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MEDICO-SURGICAL SUGGESTIONS

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Editor: Dr. P. R. Venkappaya.

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MEDICO-SURGICAL SUGGESTIONS

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VOL. XII

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CALCIUM THERAPY*

BY DR. K. M. MUCHRIKAR, L.M.P., J. A. HOSPITAL, LASHKAR.

In addition to its various therapeutic effects, calcium has almost gained the forefront in the field of Nutrition. The difficult task of its ultimate absorption in rendering 'calcium' to be retained in very little amount in the body, has attracted the attention of those engaged in research to consider over such substances, which can be easily procured for utilisation of its entire value, and at a cheaper cost.

An attempt has been made in the following lines to enumerate the various associated facts and observations.

Calcium is a salt of alkaline earth, a normal constituent of body-tissues and is indispensable to the life of all organisms animal or vegetable. Every cell of our body from hair to nail contains some part of Calcium and thus it occupies a very important place amongst the various inorganic constituents of plants and animals. This importance of Calcium to the animal life is by no means confined to the building up and maintenance of body frame work, but that Calcium is present in every normal cell and is necessary for its normal function. Addition of Calcium to perfusion fluid induces the isolated mammalian heart to beat energetically and its complete removal puts a stop to cardiac systole. Similarly various investigations have been undertaken to establish and explain the necessity for Calcium and the most interesting fact that has come to light is 'ION ANTAGONISM'.

Stewart and Percival state that for maximal performance of vital activities, a correct balance of various inorganic ions, as well as a correct osmotic pressure, are essential and Calcium is a factor in maintaining this balance. The fluids of the body contain 'IONS'. It is the 'IONS' of a salt which give rise to Pharmacological action.

1. Calcium enters into formation of human skeleton to the amount of 1-50th part of human body and 0-0105 p. c. is contained in tissue fluids. Adult man requires approximately 0-4 grams of Calcium per day, but taking into account the difficulties of absorption

*A paper read at a monthly meeting of "The Gwalior Medical Association", Lashkar Branch.

and to the fact that only 60 p. c. Calcium from food is absorbed (GHOSH) 1.0 to 1.5 grams has been calculated to be average daily dietary requirements. Extra amount of Calcium is required during growth and period of active reproduction.

2. Calcium Salts are normal constituents of the various body fluids as Gastric Juice, Bile and Pancreatic Juices. Blood contains 10 mgms. per cent. of Calcium and this is kept constant by various agencies.

3. Calcium is essential for the normal coagulation of blood and also converts the Prothrombin into Thrombin; to the activity of which is attributed the process of clotting blood.

4. Nerve and muscle cells require an optimum concentration of Calcium for their proper functioning.

As described in the very beginning, 'CALCIUM' is an important constituent of animal and vegetable organisms and consequently much of the amount is derived from these sources.

Milk, Yolk of an egg, mutton are specially rich in Calcium in an assimilable form. Rice, pulses, and vegetables as potatoes, lady's fingers, Brinjals, Palwal are said to be much richer in Calcium than the foods of animal origin and contain a maximum amount of Calcium in the ordinary dietary of Indians (Researches by Sahu and Bose I. M. G. 32 March). To add to this list and to quote the results of recent researches of nutritional workers in India—Betel leave Chewing—which is already a conspicuous habit in Indians is attributed to be a very cheaper source of Calcium, 6 betel leaves (PAN) are equivalent to Calcium content of 10 oz. of milk, and favourable for absorption, utilisation and retention to a considerable extent (INDIAN JOURNAL OF RESEARCH).

Calcium whether given in soluble or insoluble form is absorbed with difficulty and only insoluble salts of fatty acids owing to its solubility in bile are said to be absorbed and else are all excreted with urine if soluble salts are formed and with stools if insoluble salts.

Lastly it has been definitely proved that Calcium is better absorbed in the presence of chlorides, than when administered alone, owing to the fact that with chlorides, there is a more efficient secretion of HCl. and absorption of Calcium takes place in the form of acid Calcium Phosphates.

Calcium circulates in blood in combination with proteins and partly as diffusible salts of the diffusible Calcium, the portion existing in an ionised form performs the important function.

Thus Calcium therapy needs to be considered in the light of these substances or elements which have the power of fixing or retaining it in the body. As like other nutritive substances Calcium salts undergo real digestion and after entering in an organic form they become a constituent part of the tissues and blood.

Antirachitic Vitamin D has now definitely been shown to be intimately connected with the metabolism of Calcium and Phosphorus. As one of the chief functions of these minerals lies in the formation of bones—which are mainly composed of a complex salt of the formula of $\text{Ca}^{+}(\text{Po}_4)^{-}$, $\text{Ca}(\text{Hco}_3)^{+}$. Vitamin D helps in the retention and absorption of Calcium salts. In the absence of Vitamin D these salts are imperfectly absorbed in the upper part of the gut as the deficiency of Vitamin D renders the gut contents more alkaline and retards absorption and the Calcium is precipitated as insoluble carbonate or phosphate.

The second factor which determines the amount and value of functioning diffusible Calcium in the body is 'ACID ALKALINE BALANCE', which means the reaction of blood and tissue fluids in the body. The reactions of the tissues and fluids within the body proper are normally neutral, inclining a trifle towards alkalinity, i. e., pH 7.1 to 7.8. Action of drugs, which are supposed to have a selective affinity for certain organs or tissues often depends upon their pH reaction. Absorption of Ionisable Calcium is helped by the production of acidosis on this assumption and observation of symptoms of alkalosis—produced, following 'PARATHYROIDECTOMY', administration of 'PARATHYROID-EXTRACTS' has been resorted to, for the proper absorption of Calcium salts.

The third factor, which helps in rendering the Calcium salts fit to be fixed, is to combine the administration of these salts with substances like Flourine and Phosphorus—in proportion of 1.7 to 1.

Successful Calcium Therapy consequently depends on these various conceptions and their proper application.

(1) Calcium salts, for their most important function to promote nutrition and cell growth, have been used in Pregnancy and Lactation for development of foetal skeleton and teeth.

(2) These salts are indicated for administration in conditions produced by insufficiency of Calcium intake, as Caries teeth, Osteomalacia, Rickets and (secondary) Anæmia, Gee's disease, Pregnancy toxæmia and Tuberculosis.

(3) It is largely used, now-a-days, in Pulmonary Tuberculosis on the assumption that the healing of tuberculosis lesion in lungs is associated with Calcification and that there is an excessive excretion of Calcium in this disease. (There is however no reason to believe that there is any deficiency of serum—Calcium in this disease). They are mostly used in this disease to check hemoptysis of slight intensity and to improve general condition of the patient. Reduction in temperature improvement in appetite, checking night sweats and gain in weight can be observed in certain number of cases. It is especially of value in early intestinal tuberculosis, where marked improvement is noted by checking diarrhoea, pain or tenesmus. Long standing tuberculosis glands and ulcers are also

much benefited by its use. But because Calcium Salts are excreted rapidly half within first three hours and the remaining within further three days this deficiency can be overcome by periodical injections or administration of phosphates of Calcium which are supposed to be exceedingly useful for these purposes, because the Calcium and Phosphorus is supplied in approximately the same proportion as required for Calcification. For similar reason Calcium Phosphate is also indicated for use to expediate the union of fractures and the healing of caries of bones.

(4) Calcium salts are indicated in all those conditions where there is said to be marked loss of Ionic Calcium from blood as Sprue, Tetany and Chorea. In these conditions administration of Calcium Lactate over a prolonged period and parathyroid extracts, have raised the amount of free Calcium from 6 to 10 mgms. per 100cc. of serum and marked improvement in the pathological states observed.

(5) Calcium salts are primarily alkaline and so used as antacids in conditions of hyperacidity, acid dyspepsia. Gastric and duodenal ulcerations and also possess a little astringent action as well, for which they are frequently combined with other astringent remedies to check diarrhoea.

(6) Calcium is used as a heart tonic in myocardial weakness and conditions of nervous exhaustion owing to its power to tone up muscles and nerves.

(7) Calcium salts especially Chlorides are used for procuring diuresis in acute and subacute nephritis due to increase in non-colloidal constituent of blood and increase of fixed acids. Calcium salts are used for hurrying up coagulation of blood in cases of Hæmorrhages and also administered before operation in patients subject to hæmorrhages. In peripura, Hæmophilia, Aneurism, Calcium salts are used for the same purpose. Ten p. c. solution of Calcium Chloride 10cc. should be given I. V. and repeated eight hourly till bleeding stops.

(8) Calcium salts have power to retard odema and inflammatory process and have therefore been used in serous headaches, angioneurotic odema, urticaria, Chillblain, etc. In treating skin disease the action of Calcium in limiting exudation is given full effect and in cases of urticaria relief from irritation and congestion is frequently achieved almost immediately.

(9) Soluble lime salts of Calcium increase the resistance of R.B. Cells to certain hemolytic serum and also lessen the liability to anaphylactic reaction in sensitive persons, therefore used in Acute Rhinitis, Serum disease, Hay fever and Bronchial asthma.

(10) On the hypothesis that there is a disturbance of Calcium and sodium balance in 'PLEURAL EFFUSIONS' Calcium salts are used to remedy this condition.

(11) Lime salts are used in acid poisoning especially oxalic acid poisoning to neutralise the action by forming insoluble oxalates.

In lead poisoning Calcium causes elimination of lead from body by increasing exchange of lead and Calcium between bones and the blood. Lead palsy and Lead Colic are treated with high Calcium diet.

The following salts of Calcium are in current use :--

Current Preparations.

	Name of Preparation.	Percent of Calcium.	Soluble or Insoluble.	Special Action.
1	CaO Ca (Ho) 2	...	...	Astringent Local.
2	Calcium Carb (a) Pulv. Creta Co. opio (b) Pulv. Creta Arom.	40	Insoluble.	Antacid and Sedative.
3	Calcium Phosphate (Tricalcic) ...	40	Insoluble.	Neutrient.
4	Calcium-Chloride	36	Soluble 1/5.	Diuretic.
5	Calcium Lactas (a) Syrup Cal. Lacts. Phos.	18.25	Soluble 1/18.5	Neutrient in all conditions of decalcification.
6	Calcium Lævulate (a) Cal. et. Sodium Lactate	14.83	Soluble 1/15.	
7	Calcium Gluconate	9.30	Soluble 1/30.	

Calcium salts are best given in solution after food and owing to their feeble absorption it is wise not to give them in excessive dose for fear of derangement of the stomach. The most soluble salts, Calcium Chloride, Gluconate and Lævulate are used for injections either intermuscular or intravenous in urgent cases for quicker and more definite results. It is always advisable to use hypertonic solutions, as these are endowed with a greater degree of hæmostatic action than isotonic solutions. A 10 p. c. solution is very useful and of this 5cc. may be given without untoward effects. For fear of ventricular fibrillation 10cc. should be guardedly given.

Chlorides should be cautiously used for fear of necrosis and local inflammation which may be caused by leakage into the tissues, and Gluconates are therefore selected as they do not cause such irritation. Frequently general reactions—Feeling of heat all over body, giddiness, vomiting, palpitation and sharp rise of temperature, are encountered, but they are very temporary onsets.

As for its value to absorb Calcium well in the presence of Vitamin D various Laboratories have prepared 'COLLOIDAL COMPOUNDS', injections for subcutaneous use and they have proved of much worth except for symptoms of Hypercalcaemia as loss of appetite, lassitude, drowsiness, pallor, emaciation and later, Calcification of tissues, i. e., arteries which may take place, under high

doses continued for a prolonged time. These symptoms of Hypercalcaemia have been most recently attributed to a condition of Hyper-vitaminosis. (Vitamin D).

With all this lavish supply of Calcium from nature, the subject of Calcium therapy is still confronted with conflicting controversies over its proper absorption and metabolism and it still remains to be established in future, if Calcium is better metabolised from a dietary rich in Calcium occurring in natural organic compounds than from synthesised drugs, and until that is uncertain Calcium medication except emergent indications should be effected primarily through proper Calcium diet. Indigenus Drugs which are cheaper and equally valuable can be substituted for oral use. Parenteral administration limited to the extent of acute need. In diseases mostly the result of 'Calcium deficiency in body, as Osteomalachia, Rickets, Secondary anaemias, Idiopathic Steatorrhœa, Sprue and T. B. should be advocated a "High Calcium diet".

SULPHONILAMIDE IN SURGERY.

By R. S. MISRA.

INTRODUCTION.

The development of infections in accidental wounds was observed and described as far back as recorded history. But before it was demonstrated that surgical infections were due to the activity of micro-organisms and that they could be kept off operation wounds by proper control of the condition of operation, surgery was limited in its scope to the removal of superficial growths and the cure of accidental wounds. Even these relatively simple procedures were handicapped by a high incidence of infection and death.

This problem of infection was being attacked scientifically and systematically, and while one group of investigators attempted to solve the problem by active immunization with vaccines, and another by passive immunization with sera, a third group led by Ehrlich tried to attack by means of chemicals. Their studies led them to the investigation of the various dyes. Most of the dyes which were effective against bacteria were found to be toxic to the body tissue also. In this search for more effective and less harmful dye led Domagk in 1935 to discover a new one which he called prontosil. Certain French observer later showed that the active element of the dye was a simple colourless chemical para-amino benzeno-sulphonilamide later termed Sulphonilamide.

MODE OF ACTION.

Sulphonilamide is bacteriostatic rather than bactericidal and the following are the theories about their mode of action which are worthy of consideration.

1. *Para-amino Benzoic acid theory*:—Experimentally it was observed that the presence of peptones in the form of damaged tissue or pus inhibited the activity of the drug and specially a specific inhibitor was found in para-amino-benzoic acid—a drug not very different in its chemical constitution from Sulphonilamide—which was known to be utilised by bacteria in their growth processes and is supposed to be a constituent of all animal proteins. On this data the action of sulphonilamide was explained by the assumption that they are taken up by the bacterial cell by mistake instead of Para-amino Benzoic acid and "fails to divide and either dies of malnutrition or falls an easy prey to activity of leucocytes."

Anti-Enzymic theory:—Other theories are propounded on the anti-enzyme activity shown by sulphonilamide and one of them assumes that it inactivates catalase which normally destroys H_2O_2 , a product of bacterial metabolism which is thus free to kill bacteria.

CLINICAL USE.

Surgical infections are local processes usually associated with a break down of tissue. The bacteria causing surgical infections are pyogenic or necrotizing organism and the sulphonilamide can be used locally as well as systemically *far antiseptis*. The following are the factors in the successful use of the sulphonilamides.

1. *The Concentrations of the drug Transported to and Maintained in the Area of Infection*:—The highest concentrations without any toxic effect can be obtained by the local use of the sulphonilamides as neither they have any systemic effects due to the low blood concentrations nor they are detrimental to the healing of the wound as shown by Key and his associates. But this local use of sulphonilamides is not enough when the organisms have spread beyond the reach of the drug and the need for systemic dosage is obvious but for the good blood supply for transportation of the drug to the lesion only, although in superficial and open wounds the drug can be brought grossly into contact with every part of the surface.

2. *The Doses and the Duration of the Treatment*:—Adequate dosage over a long enough period is of considerable importance. Now-a-days larger doses are given as it is essential to produce rapidity and then maintain an adequate concentration of the drug in the blood stream, as it has been found that even prolonged administration of inadequate doses increase the resistance of the bacteria.

3. *The relative number of bacteria involved in the process*:—The infection succeeds contamination, the micro-organisms first introduced multiply, and the irregular nature of the wound and the presence of crevices and blind spaces help in their colonization,

while the clotted blood and lymph supplies them with the ready food. Colebrook and others emphasized the advantage of preceding the local application of the drug by wet dressings for two or three days in order to get rid of the crusts of slough and exudates from the surface of the lesion with two objects:—

(i) It will help in the contact of the drug with the various parts of the wound.

(ii) It will ensure the bacteriostasis by removing the favourable atmosphere for their growth.

4. *Susceptibility of the causative organism to the sulphonilamide used*:—Certain organisms are specially susceptible, some are slightly while others are almost immune to the sulphonilamides. Pneumococci, gonococci, meningococci are specially susceptible to sulphonilamides than others, the aerobic beta-hæmolytic varieties being in general the most susceptible while hæmolytic streptococci are refractory to the drug. Staphylococci are practically immune to the drug.

Among the various sulphonilamides the sulphothiazole is the most potent which is said to have some bacteriostatic activity even on the staphylococci.

5. *The amount of the tissue break-down*:—The amount of the resistance of the tissue to the invading bacteria is very much lowered in the devitalised tissue and they may fall prey even to the relatively avirulent bacteria. These dead tissues in addition to the lack of resistance supply the bacteria with a favourable medium to grow by creating helpful surroundings as written before. The pus, which is nothing but a collection of dead cells with the exudates, hinders the action of sulphonilamides by its chemical nature (due probably to peptones and paraamino benzoin).

6. *The ability of the body to remove or destroy the inhibited bacteria*:—As the sulphonilamides have only bacteriostatic power the elimination of the bacteria depends upon the defences of the body itself.

INDICATIONS.

As First Aid Therapy:—

Experimentally it was found that less the interval between the contamination of the wound and the introduction of sulphonilamides better are the results, and on this basis Tulaues, Cox and others have begun the study of the local sulphonilamides implantation as First Aid therapy as the bactericidal inhibiting action may permit a slight increase in the time intervals between the contamination and infection of the wound.

Mode of application:—

(a) *Shallow open wounds*:—The sulphonilamide is sprinkled on the wound in the form of a powder by hand and then distributed by the spoon or better by an insufflator. It may be used with vaseline as ointment.

(b) *Deep sinuses*:—Small bits of the tablets may be introduced by the sinus forceps or spencer-wells artery forceps and crushed at the bottom of the sinus. It may also be used as saturated solution, a mixture of the sulphonilamide in saline, e.g. 3 gms. of sulphonilamide in 100 c. c. of saline. In deep wounds sulphonilamides can also be pushed with packing gauze wet with hypertonic saline by means of sinus forceps, a practice in our hospitals.

Skin Infections:—The superficial infections caused by streptococci specially of diffuse type, viz. erysipelas, lymphangitis and lesions grouped under the term cellulitis, caused mostly by streptococcus hæmolyticus respond dramatically to sulphonilamide therapy.

Dose. "3 tablets (1½) gms. by mouth is the 1st dose. 2nd dose is given 2 hours after and consists of 2 tablets 1 gm. each followed by one tablet ½ gm. every 4 hourly both by day and by night until the infection is overcome or signs of toxicity appear or until a total of 20 gm. has been given. If the patient is vomiting a soluble form of sulphonilamide such as 10 per cent. solution of Soluseptasine 5 c. c. every six hours intramuscularly may be given."

(Dr. U. Mohan Rao).

Burns:—The present war has revolutionised the treatment of burns. The contracture, the limitations of the movement and even the ischemic necrosis had been the unfortunate results of the tannic acid treatment in cases of face, hands, etc. Where the oedema and sepsis under a rigid surface of the coagulated cellular layer along with prolonged immobilization have caused the great disfigurement and impairment of function which lead to the introduction of sulphonilamide treatment.

1. Paste of Albucid with glycerine applied locally on the wound of hands, face, scalp, penis and scrotum restored the normal functional activity early and more completely than with tannic acid.

2. "Tullegras" (a gauze impregnated with soft paraffin, balsam of Peru, etc.) together with sulphonilamides is advocated as a routine measure. After proper toileting of the wound a layer of the powdered sulphonilamide is spread over the wound and itself covered by a layer of "tullegras" which is again covered by a layer of powder and finally there is a thick layer of gauze held in position with a bandage. Only the dressings up to the 'tullegras' have to be changed at intervals of 24 hours or longer according to the amount of discharge.

Lacerated wounds and deep injuries involving even the bones after removal of the foreign bodies dead or lacerated by operative procedure are treated by local uses of sulphonilamide which limits the little foci of infection left behind and thus enhances the reparative processes.

Gas Gangrene:—Hawking through his experimental studies concluded that sulphonilamides have a protective action against *Clostridium Welchii* and *Clostridium Septique* but not against *Cl. oedematieos*.

Bliss, Long and Smith concluded that under the conditions of the experiment Sulphadiazine and Sulphathiazole given locally afforded the best protection.

Although clinical evidence about the efficiency of sulphonilamide is very conflicting but it is certain that the value of anti-gas sera is considerably enhanced by the consequent use of sulphonilamide.

