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Editor: Dr. P. R. Venkappaya.

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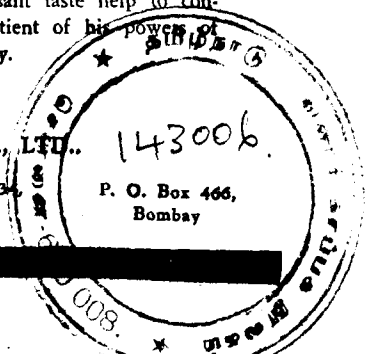
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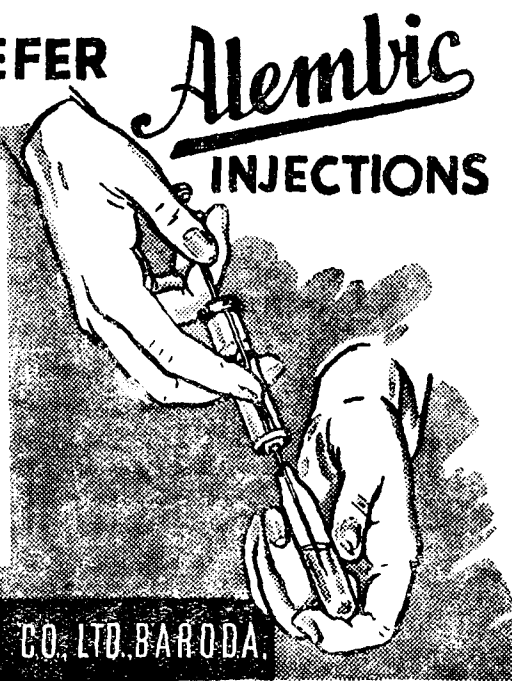
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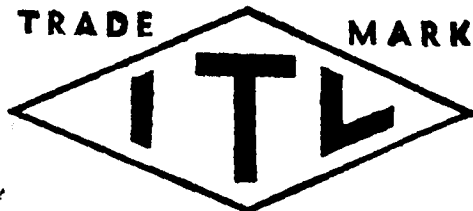
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THE DEVELOPMENT AND THE PRINCIPLES OF THE SURGI- CAL TREATMENT OF PULMONARY TUBERCULOSIS.

BY DR. R. DEMEL,

Professor of Surgery, Vienna University.

(1) DEVELOPMENT.

The first experiments with the surgical treatment of pulmonary tuberculosis go back into the 18th century and are bound to the names: E. Barry, Boerhave, David, Pautau and Snarp. At that time inflexible cavities of the lung were opened by means of a puncture, similar to an abscess. This method of course, according to what we know to-day, could be of no result. In the 2nd half of the 19th century, Biondi, Blooch Doyen, Guluck, Lawson, Macewen, Reclus, Schmidt Stretton and Tuffer, encouraged by successful lung-extirpations on animals, endeavoured to use, this operation on patients, but was on account of its failure of no use. Freund advocated the chondrotomy of the first rib in cases of congenital narrowness of the upper breast aperture, but was also not successful.

The surgical treatment of pulmonary tuberculosis of to-day mostly limited to the fixation and compressing of the ill lung. This kind of treatment is only used in severe cases of pulmonary tuberculosis and their secondary condition, where a non-operative way of treatment would be useless there are two fundamental differing methods used to produce a lung-collapse.

(1) Either an indifferent gas (pneumothorax) is filled between the two layers of pleura; a method which gets the lung away from the chest wall, or the two coalesced layers of pleura are loosened from the inside of the thorax. (Extra-pleural pneumolysis). Thus the remaining hollow space may either be tamponed for a while or filled with paraffin or fat (plugging the lung).

(2) The second method reaches the compressing of the lung by changings, which are done to the thoracic wall itself. This purpose serve either the artificial firmness of diaphragm, whereby the diaphragm, is moved towards the thorax, or the stiff lateral thorax-wall is interrupted by an extra-pleural Thoracoplasty, and then becomes movable.

The first open pneumothorax for producing a lung-collapse was applied by Corson in 1822, while Forlanini as the first one recommended in 1882 after he had given theoretical reasons—the closed pneumothorax for the same purpose; this suggestion was actually worked out by Cayley 3 years later. This method of treatment is based upon the fact, that the T.B. illness of the lung was not so seldom stabilized or improved on account of the arising of a spontaneous pneumothorax of the development of a larger exudate. Forlanini applied his first artificial pneumothorax by means of a thin infection needle in 1892 and was soon able to give a favourable report. But his reports were not given much attention. Meanwhile the artificial pneumothorax was advocated by the American Surgeon Murphy in 1898, by Schell, Lemke and Kelly and also in Denmark by Saugmann 1926. In Germany it was Brauer, who recommended this method of treatment very highly in 1903. Guided by his report Kuttner made first of all this little operation. L. Spengler, V. Muralt, A. Schimdt, Ranke and Deneke advocated this method to a high extent.

In the year 1888, Quinke called attention to the fact, that tuberculous cavities, when only opened like lung-abscesses, are not able to heal completely and this for mechanical reasons. In order to free the cavities, which are imbedded by a weale like tissue. Quinke recommended the resection of several ribs above the cavity. Independent of this, C. Spengler reported in 1890, that the unmovable lateral thorax wall over the cavities must be made movable by resecting a few ribs. For this operation Spengler gave the name "*extrapleurale thoracoplastic*". It was again Brauer, who advocated this operation in Germany very much, and who realized, that in cases with large coalesced pleura, the desired result can only be obtained by taking the bones out of the chest-wall. Brauer and the surgeon Friedrich found a method, where by the nearly, complete resection of the 2nd to 10th ribs beginning at the vertebral column down to the end of the cartilage bone, produces the desired lung-collapse. One disadvantage of this method is, that there is a chance to deprive the mediastinum of its natural support and therefore Wilms recommended in 1911, the resection of 3-4 c. m. of each of the 1st-8th rib out of the posterior part of the angle of the rib and also of a small frontal piece along the sternum out of the costal cartilage.

The biggest merit in completing the surgical treatment of pulmonary tuberculosis has Sauerbruch. He considered the culminating effect of the Brauer-Friedrich operation to the entire organism and in order to reduce the danger, he parted this operation into 2 sessions. Thus Sauerbruch created a method, just about medial to the thoracoplastic according to Brauer-Friedrich and the Wilm's operation, and called it paravertebrale extra-pleural thoracoplastic (1912).

Schlange reported in 1907 about a good result obtained in a severe case of cavity-bleeding by means of tamponating. In consideration of this, Tuffier primarily recommended the loosening of the coalesced apex of the lung with the callous changed layer of the pleura from the inner wall of the chest-wall (extra-pleural pneumolyses), Tuffier filled the thus created wound-cavity with fresh adipose tissue, taken from the patient, or later on he also used Beck bismuth-paste and paraffin. Of great importance for the plugging is the introduction of paraffin as filling-material by G. Baer. (1913).

In 1911 Stuertz suggested in severe cases, of unilateral cavernous illness of the lower parts of the lung to promote the relaxing and fixation of the ill parts by phrenicotomy and the thus created artificial lameness of the diaphragm. Ochlecker operated already in December 1911 his first patient with phrenicotomy Bardenheuer encouraged by Stuertz used the phrenicotomy in cases of bronchiectasis with good result in 1912, and in 1913 Sauerbruch reports about 5 operations. Willy Felix improved the anatomy of the N. phrenicus and the operative technique very pioneeringly and recommended the extirpation of the N. phrenic in place of cutting through or the resection of the nerve.

