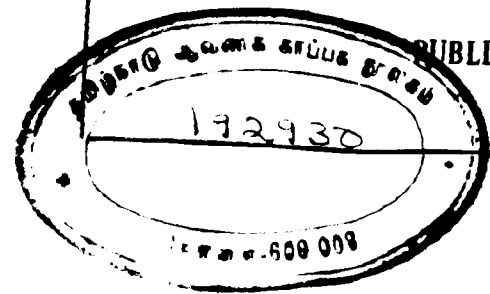
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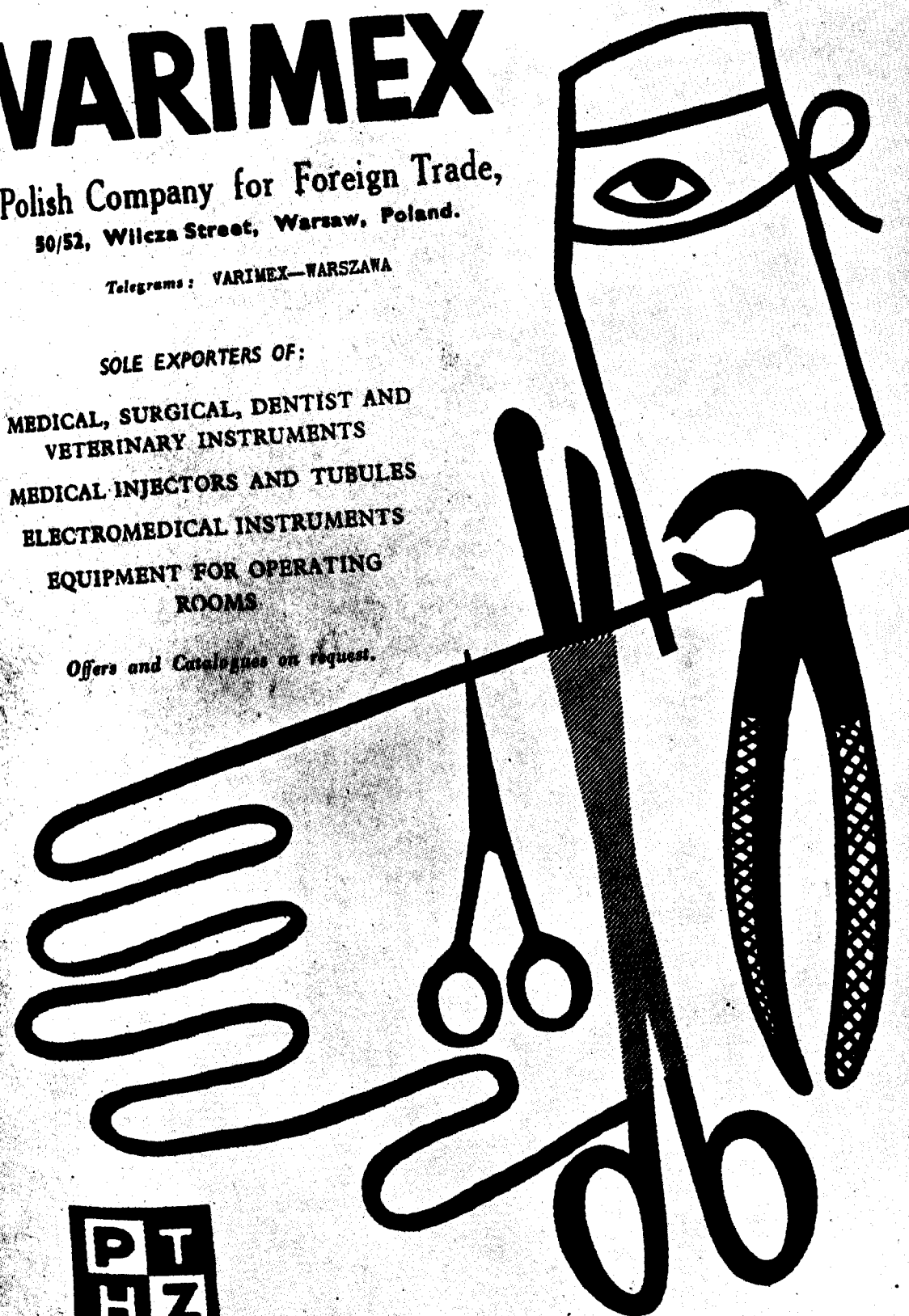
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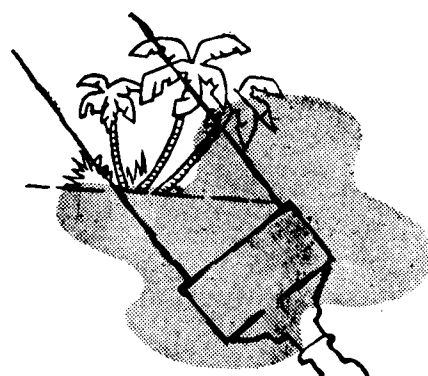
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