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DYSMENORRHOEA.

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Dysmenorrhœa is supposed to be a disease of young girls. It starts at the time of menarche or a year or two later. When a woman is grown up she is usually relieved of this trouble. In rare cases the pain continues even at a later stage and is of inflammatory nature or due to myoma of uterus, endometriosis ect. Many of the cases are relieved after marriage as the normal intercourse has a beneficial effect on the endocrine apparatus and the neurocirculatory system of the generative organs. One comes across this disease in 8.47 per cent of girls. The great variation in the reported incidence is due to the difference of material for investigation and in the standard employed by the gynecologists in the assessment of pain.

Dysmenorrhœa can be of spasmodic or congestive type. In the former the pain is intermittent colicky and labour-like and in the latter it is heavy and bearing down. Fekete expresses dysmenorrhœa as Rheumatism of the uterus with angiospasms of the uterine vessels. Kaunr, Luckner, Krohn and Soskin consider menstrual pain to be due to relative uterine ischæmia and compare it with angina pectoris or intermittent claudication of the skeletal muscles.

For diagnosis Mathiau advocates hystrosalpingography in search of polypus cervical strictures and hydrosalpinx in order to eliminate organic causes of dysmenorrhœa. In spastic type of cases the pain persists even when the lipoidal has come out. This condition is uncommon in parous women chiefly because pressure on or tearing of the cervix during parturition causes atrophy of the sensory nerve fibers which are concerned in the transmission and perception of pain.

Constitutionally the asthenic type of women are more prone to painful menstruation. The threshhold of pain in such women is very low and their generative organs are functionally faulty. This trouble is further common in the nuliparous highly sensative, mentally alert, apprehensive and self centered women with a tendency to visceroptosis, gastrointestinal spasticity and underdeveloped generative organs the type known as hypo-gonads or constitutional inadequates.

On taking the history in the out-patients department one hears that their food is insufficient and devoid of fats and vitamins. Further they live in dark or dingy quarters. The private patients on the other hand, tho gh they live in very hygienic circumstances exercise slimming fads and thus have painful menstruation.

Some of the modern girls are inclined towards having a well marked lordosis and kyphosis in order to look more beautiful. With this position they develope flattening of the abdomen and restricted movements of the diaphragm. Thus there is venous congestion and pain on menstruation.

Sexual excitements without relief due to long engagement, coitus interuptus masturbation often leads to neurosis chronic elvic congestion and painful menstruation

In some of patients one finds association of urticaria, migraine r asthma with dysmenorrhœa. On examination *dermographism* is ery much marked. According to Schwarz and Smith those patients re sensitive to certain foodstuffs and inhalents.

A reflex between nasal mucus membrane and uterine capillaries s described. There are definite genital points in the nose whose naesthesia relieves the capillary spasm of the uterine vessel. In hree cases Kapur could see this phenomena. On touching the genital points in the nose with a sound the pupils are dilated.

According to Brown, Novak and Reynold Witherspoon, Thornwall and others the *menstrual pain* is due to imbalance between Oestrin and Progestin There is relative preponderence of Oestrin.

This factor can have three causes, *viz* :

(*a*) Faulty elimination of ostrin through the *kidney*.

(*b*) Progestin is not formed on account of the deficiency of prolan B.

(*c*) Corpus *Luteum* does not produce sufficient progestin. The above view were studied on the biopsy curet specimen of 50 patients with an-ovulatory bleeding and two had the painful *menses*. If the preponderance of oestrin would play any role then all the 50 patients should have extremely painful menstruation.

Due to the preponderence of Corpus Luteum extract, *the mucus* membrane of the uterus becomes fairly thick and is thrown out in shreads. This causes a certain amount of *pain*

Hypothyroidism plays an important role. In these cases the basal metabolism is low.

According to Liegner the hypoinsulinism predisposes man to diabetes and the woman to emaciation. Kapur came across 3 such cases where blood sugar ranged between 120-14 mg. They were thin and lean on account of loss of weight. They did not complain of any thing also except Leucorrhœa and Dysmenorrhœa.

Hypoplasia is an important contributory cause of *painful menstruation*. But the mechanism is not clear. Meaker suggests that the disproportion between connective tissue and muscle fibres results in irregular spasmodic contraction on the onset of menstrual flow. Schulze on the other hand *maintains* that deficiency of muscle tissues and consequently decreased uterine *contractions* result in venous stasis which causes pressure irritation on the uterine nerves the so called congestive dysmenorrhœa. Stenosed os, polypus in the cervix and acute anteflexion are the mechanical factors of the painful menstruation. Janson describes the presence of a sewing needle in the cervix as being a cause of dysmenorrhœa. It was inserted by her lover in order to avoid conception. In cases of constipation and backward displacement of the uterus there is congestion of Pelvis and bearing down pain during menstruation. Leung has described 13 cases of ureter stricture who suffered from dysmenorrhœa.

In cases of chronic appendicitis the patient complains of painful menstruation. They are usually cured after removal of appendix.

Derangement of the psychological element of the women plays an important role. The young girls hear all types of stories about menstruation. Those of them who are psycho-labile get the disease. The grown up women can have anxiety neurosis. There are so many other factors which bring on painful menstruation

The treatment of dysmenorrhœa lies in eliminating the cause. Usually the doctor is called when a patient is in extreme pain. The best medicament for this stage is Codein phosphate gr. 1, Phenecitin gr. 4, Acid acet salic. licum gr. 4, one powder every three hours. When the attack is over, attention can be paid to the cause.

It is very important to see to the general condition. Usually the patients are anæmic and ill fed. They should be administrated Ferri in form of plastules, Ferrobin. Gynæcological pills or Ferri et Ammonia Citrate in mixture. The poor patients can get some milk in the out-patients. The Lahore Hospital welfare society has made such arrangements in all hospitals of Lahore. Starvation fads should be given up. In cases of the bad housing arrangements the health visitors should see to the cleanliness of the house. The proprietors of the buildings should be approached by the Municipal authorities for provision of air and light in the houses. These arrangement can definity be made at a low cost. The quarters which are absolutely unfit for human inhibitation should be reported to the health authorities and eventually demolished.