(2) GENERAL INDICATION FOR SURGICAL TREATMENT EFFECT OF THE COLLAPSE THERAPY.

The old Laennec-Virchow's binary division in a proliferating and exudative form of pulmonary tuberculosis is still of great value and decisive for the question of surgical treatment of pulmonary tuberculosis. It is well known, that the lung is capable of productive processes with inclination to cicatrization and encapsulation of the tuberculosis centre with a following shrinking in as much as the organism is able to react strongly against the infection of tubercle bacilli. The weaker the resistance of the organism against this infection is, the more violent and larger is the development of the exudative changings and a quick breaking down of strength takes place.

To divide the pulmonary tuberculosis in a productive and in an exudative form is of great importance for this reason, because we know, to-day, that most of the exudative cases are not fitted for surgical treatment.

If therefore, the productive form with its inclination to formation of connective tissue and cicatrization gives the main point of the surgical treatment of pulmonary tuberculosis, there is still a second very important point to be considered for the indication of surgical treatment, namely the unilateral illness. But this second movement is according to the anatomical point of view never given or atleast only very seldom. We also know, that when tuberculous centres in the other so called healthy lung have remained inactive for

some time, it does not give any contraindication for a surgical treatment. It is of course self-evident, that the decision for the operation is not always an easy one, and it needs the advise of an internist, who is well experienced in that line. Without the help of an experienced internist, the surgical treatment of the pulmonary tuberculosis is nearly impossible and therefore every high-principled surgeon will be thankful for the help of an experienced internist. According to W. Neumann's statement it needs the full conceivment of the entire ill personality, before we can make the decisive classification of tuberculosis, the so called diagnosis of quality of the pulmonary tuberculosis.

Proceeding processes of both lungs do not come into consideration for surgical treatment. The surgical treatment is only advised in such cases, where the internal or climatic treatment have been of no effect and when there are no other prognostic unfavourable centres of tuberculosis in the body like in the intestinal, the kidney, in severe cases of diabetes and severe nephritis.

All surgical mode of actings in case of pulmonary tuberculosis intend to a rich retraction and shrinking of the ill lung. The favourable effect of the therapy of compressing, (pneumothorax) of taking the bones from the chest-wall lies first of all in the relaxing of the tissue; thus giving the process of cicatrisation an undisturbed chance for development. Hereby it comes to a new formation of connective tissue, which gives the base for the clinical healing. A further advantage of the therapy of compressing is the relaxing of the ill organ, which also impels to a connective tissue proliferation.

The collapse therapy is only allowed in cases, where the function of the other lung grants a sufficient respiration at least when the patient is in bed. Besides this, the pulmonary tissue must be capable of collapse.

(3) INDICATIONS AND CONTRA-INDICATIONS OF THE ARTIFICIAL PNEUMOTHORAX.

The surgical mode of actings serving the compression therapy are divided into two groups. The first group (pneumothorax, thoracoplastic) compresses more or less nearly the entire lung of the one half of the thorax, while the 2nd group phrenicotomy, pneumolyses, tamponade plugging) has first of all a local effect of compression.

The artificial pneumothorax is bound to the presence of a free pleura-cleft; which is necessary for the application of the pneumothorax.

The artificial pneumothorax is advisable in severe, unilateral mostly productive cirrhotic cases of tuberculosis without large shrinking or distortion-symptoms, further also in cases of service, unilateral acinous-exudative and lobular-caseous tuberculosis.

Contra-indications to the surgical treatment of pulmonary tuberculosis are, for extended illness of the other side caseous pneumonies and other chronic non-tuberculous changings in the half of the lung, as bronchiectasis, emphysema, asthma, severe cases of diabetes, albuminuria, nephritis and chronic bronchitis.

(4) TECHNIQUE OF THE VARIOUS FORMS OF COMPRESSING THE THORAX.

The Brauea-Friedrich method, which resects all bones after widely cutting round the chest-wall from the 2nd to the 11th rib and that, (from the forepart to the backpart as near to the vertebral column as possible differs from the Wilm's operation in that way, that Wilm resects a small stripe 3 to 5 cm. posterior of the angle of rib from the 1st to the 8th rib and also frontal out of the costal-cartilage.

The most chosen method of surgical treatment of pulmonary tuberculosis of to day is the paravertebrale extrapleural thoracoplastic according to Sauerbruch. The essentiality of this operation lies in the recognizance, that the centre valut of the thorax can only be compressed, when also the first rib and below also the 10th and 11th rib are suspended. After several experiments, Sauerbruch was able to show that it is most effective for the operation, when there is a piece resected from the rib posterior, paravertebral, because the greatest capability of movement of the ribs lies close to the vertebral column. It is of great importance for the compression of the lung and for a sufficient sinking in of the lateral breast-wall, that the paravertebral stumps of the rib get very short this may be aimed, by shortening them very close to the transverse process.

The success as well, as the dangers of operation are limited to the most, if as Sauerbruch suggests, the operation is done in two sessions, beginning the resection always at the lower rib. At the first session, the resection is done on the 2nd to 6th rib and about three weeks later on the 5th to the 1st rib.

The one-session operation would be theoretically more reasonable but it is far more dangerous for the patient, than the two-session operation.

If the compression of the thoracic cavity is not sufficient, the cavities cannot be brought to collapse. The cause of that are mostly the too long vertebral stumps of rib left at the operation, which prevent the sinking in of the lateral chest-wall. These stumps of rib have to be resected again. In such cases, we speak of a correcting plastic, which is often difficult to make, because the individual stumps of rib are connected by callus-bridges and bone-plates.

A very practical method is also the partialplastic, whereby the paravertebral resection of ribs covers the upper 7 ribs in connection with a below uncomplete pneumothorax. Since the tuberculosis nearly regularly first of all covers the apex of the lung,

the changes are here oldest and we find nearly in most of the cases the pleura pulmonalis coalesced with the costal pleura. The below applied pneumothorax is therefore of no effect and makes the partial plastic in the region of the upper 7 ribs necessary as soon as the mediastinum shows a certain inflexibility.

The completion of an uncomplete pneumothorax by means of a partial plastic is only chosen for those cases in which the ill part of the lung is coalesced with the chest-wall; but the other part can be compressed by an artificial pneumothorax.

In cases of isolated bordered illness of the superior lobe, the upper partial plastic has been suggested and advocated by many surgeons, like Alexander, Sauerbruch, Denk, Graf, Gravensen, Morrision Davis, Thomson etc., in order to complete non effective low pneumothorax in preference to the plugging, because this method has more lasting effect than the plugging. For the same reason Brauer recommended the extensive subscapular paravertebral resection of ribs in the upper part in cases of cavities in the apex, where is an apicolyses not possible, due to a heavy formation of callosity.

This method was used with great success by Walzel lately.

In very persistent cases it may appear, that the paravertebral resection must be completed by a frontal parasternal resection as necessary of the 2nd to 7th rib, although it is only used in exceptional cases. Thus the thorax half is to a large extent freed from its bones in several sessions. This method does not bear the danger of the Brauer-Friedrich operation which calls for a large one sessioned operation. Sauerbruch and Nissen recommend as 2nd operation the axillary resection of rib in cases of an uncomplete result of the thoracoplastic, which is preferable to the frontal parasternal plastic.

(5) THE EFFECTS OF VARIOUS METHODS OF THE OPERATIVE THORAX COMPRESSION.