In Tetanus:—Here also the opinion about the efficacy of sulphonilamides is very conflicting. One or two observers in our country have emphasized the use of sulphonilamides in Tetanus, but it is too early yet to say that tetanus cases should be treated only with sulphonilamides. The problem requires further investigation.

As urinary antiseptic:—The success of sulphonilamides depends upon—

(i) **The type of infection:**—Sulphonilamide has been found useful in eradicating infection caused by bacteria like *B. Coli*, *Aerobacter aerogenes*, *salmonella*, *streptococci hæmolyticus* and *gonococcus*. Infections caused by the genus *proteus* (urea splitting organism) responds only to sulphonilamide while on the other hand *streptococcus faecalis* seems to be immune to the drug.

(ii) **The dose:**—The first dose should be the maximum tolerable to the patient while the maximum concentration in the blood is maintained by continuing the treatment even in the night.

(iii) **Renal function:**—(a) Whether the renal function is adequate to convey the appropriate antiseptic to the desired point; and to ensure this—

The patient may be encouraged to take the largest possible amount of barley water and be kept on fluid diet during the treatment.

(b) **Impaired renal function**, is also a predisposing factor to toxicity and so it is a good rule not to exceed the dose of 1 gm. per 10 per cent. of the phenolphthalin function of the kidney and in lower renal threshold large doses are not necessary.

(c) **Faulty drainage:**—The pus is detrimental to the action of the drug which is not liable to accumulate in a closed system like the urinary.

(iv) **The appearances of the toxic reactions:**—It may be handicapped by the systematic use of the drug but can be avoided to some extent by giving alkalis with the drug like NaHCO_3 and keeping the patients away from sunlight and avoiding constipation.

Every urinary infection cannot be dealt with in such a short article but gonorrhœa being the most common infection deserves special consideration. In this connection the work of Mr. M. B. Macksuna who has done some work on the disease recently in India

is worth reference. According to him the first dose should be 5 gms., 2nd dose 4 gms. and the third dose should be 3 gms., fourth 2 gms., and other doses of 1 gram each given four hourly and thus 22 gms. of sulphapyridine has been given in forty eight hours. Local wash with KMnO_4 or Oxycyamide of mercury (1:8000) was used. Smears examined on the sixth day and again on the 7th day if they are negative then a provocative dose of gonococci vaccine containing three hundred million gonococci is given and smears and urine are examined on the eighth day.

Three months later another injection of vaccines is given and the patient is supposed to be cured if the macroscopic, microscopic and urethroscopic examinations do not show any sign of inflammation; with this treatment he reports only a relapse of 3 per cent.

As Intestinal Antiseptic:—This discovery of sulphothiazole by Melvin Moore was another milestone in sulphonilamide therapy. It has been found the most useful intestinal antiseptic; the previously used sulphanilylguanidine is abandoned due to high toxicity due to absorption, and ineffectiveness in the presence of ulcerative lesions and also against many bacteria. It has been found effective against *B. Colii*, *B. typhosius* (Shiga, Flexner and Sonnes) while *B. Typhosius alpha*, *streptococcus faecalis*, and *B. proteus* are unaffected by it.

For the successful antiseptic it is necessary that the drug should get into contact with the mucosa. So the strangulated blind loops, constipation, and severe diarrhœa are handicaps to its bacteriostatic action. Ulcerative lesions retard but do not destroy its efficiency. The statistics of the John Hopkins and Union Memorial Hospital in Baltimore, where 120 cases were tried with sulphothiazole, only two cases failed to respond to the drug, one with chronic constipation and the other with the intractable diarrhœa.

The usual daily dose of succinyl sulfathiazoles is 0.25 gm. per kilogram, of body weight and is preferably given in six portions at 4 hourly intervals. Cathartics, specially mineral oils are to be omitted when using the compound. The patient suffering from diarrhœa should get double the dose. The course of treatment is from five to seven days before the operation on the colon and to be continued for the days post operatively when anastomosis have been performed.

In Peritoneal Infections:—Animal experiments of Altemeir showed the sulphonilamides have protective action in peritoneal infections. Lockwoods and Rhoades gave clinical evidence of their efficacy and used sulphanilamides prophylactically in surgery of inflammatory and traumatic bowel perforation. Rea concludes that sulphonilamides seemed to be most efficacious in the preperitonitis states and that its efficacy was much reduced once peritonitis had set

in. Others also are of the opinion that earlier the drug is used better are the results.

Mode of Administration:—The sterile sulphonilamide powder is dusted into the wound and peritoneal cavity at the times of operation using 8 gms. for the peritoneum and 4 gms. for the wound as an adult dose. This in the opinion of Maueller and Thompson is as superior method than local deposition of the drug in one place. Post-operatively the sulphonilamide blood level is carefully watched and in more severe cases is maintained by the additional administration of sulphonilamides parenterally.

In Post Operative Pneumonia:—Sulphathiazole has been successfully used in the treatment of post operative pneumonia. In one of the cases a dose of 1 gram of sulphathiazole was given every day for five days and a concentration of 1 mgm. per 100 c. c. of blood was found on the 1st day and 4 mgm. on the third day. Temperature came down with lysis and pneumonia was cleared up, and convalescence was over on the seventh day.

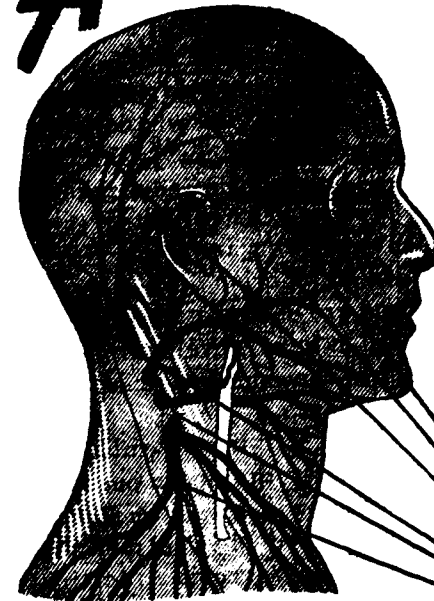
TOXIC REACTIONS.

Lastly it will not be out of place to discuss the toxic manifestations of the sulphonilamides which are so often a handicap to their systematic use. They frequently cause cyanosis, and less frequently anorexia, nausea and vomiting, mental aberration, depression and hallucinations. After five days fever may develop which may be confused with the recurrent activity of the infection. The red cells may fall shortly, slowly or abruptly and occasionally there is severe hæmolytic anæmia. The white cells also may drop rapidly and a true aggranulocytosis may prove fatal if not observed promptly and if the drug is not immediately stopped. Hepatitis with jaundice is rare but when it does occur it is a serious toxic manifestation which may be prolonged for days or weeks. The toxic reactions usually disappear rapidly after withdrawal of the drug but fever may continue for several days. If hepatitis develops recovery may be very slow indeed.

Sulphapyridine gives all of the toxic reactions of sulphonilamide, besides extreme nausea and vomiting which often makes the patient rebel against taking the drug. Sulphathiazole and sulfadiazine have largely replaced sulphapyridine and the latter may gradually drop out of use. Sulphathiazole is less nauseating but is more apt to cause a maculopapular skin rash or erythema nodosum. Sulphapyridine and sulphathiazole are chiefly dangerous because the acetylated forms of these two drugs are more or less insoluble and results in the blockage of the kidneys, as mentioned previously. It is a factor of considerable interest that apart from the renal complications, severe toxic effects of sulphonilamides occur very rarely among patients with active invasive infections.

(K. G. M. College Journal.)

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Extracts

THE STUDY OF TWINS

BY L. P. VARMA, M.B., B.S. (Pat)

P. W. Medical College Hospital, Patna.

The origin of Twins.—The attention of the medical profession was first drawn to the study of twins by GALTON (1883) who collected a number of cases of psychological resemblances in twins. He classified the twins into two groups, viz. monozygotic and dizygotic. He pointed out the difference between the two and postulated their origin. Monozygotic, uniovular or identical twins are products of a single ovum, and have the same placenta or chorion. They divide into two in course of development and are of the same sex. The dizygotic or binovular twins, on the other hand, develop from two ova, independently fertilized and may be of the same sex or of different sex. They have separate foetal membranes.

Striking resemblances of the twin.—Cases of striking resemblances among twins have been described in literature, the most beautiful example of which, he has been furnished by *Morandou de Montyel* (1906). Both the twins were girls with marked physical and psychological resemblances. Both of them developed colds, intestinal derangements, measles, mumps and varicella together during childhood. The diseases always appeared simultaneously and their symptoms were exactly of the same nature and character. They married and lived in different districts but became pregnant at the same date. Both of them suffered from acute mania during the fourth month of their pregnancy. The mania was attended with hallucinations. The contents of the hallucinations were similar in both. Each of them saw the virgin Mary and the Devil. The Devil lifted her clothes and got into bed with her. Each was afraid of having a devil as her child. Both of them were delivered of a male child at an interval of forty-eight hours. They recovered in less than a month after it. Cases of schizophrenia and manic depressive psychoses have also been reported in twins to show that both the twins developed the disease at the same age and had delusions and hallucinations of the same nature and character. Even when such persons have committed suicide, they have done it in the same way.

Developmental anomalies.—The study of twins has recently crept into the scene of scientific work and is now considered to be the principal gauge for estimating the importance of hereditary factors in the production of physical or mental disease. Most of the work on this subject has been done during the past twenty years, and the recent stress on the part played by heredity, constitution and diatheses, in the causation of certain diseases, makes its study all the more imperative for us. It is by far the most accurate method of estimating the importance of heredity in the production of a disease.

It is supposed that the uniovular twins, which are the products of the same ovum carry the same hereditary factors with them and thus are equally equipped for a struggle in this world. Nowhere is this fact more evident than in a study of developmental anomalies, such as cleft palate, spina bifida, patent ductus arteriosus, congenital pyloric stenosis, polydactyly, anencephaly, phocomelus, cyclopia, pseudo-hermaphroditism, hypospadias, epispadias, epiloia, and inguinal hernia have been found in both of the uniovular twins, (Cockayne, 1938). The absence of frontal sinuses (Pastore and Oslen, 1941) and the association of undescended testes, urethral valves and dilated ureters (Borovsky, 1934) have recently been reported.

General Medicine.—The study of the twins in certain pathological and clinical conditions have enabled us to form an accurate estimate of the part played by heredity in these diseases. The origin of diabetes mellitus has always been explained on constitutional basis and the study of binovular twins has confirmed it. Cases of diabetes mellitus have been reported in 13 pairs of uniovular twins by Curtis (1929). May (1914) Michaelis (1926) and Lehman (1941) have also reported cases of diabetes mellitus in both pairs of uniovular twins. The question whether tuberculosis is a hereditary disease has always been discussed, but as yet nothing definite has been established. Recently cases of tuberculosis in both uniovular twins have been reported by Kittel Kamp and Setranbro (1941) and (Cockayne 1938). Similarly cases of pituitary dwarfism (Haukegast and Saunders, 1940) Simmond's Disease (Brom, 1940), toxic goitre (Neff 1932), thrombosis of the pulmonary artery (Gunter, 1941), bronchiectasis (Pastore and Oslen, 1941), pseudo-leukæmia infantum, aplastic anæmia, paralysis agitans (Cockayne, 1938) celiac disease (Collishaw, 1940), osteosclerosis (Hagens, 1941) subarachnoid hæmorrhage (O'Brien, 1942), congenital syphilis affecting identical lobes of the lungs (Cockayne, 1938) and cases of pneumococcal pneumonia of the type I variety (Jacobs and Sabot, 1940) in both of the uniovular twins have been reported in literature. Then again a case of adeno-carcinoma of the rectum has been reported by Maclin and Maclin (1939) and one of fibroadenoma of the breast, by Cockayne (1937).

On the other hand, Kellet (1937) has published a case of acute myelocytic anæmia, in which only one of a pair of uniovular twins suffered from this disease. Nettlehip (1942) has cited another instance where only one of the pair of uniovular twins suffered from red green blindness while the other was perfectly normal. Spence (1938) came across a case of pink disease in only one of the uniovular twins though both of them were similarly fed and kept in close contact with each other.

So we find that many new beginnings have been made but still the work as yet does not lead us to any definite conclusions. It is expected that in future, when the literature on twins accumulates, we

shall be in a position to estimate the value of heredity in the production of certain pathological or clinical entities.

Psychological Medicine.—Psychiatry has always struggled to emancipate herself from the clutches of heredity. Her attempts in this direction have been mostly futile. Heredity is still believed to play a considerably important role in the causation of most of the mental disorders. Schizophrenia, manic depressive psychoses and a host of other disorders are still believed to be the outcome of defective germ plasms. Time and again, evidences have been put forward, both in support of and against this hypothesis, but the methods of approach to the subject, at our command, have been so elusive and vague that it is neither possible to prove nor to reject them altogether. Geneticists, in this field, have always felt the difficulty of having to deal with two sets of variables, viz., the inborn tendencies and the environmental factors and thus their results have been mostly vague and confusing. The study of twins offers us the possibility of eliminating at least one of these variables, viz., the hereditary endowments. We have seen in the foregoing discussions that the hereditary endowments are the same in the uniovular twins. We are therefore left to deal with the only other variable, viz., the environment when we are dealing with cases of uniovular twins. It is thus possible for us to make an accurate estimate of the relative importance of the two factors in the causation of any mental disease. It has been said that the identical twins resemble each other extraordinarily in their intelligence *Rodgers* (1933) and a pair of twins have been reported by (*Cockayne* 1938) where both of them had low mentality and mental derangement. They suffered from delusions of a religious nature at the age of twenty-one and then developed pulmonary tuberculosis of which one died at the age of twenty-eight and the other at the age of twenty-nine. Cases of suicide among the twins have been reported by *Lowenberg* (1941) occurring in the same way and under the same psychological setting.

Different Environments.—Recently many painstaking efforts have been made to find out and study cases of identical twins reared apart and an attempt has been made to discover the extent to which environment has been successful in bringing about differences in individuals, identical in genetic constitution. *Muller* (1925) was the first to describe such a case and he was followed by *Newman* (1937) who collected nineteen cases of this type. *Kesanin* (1934) reported a case of schizophrenia in one of the uniovular twins and attributed this difference to a change in environment. Another case of a pair of uniovular twins, where environment has been held responsible for the differences, has recently been reported by *Yates and Brash* (1941). One of the twins is decidedly superior in height, weight and general health, while the other scores higher on the scale of the

Binet-Terman-Merrill intelligence tests than his fellow twin. Still the radiological and ophthalmoscopic examinations revealed strikingly similar stomachs and deep physiological cups in both pair of eyes. The similarity between the sets of teeth was amazing. All these facts clearly show the importance of environmental factors in the causation of a mental disease and in changing our temperament and character inspite of our genetic constitution.

Schizophrenia.—Some work of a tangible nature in this direction has been done by studying cases of schizophrenia in uniovular twins. *Soukhanoff* (1900) reported of a pair of uniovular twins who suffered from dementia praecox, *Parker* (1926) collected a number of such cases and came to the conclusion that the occurrence of schizophrenia in uniovular twins pointed to the germinal nature of the disease. He had still some doubts in his mind that cases of uniovular twins, where only one of them was affected, was not reported in literature. *Kesanin* (1934) reported of a case of schizophrenia in only one of the uniovular twins and believed that this change was due to a change in environment *Rosanoff et al* (1934) studied 1014 pairs of twins with some mental disorder, of which 142 pairs represented cases of schizophrenia. 41 pairs of twins were of uniovular type, in which one or both of them were cases of schizophrenia. In 61 per cent. of these cases both the twins suffered from schizophrenia and so heredity was held responsible for their causation and for the rest some other factor had to be sought for.

Manic depressive psychoses.—*Rosanoff et al* (1935) studied 90 pairs of twins with manic depressive psychoses, of which 24 were monozygotic twins. In 69.6 per cent. of the monozygotic twins and 16.4 per cent. of the dizygotic twins both the pairs were affected. This suggests that in a majority of the cases of manic depressive psychoses, heredity played an important role. Still, heredity in itself, cannot explain the causation of this disease as there were 30.4 per cent. of the cases studied, where only one of the monozygotic twins was affected.

Epilepsy.—In *Rosanoff et al's* (1934) group of cases there were 23 pairs of monozygotic twins, where one or both of them were patients of epilepsy. In 52.2 per cent. of the cases heredity was held responsible for the causation of epilepsy. *Canard's* (1935, 1936) work is more precise for he studied cases of idiopathic epilepsy in 22 pairs of uniovular twins. Both the twins were affected in 19 pairs of the uniovular twins while only four pairs were similarly affected out of 97 pairs of binovular twins. Thus he concluded that idiopathic epilepsy was hereditary.

(Antiseptic. August.)

SINUSITIS AND THE COMMON COLD

BY R. M. DOWDESWELL, M. D.

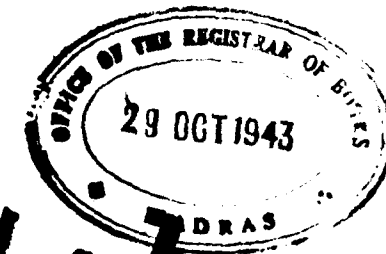
The differential diagnosis of the conditions included under the term "Common cold" is still vague and the treatment adopted is therefore apt to be uncertain in this direction.

Wyun (1942) divides colds into two groups. The first primary colds, are due to a virus infection and were found by Dochez to be unaccompanied by rise of temperature. The second group, secondary colds, are due to infections with the usual catarrhal bacteria which have become established in the tonsils, sinuses, nasopharynx etc. after primary colds. The secondary colds are those mostly seen in private practice because the primary ones are soon over study of 60 cases of common cold yielded some suggestive results. In this series 39 patients had only occasional heavy colds or attacks called influenza; in 7 of these a definite diagnosis of sinusitis had been at some time by the accepted methods. The remaining 21 patients had frequent or chronic heavy colds, and of this group a diagnosis of sinusitis had been made in six. Only 3 of the diagnosed cases of sinusitis had operations performed for this condition. The patients in the "occasional" group all showed one or more of the following symptoms, chronic post-nasal catarrh, frontal, occipital or one sided headache; sneezing attacks, nasal discharge worse on one side and more copious either on standing up or lying down, tenderness over a maxillary or frontal sinus; pain in a sinus when the patient attempts to breathe in with a nose or mouth closed; slight swelling over a sinus; mild fever, lassitude, and aching of limbs; minor facial neuralgia.

Cultures from the nasal discharge of patients with recurrent colds have shown more or less normal flora (usually staphylococcus albus and diphtheroids) when taken between attacks, but have yielded a heavy pure or almost pure culture of a bacterium when taken during an attack organisms found in order of frequency have been; Pneumococcus, staph aureus, streptococcus viridans of different types, and Pfeiffer's bacillus. The same organism was recovered in pure culture during separate attacks of a severe cold at intervals of many months from the same patient; in one case a pneumococcus type II, and in another Pfeiffer's bacillus. Two patients both doctors, when examined by an ear, nose and throat specialist and radiographed during a clinical attack, proved to have had a long standing chronic sinus infection which had never been suspected; they claimed to have been free from colds for years. In several cases giving a history and symptoms strongly of suggestive of recurring sinusitis, X-ray examination showed no evidence of sinus infection.

Infections of the accessory nasal sinuses are prevalent in childhood as well as in adult life, and are often diagnosed as recurrent colds. The possibility of sinusitis should be seriously considered and the sinus investigated if any case of pyrexia of unknown origin, influenza or febrile catarrh.

(The Lancet.)



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Medical Notes and News.

INDIAN MEDICAL ASSOCIATION. WEST GODAVARI DISTRICT BRANCH, ELLORE.

The 14th meeting of the above association was held at Osler Hospital Podur, in connection with the first anniversary of the Hospital on 22nd August 1943, with Dr. M. Venkataratnam, M.B.B.S., in the chair. Forty doctors from the District and one lady Dr. Miss K. V. John of Ellore attended. The meeting commenced with light music by Mr. A. K. V. Prasada Rao. P. Ramarao, M.B.B.S., of Osler Hospital welcomed the guests and presented the first anniversary report of their Hospital. Next G. Satyanarayana Sastry, M.B.B.S., Honorary Secretary read the minutes of the last meeting which were approved. This was followed by the scientific section comprising of.