The hormonal thereapy plays an important role in the modern therapeutics. The administration of follicle hormones is indicated only in cases of hypoplastic uteri. 1 mg. of stilbestrol is given three times a day during the 1st 10 days after the menses. Within 3 courses it shows its results. In cases of wretching or vomiting due to the tablet they should be taken with a little soda bicarb in water. Further they are indicated in cases of Corpus luteum preponderrnce. In that case they are to be taken 13 days before the onset of menses.

Testosterone proprionate has won a great fame. It possesses the properties of both œstrogen and progestin. Rubenstein and Abarbanal averted attack of dysmenorrhœa in 16 out of 22 patients by the parentoral use of 5-10 mg. every other day during the week preceding the period. Kapur has published good results. But in many of his case the disease recurred. In the literature masculizing changes viz. facial hair, harshness of voice have been mentioned as drawbacks. Two of our cases developed the above symptoms.

Hormotone is a very popular medicine. Its effect lies in the presence of thyroid extract. It is very effective in cases of hypothyroidism.

Insulin is another well known endocrine product. It stimulates metabolism and also in some unknown way favourably and lastingly influences the ovarian function. In about 10 per cent of underwight visceroptotic and irregularly menstruating dysmenorrhœic women daily doses of 10-15 units of insulin given over a period of 3 months yields permanent relief of pain, restores menstrual rhythm, increases weight and induces a sense of well being. The injections are given with glucose before lunch.

It becomes necessary to do the psychoanalysis of every patient. The anxiety neurosis and the problem of sexual habit without relief are best studied and instructions can be given to eliminate them.

For cases of allergy interavenous injections of calcium gluconate 10 ccm thrice weekly and auto-haemotherapy (30 ccm injections) twice weekly are recommended. Kapur was successful in all his allergy cases except one who has severe asthma.

In patients with genital points in the nose and electro-cautry of the nasal muco membrane is recommended.

Low irradiation of Pituitary gland and ovaries is successful in some cases as ceseribed in the literature.

Prolonged dilatation of stenosed os is very helpful. It is done either by means of a metal dilator or a large stem passary which produces pressure atrophy of sensory corpuscles in the isthmus of uterus. Polypi should be removed surgically. Retrodeviation of uterus should be treated by pessary or Gilliams operation. If fallopian tubes are involved they should be treated either by conservative methods or by operation. Cotte, Speckman and several other writers advocate section of presacropathetic nerves in the sacrum in obstinate cases. Wertheim operates upon plexus hypogastricus in severe cases of dysmenorrhoea. We have not yet resorted to these drastic measures.

Injection of alcohol into the ganglia of Frankenhauser are recommended. They cause degeneration of the nerve cells which relay sensations of pain from the uterus or motor impulses to the uterus.

We are highly indebted to Dr B. L. Kapur for all valuable suggestions and access to the hospital records.

Journal of Obstetrics and Gynaecology.

Medical Notes and News.

DEMOBILISED MEDICAL PERSONNEL

SPECIAL ORGANISATION FOR RESETTLEMENT.

A special organisation is being created to assist medical personnel of the defence services to obtain employment in civil life after demobilisation. The scheme will apply not only to medical officers but to auxiliary medical personnel such as nurses laboratory assistants, dispensers and personnel trained in anti-malaria work.

Particulars of all medical and auxiliary medical personnel who wish to have assistance in obtaining civil employment after the war are being compiled in the office of the Director General, Indian Medical Service, and the lists will be supplied to Provincial Governments.

Provincial Governments have been asked to set up medical employment bureaux under the Surgeon-General or Inspector-General of Civil Hospitals to assist medical and auxiliary medical personnel in obtaining employment in the medical and public health services and in private employment. Government have also been asked to set up small committees to consider and advise on problems connected with the resettlement of medical and auxiliary medical personnel.

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"FILM MAKING FOR BLOOD EXAMINATION."

BY DR. S. K. GUPTA, B.D., Sc., B.O., (Pb.)
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To have a good blood film for examination in the Clinical Laboratory and a satisfactory result after staining, the following technique should be observed very closely.

NECESSARIES:—1. Slides. 2. Surgical Needle. 3. Rectified Spirit. 4. Spirit Lamp. 5. Sterilized Cotton. 6. Wax Pencil.

SELECTION OF SLIDES:—Perfectly clean grease free and well polished slides should only be used. Old slides, having *herring-bone scratches* should not be used for any purpose and should be destroyed when found. Such slides give many confusion to the beginners in the Laboratory works.

CLEANING OF SLIDES:—Old slides should be boiled for some hours in an emulsion of country soap and soft soap in water, then washed very thoroughly in a running tap for hours to remove all traces of alkali; then stored in rectified spirit (never in Methylated spirit) in a glass jar. Before use they are removed from spirit, polished with clean, old, much washed cotton linen, silk preferable, as cotton linen may leave cotton fibres on the slide; these may become entangled in the film, take the stain and be mistaken for blood-inhabiting parasites. Pass it over a flame and place 4 or 5 slides flat on a clean piece of paper by the patient's bed-side.

SPREADING OF THIN FILMS:—Select the spreader——the best is a glass slide with a smooth, even end——test this by running it across the ball of the thumb or a hypodermic needle may be used instead (not satisfactory). In using the spreader, do not pick it up by the ends as this may deposit dirt from the operator's finger on the spreading edge; but hold it by the sides.

PRICKER:—(*a*) Surgical Needle——the best.
(*b*) Hypodermic Needle.
(*c*) Capillary Glass Tube.

An ordinary Sewing Needle or an Office Pin not satisfactory and they are painful to the patient too.

PRICKING:—Blood is usually taken from finger but it may also be taken from the lobe of the ear. Clean the part with rectified spirit or alcohol. Let it dry thoroughly. It is better to prick the dorsal aspect of the finger just below the root of the nail as this is less painful than the prick at the pulp of the finger or on the lateral aspect by the side of the nail. If the patient is perspiring, the part must be cleaned and dried. Never take blood from a wet finger or on a wet or on a still-warm slide.

In an Anæmic patient, you will experience some difficulties in making a good blood film, owing to the large proportion of plasma; which lead to slow drying, with consequent distortion of the blood cells. Make him forcibly flex the fingers on to the palm of the

hand; this will ensure getting a good supply of blood. In extremely anæmic subjects, apply a tourniquet. Thin rubber tubing is the best tourniquet. The films should be made thin and dried quickly over a low flame.