If we examine the just mentioned methods, serving the operative thorax compression, for the effective value, then we must first of all state, that the Brauer-Friedrich operation is nearly not used any more to-day on account of its heavy reaction to the organism. The Wilm's operation alone is not sufficient for the compressing process; the effect can be only valued as partial plastic and aims only a compress of the superior lobe. For this reason it is not used any more to-day.

The necessary conditions for healing and an effective result can be expected by a compressing of the entire lung. The paravertebral extrapleural thoracoplastic according to Sauerbruch serves this purpose with this Sauerbruch obtains a volume-reduction of the thoracic cavity and of the lung of 300 to c.cm. which means of 1/4 to 3/8 of the original size. This effect may be increased according to

A. Brunner to 1,500 c.cm., equal to 5/8 of the original extension of the lung by using a *phrenicucex hairesse* and to 1800 c.cm. equal to 1/4 by using an additional frontal partial thoracoplastic.

The division of the operations into 2 resp 3 sessions as Sauerbruch recommends, it makes the paravertebral thoracoplastic much less severe than the operation according to Brauer-Friedrich, where most of the bones are resected from the chest-wall. The paravertebral thoracoplastic also permits the chest-wall a certain resistance and thus avoids the danger of chest-wall fluttering.

Of course the paravertebral thoracoplastic never compresses in the same degree as the pneumothorax. Hereby it is of importance to mention that the thoracoplastic and the pneumothorax may not be valued as competition methods, for every one of those methods has its exact indication.

(6) INDICATIONS AND CONTRA-INDICATIONS OF THORACOPLASTIC.

It is always advisable to try 'a pneumothorax before making a thoracoplastic.

While the pneumothorax is the right treatment for acute, quick proceeding, exudative processes, should the thoracoplastic be used in cirrhotic cases, when the body is ready to encapsulate the centres and turn them into cicatricial tissue.

Well fitted for thoracoplastic are cases of severe, unilateral mostly productive-cirrhotic cavernous tuberculosis, and out of these especially those, which cause a heavy displacement of the mediastinum. We already have referred to the indication for the upper partial plastic combined with a pneumothorax. The extrapleural thoracoplastic is also advisable by pneumothorax empyemas and may be also tried in cases of lobular-caseous tuberculosis, if there is no possibility for a pneumothorax.

The thoracoplastic has similar contra-indications as the pneumothorax, they rest in the extended illness of the other lung, in high fevering lung-processes, further in real lobular-tuberculous pneumonias, in severe uncompensated cardiac defects, in tuberculosis of the intestinal, of both the kidneys and in cases of diabetes.

The plastic is further not advisable in cases, where the pleura of the other side is coalesced (*Nissen*) because the effect of the total plastic mostly depends upon the free cleft of the pleura of the healthy side, else the respiratory's place is not sufficient. Tachycardia over 130 pulsations when patient lies in bed and reduction of blood-pressure below 90 riva-rocci do not allow a larger operation (*Denk*). In fact the right attention should be given to the clinical findings and the X-Ray picture should not be overvalued.

According to Neumann, the illness treated with thoracoplastic should not last longer than 2-4 years, although it is customary to want 1-2 years for the effect of the conservative treatment, (*Sauerbruch*), before using the thoracoplastic.

The thoracoplastic should be only used in exceptional cases, when patients are above 50 years of age, because in this age, there is less prospect of healing. The best results are obtained on patients in the ages of 20-35 years.

(7) OTHER METHODS OF THE OPERATIVE TREATMENT OF THE PULMONARY TUBERCULOSIS.

There are besides the already mentioned methods still others available. One of them is the extrapleural pneumolyses, which is used in cases where both the layer of pleura are coalesced in form of a callus. In this case the callus with the underlying can be loosened from the innerside of the rib just far enough, till the desired compression is obtained. This operation is suitable when treating stiffwalled cavities with no inclination to collapse although the danger arises, that the cavity may tear, when loosening the callus of the pleura. In such cases, where the superior lobe only coalesced with the chest-wall by single restiform structure, the surgeon is able to remove those structures by the intrapleural pneumolyses. Jacobaeus uses for this operation thoracoscope and parts these structures by means of a cautery-loop. Great difficulty comes often up when to decide whether the respective restiform structure is actual impeditive for the collapse; because as we know, flatshaped paravertebral coalesced structure are often easily overlooked, but prevent the collapse. Also the X-Ray picture does not always give a clear situation about the extension of the restiform structures.

The intrapleural pneumolyses must still to-day be considered as uncertain and dangerous, and is therefore very seldom used. Denk is of the opinion, that this method of operation is not suitable on account of its danger for emboli and exudates.

When after an extra-pleural pneumolyses the created wound-cavity is filled with a saclike tampon made of gauze according to V. Mikulicz we speak of an extra-pleural tamponade. This tamponade gives a pressure to the cavity lying in the lung, but of course there exists the possibility, that right after the operation collapsed cavity may again develop later, when healing up the extrapleural wound-cavity.

Even when using the tamponade, it may come up, that the pressure of the tampongauze breaks the wall of the cavity, especially in those cases, with terminal and thin-walled cavities.

It is therefore of great importance, that an exact examination is made about the situation of the cavity and the thickness of the lateral wall, before applying the extrapleural tamponade.

In cases of plugging after an extrapleural pneumolyses, the created cavity gets a permanently filling of fat or paraffin in order to produce a pressure to the underlying tissue. This method varies

from the extrapleural tamponade in that way, that the stiff structure of the thorax is preserved most highly by the plugging and only the resection of one single rib is made. Lately Walzel was able to state the real effect of the plugging of the lung in cases of correct indication and right technique. Especially well fitted for this method are cases, with small cavities in the apex of the lung, when the other parts of the lung remained healthy. The plugging may also be tried in cases of cavities near the hilus in the median and lower parts. (*Sauerbruch*)

The advantage of the plugging is a reduction of only the superior lobe, while the inferior lobe is in no means interrupted in its respiratory activity. Since the plug does not put the entire lung to a rest, it can never be used for replacing the typical thoracoplastic. But there is also a great disadvantage of the plug, and that in such a way, that even after years, the plug is liable to be pushed out or may break into the cavity, which especially may happen in cases of cavities, situated too far cortical. A precise localisation of the cavity has to be made before applying a plug in cases of cavities in the superior lobe, because it is well known, that most of the superior lobe cavities are situated closer to the anterior than to the posterior-wall of the thorax.

For those cavities, situated in the anterior parts of the lung, Denk suggests by all means the parasternal compression.

An indication for plugging is also productive-cirrhotic tuberculosis, mostly limited to the superior lobe; cases which cannot heal upon account of the cavities. The illness on both sides does not give any contra indication in these cases, even when the chances are not very favourable. Now and then the plugging is also used in cases, when the patient is weakened from haematemesis, and a plastic would be too dangerous.

Finally there would have to be mentioned something also about the artificial lameness of the diaphragm, which is lately used as the so called "*Neurexairse*," in order to shut off the accessory phrenicus being found in 20-25 per cent of the cases. The effect of the phrenicus exairese is only very seldom so favourably (*Nissen*) that the necessary compression for healing may be obtained. Hereby I like especially to mention, that the high position of the diaphragm may only reach its highest point during the course of weeks and months. Therefore *Sauerbruch* grants the phrenicus-exairese very seldom an absolute importance; he puts its great value as a preliminary arrangement and support of other methods of operation.