1. Demonstration of interesting slides under microscope.
2. A review of fractures treated at Osler Hospital by R. N. Raju, M.B.B.S.
3. Tetanus and its treatment by A.P. Gopalan, L.M.P.
4. Surgical complications of filariasis by P. R. Rao, M.B.B.S.
At 5 p.m. the members adjourned for tea and group photo after which the scientific section resumed.
5. Case demonstrations.
 - (a) Acute Hepatitis with Bilateral Tuberculosis by R. N. Raju, M.B.B.S.
 - (b) Fibrous Epulis lower Jaw in a child of 3 years by P. R. Rao, M.B.B.S.
 - (c) Hydatidiform Mole by R. N. Raju, M.B.B.S.
 - (d) Filarial Epididymo-Orchitis and Funiculitis complicated by Streptococcal Pyaemia, by P. R. Rao, M.B.B.S.
 - (e) Tetanus complicating septic finger by A. P. Gopalan, L.M.P.
6. Dr. T. S. Harinarayana Pantulu, L. M. S., District Medical Officer, presented a variety of case reports from his wide personal experience.

The following additional office-bearers were unanimously elected for the better working of the association in the month of August.

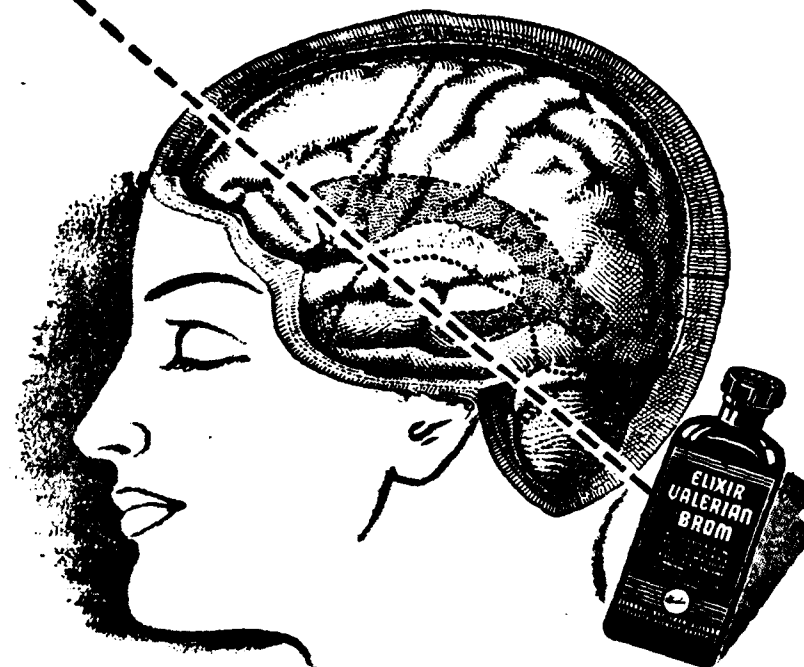
Vice-President: Dr. N. Rama Rao, L.M.P., Tanuku.

Joint Secretaries: (1) Dr. A.P. Gopalan, L.M.P., Palacole.
(2) Dr. R. Narasimha Raju, M.B.B.S., Podur.

The President and Honorary Secretary made a fervent appeal to non-members to join the association in larger numbers. Finally Dr. C. Satyanarayana Sastry thanked the President, the hosts of the evening, the speakers and doctors who attended the function making it a great success.

At 9 p.m. the meeting dissolved and the guests were entertained at dinner by Dr. R. Narasimha Raju, and P. Rama Rao, of Osler Hospital Podur.

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Vol. XII

OCTOBER 1943.

12 NOV 1943 No. 10.

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Editor: Dr. P. R. Venkappaya.

VOL. XII OCTOBER 1943 No. 10

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VOL. XII

OCTOBER 1943

NO. 10

RECURRENT HERNIA.

P. SANYAL, M.B., L.R.C.P. (LOND.), F.R.C.S. (ENG.)

Hony. Surgeon, Medical College Hospitals, Calcutta.

Ever since Bassini had shown us the method of curing hernia, a controversy has been raging as regards the incidence of recurrence after such an operation. More recently varying statistics have been published stating the recurrence rate as between 0.1 per cent. and 5 per cent.

I have not come across any communication here on the subject but my impression is that there is rather a great many recurrences.

The only scientific way of evaluation of one's surgical results or suitability of a particular method, depends on the analysis of response and progress of the cases after a surgical treatment for its cure. But no scientific follow-up system has yet been established in Calcutta hospitals as a routine procedure. We must also remember that associated factors such as the age of the patient, age of the hernia, etc. need scrutinisation before any conclusion is reached.

I will try to put below, a few facts that I have been able to gather from personal experience supported by similar experience of my senior, Dr. D. C. Chakrabarty, Professor of Clinical Surgery, during operations on recurrent hernia.

CAUSES OF RECURRENCES.

Causes of recurrences can be conveniently grouped under four heads:

I. *Inadequate operation*—(A) Incomplete operation. Two points viz., the fresh state of the tissue, with no big scar and the presence of a key hole type of scar give us clue to the fact that the first operation was done only partially.

In these cases, a vertical incision about two inches long over the external ring was seen. Recurrences were all indirect. With the exception of a few adhesive bands near the external ring, the rest of the canal was free from any sign of operative trauma.

The practice of removal of, as much of the sac as possible through the external ring without opening the canal and later carefully closing the ring round the cord, is, I believe another potent cause.

In two cases of recurrent hernia, during dissection, I found the spermatic cord lying in front of the external oblique and ductus deferens with the cremaster lying within the canal. Obviously, this was not a deliberate modification (Andrews) but missing the steps and I am sorry to say that in the first encounter I did cut the vas, before I could appreciate the anomaly and since then I take extra caution about these secondary cases. In 6 cases of recurrence in congenital hernia (as determined by history and age only) on reopening no sign of dissection was found at the neck which was again probably left out altogether. These cases, due to the thinness of the sac, present difficulty in its isolation and was, therefore, missed.

(B) Simple removal of the sac. This is an accepted method of dealing with congenital herniæ particularly in children. Arguments that are put forth are, firstly, all herniæ are due to preformed sac and its removal would cure the condition; secondly, any repair of the muscular layer will further weaken the canal and hence should be omitted. There is some truth in these arguments but as herniæ do recur some modification of the attitude is reasonable.

Personally, I feel, this is to be limited to infants. In children above five years, anterior replacement of the cord with suturing the externus with the Poupart's ligament behind it is a preferable support to the canal.

(C) Bassini's operation (Standard operation) the latter part of which consists of suturing the conjoint (obliquus internus and transversus abdominis) tendon with the reflected part of the obliquus externus by catgut, and replacement of the cord in its original position with the split obliquus externus sutured above it.

That the conjoint tendon, which is only tendinous (or rather aponeurotic) at the medial half of its insertion but muscular in the rest of its extent, does not form any firm union with the inguinal ligament when sutured with absorbable catgut has long been stressed so also is my observation.

On reopening the canal varied pictures were seen. The commonest spot for non-union was found with rather monotonous regularity in the medial part of the canal; the tendinous part was always separated from the inguinal ligament without any attempt at union. The muscular part, on the other hand, sometimes formed fibrous union of varying density with the inguinal ligament. In a large majority of the recurrences (70 per cent) herniation occurred through this weak spot and had reappeared as direct one.

With this knowledge I would urge a revision of idea about simple Bassini's operation.

II. *Too short convalescence*—This is the next common cause of recurrence. The earliest case of recurrence that I have come across is one month after the primary operation. The case was discharged

on the 10th day after operation as the union was primary and the man resumed his original work in the coal mine after a week.

Due to pressing demand on the hospital beds this aspect is often compromised and the patient is discharged rather earlier and not rarely without proper stress on the period of convalescence. The poor patients cannot afford to have prolonged rest at home as the need of earning is more pressing and hence they resume their strenuous work rather too early.

Mention may be made of the practice of advising the patient to wear a truss after an operation for radical cure, the implication of which I fail to appreciate. On the other hand, it is undoubtedly against the principle of physiological recovery of the muscle tone. But the few patients that I have been able to come across, seem rather pleased at this added care shown to them and providing a support to the weakened area.

III. *Infection of the wound*—In the presence of gross sepsis, the sutures give way and the recurrence of the hernia follows almost immediately and universally. Fortunately, this is rare.

Subcutaneous stitches occasionally give trouble but this has never been found to be the cause of recurrence. Statements have appeared that mild suppuration may be beneficial by providing dense fibrosis in the process of healing but this is a dangerous presumption. On the other hand, the aseptic inflammation with dense fibrosis to follow, is the rational object which is aimed at after injection treatment.

IV. *Postoperative strain*—Post-anæsthetic vomiting and cough that occasionally follow, by themselves, are rarely responsible for the recurrence of hernia. Certainly, the strain may produce hæmorrhage in the wound area and thus indirectly affect the sound healing. But in violent vomiting, deep stitches may be separated and thus recurrence may follow.

NATURE OF RECURRENCES.

This, as already mentioned, in a large majority of cases reappears as direct hernia has a better chance to become scrotal than the primary direct type. Recurrent, indirect hernia is practically limited to the congenital primary hernia and where only sac removal was done.

PREVENTION OF RECURRENCES.

The following are the measures by which recurrence of herniæ can be prevented:

(1) *SELECTION OF CASES*: The careful selection of cases and correction of the exciting causes as far as practicable before undertaking an operation will go a long way to reduce the rate of recurrence. The following may be helpful in such a consideration:

Occupation—The work entailing paroxysmal strain, specially in the semi-stooping position is dangerous for such people. A prolonged

convalescence and preferably complete change of occupation is required of them. *Chronic constipation*—It is hardly to be taken as an abnormality now-a-days, nevertheless, it should be corrected during convalescence by laxatives and regulated diets. *Difficult micturition*—Unless specifically enquired into, the history of stricture and enlargement of the prostate are often missed with disappointing result. They need correction before any operation is undertaken. *Chronic lung trouble*—A chronic bronchitic, though chance of recurrence is real in him, should not be denied an operation if not a bad surgical risk for other reasons. Prolonged pre- and post-operative care, selective anaesthesia and selective operation may bring about a successful result.

(2) SELECTION OF OPERATION: One type of operation for all types of cases is not rational and has practically been given up and selection of the type for the individual case is the method of choice. Variations in the hernia operations are numerous, but out of them certain fundamentals have emerged which I think one should follow.

Standard Bassini's operation—The first half of the operation upto removal of the sac at the neck is of universal acceptance. It is the latter half regarding the repair of the canal that has been modified in several ways to the best interest of the patient. In very young subjects, I prefer the following modifications—(1) Narrowing of the internal ring, if the hernia is rather large, by a mattress suture through the transversalis fascia. Care is necessary to avoid the deep epigastric artery which is an important vessel for the rectus abdominis. (2) Transposition of the cord anteriorly and suturing the split externus behind it (Halstead). This gives the additional support without damaging the muscular layer in any way. As I do not subscribe fully to Russel's view, I am not content with removal of the sac alone (except in infants).

The strength of the valvular mechanism of closing the inguinal canal, as described by Ogilvie cannot be judged during the operation. Variations in the development of the muscular part in proportion to the tendinous portion have been noticed but so far no actual relation could be established. Well-developed muscular belly has been found in recurrent cases practically as often as with more extensive aponeurotic condition of the internus whereas in cases of direct hernia, there has always been a lax and weak muscular wall in the canal zone.

Repair by the aponeurotic strip from the external oblique—This is a recent addition and from the result so far obtained, it well deserves to be practised. It is evident by the nature of the tissue to be used that any extensive repair of the canal is out of question, but is eminently suitable in cases of indirect inguinal hernia in young persons,

just where one would have done a standard Bassini's. By substituting an autogenous tissue which becomes incorporated permanently in the repaired layers, one overcomes the objection of using catgut. It gives the needed strength to the plastic repair with a degree of ease that form an added attraction. To have a proper length it is necessary to cut the externus as far out as the muscular fibres and after separation of a strip of about quarter of an inch broad, a catgut is tied to the free end, thus giving further length for easy suturing. By keeping the tension towards the inguinal ligament and not pulling too tight one can avoid tearing of the ligament. Personally, I like the anterior transposition of the cord to complete the operation.

Repair by strips from the fascia lata of the thigh—Since the introduction by Gallie, it has been accepted as the best method of repair of herniae of practically all sizes and conditions. The strips, two or three in number, taken from the fascia lata of the thigh, are used to repair the floor of the canal by darning. Though apposition of the conjoint tendon with the inguinal ligament should be made, too tight suturing should be avoided as that strangles the fibres of the internus. If the cord is pushed well laterally and suturing commenced close to it, one can omit the encircling sutures round the cord. The drawback, if any, of the operation is the rather prolonged time that one has to devote, specially if the surgeon is single-handed. My experience with fasciotome being nil, I can hardly add more than that stressed by others.

In suturing the thigh wound a continuous catgut suture is preferable, the only care needed is not to pull it very tight, as otherwise, cutaneous gangrene will occur. Slight bulging of the quadriceps that persists in these cases, seems not to interfere with the function of the muscle, though mention may be made that Wakeley definitely holds the opposite view.

I beg to be excused to mention that one should take extra care of the fascial strips to keep them safely away in a separate kidney dish lest they may find their way with swabs to the floor.

Fascial darning by the Gallie's method, should then be kept for all recurrent herniae. This also should be the method of choice in direct and big scrotal herniae, as one invariably finds attenuated muscles with them.

Cases of strangulated hernia, present another problem as regards the repair of the canal, for which I do not see any solution. Though there is every indication for fascioplasty, I dare not prolong the operation in an emergent condition. Moreover, the preparation and the condition of the tissues even in the absence of any inflammation of the contents, are not ideal for a plastic operation. Unfortunately, many of them recur within a very short time and rarely submit to another planned operation.

Repair by silk—Next to the autogenous tissue, silk should be accepted as the desirable material for hernioplasty. It gives rise to minimum of tissue reaction in comparison with other foreign materials and is very handy for darning work. Ordinary twisted silk can be used for co-aptation sutures but for darning work, untwisted floss silk is the best.

The difficulty one finds here is in obtaining a dependable and desirable material, and perhaps there is still some prejudice against using so much of foreign material. My experience in this matter is too limited to express any definite opinion on it. I had two failures, one recurred after eighteen months of repair by silk and another developed a subcutaneous abscess after three months of the operation and the suture for the obliquus externus was brought out in the secondary operation. Of course, this in no way affects the merit of the procedure, but having been disappointed in the beginning, one becomes rather hesitant to continue it.

III. SOME SELECTIVE STEPS OF THE OPERATION: As already stressed, hernia operation is a reparative work and hence must be executed neatly and accurately. This operation, thanks to the advancement of our knowledge, is practically without mortality. But it is this safety which has brought forth an idea that it is a minor operation and can be handed over to the immature hands fresh in surgical practice. On the contrary, hernioplasty should be done only by those who have adequate experience in surgery, if the recurrence rate is to be diminished. A few steps may be detailed which one considers essential for ultimate satisfactory result.

(a) *Complete removal of the sac at the neck*—The neck must be clearly defined from the tissues around; a sharp look out being kept for any lateral sacculi or extra peritoneal lipomatous mass and appropriately dealt with. The adipose masses mentioned, are often met with in old herniae and in the obese and may obstruct view at the neck; if left behind, by their growth they will pull down a process of peritoneum and the hernia will recur. In this respect visualization of the inferior epigastric artery is an important guarantee to clear dissection.

Lately, I have tried in several cases silk darning and have been successful so far.

In congenital hernia, the sac is very thin, particularly at the neck, and the spermatic cord is always partly invaginated by it, thus necessitating a very delicate dissection to free it from the sac. If this is not done, either one leaves behind a process of peritoneum at the neck or incompletely occludes the sac, both tending to bring about recurrence of hernia of the indirect type later. Sometimes one may circumvent the difficulty of separation of the cord from the sac, by occluding the lumen of the sac at the neck by a purse-string put from within.

In direct hernia, the sac forms a globular bulge with a wide neck, quite unlike the indirect type; after due care to the bladder, the sac is opened, the redundant portion removed flush with the peritoneum and the opening then closed by continuous suture.

(b) *Haemostasis*—Control of bleeding helps in the preliminary dissection of the operation, also later in healing of the wound. Haematoma, if formed, separates the layers and prevents firm union and itself becomes a potent cause of infection.

(c) *Identification of structures*—The inferior epigastric artery, iliohypogastric nerve and vas deferens should all be identified. The conjoint tendon should be defined and traced upto its medial attachment. Similarly, the inguinal ligament is cleaned of all areolar tissue and traced upto its attachment to the pubic tubercle.

(d) *Gentler repair*—To tight sutures only strangle the muscle (internus) and cut through and also tear the inguinal ligament. Special care is needed for the repair to the medial half of the canal and in accurate suturing of the conjoint tendon with the inguinal ligament, a bit should be taken close to the bone. As practically all the recurrent herniae that have been met with, appeared through this region, the need of careful repair of this area cannot be over-emphasised.

IV. POST-OPERATIVE CARE: Some essentials are (a) *Support*—A firm bandage, including the scrotum should be put on while the patient is still under deep anaesthesia; after the patient has come round it is not only difficult to put the bandage properly but a violent cough may tear the deeper sutures. (b) *Position*—Low Fowler's is all that is necessary. (c) *Strain*—It should be avoided by symptomatic relief to cough and constipation. (d) *Convalescence*—That adequate period of three weeks rest in bed is essential. Resumption of activity must be gradual and no strenuous game or work is permitted before six months.

WHERE HERNIA HAS RECURRED.

These patients are, as a rule, in despair and need a great deal of persuasion before they submit to another operation. A search should always be made to establish a probable cause of failure and if remediable should be guarded against. The actual curative treatment consists of hernioplasty by Gallie's method and there should not be any compromise on it.

A group of cases will always remain, where operation is not desirable and in such cases a wellfitted truss should be advised. Few cases with a tendency to visceroptosis have been tried; a low abdominal belt with truss incorporated within it seems to give more satisfaction.

(I. M. J. October, 1943)



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CHEMOTHERAPY IN NOSE AND THROAT DISEASES.

DANIEL S. CUNNING, M.D.

New York, N.Y.

The status of the sulfonamide drugs is changing so rapidly that new and improved combinations are being produced and tried continuously. It is evident that the rapid changes are creating a demand for frequent reports of progress. This paper has been prepared in an effort to supply this demand.

It is now about six years since the introduction of the sulfonamide group of drugs to the realm of medical and surgical practice. During this period the various types of sulfonamide drugs have been accepted, studied, and to a certain degree correlated not only in their general action but furthermore in their action in the special fields of practice. Thus, it would not seem amiss at the present time to attempt, in the specialty of rhinolaryngology, an evaluation of this group of extremely important medicaments, both as a group and as individuals.

In the years 1936 and 1937, sulfanilamide was almost alone in representing this group, and it is not necessary to say that we knew very little of its actual mode of action, dosage, and toxicity, nor had we any actual scientific knowledge to ascertain why, in certain cases of infection, we were apparently obtaining such unusual and even spectacular results. The entire administration of the drug was not as we see it now, but based on a hit or miss method, hoping that our good results would more than counteract our complications and bad results. As time passed, other members of a group appeared, each succeeding drug being more efficacious and less toxic than its predecessor. With our improved laboratory technique we were able to follow very carefully the blood concentration and to determine more accurately the possible complications and their gravity, or lack of importance. This, in brief, is the history of the development of the so-called sulfonamide drugs.

Sulfanilamide, the first one of the sulfonamide group to be employed as a chemotherapeutic agent, was not the result of one experiment that happened overnight, but was the result of over 25 years' experimental work by such great men as Gelmo, Horlein, Dressel, Sisley, Domagk, Long, and many others. Gelmo, in 1908, was the first to synthesize sulfanilamide while working with the azo-dyes, and he gave a very accurate chemical description of it, but did not apply it experimentally or clinically. Little by little, all of these scientists added to the work of their predecessors, until 1932 when Domagk noted the potency of certain dyes in combatting streptococcus septicemia in mice. By adding an azonaphthalene ring and including the sulfonamide group, a new drug was synthesized, namely, prontosil. He therefore deserves the credit for having been the first to use the sulfonamide group in animal experiments, and it was he who first suggested the clinical application of the same. For this work he was awarded the Nobel Prize in Medicine in 1939.

Since 1937, numerous drugs of this group have been synthesized, and, in general, each succeeding one seemed to act better and with less toxicity than the last. So many of these drugs have been produced in the past five years that one must be on the alert to keep up with the advance in this particular phase of chemistry. Since sulfanilamide was first brought out, no less than 18 of these drugs have been introduced to the medical profession, namely: pronotosil, neo-pronotosil, prontosil, sulfapyridine, sodium sulfapyridine, sulfathiazole, sulfamethylthiazole, sodium sulfamethylthiazole, sulfadiazine, sodium sulfadiazine, sulfaguanidine, dodecanol sulfanilamide, sulfapyrazine, sodium sulfapyrazine, promin (para-diamino diphenyl sulfone), sulfacetimide, succinyl sulfathiazole.