PRICKING AND SPREADING:—Give a short deep stab; pick up clean slides from the paper one by one, holding it with your fingers by the sides and not by the ends, invert them and bring the slide just into contact with the issuing blood. Take a small drop of blood about 3/4th inch away from the end of the slide. Place the *spreader slide* against the surface of the first at an angle of 45°, wait until the blood runs by capillary attraction between the spreader and the slide and then draw the film in the manner indicated.

It is very important that the blood should always follow the spreader and be drawn along behind it that the spreader should not push the blood in front of it. If the opposite method of pushing the blood in front of the spreader be adopted then as the spreader passes over the cells it greatly distorts or ruptures them. It is also equally important that the pressure should be slight.

The films should neither be so scanty that they can hardly be seen, nor very thick as to make the examination impossible.

The films can be made thin and thick by making a slight change in the angle between the slide and the spreader ——45° angle is the best——less than 45° angle makes thinner films ——greater than 45° angle makes thick films.

DRYING OF THE FILMS:—Now allow the films to dry in the air. A thin film, drawn at 45° angle takes about a minute or two to dry in a hot and dry weather, but in a wet climate, generally during monsoon periods, it should be dried by gently warming high above a flame of a spirit lamp; else there is every likelihood of the films being hæmolysed (baked). Remember that curious appearance of healthy blood appears if films are dried by heat or if blood is spread upon a slide before it has time to cool.

STORAGE OF FILMS:—Films must be kept away from flies——a fly can work havoc with a film in a minute. Apart from flies, as you know, aerial contamination is very common. Fungi, aerial dust, yeast, bacteria etc., may rest upon a prepared film and when the slide is stained, they will lead you to a puzzle.

LABELLING FOR IDENTIFICATION: This can be done as soon as the film is dried, with an ordinary soft lead pointed pencil directly on the blood film or with grease pencil, better on the opposite side of the slide at one end. The former method is recommended.

FIXING THE FILMS:—Methyle alcohol is universally used to fix the films, but absolute alcohol is also equally satisfactory. Those stains which are disolved in methyl alcohol, combine fixation with the staining process. It is always advisable to fix films when it is to be sent to a distant place by post or otherwise, particularly in wet season.

THICK FILM MAKING:—Invert the slide and bring it to just touch the drop of blood and take such four small drops of blood on it at the corners of half inch square. The drop should be small and not large. Now with the surgical needle, pull the four drops into an even thick film covering the half inch square——it should not be too thick.

DRYING THE THICK FILM:—It takes more than an hour to dry at room temperature and about half an hour in 37° C. incubator. Drying can be hastened by leaving the film under a fan moving in high speed. In patient's bed side, have it covered with something such as a saucer to keep it from contact with flies and dust and leave instructions to send it after two or three hours, when it will be dried, to the Laboratory.

COMBINED THICK AND THIN FILM:—(Sinton's Method):—This is very nice. The thin is spread in two-thirds of the slide first and then a thick film is made at the other end of the slide.

PENICILLIN TREATMENT OF GONORRHEA.

BY EDWIN W. HIRSCH, M.D., CHICAGO, U.S.A.

Sulfa resistent gonococci have been the bane of the venereologist. Whenever these cases were encountered, the physician had to resort to the old-fashioned, lengthy form of treatment. This tremendous complication has been overcome by the introduction of penicillin which has practically eradicated the problem of sulpha-fast gonorrhea.

Dr. Alexander Fleming discovered the antibacterial action of the mould Penicillium notatum. He observed that staphylococci were destroyed on Petri plates which were contaminated with moulds of penicillin. His attention was drawn to the important phenomenon that a clear area surrounded the mould growth which was free of staphylococci. Practical use of Fleming's discovery was made by Dr Howard Florey and Dr. Ernst Boris Chain.

Penicillin is a brownish-yellow substance and is the sodium salt of penicillin. It is dispensed in sealed ampoules of 10,000 Oxford units and ampoules of 100,000 Oxford units. Penicillin is readily soluble and is dissolved in distilled water or normal saline solution.

Satisfactory results have been obtained in tremendously large proportion of sulfa resistent infections due to pneumococci, meningococci, streptococci, staphylococci and gonococci.

The administration of the drug is relatively simple and it may be introduced into the body by the intramuscular, intravenous or intrathecal route—the later being reserved for meningitis cases.

100,000 to 200,000 Oxford units is sufficient for the average gonorrheal urethritis, gonorrheal prostatitis, gonorrheal seminal vesiculitis or gonorrheal arthritis. 50 cc. of double distilled water is added to a tube containing 100,000 Oxford units. Intramuscular injections of 6 cc. each are given in the buttock with a 1½ inch needle every three hours, until the entire 50 cc. of penicillin has been given. Excellent results have also been obtained by doubling this dose and thus the number of injections are reduced in half. If the urethral smear is not negative after the first 100,000 units of penicillin then treatment is continued until 160,000 or 200,000 units have been injected. Thus the treatment of gonorrhea is reduced to a simple routine procedure.

(Indian Journal of Veneraol Diseases and Dermatology.)

Extract.

SIMPLIFIED HERMONAL TREATMENT OF AMENORRHEA

BY BERNHARD ZONDEK, M.D.

Amenorrhea may be a symptom of a general disease but usually is of endocrine origin.

The absence of menstrual bleeding is the cause of much concern to women. They suffer psychically and often an inferiority complex develops. It is known that uterine bleeding may occur either from a proliferative (pseudo menstruation) or from a progestational mucous membrane (menstruation). The two types of bleeding, from a proliferative and from a progestational endometrium, produce the same psychic and physical effects. Up until now it was generally thought that to produce bleeding the uterine mucosa had to be stimulated to proliferation by estrogenic hormone first and then the secretory phase had to be induced by progesterone. The doses required are from 30—40 mg. of estradiol benzoate and from 30—40 mg. of progesterone. The treatment lasted 25 days. Daily injections of estrogen are not necessary, eight injections of 5 mg. each (estradial benzoate) in the space of twenty days being sufficient, followed by daily injections of 5 mg. of progesterone for five days. In many cases a few days after the injections have been discontinued bleeding sets in

Now it has been found that a five day treatment with total dose of 50 mg. of progesterone alone was sufficient to produce bleeding in amenorrheic women and the preparatory treatment with estrogen was quite superfluous.