Severe, progressive, mostly exudative tuberculosis where the pneumothorax treatment is impossible on account of coalesced structures, are indicated for this method, in order to make preliminary arrangement for healing, and, then later follow with the thoracoplastic. In cases of illness on both sides an improvement may be obtained by fixation of the more infected part of the lung.

According to Sauerbruch, this method is also valued as test-operation in questionable cases of illness on both sides. If the surgeon after an artificial lameness of the diaphragm on the worse part of the lung notices symptoms of a deterioration on the previously better part of the lung, it is absolutely certain, that the lung does not stand a further compression; in this condition a radical operation cannot be made.

The phrenic exairese can also stop relapsing bleedings of the lung and support the artificial pneumothorax, if there are coalesce in the region of the base of the lung. It also prevents a severe re-extension of the collapsed lung, when applying the artificial pneumothorax. In cases of pneumothorax empyemas, the cavity of empyema is reduced by the lameness of the diaphragm.

The phrenic exaireses has nearly no contra-indication. A. Brunner reports, that he nearly never had any damage after the lameness of the diaphragm.

(8) THE PARTICULAR DANGERS OF THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

The surgical treatment of pulmonary tuberculosis hides several dangers. Already the wrong indication and the choice of an inexperienced method are capable for the disadvantage of the patient.

A special danger rests in the aspiration of tuberculous substances into the healthy part of the lung, which especially is a menacing danger to the inferior lobe in all cases of plastics in the superior lobe. Therefore it is of great importance, to make the compression in the region of the superior lobe only after the inferior lobe is already pernixted for retraction.

The compressing operations cause beside this, as an immediate mechanical consequence a displacement of the mediastinum and a fluttering of the chest-wall. To know everything about the mediastinum and its acting after the application of a pneumothorax is therefore of course the most important matter to take care of before operating. Besides this, the mediastinal fluttering can be limited to smaller districts by parting the operation into several sessions. Great care must also be given to the heart, when applying a right sided thoracoplastic, because there is a chance for disturbances of the reflex of the heart's activity and the thoracoplastic puts increasing demands to the heart. The very same mechanical changings created by this method of operation are also liable to cause a bending of the big veins in the inner thorax, which again may produce prevention of the venous out flow into the right vestibule. Sauerbruch (Nissen) recommends for this reason the examination of the circular motion by means of an overpressure respiration and an underpressure respiration lasting for 15 minutes, in order to test the strenght of the heart..

(9) THE TREATMENT OF TUBERCULOSIS PLEURAL-DISCHARGES.

Of special importance are those tuberculous discharges, which arise in the course of an artificial pneumothorax. They appear according to Sauerbruch and other surgeons' statement in about 50 per cent. of all cases. W. Neumann on the contrary reports of only 6 per cent. of exudative pleuritis after pneumothorax. These discharges are much more protracted than the ordinary pleural discharges and often last even for 1-2 years.

The permanent drainage or the broad opening of the pleural cavity is of great disadvantage in these cases, for that reason, because they change a close pneumothorax into an open one, which bears a great deal of danger. Often the drawing of a relative little quantity of fluid by means of puncturing is sufficient to stimulate and introduce the resorption.

In cases of nonmixed infected tuberculous exudates, a puncturing is only in order, when there is an indication for the discharge. Not every discharge should be drawn at once, for the exudate sometimes gives a favourable reaction for the body.

In cases of mixed infected tuberculous exudates, a most complete emptying and frequent irrigations of the pleural cavity with a physiological common salt solution, gentian-violet, methyl-blue, trypanflavin, rivanol in 1 prom. Solution, fyocetanin in 1 prom. Solution is to be made. When those irrigations are of no effect, an elevator-drainage according to Bulau is in order.

In cases of ichorous tuberculous empyema, the exudate is firstly emptied by puncturing and a few days later the extrapleural plastic is used. Thus the empyema-cavity becomes rather smaller. This condition then allows sometime later the broad opening of the diminished empyema-cavity with much less danger. Besides this, the phrenicotomy can be of great support to the diminution of the mixed infected tuberculous empyema-cavity.

The best prospect for an effective result after thoracotomy, is only in cases of very small empyema-cavities.

When the remains of the empyema-cavities are removed, the entire lateral wall of the remaining cavities together with the thick pleural-induration according to the suggestion of Schede is completely removed. Also in cases of pyopneumothorax, when the artificial pneumothorax had caused a breaking in of the cavity's wall the most serving therapy is the puncturing of the exudate. Its accumulation may be reduced or even prevented by an after-compression of the thorax.

Also the spontaneous tubercular pneumothorax—its prognosis must be called a very serious one—should be treated absolutely conservatively. These extravasation should not be punctured before a mechanical and organized close of the lung-fistula has been obtained by compressing the lung. The longer the pneumothorax is kept

under positive pressure by means of additional fillings with nitrogen, the more prospect we have for a lasting closure of the lung fistula.

(10) THE RESULTS OF THE SURGICAL TREATMENT OF THE
PULMONARY TUBERCULOSIS.

The results of the various methods of surgical treatment in cases of pulmonary tuberculosis have so far grown to such an extent, that we are able to give today some view about the value of this mode of treatment.

V. Muralt had positive results in 68.5 per cent. of his cases with artificial pneumothorax, out of them were 25.7 per cent. clinical healings and in 31.5 per cent. of his cases he had negative results. Spengler reports of 78.13 per cent. of positive results. These are favourable numbers, but of course do not always find its receipt, when sufficiently long observed and under less favourable conditions. V. Niederhausern only reports of 21.5 per cent. of good results. According to W. Neumann there is a possibility, that 25 per cent. of all cases of cavernous tuberculosis can be healed completely by the pneumothorax treatment, but of course, these are cases of only unilateral cavernous tuberculosis, which already have a tendency for fibrous healing.

Sauerbruch criticises the results of surgical treatment of the pulmonary tuberculosis very severely. He only talks about "healing" is the full effect still remains 1½ years after the operation, and further when there is no sputum and no fever and the patient is capable of working. Only such cases, which are free of bacillus and the patient is capable of working very soon are called good results. If the bacillic sputum is not completely stopped, we speak of an improvement.

The unfavourable results are divided into unchanged cases and in such, which grew worse after the operation.

In cases of death, we divide in early cases of death within four weeks after the operation and in late cases of death during course of the year.

Mostly disturbances of circulation and heart cause the *exitus lethalis* in the first week after the operation; further are severe toxin dischargings from the collapsed lung as well as specific complications of the lung and pneumonia, due to inhaling irritating substances, responsible for the *exitus*.

Sauerbruch reports of practical healing in 35 per cent. in cases of extrapleural thoracoplastic in 1920. The operation's mortality was only 2 per cent. the *exitus* within the first 4 weeks 13.3 per cent. According to A. Brunner's report about the results of the Clinic Sauerbruch 1924, there was healing after paravertebral thoracoplastic in 17 per cent. and, when adding also the cases free of bacillus 42 per cent. Based upon an observation of 600 cases with extrapleural thoracoplastic, Sauerbruch reports of 1/3 permanent

healings and 1/3 improvements. Besides this, Nissen reports of 30-40 per cent. of healings after using this method of treatment. Sauerbruch newly reports in 1930 about 36-42 per cent. healings, 30 per cent. of much improved cases (capable of work) and 66.72 per cent of social effect.