In the beginning, some of these drugs were heralded as being specific for a particular organism: sulfonilamide for hemolytic streptococci, sulfapyridine for pneumococci and sulfathiazole for staphylococci.

In 1938, sulfapyridine was introduced and worked miraculously well against the pneumococcus, on which sulfanilamide had little effect. The mortality of pneumonia was greatly reduced soon after the introduction of this drug. But before long it was noticed that there were many severe and toxic manifestations following its use, especially, nausea, vomiting, hematuria, the formation of calculi, and even uremia.

Then in 1939, another great drug, sulfathiazole, was placed on the market. It was not nearly as toxic as sulfapyridine, and the internists soon discovered that it was equally as efficacious in the treatment of pneumonia as sulfapyridine. Another great advantage of this drug is that it works well on staphylococci. However, it is not nearly as effectual in the treatment of meningitis as the other sulfonamide drugs because it is impossible to obtain a sufficient concentration of it in the spinal fluid.

In 1940, sulfadiazine was produced and seemed to act well on most of the organisms—streptococcus, pneumococcus, gonococcus, staphylococcus—and to be the least toxic of all the sulfonamide drugs used prior to that time. After a wide clinical trial, it has been proven that sulfadiazine produces just as good or even better results than the earlier drugs. One great advantage it has over sulfathiazole is that it enters the meninges readily and is preferred in all meningeal infections. This is the drug of choice at the present time, and from the clinical data at our disposal today, we may safely say that sulfadiazine is just as effective in the treatment of infections caused by the abovementioned organisms as the drugs which were first heralded as being specific for them. In addition, it has the distinct advantage of being less toxic.

After two years' work, both experimental and clinical, upon its toxicity, absorption, and excretion, the majority of workers have come to the conclusion that sulfadiazine has the following properties:

1. It is readily but slowly absorbed from the gastro-intestinal tract.

2. It has fewer toxic manifestations.

3. It can be carried in the blood stream in a much higher concentration.

4. It diffuses readily into the fluids of the body attaining a concentration in the cerebrospinal fluid of about 50 per cent of that present in the blood stream.

5. Its tendency to acetylation apparently does not increase during the course of treatment and its acetylated derivative is more soluble even than the free form of the drug and quite readily excreted by the kidney.

6. It is slowly excreted and disappears from the blood slowly.

In passing, I should like to say just a few words about the following drugs also members of the sulfonamide group, though they are not of great importance to us as otolaryngologists.

1. Sulfaguanidine and succinyl sulfathiazole are two of the sulfonamide drugs used in intestinal conditions. They are given in large doses for a week or ten days before the gastro-intestinal tract is opened for resections or anastomosis. The incidence of postoperative peritonitis has been reduced tremendously since these drugs have been used, as they make the gastro intestinal tract practically sterile.

2. Dodecanol sulfanilamide and promin are used in tuberculosis.

3. Sulfapyrazine recently came from the Middle West and acts very much like sulfadiazine. It has low toxicity and a wide scope of action.

There is no question that these drugs have been a great boon to the otolaryngologists in the treatment of severe infections of the nose and throat. It would take volumes even to mention the numerous and varied instances of infection in which this group of drugs is now producing such spectacular and obvious results. One particular group of five cases impresses me very vividly, in which there was infection of the upper lip and alæ of the nose, with a resulting cavernous sinus thrombosis and death. I saw this some years ago, before the introduction of this new chemical.

Consider this history as against the low mortality now observed in infections of the upper lip and nose in which the drug is properly and rigorously administered. The outlook at the present time is more favorable, and the mortality much less than it formerly has been. Naturally the drug in this type of infection should be administered before cavernous sinus thrombosis has developed, and therefore our high rate of recovery is due not to the curing of the cavernous sinus infection itself, but rather to the curing of the infection of the lip or the nose.

At this point I wish to mention the report by Schall of Boston in which he gave an account of the recovery in 3 consecutive cases, from full-blown cavernous sinus thrombosis in which he used the sulfonamide drugs in conjunction with heparin. This is a decided advance in therapy when we remember that Grove came to the conclusion that septic cavernous sinus thrombosis was 100 per cent fatal.

Most acute infections of the throat respond amazingly well to proper use of this drug, particularly if they are seen early before an actual abscess has occurred. And I think that all of us are cognizant of its value in such conditions as acute fulminating tonsillitis and similar conditions which form such a large part of our work. The general practitioner has been quicker to recognize the value of these drugs and probably prescribes them more frequently than the specialist, although it is possible that the cases treated by him are more carelessly chosen.

We must always keep in mind the value of these drugs in other infections involving the nose and throat, such as deep infections of the neck, erysipelas, Ludwig's angina, suppurative sinusitis, laryngotracheal bronchitis, edema of the larynx and meningitis.

We must be less enthusiastic in their use alone where there is actual abscess formation, such as retropharyngeal abscess or orbital abscess. However, in spite of the above-mentioned facts, it must always be borne in mind that these drugs do not take the place of surgery and while there are scattered reports of apparently surgical cases getting well without surgical intervention, we know from actual experience that the greatest efficiency of these drugs is obtained when they are used in conjunction with proper surgical procedure.

When these drugs are indicated in serious infections they should be given early and in large doses to bring the blood concentration up to the desired level in as short a time as possible. In cases where sulfanilamide, sulfapyridine, or sulfathiazole is given, the concentration should be between 8 and 12 mg. per 100 cc., but in the case of sulfadiazine, it should be higher—between 15 and 20 mg. per 100 cc. In two of our pneumococcus type III meningitis cases, when the patients were very sick, we kept their concentration up to 40 and 45 mg. per 100 cc. respectively, and they showed no ill effects from the drug, and both patients recovered. Owing to the slow absorption of sulfadiazine (it takes several hours before there is much of it in the blood stream) it is well to give sodium sulfadiazine intravenously, which shows up in the blood in ten or fifteen minutes, at the same time starting sulfadiazine by mouth. The first dose should be 60 or 80 grains, followed by 15 or 20 grains every four hours. In very bad cases 60 grains every six hours should be given intravenously and the same amount by mouth for the first few doses. As the infection subsides the dosage is cut down.

For the past year, it has been our custom in laryngectomy cases to give 15 grains of sulfadiazine every four hours for a week before the operation. This seems to cut down the suppuration and infection in the neck considerably. We have also discontinued the through-and-through drainage in the neck in these cases. Instead, the wound is left open and sulfanilamide powder is dusted into it. This acts better than sulfathiazole as the latter cakes too much. One piece of large plain packing is placed in the wound. This is changed daily, and sulfanilamide is dusted in.

Since using the drug in these cases, the wounds clear up much more quickly than formerly, and the convalescence is shortened.

Every physician prescribing the sulfonamide drugs should be familiar with the toxic reactions that may follow their use. The following conditions may occur: hematuria, renal colic, calculi or complete suppression of urine, anemia, granulocytopenia, hepatitis and jaundice, dehydration and acidosis, drug rashes, conjunctivitis, psychosis and neuritis.

The most frequent toxic reaction following sulfadiazine is hematuria, although there may be more serious kidney complications, such as anuria, calculi or even uremia. The incidence of kidney damage during sulfonamide therapy can be greatly reduced by forcing fluids and alkaline the urine, because the sulfonamide crystals are more soluble in alkaline urine. Leukopenia and granulocytosis occasionally occur following the use of sulfadiazine. When these occur, stop the drug.

In all severe infections, use the drugs boldly without too much fear of the toxic complications, as only about 10 per cent of the cases receiving the sulfonamide drugs have any complications. Give adequate fluids. Formerly, fluids were restricted, but we now know that a considerable amount may be given, providing the concentration is up to the proper level.

CONCLUSIONS.

1. Do not use the drugs in any condition in which dangers of toxicity are greater than the dangers of the disease.
2. Give large doses boldly and early in the disease.
3. If no improvement is noted in 72 hours, stop the drug.
4. Have blood concentration, blood count and urinalysis done every 48 hours.
5. These drugs are a valuable adjunct to surgery but are not to take the place of surgery.

(*Annals of Otology, Rhinology and Laryngology.*)

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Extracts

TREATMENT OF ASTHMA BY NICOTINIC ACID.

BY G. MELTON, M. D., M. R. C. P.

*Late Senior Resident Physician, Lewisham L. C. C. Hospital,
• Physician, Dudley Road Hospital, Birmingham.*

Maisel and Somkin (1942) have recently published a preliminary report on the treatment of the asthmatic paroxysm with nicotinic acid. Relief of the paroxysm was obtained in 21 out of 30 cases treated with the drug, either by intravenous injection (16 out of 21 patients relieved) or orally (5 out of 9 patients relieved). Eighteen patients who had received intravenous therapy were subsequently given the drug orally, and 11 of these cases were definitely improved. Neuwahl (1942), who had obtained satisfactory results with the drug in angina pectoris, also used it in 7 cases of asthma in order to note its action on smooth muscle. Of his patients 4 were improved and 3 were made worse. It is not known whether the drug acts by relieving bronchospasm or by affecting the pulmonary vessels, or whether it is converted into or liberates another substance which is the physiologically active agent.

TREATMENT OF THE PAROXYSM.

Of 19 cases which received treatment during the paroxysm 7 had had slight or no relief from adrenaline or had relapsed. Most of the attacks treated were severe ones. The possibility was considered that improvement following the treatment might be due to psychological influences associated with coming into hospital and receiving injections and an attempt was made to control this factor by giving an intravenous injection of sterile water, preferably before nicotinic acid, to 12 of the cases. In some instances a control injection was given in a latter attack. The effect of the control injection was then compared with that produced by nicotinic acid. Slight transitory improvement was noted in 7 cases after the use of sterile water. Two patients not included in this series had their attacks completely relieved though they did not receive nicotinic acid. In order to be sure of a rapid action, nicotinic acid was a rule given intravenously one in doses of 50 mg. (half those used by Maisel). One ampoule was dissolved in 10 c. cm. of sterile water and the injection, was given very slowly. Two cases received intramuscular injections, and in one of these the dose employed was 100 mg. One case received 50 mg. intravenously and 50 mg. intramuscularly. A second intravenous dose was given to many of the patients during a relapse or a succeeding attack, sometimes within a few hours of the first dose. Six cases, 4 of which had already received nicotinic acid intravenously, were given the drug orally in doses of 50 or 100 mg. (1 or 2 tablets) during a paroxysm.

Result.—The effect of nicotinic acid in 16 of these patients was to produce definite improvement in at least one of the attacks for which the drug was given. In 8 cases the relief was practically complete; in the other 8 there was a residual wheeze for many hours. In all cases adventitious sounds persisted in the lungs—a fact noted by Maisel. Improvement usually began to manifest itself within a few minutes of the injection, the patient falling asleep in many instances and awaking the next morning much relieved. The duration of relief varied considerably and did not always appear to be dependent upon further doses, parenteral or oral. The period of relief was sometimes as short as half an hour, but in other cases there was no further attack for some days, even when the attacks had been frequent before admission. On the whole a relief of several hours was obtained. Further injections sometimes repeated the improvement resulting from the first one, but in 5 cases later injections resulted in little or no relief. This suggests that in some instances the efficacy of nicotinic acid is affected by repeated use, contrary to what is stated by Maisel. It is of course possible that the smaller dosage employed by me might in part explain this difference. Two cases were not improved at all by nicotinic acid. Neuwahl refers to severe exacerbations of asthma which occurred in 3 of his cases. The effect was also seen in 2 cases of this group. One case developed a status asthmaticus 24 hours after an intravenous injection which had given considerable relief and had been followed 20 hours later by an oral dose.

Flushing, tingling, and a feeling of heat appeared within a few minutes of the administration of nicotinic acid and these symptoms were often pronounced and preceded improvement of the asthmatic attack. Occasionally headache, giddiness, depression, palpitations, and increased tightness of the chest were noted. As Maisel observed, improvement sometimes follows about of coughing.

TREATMENT BETWEEN THE ATTACKS.

In 30 cases many of which had severe and frequent paroxysms not controlled by ephedrine or stramonium, nicotinic acid treatment was given between the attacks for periods varying from a few weeks to several months. Of these patients 11 had received treatment previously during an acute paroxysm. The drug was given orally generally in doses of 50 mg. two or three times daily. Some cases received 100 mg. particularly on retiring. Children usually received half these doses. It should be noted that Maisel employed oral doses of 200 mg. 3 times daily before meals and once on retiring, but no mention is made over what period such dosage was given.

Results.—The results from this treatment were on the whole favourable. Sixteen cases showed definite improvement as compared with their recent condition before beginning nicotinic acid. This improvement was characterized by a definite reduction in

either the frequency or the severity of the attack and often by both these factors. The period of improvement varied considerably, from a few weeks to several months. Ten other cases showed slight improvement, assessed on the basis of a reduction in the attacks or upon the fact that relapse occurred within two weeks of starting treatment. In 4 cases no material change resulted from nicotinic acid therapy. In 9 cases courses of nicotinic acid were alternated with courses of citric acid tablets, the latter acting as a control. The patients were not informed that any change over to different tablets had been made. In 6 of these cases the effect of nicotinic acid was definitely superior to that produced by the control tablets, the patients generally showing an early relapse when receiving the latter. Two cases, however, were maintained on the control tablets for many months with infrequent attacks. Six cases relapsed rapidly when they were taken off nicotinic acid and received no treatment.

Flushing and the other symptoms produced by nicotinic acid were often present in this group, and two patients abandoned their treatment because of unpleasant effects. It should be noted that several patients in whom the effect of nicotinic acid had worn off responded subsequently to adrenaline and ephedrine, but some were refractory to all treatment.

(*The British Medical Journal.*)

CAUSTIC SODA BURNS: THEIR PREVENTION AND TREATMENT

BY H. TERRY, M.B., CH.B.

I.C.I. (Alkali) Ltd.

Caustic soda burns are very common. Every day the use of caustic soda is increasing in various manufacturing processes with the war time industries. There is a demand for information on the best way to prevent or deal with the injuries that may result to the workers, and this article is an attempt to satisfy that demand. It is based on thirteen years' experience in a works where many tons of caustic soda are manufactured every day.

Previously, caustic soda burns were treated by the application of bicarbonate of soda—with the intention that it should react with the caustic soda to form carbonate of soda—followed by washing with plain water. The results of this old established treatment were unsatisfactory.

Caustic soda burns of the eye formerly were washed out with boric acid solution for 2—5 minutes at the time they happened. This was also highly unsatisfactory.

PREVENTION

The process involving the use of caustic soda should be made when possible, a closed process, so that workers can not come in contact with the substance. Pools of caustic soda on the ground or leaking pipes, tanks, etc. should not be allowed.

The part of the body affected with the contact with the caustic soda should at once be drenched with a current of neutralising solution, not by immersion or compresses.

At first sight a weak solution of an acid such as citric acid, acetic acid, or hydrochloric acid appears to be a satisfactory neutralising medium; but weak acids, if used as irrigants, might react with the tissues as well as with the caustic soda. Ammonium chloride, on the other hand is a neutral salt that will not react with the tissues but only with the caustic soda with which it makes contact, instantly neutralizing it, with the formation of sodium chloride and the release of ammonia, which is washed away by the bulk of the unchanged irrigating solution.

CAUSTIC SODA BURNS OF THE SKIN

Throughout the caustic soda plant are placed large aspirators, each containing 5 gallons of 5 per cent solution of ammonium chloride. If a man gets caustic soda, solid or liquid, on his skin or clothing he runs to the nearest aspirator and releases a deluge of the solution on the part affected.

If there has been such delay in the application of the ammonium chloride that destruction of the epidermis has taken place, and there is in fact a burn, the part should be drenched with a current of ammonium chloride solution for 10 to 15 minutes and then with plain water or normal salines for one hour continuously. It is then treated as a heat burn. Deep caustic soda burns are treated by obtaining a firm crust by the application of the tannic acid compress and, after this has formed, applying blue paint (1 part brilliant green, 1 part crystal violet, 99 parts rectified spirit and 99 parts water.)

CAUSTIC SODA BURNS OF THE EYE

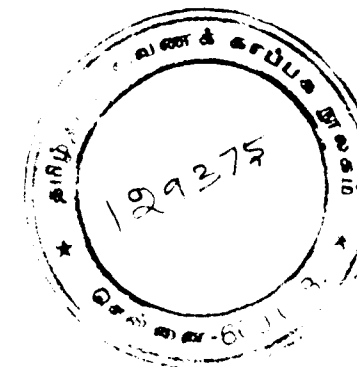
To prevent these, the wearing of properly designed and well-fitting goggles should be compulsory. Eyewash bottles containing 5 per cent ammonium chloride solution should be available every few yards in caustic soda plant.

If a man gets caustic soda in the eye, first aid must be given without delay. The firstaider must take a washbottle from the nearest cupboard and, parting the eyelids with the finger, flush the eye with the solution. Then in the surgery the eye must be irrigated continuously for one hour by the clock. Irrigation must be performed for the first five minutes with 5 per cent ammonium chloride solution and for the rest of the hour with boric-saline solution. Care is taken that inferior fornix, superior fornix and inner and outer corners of the eye are well irrigated.

This irrigation of one hour's duration is of supreme importance, and must be started at once.

Then the eye is irrigated with warm boric-saline for 5-10 minutes three or four times a day and a blunt-pointed glass rod loaded with soft boric ointment is passed first of all between the upper eyelid and the eyeball and then between the lower lid and the eyeball. This prevents symblepharon. Atropine drops, argyrol solution (20 per cent) or hot fomentations are used where ever indicated.

(British Medical Journal.)



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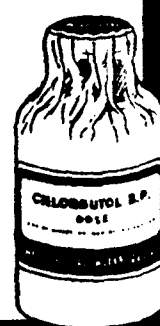
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Medical

News and Notes.

The Executive Committee of the Medical Council of India at its recent meeting presided over by the President of the Council, Dr. Bidhan Chandra Roy, considered the question of providing further facilities to those medical practitioners, for example the Licentiates who though registered with the Provincial Medical Councils yet desire to obtain qualifications recognised by the Indian Medical Council. The Committee recommended to the Council that during the present war and for a period of three years thereafter, the passing of the Senior Cambridge examination might be recognised as satisfying the Council's requirements regarding preliminary qualifications for entrance to medical studies; provided that in the case of those who have held Commissions in His Majesty's Indian Land Forces, the Council's requirements regarding the Preliminary qualifications might be waived altogether. In order to obtain these recognised qualifications such practitioners would be required to pursue a further course of study at a Medical Institution for 24 months or 2 academic years.

Amongst other matters the Committee considered also the question of according permanent recognition to the M.B., B.S. degree granted by the Osmania and Mysore Universities with a view to establishing schemes of reciprocity with the Hyderabad State Medical Council and Mysore Medical Council.

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No. 11.

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MEDICO-SURGICAL SUGGESTIONS

(Established 1932.)

VOL. XII

NOVEMBER 1943

NO. 11

THE ETIOLOGY AND TREATMENT OF FUNCTIONAL UTERINE BLEEDING.

JOHN W. HUFFMAN, M. D.

Chicago

"Functional uterine bleeding" is a symptom, not a disease; nonetheless it is exceedingly important clinically, and I have therefore chosen it as a topic for discussion.

Because considerable confusion and some laxity have existed in the use of the term functional uterine bleeding it seemed worth while to scrutinize the records of patients with this diagnosis. Several years ago, therefore, I began a project in which records were kept of private and dispensary patients with a diagnosis of functional uterine bleeding. The cases were separated into two large groups: 1. those patients who were subjected to surgery on the Gynecological Service of Passavant Memorial Hospital, and 2. those non-operated patients who had a sufficient work-up and a long enough follow-up to warrant a definite impression as to the cause of their bleeding. As a result of these records, factors inducing functional uterine bleeding have been classified and certain impressions have been arrived at relative to therapeutic indications and values.

The classification is as follows:

FACTORS IN THE ETIOLOGY OF FUNCTIONAL UTERINE BLEEDING.