Bleeding with progesterone alone in women with primary amenorrhea or with castration amenorrhea is never induced.

The minimum dose of progesterone for this purpose is 50 mg. and the minimum duration of treatment two days. If the 50 mg. of progesterone was given in one injection, no bleeding was obtained.

Results. 20 patients were treated with progesterone alone. The amenorrhea had lasted from 4 months to seven years. In 90% of these cases bleeding was obtained. 7 patients whose amenorrhea had lasted from 6 months to six years had received 25 mg. of progesterone a day for two days. In 6 of the 7 patients a bleeding set in from 72—100 hours after last injection.

Reduction of Progesterone Dose by Addition of Estrogens. Progesterone dose, minimum of 50 mg. may be reduced if the estrogen level in the body is increased. 17 women who had amenorrhea from 6 months to 9 years were treated with 5 mg. of estradial benzoate and 25 mg. of progesterone on two consecutive days (2.5 mg. of estradiol benzoate and 12.5 mg. of progesterone daily). From 84—112 hours after the last injection 11 patients reacted with uterine bleeding that lasted for from 3—5 days. Majority of non-reactors had amenorrhoea of more than two years. Such cases should be treated with the full amount of 50 mg. of progestrone.

When these patients were treated with estrogens and progesterone in one day instead of two days the results were very poor. Only 50 per cent of the patients reacted.

PRIMARY AMENORRHEA AND CASTRATION AMENORRHEA

In such case progesterone alone fails. In such cases no estrogenic hormone is produced, so small doses of this hormone must be given. Estrogen may be given before progesterone or given simultaneously.

(J. A. M. A.)

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TREATMENT OF EMERGENCIES IN ANAESTHESIA

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INTRODUCTION

It is urged upon those who hope to acquire proficiency in the use of anaesthetics that the timid and the reckless are both equally dangerous, the one because he has no faith in his knowledge, the other because he has never realised that his skill and knowledge alone stand between his patient and peril, possibly death.

The Armamentarium. This consists of the inhaler selected, an adequate quantity of the anaesthetic which has been chosen as most suitable for the patients, and if the particulars of the case are not known, an alternative anaesthetic with appropriate apparatus, a gag, tongue forceps, sponges with holders, a mouth opener, an air-way, tracheotomy instruments and intubation tubes; in addition, coramine, cardiazol, strychnine, morphine, atropine, pituitary extract, digitalin, adrenaline chloride (1 in 1000), veritol with a hypodermic syringe should be at hand. In cases in which special dangers are apprehended additional aids are required, such as a cylinder of oxygen and a bellows fitted with India rubber tubing for pulmonary inflation.

Emergencies. It is a common experience of every anæsthetist that emergencies arise during the course of anæsthesia. Some of these emergencies are unavoidable, as for instance, during the course of an operation that has been undertaken as the only means of saving a patient's life, but entails bad risks both for the surgeon as well as the anæsthetist. Other emergencies are avoidable. For the successful treatment of such cases it is of supreme importance that the anæsthetist should not wait until the patient is in extremis.

Emergencies fall naturally into two groups: (*a*) Respiratory, and (*b*) Circulatory. The failure of respiration or circulation may be nervous in origin and if one fails the other will do so unless remedial measure are taken speedily and are successful.

RESPIRATORY DIFFICULTIES

The causes of respiratory difficulties may be classified according to their manner of affecting the respiration: (1) Obstruction of the air-passages; (2) interference with the respiratory movements; (3) interference with the nervous control of respiration.

(1) *Obstruction of the air passages.*—This may be caused by such conditions as (*i*) spasm of the upper respiratory tract, (*ii*) presence of foreign bodies such as teeth, tonsils or blood clots in the larynx or trachea (*iii*) alteration in the normal anatomy of the tract as falling back of tongue and collapse of the trachea in goitre or the falling back of a washleather epiglottis.

The treatment must aim at relieving the obstruction without delay. (*i*) Obstruction from spasm usually occurs in the early stages of anæsthesia. It is due to the administration of a greater concentration of the anæsthetic than can be tolerated by the patient. Temporary cessation of the anæsthetic and a few breaths of air or oxygen will usually relieve this. If necessary the mouth may be

opened and the tongue held forward (*a*) If a foreign body descends towards the larynx, the patient's head must be lowered at once and an effort made to remove it This is a frequent accident that occurs in children's clinics for the removal of tonsils and adenoids. Blood clots, tonsils, loose temporary teeth or swabs may drop down the throat and become a source of danger. The child should be at once helped up by the legs while a careful search is made for the foreign body. If impaction in the larynx takes place, a tracheotomy may have to be performed For fluids in the throat the same treatment must be adopted. The passage of a stomach tube before induction in cases of acute intestinal obstruction will prevent the inhalation of large quantities of faecal vomit. Where there is a possibility of hæmorrhage, as in buccal operations, the anaesthetic should be given by means of a intratracheal catheter, the pharynx being well packed with a sponge gauze. In cases of retropharyngeal abscesses, where there may be sudden burst of pus into the throat if a general anaesthetic is required, it should be given by the endotracheal route or through a laryngotomy tube. (*b*) With an oedematous larynx, as in Ludwig's angina, a tracheotomy may be a necessity (*c*) In the removal of large goitres, a softened trachea may collapse suddenly and obstruct the respiration Intratracheal anaesthetic should always be given in such cases to avoid trouble in the middle of the operation Lastly, it may happen though very rarely that when full anæsthesia is reached, the epiglottis may fall backwards and cover the top of the larynx. If this so-called "trash-feather" epiglottis be hooked upwards, respiration will proceed normally, and for the continuation of the anaesthesia tracheal catheter should be passed.

(2) *Interference with the respiratory movements*—This may be due to the pressure on the patient's epigastrium; to the pressure of the viscera on the diaphragm in a high Trendelenburg position, or to the pressure of one side of the thorax if the opposite lung is out of action. With very obese patients, especially in chronic cardiac or pulmonary disease is present, a high Trendelenburg position sometimes produces cyanosis and dyspnœa To these patients oxygen must be given, and they should be kept in the tilted position for as short a time as possible. Patients who have one functional lung may require operation on the diseased side of the chest. If lying on the sound side causes embarrassment, the shoulder should be supported with a pillow, so as to enable the chest wall to expand freely.