Denk was able to base his report in 1932 about cases of permanent healing on very favourable results for about 72 per cent. of the cases showed a permanent healing when re-examined after longer than 2 years and 86 per cent. have been healed and improved. A re-examination after longer than 5 years proved a permanent healing in 74 cases and 87 per cent. were healed and improved. From those cases longer than 5 years since the operation 75 per cent. have been healed and 83 per cent. healed and improved. The mortality was 13 per cent. out of 137 operated cases. Denk as well as Virici were able to prove, that the results of thoracoplastic are improving during a long observation.

Various statistics show, that the operation's mortality in cases of a rightsided illness is higher than in those of leftsided operated cases.

I like briefly to mention, that all operated patients must be brought to an outside hospital for after treatment in order to get the right care and the right after treatment. This after treatment is most important for the final result of the operation.

Sauerbruch healed in 1920, 7 cases out of 40 by means of application of a plug; 5 were improved, in 16 cases the plug broke into the cavity or into the free pleura.

Ranzi's permanent results in 23 cases of plugging are not very favourable. From 9 patients, which could stand the operation only 1 patient is permanently healed and capable of working since more than 10 years. Other 2 patients have no complaints for respiration 6 years after the operation, 6 patients died later.

A. Brunner mentions one particular improvement out of 10 cases, 5 improvements with reduced sputum, 3 *exitus* and 1 short slight improvement.

Also the result of Denk (out of 10 cases 1 healed, 2 much improved 1 improved by secondary operation) are not very favourable.

Much better results with the paraffin plug reports Walzel. He was able to prove after W. Neumann had all cases re-examined, that 45 per cent. of the cases had lost sputum and cavities after plugging. In 20 per cent. of the cases the plug has been pushed out.

The results of the operative treatment in mixed-infected pneumothorax-exudate are very little encouraging. According to a report by A. Brunner, only 19 cases out of 36 have been healed at Sauerbruch's Clinic. Denk had 6 *exitus* out of 22 operated patients.

The high mortality of the tuberculous spontaneous pneumothorax (according to Rose 70 per cent.) has not been improved (after Sauerbruch's results) by the surgical modes.

Very favourable results obtained Denk in 1932 in cases of tuberculous pyopneumo-thorax, by healing 9 cases out of 19.

There is no doubt, that the treatment of such a chronic and severe illness as the pulmonary tuberculosis, cannot be without failure. We also have to realize that quite a number of patients would have died, without being operated, would they have remained in conservative treatment. Since there became not only quite a number of patients free of bacillus, on the other hand the operative treatment has doubtless reduced the number of tuberculous cases to a great extent, it is certain, that the surgical treatment of pulmonary tuberculosis is of great value not only for the university but also for the country.

THE PSYCHOLOGICAL FACTOR IN SURGERY.

BY J. A. DOUGLAS, F.R.C.S. (EDIN.)

It has been stated that surgeons, both as technical operators and physicians practising the art of medicine, have often neglected an important phase of their science and art. They have failed to comprehend, first, the wholeness of personality, and, secondly, that man consists of body and mind, indissolubly bound up one with the other, and in consequence they have been side tracked into problems of cell and organ function.

It is also claimed that surgeons have not recognized that a patient is unique collection of co-ordinated functions—an energy system in which every part, while performing a special duty, is nevertheless entwined with all other functions, and that a change of function of one part is reflected in changes of function in other parts, and in the whole. They have tended rather to look on the sick person as an inert container of an offending viscera, and not as a reacting human being with individuality and functions.

While it is admitted that it is a surgeon's job to remove or alter structures which are defective or diseased, and that his technical skill in accurate diagnosis and surgical interference is important, he must know, however, that his personality and the stage he provides may be of more importance.

By what means, therefore, can the surgeon, firstly, prevent or adequately care for the personality disorders met with in his work; secondly, avoid unnecessary surgery; and, thirdly, prepare and care for the patient before, during and after operative procedures. No special apparatus or equipment is necessary. The factors necessary,

which are within the reach of everyone, may be set forth as follows:—

- (a) Closer relationship between surgeon and patient.
- (b) Time and patience necessary to allow the sick person to tell his story, so that one can understand the individual.
- (c) Appreciation of the fact that not all pain, tenderness or disability is organic in nature, and that removal of whatever is associated with the pain will prove to be rational therapy.
- (d) Avoidance of toxic states by means of judicious sedatives and adequate hydration and nutrition in post-operative period.

If we consider the relationship between the surgeon and the patient, a sympathetic understanding, the exercising of tact, and a good bedside manner, does much to create confidence.

Though tact may be endogenous or acquired, there is no doubt that the reaction of patients to different surgeons is very marked, and if the patient is made to feel he is simply a disease, or a number, and not a suffering human being, his reactions vary accordingly. The confidence and understanding secured are undoubtedly major factors for a successful result.

How often have we heard tactless remarks passed at a bedside regarding an X-ray, a blood-pressure reading, or a medical report which create in the mind of the patient a mental disturbance out of all proportion to their significance, and lead to a very definite loss of confidence by the patient in those round him.

Do we take the necessary care in discussing the prognosis of the case outside the hearing of the patient, or are we inclined to be casual and disregard the human element of the sick individual?

Are we instructing our nurses to be sympathetic and understanding, and at all times to imbue the patient's mind with confidence in his new surroundings, and to allay any fear he may have in regard to impending operative proceedings?

Do we pay enough attention to a patient whose language we do not understand? Do we have someone who speaks his language to reassure him in his new surroundings, and comfort him in his probable distress? Are we paying enough attention to the preoperative treatment? Is there not a tendency to forget that the patient has any feelings, and introduce him rapidly into a theatre were begowned and be masked people surround him prior to a rapid anaesthesia by a strange anaesthetist? Attention to details of this nature can only tend towards better results.

The advantage of a full history is well known to us all. How often do little points crop up which have a direct or indirect bearing on the welfare of the patient? Often details regarding the family history will assist us in allaying anxiety which may be pent up in

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the patient. The very fact of time and care being spent on the patient causes him to feel satisfied that the surgeon is interested, and so creates an atmosphere of confidence.

Once a full history has been elicited, a simple discussion with the patient explaining to him the nature of his malady, and the method by which we will attempt to rectify it, will change his outlook from one of fear to that of complete confidence.

The practice of giving literature to patients, however, must be condemned. Medical literature to the laymen is so full of technicalities that it becomes confusing, valueless, and, more often than not, harmful. The patient is quite unable and separate the chaff from the wheat in a medical article, in the more intelligent the more likely is the article to do him harm.

It has been stated by Hawthorne, in "The Scarlet Letter" that a bodily disease which we often think of as a thing apart and separate, may, after all, be but a symptom of an illness in the spiritual part of our nature.

In those cases of thyro-toxicosis which find themselves in the surgeon's hands there is not the slightest doubt that anxiety, worry, and mental strain exists to a marked degree. So often there has been some psychic trauma which is a very definite factor in the outlook of the case. In women we often find years of domestic difficulties, repeated pregnancies, anxiety over children's health and upbringing; in men, so often business and financial worries, associated with nervous strain and stress. These cases, especially, require the establishing of confidence in the surgeon before operative procedures are attempted.

How often in cases of duodenal ulcers do we find that some psychic trauma has resulted in a recurrence of the ulcer condition? It has often been shown that people who radiologically have no evidence of an ulcer return a month or two later, and on being re-X-rayed a definite ulcer is seen. On careful enquiry one finds that there has been additional strain and anxiety of some sort imposed on the individual since their last appearance in hospital. However, of recent years the duodenal ulcer does not come within the surgeon's province unless there be perforation, obstruction, hæmorrhage, or penetration. They are now treated medically, thereby saving unnecessary operative procedures in cases where the etiology is so obscure.