Extrinsic (abnormalities outside the physiological mechanism causing menstruation)

Mechanical

Uterine displacements

Ovarian prolapse

Pelvic congestion

Varices

Impaired ovarine circulation

Inflammatory

Acute pelvic infection

Residuals of pelvic infection

Adherent ovaries

Tubo-ovarian inflammatory masses

Pelvic adhesions

Adherent uterine displacements

- Traumatic
 - Ovarian resection
 - Ovarine displacements
 - Impaired ovarian circulation
- Systemic Disease
- Endocrine
 - Disturbances of the thyroid gland
- Intrinsic (disturbed by physiological mechanisms)
- Ovarian
 - Persistent follicles
 - Defective corpus luteum
- Pituitary dysfunction

The physiological mechanism precipitating normal uterine bleeding (menstruation) is hormonal in character. The pituitary gland, the ovaries, probably the thyroid, and perhaps the adrenals are involved in producing the cyclic changes which culminate in a necrosis of the endometrium and a discharge of blood from the uterus at approximately monthly periods between puberty and the climacteric. Most women menstruate moderately for from three to six days at intervals of twenty-two to thirty-five days: intervals of less than three weeks and bleeding of more than seven days is considered abnormal. While the amount of blood lost is variable, few women during the menstrual period require daily more than four or five of the pads now marketed; a sudden discharge or gushing of considerable quantity of blood is not normal.

It seems logical that two intrinsic disturbances of the mechanism causing menstruation are most apt to occur which will make functional uterine bleeding: 1. Failure of the pituitary gland to bring about the proper sequence of events in a normal ovary so that its cycle is not completed, with consequent continued elaboration of estrogen, and 2. failure of the ovary to respond to normal gonadotropic stimulation, the follicular cycle again not progressing through normal phases. In both instances either an unruptured follicle continues to produce estrogenic substance in varying amounts, or a defective corpus luteum fails to bring about normal shedding of the endometrium.

Functional uterine bleeding, originating from disturbances within the physiological mechanism which makes normal menstruation, tends to develop at the two extremes of sexual life,—adolescence and the menopause. It is at these two periods, first at the establishment, secondly at the cessation of ovarian activity that abnormalities of the hormonal rhythm tend to occur most often. It is unfortunate that in these cases quantitative hormonal assays are too uncertain to enable us actually to determine whether ovarian or pituitary dysfunction is causing bleeding.

Functional uterine bleeding arising from mechanical, inflammatory, and endocrine disturbances outside of the physiological mechanisms of normal ovarian function may occur at any age but are seen most frequently in women in the third and fourth decades of life when sexual activity is greatest. During these years the machinery of gonadal activity is running smoothly and extrinsic influences are required to disrupt it. The basic disturbances in mechanical, inflammatory, and traumatic lesions are essentially the same: there is a failure of the ovary to go through normal cycles because its function has been disturbed by impaired circulation or injury.

So-called "Swiss cheese" hypertrophy of the endometrium is sometimes observed in cases of functional uterine bleeding. This hypertrophy is not, however, pathognomonic of functional flow, for it has been reported as being discovered in fetal endometria, in the endometria of women with normal menstrual cycles, and in non-bleeding post-menopausal uteri. That such a state of the endometrium is not necessarily a concomitant of functional bleeding is evidenced by the fact that of the 50 cases of intrinsic bleeding in this series, only 18 had so-called hyperplasia of the endometrium. Endometrial hyperplasia was noted in 46 of a group of 192 women whose functional uterine bleeding was due to extrinsic factors.

Mechanical factors which disturb ovarian physiology and produce excessive flow were the commonest cause for functional uterine bleeding among all of the women who were observed in this study. (Table 1.) In the age group between 20 and 42 the preponderance of mechanical causes for functional uterine bleeding was more marked than in the group as a whole. The most frequently discovered lesions were those in which the ovaries had been dragged into the deep pelvis by a retrodisplaced uterus. These ovaries became edematous, large, cystic, with pallid tunica albuginea. The ovarian and broad ligament veins became tortuous, dilated, and varicosed in a manner comparable to the formation of varicocele in men. It was not uncommon to find the suspensory ligament of the ovary a mass of

TABLE I

Etiologic Factors in 242 Cases of Functional Uterine Bleeding

Operated Cases	...	...	...	114
Extrinsic Factors	...	...	...	105
Mechanical	...	...	...	54
Inflammatory	...	...	...	22
Traumatic	...	...	...	20
Systemic	...	...	...	0
Endocrine	...	...	...	9
Intrinsic Factors	...	...	...	9

Non-Operated Cases	...	...	...	128
Extrinsic Factors	...	...	...	87
Mechanical	...	...	...	23
Inflammatory	...	...	...	11
Traumatic	...	...	...	16
Systemic	...	...	...	7
Endocrine	...	...	...	30
Intrinsic Factors	...	...	...	41

medusa-like pencil-size veins, the whole ligament several centimeters in diameter, purplish red, edematous, and congested. Such a condition must inevitably result in impairment of ovarian circulation and ovarian dysfunction. Uterine descensus and abnormal relaxations of the uterine supports dislocated the ovaries in the same fashion as did retrodisplacements and were likewise sometimes associated with functional uterine bleeding.

Pelvic infection (both gonorrheal and non-specific) was second only to mechanical disturbances among the extrinsic causes of functional uterine bleeding among the operated cases. It is common to see moderate prolonged flow during an acute inflammation, induced by pelvic congestion and an acute oophoritis associated with a pelvic peritonitis. After the inflammatory processes have abated, adhesions entangle the ovaries. The latter fall behind the broad ligaments and become adherent. Cicatricial changes pucker the ovarian tissues, and thicken the tunica albuginea. The uterus, sagging backward because of congestion at the time of the acute infection, becomes fixed in retrodisplacement and the ovaries prolapse with it. Inflammatory cysts or areas of induration often form involving not only the ovaries but also the uterine tubes. As a result of these changes ovarian function is impaired and the follicular cycles are disrupted.

Traumatism may change ovarian physiology so that functional bleeding results. Scar formation following ovarian resection may make it impossible for the ovarian cycle to progress in normal fashion. Displacement of the ovaries particularly after salpingectomy or improperly performed suspension operations is a common cause of ovarian dysfunction. Likewise, damage to ovarian circulation through constriction of the suspensory ligament of the ovary is a prelude to cystically diseased ovaries.

Systemic diseases will sometimes produce uterine bleeding without evidence of an organic lesion in the uterus or ovaries. Although this flow is not truly functional, it is included here because of the frequency with which it is confused with true functional bleeding. Anemias, especially the type in which there is an abnormal decrease in the platelet count (thrombocytopenic purpura), may be associated with severe hemorrhage. Hypochromic microcytic anemia, often

encountered in women who have been suffering from metromenorrhagia, is more often the result of the hemorrhage than an etiological factor causing the bleeding. It is essential that the attending physician be ever mindful of the possibility of an underlying hidden cause for abnormal uterine flow which at first glance appears of "functional etiology."

Endocrine factors of other than pituitary-ovarian origin which produce excessive uterine flow, should, perhaps, be classified with the intrinsic causes of functional uterine bleeding. However, as yet, the relationship of the endocrine glands to normal ovarian function is not sufficiently understood to warrant such a step. The thyroid ovarian interrelation, evidence of which is often seen clinically, is probably not a direct association. It has been suggested by Hamblen and his co-workers that the hypometabolism of thyroid failure results in a "slowing down" of ovarian activity. It is logical to assume that, with the decrease in metabolic activity in the body as a whole which is a concomitant of thyroid deficiency, there should be, a decrease in the activity of the gonads. The gonads, however, appear to have a higher degree of sensitivity to this metabolic disturbance than does the rest of the body, for many of these women evidence no symptom of lowered metabolism other than their functional menorrhagia.

In the group of women in the series reported herewith who were under forty years of age and who were not operated upon, the discovery of a lowered basal metabolic rate and a high blood cholesterol level was common. The efficacy of thyroid substance in treating this group was most gratifying; it must be administered under basal metabolic rate control, to the limit of the patient's tolerance, and must be given continuously for long periods of time. Some of these patients will require thyroid substance throughout their lives.

Treatment. After reviewing the many causes for functional uterine bleeding as outlined above, it is evident that general statements cannot be made regarding treatment. When bleeding is due to disturbances of function resulting from extrinsic factors, treatment is directed toward correction of the underlying etiologic factor responsible for the flow. When there is an intrinsic cause for the flow an attempt should be made to regulate the disturbed mechanism responsible for the bleeding; occasionally, however, in both instances, the age or the condition of the patient warrants other measures.

Treatment of functional uterine bleeding due to mechanical factors necessitates individualization. In a young woman an attempt should be made to replace the uterus and support it with a pessary in an effort to prove that the prolapsed ovaries associated with the retrodisplacement were the cause of the bleeding. Unfortunately, frequently, normal ovarian function returns too slowly to make such

a therapeutic test of much value. While the dictum that symptomless retrodisplacements should be left alone is a wise one, nevertheless, when cystic ovaries and uterine bleeding are associated with a heavy retrodisplaced uterus, operative replacement of the uterus and elevation of the ovaries to a normal position is warranted. At the time of the replacement operation it is imperative that every means be taken to protect the ovarian circulation and to return the ovaries to the ovarian fossæ; undue snugness of tissues should be avoided; proper support of the uterus by suture of the uterosacral ligaments, advancement of the bladder, combined with the Baldy-Webster shortening of the round ligaments, as advocated by Arthur H. Curtis, should be done. Shortening of the utero-ovarian ligaments, may also be necessary to give the ovaries adequate support. In older women, or where childbearing is not a factor, removal of the supravaginal portion of the uterus is often the wisest course.

Uterine descensus of considerable degree usually occurs in older women and produces other symptoms in addition to bleeding. Bearing down and dragging discomfort with symptoms referable to an associated cystocele and rectocele often accompany downward displacement of the uterus. In such instances hysterectomy at the time of the vaginal procedure is worthy of consideration.

Good judgment suggests that non-surgical therapy, even if effective when administered month after month, is unlikely to result in other than temporary relief of bleeding caused by ovaries deranged by scarring and adhesions. As a general rule these patients have been sterilized by an infection. Bleeding and usually some pain are their chief complaints. Endocrine therapy may improve their condition temporarily but surgery is usually the best recourse. Removal of a bleeding uterus (whose ambition to harbor a gestation can never be realized), freeing of adhesions and entangled ovaries, and excision of unhealthy tissue, is at times a more conservative course than prolonged attempts to control the flow by less heroic measures. At the time of the operation "radical conservatism" should not be indulged in. It is to be remembered that the bleeding comes from the uterus and that ovarian function which has been impaired by old inflammation can rarely be improved by surgical procedures upon the ovary.

It is essential that mention be made of the distressing frequency with which patients are seen who complain of uterine bleeding and whose history elicits the fact that in the past a bilateral salpingectomy had been performed because of tubal disease and the uterus left in situ. Ovarian disease incident to the surgery or to the old inflammation subsequently caused functional uterine bleeding. It would have been far better to have performed a supravaginal hysterectomy or defundation at the time of the tubal operation.

The treatment of ovarian traumatism is preventative. At the time of pelvic surgery every effort should be made to avoid distortion of the ovaries or impairment of their circulation. Re-section of the ovary, while occasionally required, is an unhappy necessity which should be resorted to with reluctance.

In the adolescent and the woman of child-bearing years it is imperative that an attempt be made to reestablish a normal physiological mechanism in the ovary. Theoretically this should be possible through the administration of pituitary substance. Unfortunately, the present available preparations of anterior pituitary and anterior pituitary-like substances have been, in my hands, failures in the treatment of functional uterine bleeding. It was hoped that extracts of the serum of pregnant mares would be more effective than the previously used chorionic gonadotropins and whole pituitary products. This hope has not been realized. Hamblen and his co-workers have reported the value of the combined chorionic and equine gonadotropins in the treatment of functional metrorrhagias. I have been unable to duplicate their success.

The use of the ovarian hormones estrogen and progesterone in the treatment of functional uterine bleeding is basically unsound. Continued abnormal secretion of estrogens in itself is a cause for excessive flow. The administration of estrogens may inhibit the pituitary so that there will be a temporary decrease in abnormal bleeding. Once the estrogen has been withdrawn, however, the flow recurs more profusely than ever. Progesterone, in dosages up to 40 mgm. weekly, has failed to inhibit functional bleeding when given to some of the patients in the series reported herewith. Neither estrogens nor progesterone affect the ovary nor the dysfunction causing the trouble except through whatever pituitary inhibition they may cause.

Thyroid substance is of great value as a therapeutic agent in these cases even in the absence of a demonstrable hypothyroidism. Daily doses given with caution under basal metabolic rate control and with due regard for the development of evidences of overdosage, will often decrease functional menorrhagia. Although the modus operandi is not fully understood, apparently the stimulating effect of thyroid substance upon the cellular metabolism of the gonads is comparable to that upon body metabolism as a whole.

Androgenic therapy is the most worthwhile non-surgical agent now available for the treatment of functional uterine bleeding arising from intrinsic causes in younger women. As a result of effective pituitary inhibition following the administration of male sex hormone the ovarian cycle is brought to a halt, the ovarian activity temporarily ceases, and bleeding stops. The advantages of male sex hormones are its effectiveness, its safety when properly administered, the preservation of whatever reproductive ability the woman

possesses, and the avoidance of operative procedures. The disadvantage is the danger of producing temporary masculinizing changes in women when testosterone propionate is improperly administered. These dangers have unfortunately been overemphasized. It should not be given to women with androgenic characteristics and the dosage should be restricted to 25 mgm. every other day for a total of not more than 350 mgm. 400 to 500 mgm. is the masculinizing level for most women. After using testosterone propionate in many cases of functional uterine bleeding during the past five years, in adherence to the above mentioned precautions, I have seen but one incident where masculinizing changes caused any concern, and in that instance the changes disappeared shortly after cessation of treatment. When ovarian activity begins following cessation of the administration of male sex hormones, frequently normal menstrual cycles become reestablished. This is true, however, in only some of the patients treated. It is preferable therefore to consider androgenic therapy as inhibitory rather than curative. Testosterone propionate can nevertheless, be given in course of 300 mgm. each several times yearly for many years without ill effect. Among my patients are three women who have received androgenic therapy for five years without any evidence of undesirable reaction. One of them has received a total dosage of 7575 mgm. during five years of treatment.

Occasional reports of the value of snake venom in stopping metrorrhagia have appeared in the literature. Insulin has been considered of value. Styptics and oxytocics are widely used. None of these agents correct the cause of the flow and few of them relieve it other than momentarily.

Liver therapy, high protein simple diets, rest, sunshine, and other supportive measures are of unquestioned value, not specifically but because of the constitutional improvement they produce. In rare instances blood transfusion, made necessary by a profound anemia, will be followed by cessation of abnormal flow.

Intrauterine radium applications in adequate dosage stops functional uterine bleeding. It achieves this effect by producing ovarian and endometrial atrophy. Its use, as a general rule, should be restricted to women of the menopausal age group. The intrauterine application of radium in women under 42, if given in small doses as often recommended, may make permanently malfunctioning ovaries, produce partial menopause and be followed months later by an atypical uterine flow as annoying as the original bleeding.

Intrauterine radium is the simplest and most satisfactory method of treating excessive bleeding of a functional type in women over 43 years of age. It should always be preceded by a diagnostic curettage and a painstaking examination under anesthesia to rule

out organic causes for the flow. 1800 milligram hours is an average adequate dosage.

The use of x-ray irradiation either for the purpose of inhibiting ovarian activity or for alleged stimulating effects on the hypophysis and ovaries is of questionable merit. Intrauterine radium radiation of the ovaries is more effective than x-ray if ovarian atrophy is desired. That the x-ray is capable of producing "stimulating" effects upon the hypophysis and ovaries is still subject to question. Like radium therapy, x-ray treatments should be preceded by a diagnostic curettage.

Curettage is not a treatment for functional uterine bleeding. The flow will stop following curettage for several weeks, but it will then commence again. It is imperative, however, that women in the older age groups be curetted prior to instituting any type of treatment for their bleeding. This should be done to rule out hidden intrauterine tumors. Repeated meticulous examinations searching for missed intra-abdominal and systemic disorders should be made repeatedly in all groups of women who suffer from functional uterine bleeding.

CONCLUSIONS

Two hundred and forty-two women suffering from what had been diagnosed as functional uterine bleeding have been observed during the last several years. An attempt has been made to determine the etiological factors causing their bleeding and to form impressions as to therapeutic indications and values in the management of their problems. The etiologic factors were divided into causes outside of and within the physiological mechanisms producing normal uterine flow (menstruation). It was found that mechanical and endocrine disturbances (not including those of the pituitary-ovarian relationship) were the most common extrinsic factors in making that type of uterine hemorrhage which arises from disturbances of ovarian function outside the physiological mechanism causing menstruation. So-called true functional uterine bleeding arises from intrinsic disturbances of the pituitary-ovarian relationship. These occur most often at the extremes of sexual life and are due to either pituitary or ovarian dysfunction. In reality it is probable that they are fairly rare and that close scrutiny will place more and more patients in the group whose bleeding is of extrinsic origin. A clinical diagnosis of functional uterine bleeding should not be made, except in rare instances, without an explanation of its etiology. Functional uterine bleeding as such is not a clinical entity; It is rather a symptom of one of a number of varied organic or endocrinopathic states.



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AL 161.

TREATMENT OF CONGENITAL SYPHILIS

BY M. P. VORA, M.B.B.S.

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1. There can hardly be controversy about the urgency of expert pediatric care in the treatment of infants and younger children. This holds true even in the treatment of congenital syphilis.

2. *Prophylaxis*—Congenital syphilis is a preventable disease and the method of its complete eradication is well known. It hinges on, firstly, the prevention of infection of mothers, secondly, on the diagnosis of syphilis early in pregnancy, at least by the fifth month, and, thirdly, on the energetic prenatal treatment of the syphilitic mother with trivalent arsenic and bismuth. Yet, and, indeed, it is very unfortunate—, a number of syphilitic babies are born every year and still a greater number of pregnancies end in either abortion, miscarriage or still-birth.

Necessity to control the transmission of infection to mothers will be obvious when one remembers the fact, that in most cases the father has contracted syphilis and has passed on the infection to the mother, who gives birth to a syphilitic infant. The prevention of infection of mother's is possible, first, by instituting prompt, intensive and thorough treatment of all cases who contract syphilis, secondly, by discouraging marriages until a clean bill of health has been given, thirdly by preventing conception, if already married, until all clinical evidence of disease has disappeared. If conception has already taken place, early diagnosis and treatment of the mother, as stated below, is indicated.

The early diagnosis of syphilis in pregnant women can be made easily in majority of cases by taking a careful history and employing serological tests, as a routine, preferably before the third month and if negative, repeated at the fifth and the seventh months to spot out those cases of syphilis following conception. The clinical characters of syphilis are either modified or completely masked during pregnancy; physical examination alone, therefore, cannot be depended on to disclose the disease. From this point, the importance of a routine serological test of pregnant women at every antenatal centre cannot be over estimated.

The chief aim of the treatment of syphilis in the pregnant woman is to prevent infection of the foetus: and experience has amply shown that antisyphilitic treatment given to the pregnant woman can in good many cases either eradicate or modify the germ in the foetus. Unless the syphilitic woman receives sufficient treatment during her pregnancy, the chances of her passing on the disease to her unborn baby are substantially great. Therefore, injections of trivalent arsenic and bismuth are arranged in such a way that delivery of the infant is immediately preceded by at least eight

to ten weeks' administration of arsenic. Authorities go a little further than this and recommend a minimum of twenty injections of trivalent arsenic before delivery. Earlier the diagnosis is made, sufficient time at one's disposal to carry out adequate treatment. A later diagnosis leaves fewer weeks for the treatment. Where it is necessary, because of the limited time, to shorten the treatment, the major part of the cutting should be on the bismuth and to arrange so as to complete the administration of 8 to 10 injections of arsenic before delivery. To do so, the intervals between two successive injections may have to be reduced from usual seven days to five or even four days, especially, in view of the urgent need to be certain of preventing syphilis in the child. The pregnant syphilitic woman should be treated as intensively as her tolerance will permit. Generally she tolerates antisyphilitic therapy fairly well; but this does not relieve one of one's duty to watch the patient carefully. She should always be observed and studied for the earliest signs and symptoms of intolerance. Minor signs of intolerance are valuable indications for reduction of the subsequent doses and lengthening of intervals.