(3) *Interference with the nervous control of the respiration* -This may be brought about by (*i*) toxæmia from an overdose of the anaesthetic, (*ii*) anæmia from excessive fall of the blood-pressure, or (*iii*) reflex inhibition, as when operative measures are started on a partially anaesthetised patient.

The treatment is the same for all cases The anaesthetic must be discontinued and the patient's head lowered. Oxygen and CO (5 per cent) should be administered by inhalation, and if respirations have ceased artificial respiration must be resorted to. A powerful stimulus, such as stretching of the anal sphincter, will often start respirations again Drugs are particularly useful here. Coramine (Ciba) from 5 to 10 c.c. given intravenously is the drug of choice. It stimulates the respiratory centre and restarts the respirations Serychnine gr 1/30 is valuable for its action on the motor cells of the spinal cord. Lobeline gr. 1-10 is a powerful stimulant of the respiratory centre. When the respirations stop and the patient gets cyanosed, the anaesthetist should not get nervous. Steadiness of mind is the chief requirement. Mostly the efforts of the anaesthetist

are crowned with success—the respirations restart the patient's colour changes. If vigilance is kept over the patient's respirations and skin colour, overdosage of the anaesthetic can be detected in time, and much can be done by timely interference to avoid a catastrophe. It has sometimes happened that premature lowering of the head in cases where a spinal anaesthetic has been given has led to paralysis of the phrenic nerves. In such cases coramine and strychnine must be injected and artificial respirations carried on until the effect of the drug has passed off.

CIRCULATORY DIFFICULTIES

Circulatory difficulties may be due to (1) the direct effect of the anaesthetic, (2) the effect of the operation, or (3) failure of respiration Generally speaking the anaesthetist gets a warning by the presence of cyanosis.

(1) Effects of the anaesthetic. Where the anaesthetic is directly responsible for cardiac failure, either myocardial degeneration or a poorly compensated valvular lesion is usually present. Chloroform is the chief offender. It exerts a toxic action on the heart muscle which action is accentuated in the presence of cyanosis. Prolonged administration of gas and oxygen in old and feeble persons may also cause heart failure. Its effect has been described as similar to that which would be produced if the patient were made to run uphill. An overdose of the anaesthetic is liable to produce cardiac inhibition and bulbar paralysis. The anaesthetic is also held responsible for deaths from status lymphaticus.

In treating these cases of circulatory failure the head must be lowered so as to keep the brain well supplied with blood, and an effort must be made to eliminate the anaesthetic. For this oxygen with 5 per cent CO should be administered. If the heart has not actually stopped beating, the anaesthetist should inject cardiac stimulants intravenously. Those most likely to be of value are cardiazol 5 to 10 c.c., coramine 5 to 10 c.c., strophanthin gr. 1/200, caffeine soda benzoas gr. 1-3. or ether 1 c.c. (if the patient has not been having this drug). If the heart has ceased to beat 5 min. of adrenaline (1 in 1000) should be injected directly into the left ventricle. Failing this and as a last resort, the heart should be massaged through the diaphragm. Sudden concentration of chloroform vapour in early stages may cause the heart to fail by vagal stimulation. An injection of atropine gr. 1/200 given before the operation is the best means of preventing this catastrophe

(2) Effect of the operation. Failure of circulation due to the operation is most often attributable either to shock or to haemorrhage, or to an embolus; less frequently to the lowered blood pressure which follows the injection of a spinal anaesthetic. In case of shock and haemorrhage it is essential that the patient be supplied with warmth and fluids A transfusion of blood is undoubtedly the best method of giving fluid and failing that saline should be given intravenously or per rectum. The patient should be at once returned to bed and warmth supplied by blankets or a hot-air cradle. The foot of the bed should be raised on blocks and an injection of morphine should be given. Its collapse occurs as a result of fall of blood pressure following a spinal anaesthetic. the head should be lowered and 1 c.c. of pituitary extract injected intramuscularly. Adrenaline chloride (1 in 1000) 1 c.c. or ephedrine hydrochloride gr. 2-3 may be used hypodermically Pulmonary embolism is, fortunately, rare during anaesthesia. Its occurence is sudden and is accompanied by cyanosis and immediate cardiac failure. The anaesthetist can do little.

(3) *Effect of respiratory embarrassment.* Where the respiration is primarily at fault, it is obvious that if breathing has actually stopped, it will only be a matter of time before the heart also ceased, unless effective measures are taken promptly. If the respiration is obstructed, strain will be thrown on the patient's heart because of the greater muscular effort required to breathe and deficient oxygenation which is liable to occur. If partially obstructed respiration is present for any length of time, it may lead to heart failure in feeble or fatty patients or in cases where the heart is already weakened by chronic valvular disease or by myocardial degeneration. To treat the heart, one must relieve the obstruction by whatever methods the occasion demands, whether it be the use of an airway, support to the chin, alteration of posture or alteration in the method of giving anaesthesia.

CONCLUSION

Prevention is notoriously better than cure. If there is one method better than another in the prevention of fatalities under anaesthesia, it is the *maintenance* of a perfectly free air-way. If emergencies should occur, let the careful anaesthetist remember these two rules: (1) Keep the head low. (2) let the remedies be prompt. It is better to start treatment five *minutes* before the patient is dead than five minutes after.

INTRAPERITONEAL SULPHONAMIDES.

Hudson and his colleagues demonstrated the efficiency of intraperitoneal sulphonamides in reducing mortality in early peritonitis. From the results in controlled series they were convinced that implanting the drug at operation was more effective than giving it by mouth or vein.

Now the question is which compound should be used of the sulponamides series? Sulphanilamide is more soluble than sulphathiazole, sulphadiazine, sulphapyridine or sulphasuxidine. So sulphanilamides would be easily absorbed and the concentration of the drug would increase in the blood, though the concentration in the blood is much less than what it is locally in the peritoneum. On the other hand, the drug which is least soluble, is also not good as locally it forms lumps with the peritoneum and intestines with any future complications. So the drug like sulphapyridine which is not much soluble nor least soluble should be used, with *no* danger of adhesions or lumps in the abdomen.