Again, how often have we seen the disturbed mental outlook of any pathology associated with the genital organs? We know that many changes take place in the scrotum, and while some may be of little consequence, others may prove disastrous. Not the least thing to be considered in these cases is the mental state that accompanies any pathological condition affecting the genital organs. It is often

found necessary to correct some trifling disorder that otherwise would be ignored to improve a depressed mental state that is wrecking a business career. A man will admit with equanimity a wen on his head, or a wart on his nose, but a small varicocele in the scrotum will cause him sufficient anxiety to keep him awake at night, and depress him during the day.

How many of us have operated on a varicocele to cure a malady above the neck? Just recently in my wards we had an interesting case of this nature, where a young man suffering from a varicocele was the subject of a clinic by one of the younger members of the staff. On asking one of the students what complications might occur following an operation for a varicocele, he was informed that the vas, if divided, might lead to atrophy of the testicle. I came to see the patient an hour after the clinic, and found that he had left his bed, refused hospital treatment and gone home. He told the sister prior to his departure that he was prepared to keep the varicocele rather than run the risk of losing the function of one testis, as nobody could guarantee he might not at some later date lose the function of the other, and eventually be sterile.

Again, in the woman, how often do we meet with the psychological upset in a patient who has a neoplasm in her breast? The patient will often refuse operation, feeling that the loss of the breast is not worth it. Many women consider the breast is an essential evidence of femininity, and its loss savours of mutilation, and is too great a price to pay.

It is interesting to note, therefore, that Geoffrey Keynes stresses the fact that one of the major advantages of radium treatment for neoplasm in the breast is that the psychology of the patient is not disturbed, which contrasts obviously with the considerable mental distress that many women experience after radical breast removal.

How often have we seen the amputation of an extremity in a woman lead to gross mental upset?

In every illness psychological influences play a great part. This is particularly noticeable in cases of insured persons who have been injured at work, or injured in a road accident, or injured in some other way which renders somebody else liable for the results of the injury. One must never lose sight of the fact that the person may either develop a genuine psycho-neurosis, or may actually mangle with the object of gain. There are, however, certain types of injury more prone to result in the development of these two conditions. They are head injuries and back injuries, and, therefore, from the very outset in these types of cases, the surgeon's treatment must have a psychological element in it.

In the treatment of an injured, insured person with a fracture, the mechanical part is only half the problem. The setting of the fracture, the fixation of the fragments until bony union has occurred,

is technically a mechanical process, and the indispensable preliminary for a satisfactory recovery. The carrying out of the exercises without disturbing the function of the injured part directly after the fracture has been set, however, is a psychological experiment.

The action of this type of therapy in the injured person must be taught and insisted upon. Any remarks about the final result which have a prejudicial effect on the outlook of an injured person should be carefully avoided. When a working man realizes that his doctor is taking an interest in him, he will give his confidence to the doctor. The greatest aids to psychotherapy in traumatic surgery are anaesthesia and plaster of paris and the abolition of pain from the beginning to the end of the treatment.

Another big factor helping towards a successful issue is that these people mentioned above must be in suitable surroundings. They should be where there are others with similar injuries, but in a more advanced state of recovery. One has often seen how quickly the fractured spine man's outlook improves when he sees a fellow-man who had a similar disability walking about in his ward.

We are all familiar with that curious type of patient who informs you that if operated upon for as simple a procedure as a hernia he will die. On examination we find nothing physical to warrant such pessimism, and persuade the unfortunate patient to consent to operation. Nothing untoward occurs during the operation and the prognosis appears to be excellent, but we are more than astonished when the patient suddenly dies a few days later for no apparent reason. Post-mortem reveals nothing definite, and we are left in amazement. Once we have had an experience of this nature we realize that such a psychic reaction is something very genuine, and under no circumstances would one urge operative interference.

In the postoperative period we must be on our guard less by the indiscriminate use of ill-chosen sedatives we produce toxic states which lead to psychosis and delirium. It is here that the constant attention to the fluid balance leads to prevention of deleterious products of metabolism being retained.

Time taken to explain to the patient the nature of his complaint, and the necessary treatment in a simple manner, creates a feeling of confidence and leads to a smooth postoperative period. In addition, instructions to nurses and students that care be taken to avoid tactless remarks in the hearing of the patient does much to assure the patient's peace of mind, while a kind and sympathetic word, and the remembrance of the patient's name on a daily ward round, helps to instil confidence.

If, or when, called upon to treat an unstable individual with psycho-neurotic characteristics, operative intervention should be delayed in all but emergency conditions.

There is a type of case more often erroneously referred to a surgeon than to a physician which I ought to mention. I refer to the young woman (or others for that matter) suffering from visceroptosis, or the person who has already had one abdominal operation, and has been told that she, or he, is suffering from adhesions. These people require psychogenic treatment more than an operation to fix a ptosed viscus or to divide an adhesion.

A careful scrutiny from all angles of the existing complaints, plus an appreciation of the role emotional complex plays in creating a somatic disease, will do much to limit the number of unnecessary operations.

In conclusion, I would again stress that in any surgical complaint, in my opinion, the patient's confidence, not only in the surgeon's ability, but also in the ultimate result, is of paramount importance, and to gain this right mental outlook the smallest detail is worthy of our attention. We must also bear in mind the wholeness of the personality and greater consideration should be given thereto, remembering that a complete physical and laboratory examination do not in themselves always provide sufficient data on which to base our methods of treatment. Crile, many years ago, recognized these points in cases of thyro-toxicoses, and felt the psychogenic factor was as important as the clinical factor, and practised the method of "stealing the thyroid." His methods lead to a marked lowering of the mortality rate, and those of us who practise these methods must feel that preoperative treatment, especially the giving of basal anaesthetics in the patient's bed and bringing him to the theatre asleep, has eliminated all mental anxiety and fear, and done much to lead to a satisfactory surgical result.

And, finally, in every physical condition with which we have to deal there is to a lesser or greater degree a psychological element. In the ordinary average normal person it does not obtrude itself, but in the more temperamental person it becomes a major factor. The moral, therefore, is never to neglect, or disregard, the psychological aspect in any case.

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PAIN IN THE FEMALE GENITAL TRACT AND ITS TREATMENT

BY A. C. PALMER, O.B.E., F.R.C.S., F.R.C.O.G.

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When pain is due to disease in the female genital tract, it may be spoken of by the patient as ovarian pain or pain in the womb, but its site will be demonstrated as being in the hypogastric region, just above the symphysis pubis, in one or both iliac regions, in the sacral region, in the perineum, or possibly in the upper part of the thighs. When pain is complained of as occurring in one or several of these regions, the patient may be neurasthenic, hysterical, or the subject of a pelvic lesion. Possibly she has two or all three of these conditions. In the majority of women a bi-manual examination will enable one to recognise an abnormality in the pelvis, in the lower abdomen, or occupying both areas, but if the patient is unduly fat, or unable to relax her abdominal muscles, bi-manual examination without anæsthetic may give no additional information, and under these circumstances the examination must be repeated under anæsthesia. In the neurasthenic or the hysterical it is probably wise to make examination under anæsthetic the rule, rather than the exception unless the physical signs are obvious.

NEURASTHENIA.

As seen by the gynæcologist, this condition is characterised by two main features:

1. Over response to stimuli, especially slight stimuli.
2. Diminished power of resistance to pain and depressing mental influences.