3. *Early detection and early treatment of congenital syphilis.*

The duty of the physician does not terminate with the adoption of prophylaxis. It is further necessary to keep under close observation the newborn and examine it repeatedly until he is satisfied that it has escaped infection; for, it is frequently difficult to eliminate completely, during the first few weeks, the possibility of its having syphilis. Syphilitic infants born of treated mothers or the offsprings of parents who have long-standing syphilis, rarely show evidence of inherited syphilis at birth or during infancy and childhood but may develop syphilitic disease later in life. Just as in adult syphilis, the longer the infection has existed, the harder it is to eradicate the disease from the body, and greater the likelihood there is of permanent damage. The possibilities of preventing the development of the syphilitic stigmata and late lesions, in a high proportion of cases, by adequate treatment of early congenital syphilis are really great. Because of the desirability of early treatment and prevention of development of late lesions (such as cranial bossing, perforation of the palate, saddle-shaped nose, iritis, interstitial keratitis, nerve deafness and Parrot's pseudoparalysis,) the diagnosis of congenital syphilis should be attempted as soon after birth as possible. This can only be done by repeated physical examination, quantitative serologic tests and X-ray examinations of the long bones for the signs of infection.

A positive serologic test on the cord-blood does not necessarily mean that the infant has syphilis. Such a test may be positive because of the reagent present in the mother's blood. Treatment of the infant on this score alone is not justified. Subsequent tests

should reveal an increasing amount of reagent in the infant's blood. If they show progressive decline in the amount of reagent or become negative, it is evident that the infant is free from infection. Positive serological tests after the second month are usually regarded as conclusive evidence of infection. Tests should be repeated at sixth month, first year, second year, at puberty and early adolescence. If all of them are negative, probably there is no infection. It is imperative that the children born of syphilitic parents or suspected of inherited syphilis should be kept under observation till they reach adult age.

Therapeutic test or administration of arsenic, bismuth or mercury, alone or in combination,—though it has been in use for a long time,—is scientifically not sound and should not be practised ordinarily. It should only be had recourse to as a diagnostic procedure when other and more accurate methods have failed to establish diagnosis. For, there are many cases of skin lesions not due to syphilis and in which arsenic or mercury is of value therapeutically. It merely masks the disease.

4. *Therapeutic problem.*—Congenital syphilis and acquired syphilis in adults do not differ very much and consequently the principle governing their treatment are more or less the same. It is therefore, necessary to make clear distinction between early and late stages in congenital syphilis, similar to those in acquired syphilis. During the first two years of infant life, there is tendency to lesions of the skin, mucous membrane and muco-cutaneous junctions. These lesions, when present in a clinical recognisable form, are typical of early congenital syphilis and are profoundly similar to those of secondary type occurring in early acquired syphilis. Early congenital syphilis, in contrast to early acquired syphilis, shows severe toxicity, marked constitutional disturbances, concomittent lesions of the viscera especially liver, spleen, kidneys and bones, and has a very high rate of mortality. This peculiar character of early congenital syphilis may be due to the wide-spread nature of the infection, which is acquired in utero and has existed for time before the child is born, or due to want of sufficient time extra-uterine for the infant to mobilise body's defensive system or both.

If the infant, unrecognised as syphilitic and therefore untreated, survives first few months, opportunity is provided to build up body's defences. It enters the period of latency of several years' duration and develops lesions of the eye, bones, the inner ears and the nervous system. All manifestations subsequent to puberty are of the tertiary or gummatous type and the risk of death is comparatively negligible.

Thus in early congenital syphilis, the aim of the treatment is two-fold; the actual preservation of life and symptomatic, clinical and biologic i.e. radical cure of the infection, if possible. Both these ends can be accomplished. In the late congenital syphilis, on the

contrary, radical cure is probably no longer attainable. The aim of treatment, therefore, becomes symptomatic relief, healing of the lesions, arrest of progress and maintenance of good health and efficiency *i.e.* symptomatic and clinical cure.

The principle of treatment of early congenital syphilis is the same as that in the early acquired syphilis, *i.e.* to replace by means of drugs the patient's own defensive mechanism. Treatment should be given, as far as possible, continuously and without any rest periods. Of course, when intercurrent disturbances are present or intolerance is noticed, the continuity of the treatment may have to be interrupted. Generally speaking treatment should start with arsenic rather than heavy metal. On account of severity of infection the chances of therapeutic shock are greater in infants than in adults. The first dose therefore, should be small *i.e.* half the average initial dose for an infant. It is better to administer smaller doses twice a week rather than to give one large dose once a week. In severe cases of the newborn where the lesions are marked, or where the infant is very young and poor in health, treatment at first must be very guarded. It will be advisable to start with mercury orally or by inunctions and later on to resort to injections; even then the improvement in the condition of the child is often remarkable. The arsenical preparation of choice is Sulpharsphenamine or the allied preparation. Sulfarsenal (A.F.D.) has small graduated doses specially designed for use in children. It can be given intramuscularly in concentrated solution, thus avoiding technical difficulties of intravenous route. Its initial dose for infants should be 1 to 1.5 mgm. per kilo body weight and gradually increased to 6 mgm. per kilo body weight, and for children 1.5 to 2 mgm. per kilo body weight increased to 8 mgm. per kilo body weight. Acetylarsen for infants (M. & B.) is another drug of proved value. Each two c.c. ampoule is equivalent to 40 mgm. of arsenic and is given subcutaneously or intramuscularly. It is less painful and less likely to give reactions. Its dose can be determined very easily and most accurately. For an infant weighing 8 lbs. (2.2 lbs.: Kg.) one may safely start with a dose of 0.2 c.c. and gradually increase to 0.5 c.c., once or twice a week. Neoarsphenamine or the allied preparation, 'N. A. B.' may be used because of the rapidity of action but it requires to be given intravenously; for that purpose a vein at the bend of the elbow or at the ankle may be selected. Its dosage is calculated on the basis of body weight. Initial dose is usually 10 mgm. or one cgm. per Kg. body weight per week, and gradually increased to 25 mgm. per Kg. body weight. Children and infants tolerate all arsenical drugs well and the toxic reactions are less frequent.

Once the gross lesions have disappeared and the condition of the child is improved as the result of arsenic, one should supplement the treatment with one of the heavy metals, mercury and bismuth.

Institution of dual therapy is essential for satisfactory results. Mercury should be used in very young and malnourished infants and children with small buttocks. It may be given in the form of inunctions, one gramme of 50 per cent mercury ointment (the size of a pea) to be rubbed daily for about 15 minutes, or hydrarg. cum creta gr. $\frac{1}{2}$ to 2, twice a day, orally. Pulvis cret. aromatic or pulv. ipecac. in elderly children may be added to the grey powder just to correct tendency towards diarrhoea. Bismuth is preferred in cases where the hips are sufficiently large to receive intramuscular injections. It is given in dosage of 2 mgm. per kilo body weight per week. One may start with 0.01 gm. and increase it to 0.025 to 0.05 gm. for an average infant and to 0.1 to 0.2 gm. for an average child at the age of twelve. Because of the small dosage bismuth preparations of weaker strength are to be selected for use. Bisantol (M. B.), Bisoxyl (B. D. H.) and Stabismol (Boots) contain 10 per cent metal *i.e.* 1 c.c. contains 0.1 gm., $\frac{1}{2}$ c.c. 0.05 gm., $\frac{1}{4}$ c.c. 0.025 gm. of bismuth metal. Iodides are unnecessary in early cases. Tonics like Syrup ferri iodidi B. P. may be prescribed in between the courses of treatment, which should proceed on the same lines as laid down for adults.

Intolerance to drugs in infants and young children is very difficult to detect unless one keeps a close observation on the general health of the child and notes the gain or loss in weight from week to week. Tolerance must not be exceeded in the least in zeal for continuation of treatment.

A fact which is forgotten too often in the treatment of syphilis, both acquired and inherited, is that the disappearance of the signs of syphilis does not mean cure of the disease. The minimum period of treatment in syphilis in general frequently stated to be $1\frac{1}{2}$ to 2 years, and it cannot be less in any case of inherited syphilis, no matter how slight the manifestations. The duration of treatment should be measured by serological control. The test should be repeated at the beginning of each course. The spinal fluid should be examined, as a routine, and should not be done until at least 6 months of active treatment are over. Treatment should be continued until blood W. R. and cerebrospinal fluid have become and remained normal for one year. The minimum amount, which authorities recommend, is five courses each of arsenic and bismuth spread over an average period of 18 months. Any modification of the suggested plan of treatment is welcome as long as it adheres to the three main principles of alternating, continuous and prolonged treatment. It is also important to prolong "follow-up" every 6 to 12 months until puberty and early adult life.

The principles of treatment of late congenital syphilis are the same as in late acquired syphilis. The aim of the treatment is symptomatic relief, maintenance of good health, relatively little emphasis being placed on the serological reversal. There is hardly

any need for continuity of treatment; the rest periods in between courses are, preferable. Therapeutic attack need not be very energetic. Individualization of the therapy is essential. With little modification of drugs and dosage the same outline of treatment as in adults may be worked out. Neoarsphenamine is the arsenical drug of choice; and bismuth is preferred to mercury generally. Injections may be given either alternately or concomitantly. Iodides are of special value in late stages of infection. The affections of the cardiovascular and nervous system are very much less common or unusual in the late congenital syphilis. The outlook is worse in cases of congenital neurosyphilis which usually occurs insidiously at the time of puberty. Tryparsamide should not be used lightly otherwise blindness due to optic atrophy may result. Prolonged treatment and follow-up should be insisted on.

(Medical Bulletin).

Extracts.

NOSE DROPS.

BY NOAH D. FABRICANT, M.D.

Chicago, Illinois.

In recent years the use of nose drops and nasal sprays for the relief of nasal congestion in acute head colds, acute sinusitis and allergic rhinitis has become exceedingly widespread. Despite the popularity of this form of medication, very few nasal preparations are marketed for public distribution with sufficient scientific forethought to produce the most effective medication possible from the materials at hand. Many nose drops still contain an undesirable oily base. Others disregard the importance of ciliary activity in maintaining efficient streaming mucus in the nose. And again, a third group omits recognition of isotonicity and the desirability of an appropriate pH factor.

OILS

In an effort to improve and develop more effective and plausible nasal preparations, the first step taken by investigators has been the substitution of an aqueous base for the oily type. The employment of an oily base is attributable to the erroneous belief that it is bland and does no harm to nasal tissues.

More than a decade ago, Fox observed that a deleterious effect on the nasal mucous membrane is produced when rabbits are treated for periods as long as nine months with intranasal sprays of mineral oil and various drugs dissolved in mineral oil. One per cent. menthol (1:100) in liquied petrolatum applied to the nasal mucous membrane caused some degenerative changes; 5 per cent. dilutions instituted definite destructive changes through all the layers of the

nasal mucous membrane; while 5 per cent. eucalyptol and 5 per cent. camphor produced a deleterious effect. Several years later Proetz found that oily mixtures are to be avoided where ciliary streaming still functions, because they interfere by lying upon the mucous blanket and are propelled with great difficulty. It is apparent, therefore, that certain types of oily solutions affect the mucous membrane and ciliary activity adversely and are unsuitable as vehicles.

The literature reveals the rapid increase in incidence of lipid pneumonia following the intranasal use of oils and the ease with which such oils may go directly from the nose to the lungs. Walsh and Cannon studied the early changes in the lungs of normal rabbits following intranasal instillation of oils and watery solutions of antiseptics, astringents and vasoconstrictors. They concluded that oily solutions, when instilled intranasally in small amounts, went quickly to the lungs and caused edema, desquamative alveolitis and focal lipid pneumonia. When mixed with living bacteria, they caused after two or three weeks, granulomatous lesions containing oil.

CILIARY ACTIVITY

The importance of ciliary action within the nose is well recognized. The lining nasal mucous membrane is covered by a thin layer of mucus, which, by the actions of the cilia, is kept moving in the direction of the nasopharynx. Any interference with the continuity of the mucous coating or with the action of the cilia will permit inflammatory organisms to gain entrance into the tissues. In treating nasal diseases it is advisable to conserve and favour, as far as possible, this natural means of mucociliary defence against organisms. It is therefore advisable to know what effect nose drops may have not only on the mucous membrane of the nose but on ciliary activity as well.

Ciliary response to the action of various drugs has been thoroughly explored by a number of investigators. A direct result of these studies has been the elimination of some of the chaos from which nasal therapy is gradually emerging. In 1934 Lierle and Moore reported that tap water and distilled water applied to the mucous membrane of the upper respiratory tract cause slowing of the ciliary beat. But when sodium chloride is added to make a normal saline solution the action of the cilia is restored and sometimes accelerated. Of the vasoconstrictors, only weak saline solution of ephedrine have been proved to cause no damage to ciliary or the flow of mucus.

All observers who have worked with adrenalin agree that this drug in a 1:100 dilution cause immediate cessation of ciliary activity. Mild silver protein in concentrations of 5 per cent. 10 per cent. and 20 per cent. produces an initial speeding of ciliary activity, but this is

followed by slowing. Silver preparations, in general, often interfere with the streaming of mucus by precipitating it on the surface of the mucous membrane. Two per cent. mercurochrome (2:100) is definitely detrimental to ciliary activity, while merthiolate causes an initial slowing of ciliary activity, with cessation after a few minutes. One per cent. thymol (1:100), 1 per cent. eucalyptol (1:160) and 2 per cent. zinc sulphate (1:50) cause cessation of the ciliary beat.

In view of the fact that the maintenance of the normal functioning of the nasal mucous membrane and the establishment of adequate drainage from the paranasal sinuses are the two cardinal objectives in the treatment of upper respiratory infection, it would appear that weak saline solutions of ephedrine in strengths of $\frac{1}{2}$ per cent. to 1 per cent. are agents of choice for intranasal medication.

ISOTONICITY

A solution is said to be isotonic when it exerts exactly the same osmotic pressure as a second fluid with which it is brought in contact. Whenever a solution is applied to the nose, unless that solution is of the same osmotic pressure or is isotonic with the surrounding secretions, or unpleasant irritation is often set up.

Stark irrigated the nasal mucous membrane with 0.9 per cent. saline, 2 per cent. saline and plain tap water and found that isotonic saline solution caused less harm than either of the other two. Elsewhere, the effects of various salt solutions on the ciliary beat have been observed. The cilia of both men and animals remain active for long periods in physiologic solution of sodium chloride, but lose their activity when more concentrated solutions of salt are used. When the saline solutions were made hypotonic, the outlines of the cilia were gradually lost and the surface became cloudy. Hypertonic solutions, as well, have been found to cause definite harm to cilia. These findings indicate quite definitely that an isotonic saline solution is the vehicle of choice for drugs to be used in the nose.

THE pH FACTOR

Newly published investigations by Fabricant indicate the importance of the pH factor. The ideal isotonic nasal preparation, insofar as the removal of the irritant properties is concerned, is one whose pH is the same as that of normal nasal secretions (between 5.5 and 6.5). The pH of nasal secretions in situ during an attack of acute rhinitis or acute rhinosinusitis or during the more active phases of an attack of allergic rhinitis is alkaline. This finding has clinical significance, for those nasal vasoconstrictors which can lower the nasal pH from an abnormal alkaline status to a normal slightly acid status—a pH level between approximately 5.5 and 6.5—may perform a valuable function. Conversely, those nasal vasoconstrictors which raise, enhance or perpetuate an alkaline nasal

pH during these rhinologic conditions may prolong an undesirable status of the usual pH.

The return of the nasal pH to a slightly acid status is accomplished by the administration of 1 per cent. ephedrine hydrochloride in physiologic solution of sodium chloride and by preparations of ephedrine, such as glucofedrin and isohalant. Tozer and Arrigoni have arrived at similar conclusions and recommend that slight acid $\frac{1}{2}$, 1 and 2 per cent. ephedrine sulfate intranasal solutions be included in the next edition of the National Formulary.

Since the preponderant majority of silver preparations and antiseptics in current use are alkaline, it is believed that these, too, should be slightly acid. Prolonging the alkaline nasal pH characteristics of the acute rhinitides by alkaline preparations is not conducive to checking a status which the bacteria accompanying the acute infection find a fertile field for growth. To divorce and separate the ciliary factor from the pH factor is to tell but half the story of applied nasal physiology.

SULFONAMIDE NASAL SPRAYS

Some months ago the employment of 5 per cent. sodium sulfathiazole was recommended for local treatment in "chronic sinusitis". As a result, many physicians have been requested by a sinus-conscious public to use this drug in acute and chronic sinusitis. Recent correspondence by Fletcher in the Journal of the American Medical Association warns that the local use of sodium sulfathiazole, or in fact of any sodium salt of sulfanilamide, may be extremely dangerous in the treatment of sinusitis.

Because the sodium salts of the sulfanilamide group are extremely alkaline, having a pH which ranges from 10 to 11, such solutions are extremely caustic and may do irreparable damage to the nasal and sinus mucous membranes. A further objection to their general use at the present times is the fact that no published reports have appeared to establish their action on ciliary activity.

Finally it is only through a thorough understanding of nasal physiology that the creation of an ideal nasal medication can be encouraged.

(Eye, Ear, Nose and Throat.)

THE POSITION OF PULSES IN A DIET BASED LARGELY ON CEREALS.

BY R. K. PAL AND N. M. BOSE.

Imperial Agricultural Research Institute, New Delhi.

The authors conducted experiments on rats to determine the nutritive value of pulses in a diet rich in cereals. A high pulse diet consisting of pulses and cereals 1:2 was selected. The reasons for selecting such a high proportion of pulses in the diet were:—

- (1) That diet surveys in the neighbourhood of Delhi have shown a very high consumption of pulses as compared to cereals (1:3 or sometimes more) and

- (2) That the authors wished to derive the maximum benefit (if possible) out of the pulses as a cheap integral part of the diet of the poor Indian, who either can not afford the luxury of an adequate quantity of animal protein in the diet, or is not in the habit of taking or is debarred from taking it on social and religious grounds.

The diet used was : (i) Parboiled rice (boiled)—containing proteins of high biological Value, as well as minerals and Vitamin B—2 parts

(ii) Pulse (in a sprouted condition) containing abundance of protein and Vitamins A & C and roughage 1 part

(iii) Sodium chlorid Qs.

Fifty young rats, of an average weight of 33 gm. were divided in to five batches. Each batch received a similar diet, but the nature of the pulse varied. The first batch received lentil (*Lens esculenta*); the second batch, Bengal gram (*Cicer arietinum*); the third batch, green gram (*Phaseolus radiatus*); the fourth batch black gram (*Phaseolus mungo*) and the fifth batch, red gram (*Cajanas indicua*). For four weeks animals of all the groups did well, the average weight of the animals at the end of this period being for the first group 41 gm. for the second 48 gm. for the third 46 gm. for the fourth 45.5 gm. and for the last 53.5 gm. Later animals belonging to all the groups began to die, so that at the end of the eight week there remained only two animals belonging to the first batch, two belonging to the second, four belonging to the third, two belonging to the fourth and four belonging to the fifth group. Postmortem examination of all the animals dead during the feeding experiment showed degenerative changes in the kidneys and liver. It was shown that a high pulse diet in the ratio of 1:2 cereals ultimately proved to be damaging to these vital organs.

This experiment was repeated with five batches of young rabbits with similar results.

The next series of feeding experiments was started with four groups of young rats consisting of ten each, with an average weight of 33 gm. The first had simply the basal diet consisting of rice and germinated lentils in the ratio of 2:1 together with common salt; the second had in addition 3 c. cm of cod liver oil; the third had 2 gm of fresh butter; and the fourth had 2 gm of yeast. Seven of the first group of animals died between the third and fifth week, but all the animals belonging to the other three batches were not only living but also appeared to be well and gained in weight. The greatest gain in weight was in the cod liver oil group. So it was proved that what ever harmful effect the high pulse diet had on the animals was removed by the addition of small quantities of cod liver oil, butter or yeast. The tissues of the animals of these later three batches were normal and healthy.

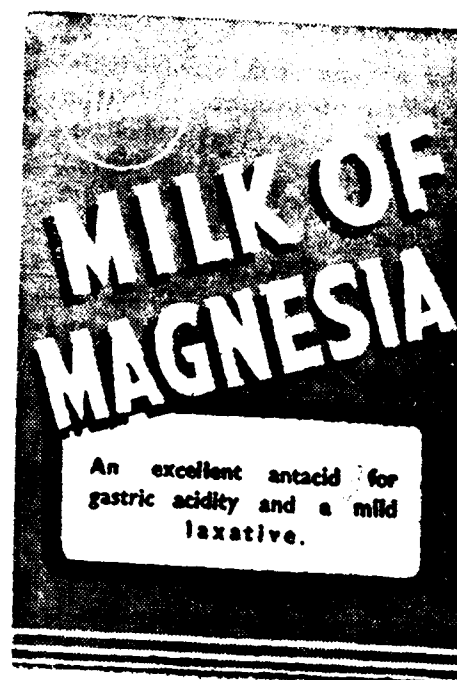
Third series of feeding experiments was conducted with 60 young rats of an average weight of 34 gm, divided into six batches. The first was given the same basal diet as in the previous experiment, where as the second batch was given 3 c. cm of coconut oil, the third 100 gm of carrot, the fourth devitaminized butter 2 gm., the fifth autoclaved yeast 2 gm. and the sixth 1 c.cm. of radiostol as supplement. In the course of ten weeks, six of the animals belonging to the first group, five of the second batch, and one each of the third, fourth, fifth and sixth batches died.