The drug must be spread thinly in the form of suspended powder or microcrystals. Only sterile preparation should be used. Otherwise, tetanus or some other infection may develop.

Hudson and Smith suggested supplementary chemotherapy by mouth or injection to keep up the intraperitoneal concentration. It should be started a few hours after the operation. The results are good. This method controls or prevents post operative renal or pulmonary complications. *At least 15-6 pints of fluid* should be taken to avoid deposition of crystals of drugs in ureter and consequent anuria. Urine should be kept alkaline to litmus. If the dosage, form and sterility of the drug are correct, intraperitoneal chemotherapy will reduce operative mortality and complications, its greatest use being in the early case of peritonitis or as a prophylactic measure when the peritoneum is known to be contaminated.

The dose should not increase 15 grammes if jaundice or hepatitis is to be avoided.

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OPEN TREATMENT OF SURFACE WOUNDS.

(WITH SPECIAL REFERENCE TO ITS UTILITY IN THE WAR).

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The benefits or advantages of the new technique can best be illustrated by a reference to the prevalent practice of treating wounds and its inherent drawbacks:

1. As everybody knows the use of bandages plays an important part in modern wound treatment. bandage dressing is no doubt very valuable in protecting the wound from external violence-physical or bacteriological but you will concede that there are certain distinct disadvantages in the use of bandages. The gauze and cotton dressing and bandages merely protect the wound from the atmospheric germs, but do not prevent the colonization of germs already on the surface of the wound. The bandages create a sort of moist hot chamber atmosphere which keeps the wound festering and in an unnatural state. Edges of wounds become swollen and soddy and unresponsive to simple dressing.

2. Removal of dressing gives intense pain to the patient and causes psychic trauma at each dressing. Oils, ointments and paraffind loose meshed gauzes may somewhat diminish the pain that is caused by the removal of dressing by preventing adhesion but the hot chamber atmosphere is still there. The change of dressing (which gets choked up) has to be kept up in the name of clean surgery.

3. Often the dressing sticks to the wounds and frequently the tissues that are recently formed are torn off at each dressing thus preventing the rapid healing up of the wound.

4. The bandage or dressing is incapable of stopping serous discharges, leading to heavy loss of fluids and valuable salts from the body.

5. The cost of daily change of dressing is too much for the poor.

6. (*a*) It is not practicable to apply dressing on some parts such as face, etc., and dressing whenever applied retards free movement, is extremely cumbersome and unsightly.

(*b*) When the point surfaces are involved, the dressings are difficult to apply and retain. They get loose and the healing of the wound is delayed with the formation of pus. I have seldom seen a wound of the knee or ankle surface healing within eight days. Rather simple abrasions on knees, etc., in certain seasons run in to large ulcers involving a lot of pain and loss of time and expense

7. Ointments that are being used in the dressing of wounds these days do not help much. Nobody ever boiled ointments but I even boiled them to insure sterility. Even then there was not appreciable difference in the time taken by wounds to heal, besides, the preparation and use of ointments and dressing in messy.

8. Scars very little of scarring results with this technique but ugly scars are left with the ordinary method.

All these handicaps set me a thinking to evolve a simpler method which should possess all the advantages of the present system of dressing of wounds, be quick and more efficacious and yet at the same time be free from its drawbacks.

In my opinion, the shortest way to heal wounds is to let the natural healing capacity inherent in the body have full play undisturbed.

Principles that are involved in the new Treatment of wounds are the same which apply to the treatment of Burns and there is much less of sepsis met with as compared with the burn cases. These principles are:

(a) Producing a scab dressing under which nature's healing processes may be carried on.
(b) Sterilisation of the wound.
(c) Rest to the wounded part.

I will deal with each principle separately.

Production of scab: The scab over the wound successfully protects the wound [illegible] effectively as a dressing under which healing processes are carried on without [illegible] as the healing is complete the scab [illegible]. The scab is produced by the action of silver [illegible] surface albumins (serum and injured cells forming serum constituents). Tannic acid is also used. The coagulum thus formed carries with it all the surface germs and makes them inactive thus utilising those very elements, which would otherwise prove harmful to the wound under a bandage, as material for sealing the wound hermetically and thus allowing nature to heal the wound in the natural way the shortest way. Slowly the fibrous tissues develop and the growth of the epithelium begins. The scab falls off in due time and healthy non-pigmented skin is revealed. There is a great tendency to remove or scratch the scab away since it itches so much as healing proceeds. It must not be removed and if removed a raw ulcerated surface is produced which would be again sealed with Ag. and Liv.

Sterilisation of Wounds:—I have found Gentian Voilet and Silver Nitrate as the most powerful antiseptics that can be used for keeping the wounds clean and thus cutting down the time taken by wounds to heal.

Rest: The question of rest to the wound is extremely important. Ulcers which are difficult to deal and are sometimes dubbed as tubercular ones get healed if they are not disturbed much. A case from Delhi with a non-healing ulcer in the groin ticketted as a T. B. ulcer was brought to me with a history of bubo and operation. Dressing was being done twice or thrice daily for months and months and it was discharging pus. The ulcer healed in a fortnight when the principle of rest was applied. Another case of carbuncle of the neck in which the large and deep ulcer had no discharge and everything pointed to its healing rapidly, but it would not heal inspite of everything being done for it. Iron, arsenic and liver therapy would not help. It worried me very much as to why the healing had stopped after reaching a certain stage. There was no sugar in the urine, hence no insulin was ever used. After a week's thinking, it came to my mind suddenly that since the wound does

not get any rest from the *constant movement of the neck* in talking and listening, looking to the right and left, up and down, so it did not heal or respond to treatment. I thought of immobilising the patient's neck muscles by making a wooden box or a plaster cast but the new solution had its own difficulties in actual operation. What I actually did was to give up the daily dressing and constant disturbing of the parts. The patient was discharged and came back after three weeks without any ulcer to show.

Applicability:—The new treatment of wounds is applicable to all kinds of surface wounds, *i.e.*

(1) Wounds involving large areas of skin surface which are 1/8 in. to 1/6 in. to 1/4 in. deep in which subcutaneous tissues are exposed and even muscular fascies are visible, or superficial wounds or solution of surface or breaking up of living tissues by injury (Trauma).