This may be the result of exceptional stress in a woman whose nervous system was of good quality before she was exposed to the stress, or more commonly it is due to the ordinary stresses of life working upon an inferior nervous equipment.

The exercise of the reproductive function is a frequent cause, both of nervous exhaustion and of disease of the reproductive organs. This is why disease of the female generative organs and neurasthenia are frequently seen together. When child bearing has produced both local disease and nervous exhaustion, the local disease aggravates the nervous exhaustion. Cure of the former will help the cure of the latter; but the cure of the nervous exhaustion requires general treatment as well as that directed to the local condition. When the nervous exhaustion is cured, the neurasthenic patient will be well and cease to complain, at least for the time being or until she is overpowered by the next stress. If the neurasthenic happens to be a hypochondriac as well, that is

to say, a woman who believes without cause that she is the subject of serious bodily disease, she will not be cured.

Neurasthenia is met with in both sexes at all ages, but is rare in very young girls and old women, and I think it is no longer open to dispute that the liability of this disease is inherited with the nervous system. It is common during the reproductive period of life, and its chief cause is the strain involved in reproduction: the strain of pregnancy, the stresses of labour, the exhausting effort of lactation, and the anxiety inseparable from the care of children; the disturbed sleep; the impairment of nutrition sometimes associated with pregnancy and lactation; and perhaps the anxiety of some local disease, anxiety which is out of proportion to the importance of the local condition. Most cases of neurasthenia associated with uterine disease in married women are due primarily to exhaustion of nervous energy by childbearing and its consequences, and the uterine disease aggravates the condition.

Exertion produces fatigue, which in health is quickly repaired by rest and food.

Exertion pushed far into fatigue, causes exhaustion and recovery will take longer; possibly it may not be complete. Work without rest or variety may exhaust and, in adolescent girls, over pressure at school or in preparation for examination sometimes fulfils the condition. A precocious girl may be encouraged by parents and teachers, who mistake information and accomplishment for education, to force her brain at the neglect and expense of her body, forgetting or not knowing that *the first aim of education is to produce a good animal*. From such training there is likelihood of producing a woman with very sensitive nerves, an active imagination, and a feeble body who is rendered unfit for her duties by slight causes, and is apt to torture herself by the dread of future slight causes, and is apt to produce neurasthenia by its persistence, especially when it is severe enough to prevent or interrupt sleep. Long continued unhappiness, especially of conjugal origin, may be a cause. Sudden shock is an infrequent but occasional cause, and may be associated with cessation of menstruation persisting for years after the shock. Trivial uterine conditions are often associated with the neurasthenic; a non-tender retroversion; or possibly an unusual degree of ante flexion without dysmenorrhea, the existence of which has become known to the patient by some unfortunate accident. These give rise to no symptoms and require no treatment, but the knowledge of their existence has added to the patient's anxiety, and it may be difficult to make her believe that they are of no consequence. Slight uterine disease, such as a small erosion; a mild degree of chronic cervicitis; or a small cervical polyp, may require treatment, and the disappearance of the symptoms will help the patient, but her neurasthenia will not

be cured. This requires the removal of the cause, which may not be possible. If the cause can be removed, the exhausted nervous system may never become robust, especially if part of its weakness is inherited.

THE CHANGES IN THE GENITAL TRACT WHICH GIVE RISE TO PAIN

The immediate local cause of pain is increase in the tension within the tissue of origin. This change may be due to:

1. Inflammation.
2. Trauma.
3. Muscular contraction.
4. Vascular changes secondary to trauma or independent of trauma.
5. Fatigue of weakened muscles.

The type of pain associated with neurasthenia and hysteria in the absence of a pelvic lesion has already been described.

New growth has not been mentioned as cause of pain because the author thinks it is not a cause. Growing ovarian tumours, be they cystic or solid, and uterine fibroids do not cause pain; nor does the growing pregnant uterus cause pain. The growth is slow and unaccompanied by change in the tension within the tissues that are growing. Something in addition to growth is necessary before pain is produced: a vascular change due to some peculiarity of the growth; a twist; an invasion of other tissues, or the onset of inflammation.

PELVIC INFLAMMATION

This wide term includes pelvic peritonitis, oophoritis, salpingitis and cellulitis. In its common clinical manifestations all four are present, but peritonitis is the outstanding feature, though it is usually called salpingitis. The commonest causal antecedent of salpingitis is neglected miscarriage (77 per cent.), accidental, self-induced, or criminal. Next in frequency come ascending gonorrhœa (11 per cent.) and tubercle (11 per cent.). Tuberculous salpingitis does not give rise to recognisable symptoms till secondary infection has occurred. An uncommon but definite cause is infection of a small ovarian blood cyst, resulting from adhesions to neighbouring gut. In the acute stage, the symptoms are lower abdominal pain, hyperæsthesia, rigidity, and deep tenderness accompanied by constitutional disturbance. The treatment is expectant unless the patient is failing to respond, when the lower abdomen should be drained; or additional lumps develop, when the lower abdomen should be opened, tissue damaged beyond recovery removed, and the pelvis drained.

Occasionally the acute attack will quiet down and not be heard of again, but most commonly the respite is temporary only, and the apparent cure will pass into the recurrent subacute or chronic pyosalpinx. Sooner or later operation and the removal of some

tissue will be required, possibly a pyosalpinx only, possibly bilateral pyosalpinges, bilateral ovarian abscesses and a chronically infected uterus.

TRAUMA.

Trauma usually means a twist, a twist of: The pedicle of an ovarian cyst or solid tumour; of a pedunculated fibroid; perhaps of the uterus, the seat of a fibroid. If not a twist, perhaps the rupture of a tubal pregnancy, or short of rupture rapid stretching of the tube due to bleeding into its lumen. At the outset the symptoms are similar in each case; lower abdominal pain accompanied by a varying degree of shock. If the cyst does not rupture, an obvious tender lump will be present. It might be a solid ovarian tumour or a pedunculated fibroid, but ovarian cysts are common, twisted solid tumours much less common, and twisted fibroids rare. If a ruptured tubal pregnancy is present, the symptoms will change to those of internal abdominal hæmorrhage. If the tube becomes distended by clot, a small one may absorb, but the more usual course is the development of a low-grade pelvic peritonitis. The condition then resembles a chronic pyosalpinx, and is diagnosed as such. Further hæmorrhages may occur, and give rise to another acute attack. In each case the treatment is laparotomy and removal of the damaged or overgrown tissue, with control of hæmorrhage in ectopic case.

MUSCULAR CONTRACTION.

Excluding normal labour, outstanding examples of painful uterine contraction are:

1. The inco-ordinate uterus in labour.
2. Spasmodic dysmenœa.
3. Hæmatocolpos.
4. Submucous pedunculated fibroid in process of extrusion.

By the term "*Inco-ordinate Uterus*" is meant that the lower uterine segment does not progressively and uniformly relax; and the upper uterine segment progressively and uniformly retract during labour. The uterus as a whole may contract while the upper segment retracts and the lower segment fails to relax. A ring may develop in the lower segment perhaps at the level of the neck of the foetus, or in the external os; or more rarely in the upper segment. Here it may be vertical or oblique, and appears to be associated with an error in fusion of the Mullerian ducts. This condition develops independently of obstruction outside the uterus, but it may be difficult to exclude the latter when the ring prevents the head from descending in spite of strong uterine pains. If the two conditions happen to be present, the ring will probably not be recognised. Before the inco-ordinate uterus was recognised, women sometimes died from exhaustion in labour without obstruction.