Histological examination of the liver and kidney of the surviving animals of the third, fourth, fifth and sixth batches showed a normal and healthy appearance of the gland structure; post-mortem examination of the organs of the dead animals belonging to these batches showed nothing abnormal except congestion. The organs of all the animals, dead or alive, belonging to the first two batches showed extreme grade of degenerative changes in the kidneys and liver. These facts indicated that some toxin had passed to the liver after digestion and absorption of the high pulse diet; and ultimately had passed to the kidneys, damaging these two vital organs.

These experiments prove definitely that a diet containing mainly pulses and cereals in the ratio of 1:2 is quite unsuitable for the maintenance of health and life. The cause of death in the case of so many animals on this inadequate diet was damage done to the liver and kidneys by some toxic product. That a high protein diet causes damage to kidneys has been reported by many workers, and this is particularly the case when certain particular proteins are used. The nature of this toxic agent is still not known. Some blame the imbalance in their amino-acid components of certain proteins. The high cystine and probably tyrosine content of the pulses is possibly responsible for the amino-acid imbalance leading to hepatic and renal damage. The damage can be prevented by taking Cod liver oil, butter, yeast, carrot, radiostol etc. Cod liver oil appeared to be the most effective supplement. The protective substance was not destroyed by auto claving at 120° for 4½—5 hours (Hartwell) and it was neither vitamin A, B, or C nor fat

Diet surveys have also shown a higher intake of ghee and milk along with high pulse diets taken in certain parts of Northern India; this may be responsible for preventing the ill effects due to high pulse content in a diet based on cereals.

(The Indian Medical Gazette.)



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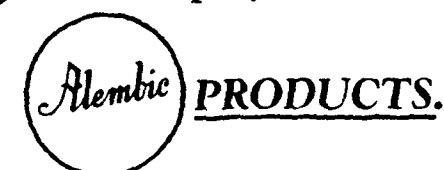


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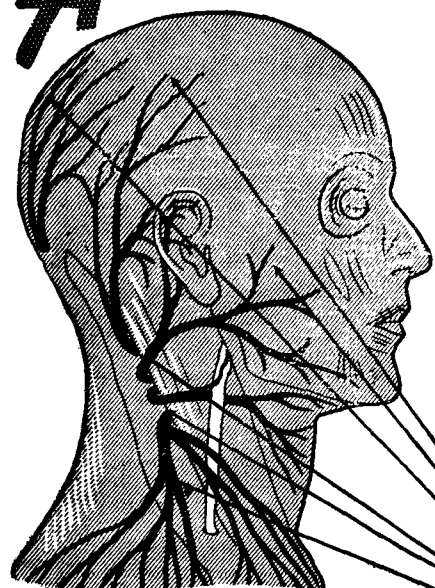
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TYPES OF URETHRITIS AND THEIR NON-CLINIC TREATMENT

BY A. P. PILLAY, O. B. E., M. B. B., S.,
Whiteaway Building, Bombay.

A prolonged war necessarily brings in its train abnormal conditions and nowhere are they more marked than as regards venereal diseases. The constant influx of troops, cooped up without sex for months in some theatre of war or on the high seas, into towns necessarily means increase of prostitution and promiscuity and consequent increase in venereal infection. Venereal diseases at present are interpreted by the medical profession and the laymen to mean only gonorrhoea, syphilis and chancroid, though the term venereal signifies, pertaining to, or arising from, sexual intercourse. As such even conditions now connotated under the term non-venereal should be considered as venereal diseases, if they arise from sexual intercourse. A better classification would probably be specific and non-specific infections.

A factor which has become a real problem is the question of treating effectively a floating population. The patients are in the town only for a few days and many of them are not able to come for treatment regularly or even see the doctor again. For obvious reasons, they do not wish to go to military hospitals or doctors. Of course, the doctor could say that he could do nothing for such patients, but in the present abnormal situation, the medical profession has to devise ways and means for curing diseases by methods of treatment which could be carried out by the patients themselves. Syphilis for obvious reasons cannot come under this category, but I think much could be done as regards soft sores, and urethral discharges. In this paper, however, only the latter is discussed. A type of acute urethritis caused by bacillus coli infection about which no reference is seen in medical literature is described in detail.

TYPES OF URETHRITIS.

The diagnosis of urethral discharges by the general practitioner is even now more often empirical than scientific and it would appear that the days when all cases of urethritis were diagnosed and treated as gonorrhoea were not yet over. I found that nearly 75 per cent of cases that consulted me during the last twelve months had non-specific urethritis. These may be classified as chemical urethritis, urethritis caused primarily by bacillus coli and simple urethritis.

In all types of urethritis, one gets the history of exposure to infection in about 95 per cent. of cases. Of the 5 per cent. that deny recent sex life, about 4 per cent admit having had one or more previous attacks of gonorrhoea. One per cent. has no history.

CHEMICAL URETHRITIS.

A common type, though not of much clinical importance, is the urethritis caused by strong chemicals used for purposes of prophylaxis. The use of concentrated solutions of pot. permanganate or strong proprietary products for the purpose is getting increasingly popular and this invariably produces chemical urethritis. One patient under the influence of liquor tried to disinfect himself with pure lysol after coitus with a prostitute. Fortunately, he had a tight phymosis and so the lysol touched only the foreskin. Severe ulceration resulted and circumcision had to be done. In another case was noticed chemical urethritis produced by dettol used as a douche by the female partner just before coitus. The history helps in diagnosing the condition, but a bacteriological examination of the discharge should be done, as not uncommonly specific infection may also be present. The urine examination shows red blood and pus cells and a few organisms. No clinical treatment is required as sexual abstinence, large intake of fluids and hexamine by mouth would usually clear up the condition. Sulphanilamide derivatives become necessary only if the discharge persists for more than 3 or 4 days. The dose need not exceed 4 tablets a day.

BACILLUS COLI URETHRITIS.

Here is a typical case. The patient had an attack of gonorrhoea in 1935 which was treated by a specialist. He has a girl friend with whom he is living a regular sex life for the last 2 months. The third day after the last sexual contact, he noticed a discharge which puzzled him.

MICROSCOPIC EXAMINATION OF DEPOSIT IN URINE.

- Red blood cells—Occasional.
- Pus cells—20 to 25 per field, some in groups as threads.
- Epithelial cells—a few, mostly squamous ones.

GRAM STAIN.

Gram negative bacilli—a few, some intracellular ones.

Infections of the genito-urinary tract by bacillus coli have so far been studied only as regards *generalised* infection of the kidneys, bladder and urethra. Even of this, the aetiology and the mode of infection are not well understood. Clifford Morson writes: "The most common infection of the genito-urinary tract is caused by an organism indistinguishable both in appearance and behaviour from the bacillus found in the colon. It has been spoken of as the celi-form bacillus because of the uncertainty whether it really is the bacillus coli which has wandered from its natural habitat. If the species in the genito-urinary tract is the same as that in the bowel,

some abnormal change must have taken place in the mucosa of the colon to permit its migration but recognizable lesions of the bowel are rarely if ever associated with an attack of colon bacilluria. Possibly a morbid process is present but has escaped detection and becomes manifest clinically only by causing genito-urinary symptoms."

The question to consider is whether bacillus coli can cause acute urethritis. In my opinion, it can and presents a definite clinical picture. Twelve such cases came under my notice. In eleven there was a history of recent sexual intercourse. Seven of these were having sex life with the same women for months, while four had resorted to prostitutes. That this type of urethritis set in is by direct infection from the female genitals becomes thus evident. It would have been advisable to examine the vaginal discharge or urine of the female partners, but this was obviously not possible. Three patients, however, volunteered the information that their wives were under treatment for some bacillus coli infection.

The urine in the cases under consideration showed one constant characteristic, *viz.*, it was loaded with narrow opalescent flakes of various lengths, some measuring even two inches. In the other types of urethritis, the flakes or shreds or threads, whatever one might call them, were opaque or semi-opalescent, definitely not as opalescent as in bacillus coli infection. The quantity of these passed was often enormous. The three glass method of testing urine showed that the infection was confined to the anterior urethra.

In generalised bacillus coli infection of the genito-urinary tract, the urine showed the opalescent flakes in all the three glasses and there was often no history of recent sex life. Most of them had previous attacks of gonorrhoea and it was because of this fact that they often looked at their urine to see whether there was a recrudescence of the old infection. The treatment of cases of generalised infection, unlike that of the localised urethritis, is extremely unsatisfactory. There was a case I treated for nearly 5 years with every known line of treatment without being able to eradicate the infection. The patient used to get repeated attacks of colon bacilluria without any local or constitutional symptoms whatever, except increased frequency of urination and profuse flakes in the urine.

In the localised cases no local treatment is necessary. I give orally first, a course of sulphathiazole tablets, 4 to 6 a day for a week. This is followed by a course lasting for a week, of some mandelic acid derivative. Usually this clears up the urine macroscopically and microscopically. Occasionally it may be necessary to repeat both the courses, but more than two courses have not been found necessary. Four cases have been under observation for periods

varying from 4 to 8 months and in none of them has there been any relapse.

The urine of the patient whose report is given at the beginning of this section was examined again after taking 10 gm. of sulphathiazole, irregularly during 6 days.

MICROSCOPIC EXAMINATION OF DEPOSIT IN URINE.

Red blood cells—Occasional.

Pus cell—2 to 4 per field; some in groups.

Epithelial cells—a few, degenerated ones.

GRAM STAIN.

Gram negative bacilli—very few.

Macroscopically, the urine was nearly normal and the flakes in the urine were only half a dozen small dot-like particles. Unfortunately in none of the cases was the urine examined after the full sulphathiazole treatment and before mandelic acid derivatives were administered, otherwise it would have indicated if the latter course of treatment was necessary.

NON-SPECIFIC OR SIMPLE URETHRITIS.

The patient noticed a discharge three days after coitus. He had an attack of gonorrhoea some three years back.

MICROSCOPIC EXAMINATION OF DEPOSIT IN URINE.

Pus cells—present, in excess.

Mononuclear cells—present, a few.

GRAM STAIN.

Gram positive cocci in pairs and chains—present in excess.

Gram negative bacilli—present, a few.

Gram positive bacilli—present, a few.

Gram negative diplococci—not found.

This condition should be by direct infection from the vaginal discharge the woman had at the moment. A few of the patients confessed that the women were menstruating when they had coitus.

SPECIFIC URETHRITIS OR GONORRHOEA.

It is not proposed to enter into the question of diagnosis or treatment of gonorrhoeal urethritis. The only point that need be considered is whether it can be cured by treatment carried out by the patient himself. My patients mostly came to me within 24 to 72 hours after the appearance of the discharge which was a definite advantage. They were prescribed instillation into the anterior urethra with an all-glass urethral syringe 10 cc. of a 1.0 per cent solution of argyrol, three times a day and by mouth 24 gms of sulphathiazole in eight days. This meant 6 tablets a day for eight days, E. G. Ballenger and his co-workers advise the sealing in the anterior urethra of 20 minims of a freshly made silver protein solution, once daily for 4 days. This had one disadvantage *vis.*, the intake of fluid had to be restricted so that the solution may be retained in

the urethra for 4 hours as advocated by them. 45 out of 48 cases were fully cured with the line of treatment I prescribed and repeated bacteriological findings have since been negative in those cases who stayed long in Bombay. I refer hereto only the early cases. In the remaining three cases, relapses occurred at intervals of 2 to 4 weeks, when the bacteriological findings were the same as during the original attack. They were so similar that one would think that it was a fresh infection. Gordon Douglas and his co-workers in New York Hospital writes of their women patients: "Bacteriologic cure is most frequently encountered within nine to twelve hours after the administration of sulfathiazole or sulfadiazine and forty to fifty hours after sulfanilamide . . . Bacteriologic course were established in 180 out of 185 admissions of 158 female patients with gonorrhoea. There were 27 recurrence of the disease which were thought, for the most part, to be new infections."

TOXICITY OF SULPHANILAMIDE DERIVATIVES.

The toxic symptoms noticed are variable but appear to be less common and less severe when sulphathiazole is used than with other sulphanilamide derivatives. I have had no experience of sulphadiazine. Malaise, depression, nausea, abdominal pain and backaches are all that I have seen. Of course the usual precautions as regards the quantity of water drunk and avoidance of sulphur containing products should be taken. The following case is instructive:

A woman, 18 days after confinement, developed fever, the temperature going up to 105°F. Blood was negative to malaria and there was no indication of the fever being due to any puerperal infection. Sulphathiazole was given, 6 gm. in three days. On the third day, the temperature became normal. The urine showed under the microscope moderate numbers of crystals of acetyl sulphathiazole. The crystals are likely to block the renal tubules. This would not have happened if the patient during the treatment had drunk large quantities of water. It would appear to be advisable to examine the urine occasionally when a prolonged course of treatment is given for any crystals of the product administered. If so, the treatment should be stopped. I have however had two patients who were given 2 to 2½ gms. of sulphathiazole a day for about 6 weeks, one for bacillus coli, and the other for gram negative diplococci, infection, without any untoward symptoms. The urine showed no crystals even after this heroic dosage.

SULPHANILAMIDE AS A PROPHYLACTIC.

I have not seen any prophylactic property in sulphanilamide products. This means that they do not prevent infection but function only after infection has set in. It is advisable not to administer these products before the urethral smear or urine has been taken

for examination: otherwise the bacteriological finding would be misleading.

SUMMARY

1. Treating venereal cases in a floating population may not be easy or orthodox but has to be faced by the medical profession.
2. All urethral discharges are not gonorrhoeal in origin and should be examined microscopically.
3. Four types of acute urethritis usually seen are discussed and their non-clinic lines of treatment described. It is claimed that the vast majority of cases could be cured without resorting to the old orthodox lavage and other lines of treatment.

(The Medical Bulletin, Oct. 2nd 1943.)

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Chairman.

(Being the Memorandum of the Medical profession in Bombay to 1. The Prime Minister of Great Britain, London, 2. The Secretary of State for India, London, 3. His Excellency the Viceroy and Governor-General of India, New Delhi, 4. His Excellency the Governor of Bombay, Bombay.)

1.—This meeting of the Medical Profession in Bombay held on 4th November 1943, feels alarmed at the worsening food situation in Bengal Orissa, Malabar and some South Indian States and fears that similar conditions are likely to arise in Bombay and Madras Presidencies and similar deficit areas unless the British Government, the Government of India, the Provinces, States and Local Administrations take co-ordinated, comprehensive and energetic measures to remedy the same. The meeting submits the following Memorandum for your earnest consideration.

WHAT GREAT BRITAIN HAS DONE.

2.—The meeting desires to draw the earnest attention of the authorities concerned to the contrast presented by the food position in Great Britain with the same in India. Before the war, Great Britain had to import nearly 50 per cent of its food from abroad. From the year 1939, all food grains were controlled and sold to the consumers at fixed rates. Milk, eggs, fats and meat, but not food grains, were rationed throughout the island. The Food Ministry spent nearly 129 million sterling in one year alone (1941-42) as subsidies to food industries and to meet the deficit involved in giving imported food

to the consumer at fixed rates; hoarders and defaulters were given exemplary punishments. The result is that the retail prices of all foods are only 25 per cent above their pre-war rates. From the nutritional point of view, it is significant to note that the Secretary to the Food Ministry announced in the Parliament in 1940 that "Government fully recognised the paramount importance of milk in the diet of the people and regarded it essential to maintain its supplies adequate." Every mother and child in England is getting about one pint of milk a day in the case of the poor it is supplied free. Lord Woolton told the Parliament "that many people were fed more adequately now than before the War". And all this was done in spite of the fact that Great Britain suffered directly due to intensive bombing and sinking of ships.

THE FOOD POSITION IN INDIA.

3.—India, on the other hand, is not an active field of war and being mainly an agricultural country has not to depend much on imported food and yet the prices of food grains have gone up by 250 per cent in Bombay Presidency and by 600 per cent in Bengal. The prices of nutritious foods like milk, meat and vegetables in Bombay have gone up by 300 per cent. This contrast in prices between Great Britain and India is clearly due to want of effective control over production, distribution and marketing of food articles. Many other factors also contributed to the abnormal increase in price levels in food trade and to scarcity, especially in Bengal, with the result that in Bengal to-day thousands are dying every week of starvation. Out of the two millions people in Bengal that are fed on rice gruel by Government or voluntary agencies, nearly half must have previously been wage-earners or middle class people who could not buy even cereals at the current rates on the wages they get. Production of food is thus hampered and a vicious circle is set up.

CONDITIONS IN BOMBAY.

4.—Nutrition experts in India emphasize the $\frac{1}{2}$ lb. of milk and $\frac{1}{2}$ lb. of vegetables are the bare minimum required by an adult per day for repair and vitality and that every mother and child must get at least a pint of milk per day for growth and vitality. Even in a City like Bombay which is the first to introduce rationing, the wage earners and middle class people have to spend most of what they earn, including the dearness allowance that some of them get, on food grains, oil, rent, fuel, clothing and such other essentials and can afford to buy hardly half an ounce of milk and 1.5 ozs. of vegetables per day. But if we consider the Province as a whole, we find that very few get the advantage of this dearness allowance. The great mass of people have to live on starvation diets mainly due to high prices of foods; many of them therefore flock to cities for employment or begging, as is seen in Bengal. Such a low consumption of milk and vegetables should, therefore, be taken as a warning that

the stamina of the people is getting dangerously low and epidemic diseases will take a fearful toll of life unless the supply of these foods is increased and their rates are lowered.

THE FOOD GRAINS COMMITTEE'S FINDINGS.

5.—The Government of India has taken at long last, some decisions based mainly on the recommendations of the Food Grains Committee. In the opinion of this meeting these are halting in character and are not comprehensive. *Firstly*, no definite measures are taken to bring down the abnormally high prices of foods by giving subsidies, where necessary, as is done in England. *Secondly* the Food Grains Committee considered only grams but not the great variety of other pulses, beans and soya-beans which are important in the diet of the poor. This neglect at the Centre is probably reflected in pulses and beans being kept out in rationed articles in Bombay, with the result that their prices have risen nearly 400 per cent and the diet of the labourer has become excessively starchy and unbalanced. *Thirdly*, the Government of India apparently does not give much importance to the inclusion of dairy produce in the dietary of the people, otherwise they would have appointed, simultaneously with the Food Grains Committee, a Milk Committee to go into the question of dairy products. *Fourthly* another source of nutritious food which has been overlooked is fish. India has a vast sea-board and an indigenous fish-curing industry which has not been properly explored. Dried fish keeps well for about three months and can be transported to long distances as dry food. It is a cheap and nutritious food for the poor. Government of India and Local Governments should develop this industry rapidly by giving subsidies and other facilities to fishermen.

6.—All the same the Food Grains Committee admits that the Food problem is a part of the War effort and its settlement is as urgent as any that confronts the country in military terms. It also admits that the food crisis is likely to remain for a few years more. It admits that in the past, questions of food supply and nutritional policy were unduly neglected and the Committee emphasizes the fact that Indian nutritional standards are deplorably low.

7.—In the opinion of this meeting the natural corollary to these findings should be for the Government of India to adopt plans for the production and rationing of both energy foods and body-building foods. The food problem in India is undoubtedly vast and intricate owing to the presence of many States and Provinces with some independence to them in internal administration; but it must be tackled as a War measure with the co-operation of people and for the good of all.

BRINGING DOWN THE PRICES & RATIONING THE ONLY REMEDY.

8.—This meeting of the Medical Profession is of the opinion that the food situation will not materially improve unless the prices

of common foods are brought within the purchasing power of the masses by importing food forthwith, by increased local production and by subsidies to make up the difference between the purchasing and the selling price. At the same time rationing must be introduced in all towns above a population of 5000, to be extended universally as soon as possible. England and other countries have done this and thus kept the people wellfed. India can and must do the same whatever the cost and labour involved. *The alternative is chaos, starvation, pestilence and irreparable damage to the young.*

BRITISH GOVERNMENT & THE ALLIES MUST GIVE HELP

IN THE INITIAL STAGES.