(2) Even wounds 6 in. by 4 in. where sutures are not applicable respond very well to the treatment under discussion

(3) Even skin grafting may be dispensed with in certain cases. The areas from which grafts (big or small are cut heal quickly under the new method).

(4) Surface wounds over joint areas like the groin, knee, ankle, wrist and elbow, Axilla, neck, fingers, and toes, etc, *i.e.* the moving surfaces and parts take a record short time to heal. With the *sealing of the* raw surfaces and the *formation* of a protecting scab, one can move about without the danger of sepsis from the clothes over the limbs.

(5) In case of small wounds or cuts this system is par excellence and requires only two or three applications and sometimes only one suffices.

(6) In small wounds over the face where dressing is difficult to apply, this new treatment works wonders.

(7) I expect that slow healing ulcers from X-Rays, Radium burns or others to heal earlier under the Gentian violet treatment, because under the *scab covering* formed, healing (may be slow) can go on uninterrupted without much ado on the part of the doctor or the patient.

Treatment:—1. After stopping the bleeding points, apply Silver Nitrate 10 per cent to coagulate the albumins and globulins of the tissues, thus stopping the *serous* discharges and blocking the oozing points. I found Silver Nitrate best compared with other coagulants, as it is less irritating and painful.

2. Dry the part and paint or spray I per cent Gentian Violet I have found Gentian Violet as the best antiseptic.

3. Dry and then paint or spray 5 per cent Tannic Acid repeatedly. Not necessarily 5 per cent, it may by 2 to 10 per cent or a pinch of Tannic Acid in a spoonful of water. A clean dry surface is produced. The spraying of the tannic acid is to be repeated 4 to 6 hourly for 20 minutes at a time. A dry crust is formed which protects the deeper surface and prevents the evaporation of fluids from the body. In a day or so the edges of the wounds and the healthy surface of the skin surrounding the edges becomes red and swollen. This subsides on the 3rd or 4th day. This swelling and

not to the application of the caustic. From the 4th day when the scab has become pucca, repeated spraying of the Tannic Acid may be curtailed. Sometimes on the 4th or 5th day cracks appear in the scab. Then apply Silver Nitrate and Gentian Violet again and carry on as usual. In some cases pus is formed under the scab. In such an eventuality you make a window in the scab by snipping with a pair of scissors, let the pus out and apply Silver Nitrate and Gentian Violet again, and carry on as before.

In case the wound is very large, the patient may be hospitalised for the first three or four days and then may be instructed to come once daily to the surgery. The spraying can be carried on by him at home even. Our aim is to make the patient independent of the doctor as early as possible and as much as possible. He may be given a dozen powders of Tannic Acid of 10-20 grains to be dissolved in ½ to 1 oz. of boiled water for painting or spraying. Each time a fresh solution must be made.

This treatment can be carried out by the patient himself at home. If pus is formed and oozes out at the edges or in the central cracks, mop it up and apply Silver Nitrate and Gentian Violet. The healing goes on uninterrupted under the scab and it occurs with first intention. Ordinarily when pus is formed, the healing is delayed for another week or so but with this process it seldom takes more than 10 days in all.

In deep and punctured wounds involving the limbs and scalp where sutures are not needed, the wound is cleaned and irrigated with ether syringe and 1% Gentian Violet solution and bandage dressing applied and watched.

If a foot is involved, swelling is invariably observed which goes on increasing if movements are kept up and gravity not counteracted. It is best in these cases to put the patient in bed with the foot raised after having sealed the wound as above. Help the movement of the lymph by an upward stroking massage.

In deeper small wounds the sealing leads to formation of pus underneath which can be let out by puncturing the surface scab and repeating the treatment. If the scab is lifted by the discharge underneath the scab may be removed pus mopped and fresh Silver Nitrate and Gentian Violet applied. Even with the formation of pus the edges of the ulcer would be found to have contracted and neared each other.

All skin denuded surfaces respond at once to this new treatment and the work and worry of the surgeon is very much reduced.

In all cases of fresh injuries this new method is the only treatment to seal the wound effectively. In small wounds over the surface where dressing is difficult to apply the Silver Nitrate and Gentian Violet work wonders.

In small wounds over hand and fingers which are in themselves very teasing, the application of Silver Nitrate and Gentian Violet eases the pain too.

Objection can be raised to the action of Silver Nitrate because it injures an already injured part, but it should be remembered that it burns only the already traumatised dying part. There is no other way of converting the living but dying (devitalised) tissues into a dressing except by killing them outright and making them cover the deeper tissues. (A sort of de-bridement). Nature also kills

projecting tissues and tries to level up the surface and edges like a good conservative surgeon, curring the ragged edges and projections.

Silver Nitrate, Gentian Violet and Tannic Acid each of them independently alone can act effectively, but the action of all together goes a long way in quick healing. Combination of Gentian Violet Brilliant Green and Aeriflavin is also useful but not so satisfactory as that of Silver Nitrate, Gentian Violet and Tannic Acid.

This new treatment can be applied effectively in the treatment of ulcers or wounds even when they are septic and discharging pus. But if applied when the ulcers and wounds are clean it works excellently.

It is obvious that a mother would not be able to wash her clothes or knead the flour if her fingers or hands are tied up with a bandage even for the slightest injury. With the new technique of sealing the wound, she can carry on her work uninterrupted. A surgeon can easily seal the small cuts over his hands, received while operating when in danger of sepsis, and so on. Instances of workmen can be cited to show that there is a great saving of individual and national time with the new treatment which allows a workman to carry on his work in case of small injuries without being bothered with cumbersome dressings.

With this system there are no shocks to the body and the mind except the first casual one. The spray and the violet colour have become too familiar to cause any shock.

Pain-factor in Trauma is also reduced to some extent with this method.

In lowered vitality subjects this treatment also holds good, in which case Gentian Violet may be used alone.

Wounds of Animals:—If a cut is produced or a wound caused to any animal, nobody takes the trouble to dress it, and if any one has the courage to dress no dressing would stay. These sore surfaces on the backs of asses, horses and bulls, etc. go on oozing serum and look red and nasty till natural elements come to their help. The sunshine (heat) coagulates and the wind dries the serum albumins and a scab is produced under which healing goes on, unless disturbed again by fresh trauma by man or bird. If a man comes to their aid, he applies "Mehadi" or burnt leather over the wounds and you know both these things contain Tannic Acid and help in the formation of scab. In my opinion, the new technique is the most useful and suitable for the treatment of wounds of animals as well.

Utility in the war: This new technique for the treatment of wounds is of special importance on account of countless wounds during a war. It has the following special advantages and deserves serious consideration at the hands of the authorities.

1. In the unhygienic conditions prevalent in the field there is more likelihood of serious infection even through small wounds. The necessity to seal the wound immediately against dust, dirt and infection is obvious. Bandages cannot provide a complete and quick protection under field service conditions. It can only effectively be ensured with the present technique of sealing the wound there and then on the spot.

2. Even minor injuries handicap and effect the efficiency of the soldier by restricting the movements of the injured part with bandages. Sealing of the wound with the new technique allows complete freedom of movements,

3. The new method is simple to learn and every soldier can attend to his minor injuries right on the spot if the solution of Silver Nitrate and Gentian Violet is made part and parcel of his kit.

4. There will be appreciable decrease in the total expenses, directly and indirectly, for the treatment of casualties, as the cost of cotton and gauze, etc., is absolutely eliminated. There will be a sufficient saving in the salary bill of compounders, nurse and other staff. This is not an insignificant factor especially when there is shortage of supplies and trained personnel.

5. The present technique entirely does away with messy ointments since it is much easier to prepare solutions of Silver Nitrate, Gentian Violet and Tannic Acid.

6. Valuable shipping space is saved which would otherwise be blocked for the carriage of huge loads of bandages, cotton, ointments and other paraphernalia.

Limitations of the New Technique.

1. No wetting of the wound is to [illegible] not a new precaution, but also applies in cases wh[illegible] used as in the old method.

2. The part [illegible] red surface or [illegible] appear on the scab on removal.

3. The treatment is a [illegible] and trained [illegible] easily. It is not of universal application and the discretion of the doctor rules his favourably. The [illegible] are quite insignificant when compared with the benefits conferred by the new technique of treatment of wounds.

—*The Medical Review of Reviews, Oct. 1944.*

PSYCHIC AMENORRHOEA

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In my articles, "Hormones in Menstruation and Pregnancy" published in *The Indian Medical Gazette*, July 1940, I described a type of amenorrhoea under the heading "Post-coital amenorrhoea". These are the cases of amenorrhoea occurring in regularly menstruating women who can legally be pregnant but do not want to be or who cannot legally be pregnant but had recent sex contact. The amenorrhoea in these cases is caused either by pregnancy or the fear of possible unwanted pregnancy. The latter condition is best described as psychic amenorrhoea, and not as I previously designated, post-coital amenorrhoea. Fear of pregnancy and similar other depressional emotional factors delay or suspend menstruation through certain nervous inhibitory processes operating on the menstrual mechanism.

Usually most of such cases come for treatment soon after the expected periods, while others a week or two later, after having experimented with home remedies, such as quinine, caster oil, brandy and gin, or mixtures from chemists which usually consist of ergot, quinine, gossipium and so on. More enterprising women would have tried one of the innumerable menstruation-regulating remedies regularly advertised in the lay papers. The main ingredient in such products is stilbestrol. That help should be given to such women cannot be gainsaid, unless when the condition is due to pregnancy. In the earlier days, accurate diagnosis is impossible except through

one of the laboratory methods, which is expensive. The question to consider is what line of treatment will be most effective without being harmful, if the woman happens to be pregnant. As there is no hormonal deficiency, treatment with follicular and (or) luteal hormones is unsuitable. In many cases, an assurance by the doctor that the amenorrhoea will be corrected will be enough, but as the law stands at present, this cannot be done, if the condition is caused by pregnancy. In some cases even injections of distilled water and other dummy products will start the menstrual flow, as the patient feels that something is being done for her.

Often we find that these do not help and stronger measures will have to be adopted. In this connection, it may be mentioned that the follicular hormone, the sheet anchor in all cases of amenorrhoea, has two different actions on the uterus, the specific proliferative action on the uterine mucosa and the selective hyperaemic action on it. It is on the latter we have to depend. To bring on sufficient hyperaemia, massive doses of the hormone will have to be used, i.e. use 15 m.u. daily for two or three days or 10 mg. twice a day for two days. The menstrual flow starts from one to six days after the beginning of the treatment. The unfortunate part of this essentially scientific line of treatment is that patients notice no appreciable effects and in most cases they expect immediate relief of their condition. When the fear of pregnancy forms a deep-rooted inhibition, this line of treatment often fails.

What is required is some line of treatment that will impress the patient that her menstruation will sooner or later begin. Here I am not considering any local treatment. There are two specific

drugs that are helpful and these are yohimbine and prostigmine methyl sulphate. The former is believed to produce considerable hyperaemia of the uterine mucus but it has the same objection as the follicular hormone. Then again, there is no study available where it has been successfully used to initiate menstruation in the human female. Prostigmine produces marked powerful contractions of the uterine and other involuntary muscles within 20 to 40 minutes after injection and these are often strong enough to impress the patient and circumvent her inhibition. The study of Samuel Soskin and his coworkers has proved that it does not terminate pregnancy, if the amenorrhoea is caused by it. As a matter of fact, they claim that [illegible] to this line of treatment may be considered as a therapeutic test for pregnancy.

The injections are given on 3 consecutive days in doses of 1 mg. and the menstrual flow starts within 6 days of the first injection, when the condition is not due to pregnancy. It has to be borne in mind that injections of this drug often produce alarming symptoms, such as twitchings of the muscles of the pharynx and consequent inability to particulate, intestinal cramps, repeated bowel movements and so on. These pass off within about half an hour and no treatment is necessary. It is advisable, however, to keep the patient with the doctor for about 45 minutes after the injection.

In the 28 cases recently studied by me, 6 turned out to be pregnancy, 4 were [illegible] as the women reported having [illegible] clots of blood with the [illegible] were cases of real [illegible] menorrhoea. In other words, menstrual flow was initiated in 22 cases. Of these 8 cases were treated with follicular hormone and 14 cases with prostigmine methylsulphate.

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