9.—Large tracts of the deficit areas in India, a partner of the allies in this War, are now on the verge of starvation, in spite of the measures taken so far, thus indicating the necessity for radical change in policy.

10.—This meeting therefore urges British Government to help India out of this chaos by immediate help in kind. The Government of India, the Provinces and States acting as one Unit, must also spend out of their balances kept for post-war reconstruction and out of taxation funds to maintain the *Food Front* on the same level as the War Front.

RECOMMENDATIONS.

11.—In conclusion, this meeting of the Medical Profession in Bombay submits the following recommendations to the authorities concerned for their earnest consideration. In doing this they have taken into consideration the measures recently taken by the Government of India and the Bombay Government and have made such recommendations only as were either not suggested before or on which, in the opinion of this meeting sufficient emphasis was not laid :—

I. TO BRITISH GOVERNMENT.

1. British Government should send to India, now and for the next few years as a part of their help in kind by providing the necessary shipping, food grains, dried skim-milk and butter for use in deficit areas. Such a supply will help to bring down the prices of local foods to some extent.
2. British Government should also send urgently a large number of drying plants for preparing butter, skim-milk and whole-milk powder. The establishment of these plants by the local Governments in suitable rural areas firstly in deficit Provinces and later or in other Provinces, will give stimulus to dairy industry, will provide a supplementary but ready cheap supply of milk to cities and will solve the problem of transporting 85 per cent of water in milk to long distances during war time. In peace time such plants will be a valuable

addition to the dairy industry in India. At present, the skim-milk after the extraction of butter is so treated as to make it useless as food to human beings.

II. TO GOVERNMENT OF INDIA.

3. The Government of India should share with the Provincial and local Governments and Indian States, the financial responsibility of supplying foods at normal rates. Large ports like Calcutta, Bombay, Madras and Karachi and other big cities where either fighting forces or war industries, railway workshops, cotton or jute mills are working, should receive additional consideration from the Government of India.
4. Every district in the deficit areas should be made as self sufficient as possible in the matter of milk and vegetables which are perishable and so cannot be stored and transported cheaply and quickly during war time. *The slaughter of milch cattle and farm animals should, therefore, be stopped forthwith.* Government has lost touch with large sections of the public during the last two years. A fresh attempt should, be made through District Conferences, to get in touch with representative farmers and public men of the district with a view to get their co-operation and meet their requirements in the "Grow More Food" campaign.
5. The Village Industry of dried and salted fish should be rapidly developed.

III. TO GOVERNMENT OF BOMBAY.

6. Prices of common food articles should be lowered so as to be within the purchasing power of the masses, and rationing should be introduced in deficit areas in all towns above 5,000 population and later on universally. Cereals, pulses, sugar, oils, ground-nuts, milk and meat should be included in the rationed articles. If the necessary staff cannot be secured, voluntary organisations should be requested to co-operate in the interest of starving Indians.
7. The Bombay Province is a deficit area as regards food. The presence of thousands of military personnel, refugees and war prisoners have still further depleted its supply of milk, meat and vegetables. As war with Japan progresses, the Central Government may not be able to send its quota of food to this Province because of shipping and internal transport difficulties. It is, therefore, urgently necessary for this Province to be considered as an area of potential scarcity and to start long term and short term measures for the increased production and conservation of food.

8. The demands of Bombay City and Suburbs are very great as regards vegetables at reasonable rates. No serious efforts are yet made by either Government or the local people to utilize the Tata Hydro-Electric Company's waste water which flows in three rivers within 75 miles of Bombay. This source of water should be fully utilized for the purpose.
9. The milk supply of Bombay is also an urgent problem. The buffalo sheds in the City and Suburbs are costly to maintain owing to high prices of cattle food, city rent and transport difficulties. They should, therefore, be shifted to Palghar and beyond to cheaper and more suitable surroundings, within a year. Arrangements should also be made to bring milk to this city from other near sources. *Milk must be controlled and selectively rationed if mother and children are to be saved from malnutrition.*
10. The Government of Bombay has taken a strange attitude than in taking measures for food supply to cities they will not be justified in using the money realised by taxes from all over the Province. But increased production is helping the agriculturists also and, therefore, the argument is not quite correct. Moreover, Bombay and Suburbs are giving Excise, Entertainment and Property Tax to Government. The Bombay Government can also ask the Central Government to give subventions from excess profits tax collected from Bombay for the supply of food articles. But Bombay Government can not side-track their responsibility to provide these foods at normal rates. The Government has already built a fund of nearly four crores for post-war purposes from balances built up during the war years. A part of this fund should be utilized for the purpose of nutrition.
11. Government should constitute a permanent Board of Nutrition for this Province, one of the functions of which would be to carry out inquiries in important towns and villages, in schools and also in industrial areas. The Board should keep Government informed regarding the state of nutrition people from time to time and suggest means for its improvement.

RESOLUTIONS.

(Passed at the meeting of the Medical profession in Bombay, on 4th November 1943 to consider the serious food situation in India.)

1. This meeting of the Medical Profession in Bombay is of opinion that the serious food situation existing in Bengal,

is likely to spread to other deficit Provinces in India, unless effective steps are urgently taken.

2. The Medical Profession in Bombay feels that measures taken or proposed to be taken by the Government of India so far, are halting in character and are not likely to ease the situation in the near future. It urges upon the Government of India and British Government to consider the question of adequate supplies of food to India as a war measure and a vital factor in winning the war in the east and to adopt measures similar to those adopted in Great Britain in 1939.
3. (a) This meeting submits the accompanying Memorandum and the resolutions passed at this meeting to (i) the Prime Minister of Great Britain, (ii) the Secretary of State for India, (iii) the Government of India, and (iv) the Government of Bombay embodying its considered opinion on the food crisis and suggesting ways and means to tide it over and to make India self sufficient in matters of food in future. It urges the Government of India to implement with the help of the British Government, the suggestions made in the said Memorandum.
- (b) This meeting authorises the President to send the Memorandum to the said authorities, to the Medical and the Lay Press, to all Medical Associations in India and to the Food Committee of London.
4. This meeting requests the Central and Provincial Government and all the local administrations to seek the co-operation of the organized medical profession in India matters of nutrition and in advising the people how to adjust their dietetic habits and select food-stuffs so as to get maximum nutrition from the foods available.
5. This meeting notes with satisfaction the measures the Government of Bombay in their food policy but it urges them to bring under ration all common food articles including milk, meat, eggs and vegetables.

This meeting further urges the Government of Bombay to prevail upon the Government of India to bring down the prices of all common food articles within the limits of the purchasing power of the people.

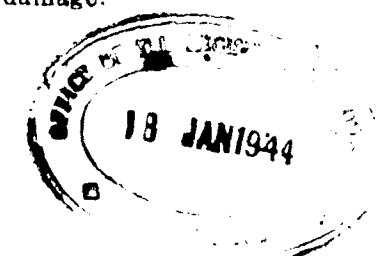
6. This meeting urges the Government of Bombay to constitute a permanent Board of Nutrition for this Province as suggested in the Memorandum.

7. In view of the vast sea-board of India and the paucity of animal food in the dietary of the people, this meeting urges the Government of India, the Provincial Governments and the States to encourage by subsidies the development of the indigenous village industry of drying and salting fish and thus provide a cheap and nutritious food for the people.

Extracts.

THE HEART IN PULMONARY TUBERCULOSIS.

ROBERTS AND LISA (*Am. Rev. Tuberc.*, March 1943) write that the communication is a report of the cardiac lesions found among 100 cases of pulmonary tuberculosis upon whom necropsis were performed at City Hospital, Welfare Island, New York. Demonstrable myocardial lesions were present in 69. They consisted of tuberculous myocarditis in 10, acute rheumatic myocarditis in 1, Aschoff body-like lesions in 9, acute interstitial myocarditis in 50 and acute military infarctions in 11. Combination of the lesions were found in 13. Healed rheumatic valvulitis was found in 5, sclerotic lesions of the mitral and aortic valves in 20; acute valvular endocarditis in 2 and syphilitic aortic valvulitis in 2. There were 3 instances each of tuberculous, chronic and adhesive and acute non-tuberculous pericarditis. Tuberculous myocarditis was more frequent in the adults than in children. Non-tuberculous pulmonary infections appeared to be a significant factor in the causation of the interstitial myocarditis. Military infarctions occurred predominantly in the hypertrophied hearts in hearts with severe coronary arteriosclerosis and in the later decades of life. The conception of a small heart in tuberculosis was not substantiated. Right ventricular hypertrophy was very uncommon. Mensuration of the ventricular wall appeared to be an unreliable criterion for hypertrophy; the microscopical appearance of the myocardial fibres appeared more accurate. A moderate or severe disproportion between pulse rate and height of temperature was suggestive of myocardial disease. Murmurs due to organic valvular lesions were fairly common. Function murmurs were uncommon. The conception that hypertension and active tuberculosis are incompatible was not borne out. Electrocardiographic tracings frequently revealed significant observations. While the present series is too small to permit definite conclusions about many controversial points, it is the belief of the authors that more attention paid to the cardiovascular system in the tuberculous individual will result in a more accurate estimation of existing cardiac damage.



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EFFUSION IN PNEUMOTHORAX TREATMENT.

SEN AND OTHERS (*Indian M. Gaz.*, 78:505, 1943) give in the following lines the summary of their observations on the incidence of pleural effusion in artificial pneumothorax in cases treated in the out-patient department of the Medical College, Calcutta.

500 cases treated with artificial pneumothorax have been studied with reference to the incidence of pleural effusion.

It has been stressed that as the duration of treatment has a definite effect on the incidence and as this duration is likely to vary from one study to another, a direct comparison on total incidence figure is not justified. For this reason, a curve showing the risk of effusion at different periods in the course of treatment has been worked out. This shows that out of 100 persons having A.P. treatment, 11 will develop effusion in the first month. Of the rest, 13 will develop effusion in the second month. Of the rest, 7 or 8 will develop effusion in the next month and so on, with the result that after 18 months' treatment only 34 will not have developed an effusion. The curve indicates that the rate is higher in the earlier months.

The influence of factors—sex, age, habitation, stage of the disease, character of disease, nature of collapse, presence or absence of adhesions and mobility of mediastinum has been assessed, taking duration of treatment in each case. None of these factors showed any significant effect on the formation of effusion. There is only a suggestion that in childhood the rate is higher and people of rural habit show a slightly lower rate in the first month.

No relationship could be detected between the amount of effusion and the time of its commencement. The proportion of slight to moderate amount of effusion is found to be 3 to 2. The number of massive effusion is few.

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Medical Notes and News.

NEW REGULATIONS FOR THE F.R.C.S.

The Council of the Royal College of Surgeons of England has revised the regulations for the Fellowship, and the *primary* examination beginning on November, 29th next will be the last to be conducted under the present regulations.

New regulations have been approved by the Council and will become effective as from the end of 1943.

The regulations embody the following changes:—

(i) The *primary* examination cannot be taken by undergraduates, but will be open only to Members of the College, or to Graduates in medicine and surgery of the Universities and Medical Colleges recognised by the Council for the purpose, who are able to comply with the conditions of the regulations.

(ii) The subjects of the *primary* examination will be:— (a) *Anatomy (including Normal Histology)*, and (b) *Applied Physiology and the Principles of Pathology*. A synopsis indicating the general scope and spirit of the examination in *applied physiology and the principles of pathology* is published in the new regulations.

With regard to the *final* examination, no candidate will be admissible without producing evidence of having been engaged in the acquirement of professional knowledge for not less than two years subsequent to the date of having obtained the Membership of the College or some other recognised qualification, *vide* (i) above.

The dates of the examinations have been re-arranged, so that it will be possible for candidates who pass the *primary* examination to proceed immediately to the *final* examination, if they are eligible. During 1944 the examinations will begin on the following dates:—

Primary examination—April 24th and October 23rd.

Final examination—May 4th and November 2nd.

Copies of the new regulations, and full particulars may be obtained, post free, from the Director of Examinations, Examination Hall, Queen Square, London, W. C. 1.

MEDICAL COUNCIL OF INDIA.

The following is an extract from the Address delivered by Dr. B. C. Roy, President, Indian Medical Council, at a meeting held on 23-10-43 at New Delhi.

Under the direction of the Executive Committee arrangements have been made for the inspection of the Second as also Part I of the Final M.B., B.S. Examinations at the Agra University during this month, Part II of the Final Examination will be held for the first time in April, 1944, Inspectors for which have already been appointed by your Executive Committee.

With regard to reciprocal recognition of medical qualifications the Hyderabad Medical Council have been informed as directed by your Executive Committee that this Council would be prepared to arrange for inspection of the Courses of Instruction, facilities for

teaching and examinations for the M.B. B.S. degree granted by the Osmania University as soon as they are ready for such inspection. As regards their L.M.S. qualification the Committee decided to postpone the question of its recognition till after their M.B., B.S. degree has been permanently recognised.

The Mysore Medical Council have agreed to enter into reciprocity with this Council and they are also being informed of the Executive Committee's decision for further report as a necessary preliminary to permanent recognition of the M.B., B.S. degree of the Mysore University.

With regard to your proposal for an All India Register the opinion of the various Provincial Governments has recently been received through the Central Government and is being dealt with.

As directed by you at the last session the attention of the British Indian Universities has been drawn to the desirability of paying special attention to the teaching of Orthopaedic Surgery on account of increasing importance of the subject.

In pursuance of the recommendation of your Executive Committee the Bombay University have amended their regulations to provide for separate written papers in the subjects of Forensic Medicine and Hygiene and that the candidates should secure the minimum marks prescribed for each of these subjects separately both in the written and oral, as well as, 50 per cent in aggregate.

You will remember that your Executive Committee after obtaining detailed information relating to the Basic Scientific Subjects from the various Universities formed a Board of Experts for the purpose of drawing up minimum requirements of the medical students in these subjects. The requirements so drawn up were forwarded to the Universities for their views, which on receipt were circulated to the Experts on the Board for further remarks. As directed by the Executive Committee all these papers have been forwarded to the Inter-University Board for necessary action in reference to the resolution with regard to bringing about uniformity in the content of the Pre-medical course in the various British Indian Universities.

The Central Government had forwarded to this Council a copy of the resolution regarding the teaching and inclusion of Leprosy in the medical curriculum. On my direction a copy of the resolution was forwarded to all the British Indian Universities included on the First Schedule to the Indian Medical Council Act, 1933, enquiring as to the arrangements which existed in the affiliated colleges regarding the teaching of Leprosy. They were also requested for their views on the points raised in the resolution and the report. The replies received were placed before your Executive Committee and as directed it was suggested to the Universities that special instructions in diagnosis and treatment of Leprosy on modern lines be

provided for the students of the medical colleges. The Universities' replies in this connection are receiving the consideration of the Executive Committee.

Consequent upon the withdrawal of reciprocity through the General Medical Council the South African Medical qualifications are recognised by this Council when granted on or before the 31st March, 1942. Communications have now been received from the Central Government and the South African Medical Council from which it appears that the said Council desires to establish direct reciprocity with your Council. The terms of such reciprocity are receiving the attention of your Executive Committee.

Re. Facilities for admission of the holders of L.S.M.F. or similar diplomas to the M.B., B.S. degree during the war, the Council adopted the recommendation of the Executive Committee in the following amended form :—

"The Executive Committee recommends to the Council that during the period of war and for three years thereafter, the resolution of the Council dated the 25 26th August, 1937, regarding the admission to any M.B., B.S. degree mentioned in Schedule I of the Act, of the holders of any license or diploma granted by an Examining Body in British India registrable under any of the Provincial Medical Council Acts, be modified as follows, namely—

(a) the Cambridge School Certificate Examination, the Matriculation Examination or an examination equivalent thereto will be recognised as meeting the Council's requirements as per recommendation I (ii) (c) provided that the certificate includes a pass at one and the same examination in the following subjects :—

- (i) English (Language or Literature),
- (ii) Mathematics (Elementary or additional),
- (iii) a language other than English,
- (iv) any other subject (except Religious knowledge) from Groups I, II and III.

Provided also that in the case of those who have held commissions as Medical Officers in His Majesty's Indian Land Forces, recommendation I (ii) regarding the preliminary qualifications may be waived altogether if the preliminary examination in General Education passed by them before commencing the study of Medicine for the acquisition of the qualifications entitling them to registration with the Provincial Medical Councils included an examination in Mathematics (Arithmetic, Algebra and Geometry), if he applies for the facility within three years after demobilisation.

(b) That such a practitioner produces a certificate from the Principal of having attended for a period of six months a course of instruction in Anatomy, Physiology, Materia Medica, Pharmacology including Biochemistry, at a medical institution which gives instruction in these subjects for obtaining a qualification mentioned in the First Schedule.

(c) That he produces further a certificate of having attended a course of study in Pathology, Bacteriology, Forensic Medicine, Hygiene and Public Health, Medicine, Surgery including Ophthalmology, Midwifery Diseases of Women and Infant Hygiene.

Provided that during this period of 24 months or 2 academic years such medical practitioners shall have spent not less than 12 months or one academic year in clinical studies.

Provided further that the holders of any diploma such as Madras D.M.S. which involves medical studies for 5 years may omit the study of Anatomy, etc., as contemplated under (b) above, and that in their cases the total period of study would be 18 months as contemplated in (c) above.

(d) That such a practitioner will on production of the above certificates be permitted to appear for the Final M.B., B.S. Examination of any university recognised by the Medical Council of India, in the following subjects:—

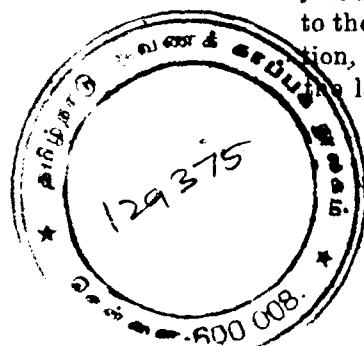
Pathology, Bacteriology, Hygiene and Public Health, Medical Jurisprudence, Medicine including Therapeutics, Surgery including Ophthalmology, Midwifery and Diseases of Women including Infant Hygiene."

Further resolved: "That the resolution as adopted by the Council be forwarded to the various British India Universities included on the First Schedule in order to give effect to the recommendations contained therein."

DR. K. S. RAY GOLD MEDAL FOR PAPER ON PUERPERAL SEPSIS.

The following notification regarding last date of receipt of articles and records of original work for Dr. K. S. Ray Gold Medal was published in the press throughout the country in November, 1943. It is being reproduced for the information of members of the Association and the readers of the Journal:—

"The Hony. General Secretary, Indian Medical Association announces for information of the medical profession that the last date for receipt of papers on Puerperal Sepsis containing a record of original work and investigation on the subject for which a gold medal will be awarded by Dr. K. S. Ray, an ex-President of the Indian Medical Association, to the best worker at the next Session of the All-India Medical Conference to be held at Ahmedabad during the ensuing Christmas holidays will be the 30th November, 1943. Research workers and investigators who intend to submit a record of their work on this subject are requested to send six typed copies of their articles to the Hony. General Secretary, Indian Medical Association, 12, Hindusthan Buildings, Calcutta, so as to reach the latter by the 30th November 1943."



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for service in the Indian Army Medical Corps

EMERGENCY COMMISSIONS IN THE INDIAN LAND FORCES FOR SERVICE IN THE INDIAN ARMY MEDICAL CORPS

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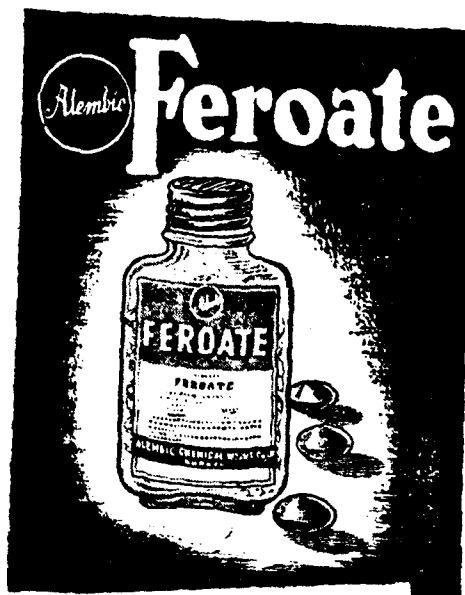
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