SPASMODIC DYSMENORRHEA.

Here the pain is probably due to inco-ordinate uterine action or spasm. In its more severe form the condition cannot be cured by medical treatment. It can sometimes be cured by simple dilatation, but more certainly by artificial labour, that is to say, by dilatation followed by packing the cervical canal with tents for forty-eight hours.

Cases of severe dysmenorrhea are accompanied sooner or later by some degree of neurasthenia, and then the result of treatment—cure or relief—depends on how far the neurasthenia is also cured.

In *Hæmatocolpos* the pain is due to obstruction of the menstrual flow, and the condition is cured by removing the obstruction. As a rule it is not this pain which brings the patient to hospital, but that due to retention of urine.

SUBMUCOUS PEDUNCULATED FIBROID IN PROCESS OF EXTRUSION.

The pain in this condition is typical uterine contraction pain, felt in the sacral and hypogastric regions. The amount of pain depends on the size and consistency of the mass being extruded, but even so pain is not the prominent feature; it is usually masked by the bleeding.

VENOUS CONGESTION NOT DUE TO TRAUMA.

A well-involut ed mobile retroverted uterus or a congenital retroverted uterus does not give rise to intermenstrual pain because it is not heavy and congested. A heavy subinvolut ed uterus with venous congestion will give rise to sacral backache and hypogastric discomfort. This pain is due to the increase in vascular tension and associated œdema in the body of the uterus. It disappears when the uterus is maintained in the proper position for venous drainage.

MUSCULAR FATIGUE.

That muscle fatigue can cause pain is no doubt common knowledge to all who have passed beyond the stage of adolescence. It may be acute while the muscles are at work, and be graded down the discomfort of stiffness after work has ceased.

A weakened pelvic diaphragm (levator ani and superficial perineal muscles) may and the task of supporting the abdominal contents beyond its capacity and so give rise to some pain. It has already been stated that this is one of the features of neurasthenia, but it is also one of the features of the overworked mother and house-keeper who is not yet neurasthenic. It is also the primary symptom of prolapse during the period when the pelvic floor is giving way, and is felt in the back, in the iliac regions, or in all the areas of pelvic pain. It is suitably described by the term "Girdle ache" or "Girdle pain." When the prolapse is complete, with the vagina inside out, pain is a much less prominent feature. The reason may

be that the genital canal having ceased to fall, there is now very little drag on the pelvic tissue. Furthermore, the pendulous perineal mass prevents the patient from being active on her legs, and she is compelled to sit or rest for the greater part of the day. For the neurasthenic or tired women general treatment and a holiday, if it can be obtained, but when prolapse has begun, a pessary is necessary as a temporary measure of support, and operation for cure.

(*The Medical Press And Circular* 26th March 1941.)

Extracts.

TREATMENT OF FIBROMYOMATA OF THE UTERUS

BY MALCOLM DONALDSON, M.B., F.R.C.S.,

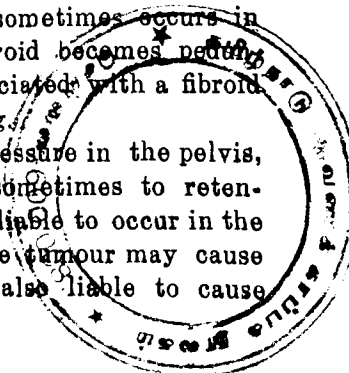
Director, Cancer Department, St. Bartholomews' Hospital, London.

UTERINE fibroids are the commonest of tumours found in the organ and some authorities have stated that they occur in 25 per cent of all women. They are composed of fibrous tissue and muscular tissue, with a surrounding fibrous capsule. They may vary in size from microscopic to many inches in diameter weighing anything up to 20 lb. or more. It is generally believed that they are present in foetal life, as a microscopic condensation of the fibres and that they grow slowly throughout the child bearing period, but atrophy after the menopause. Owing to their poor blood supply, they are liable to various types of degeneration, the most important ones being (1) malignant and (2) red degeneration.

Symptoms. In a great many instances, there may be no symptoms. The most frequent symptom of a uterine fibroid is menorrhagia, that is, excessive loss during menstruation, and this is generally ascribed to the increased surface of the endometrium. Possibly there may some endocrine factor as well.

Irregular bleeding between the periods sometimes occurs in connection with fibroids especially when a fibroid becomes pedunculated. Sometimes a cancer may also be associated with a fibroid and the former may be the cause of the bleeding.

Pressure Symptoms; symptoms due to pressure in the pelvis, may give rise to frequency of micturition, or sometimes to retention of urine. Such symptoms are specially liable to occur in the case of cervical fibroids. The large size of the tumour may cause abdominal discomfort. Red degeneration is also liable to cause



pain. The secondary anæmia produced by the fibroid may give rise to general lassitude or other symptoms due to anæmia.

Signs. The physical sign on which a fibroid must be diagnosed is the presence of a tumour attached to the uterus. A soft growth especially with a cystic degeneration is likely to be mistaken for an ovarian cyst.

Treatment. Small fibroids, free from symptoms require no treatment.

The treatment may be (1) palliative (2) radiological and (3) surgical.

Palliative. This is indicated in young women where the menorrhagia is slight and the fibroids are small. Palliative treatment means rest in bed during the period, with drug treatment, such as tincture of ergot $\frac{1}{2}$ dr with tincture of hyoscyamus 20 mms.

Radiological. It consists in producing an artificial menopause. After the menopause, fibroid atrophy, and the object of this line of treatment is to produce atrophy of the fibroid by irradiating the ovaries, and thus bring about the menopause. The treatment should only be used in patients who are nearing the menopause. It should not be used where the fibroid is very large.

Surgical. The majority of fibroids are treated by surgical methods: (1) removal per vaginum (2) abdominal myomectomy and (3) hysterectomy are the different methods used.

Fibroids in pregnancy and labour. Fibroids are liable to cause sterility due to the unhealthy endometrium over the fibroid. For the same reason, fibroids are liable to bring about abortion. If pregnancy occurs, the tumour is liable to undergo "red" degeneration. This sometimes gives rise to very severe pain, and a raised temperature and a rapid pulse. The tenderness is usually localised to the fibroid. The treatment is palliative but abdominal myomectomy may be required.

Labour complicated by fibroids. There are two complications, which may arise in labour: (1) obstruction or (2) post partum hæmorrhage.

Malignant changes. A fibroid being a connective tissue tumour may undergo sarcomatous change, and it has been stated that 2 per cent of all fibroids removed show such changes. The condition should be suspected if the fibroid suddenly grows rapidly or starts to grow after the menopause. If the growth is very fixed, and particularly if this occurs with irregular bleeding between the periods, the malignancy must be borne in mind.

COD LIVER OIL LOCALLY FOR TUBERCULOUS LESIONS.

Banyai reports 164 cases of laryngeal and pharyngeal tuberculosis treated at the Muirdale Sanatorium by the topical application of cod liver oil by spray. Therapeutic effect was studied in 91. All the patients had active pulmonary tuberculosis. The laryngeal lesions were characteristic of tuberculosis associated with a chronic pulmonary process. Relief from disagreeable symptoms was prompt among those patients who responded favourably to the treatment. Several of the ulcer patients who used cocaine spray, anæsthesin or euphagin tablets before the treatment were able to discontinue their use shortly after the cod liver oil treatment was begun. The disappearance of dryness, tickling and burning sensation in the throat, the cessation of pain localized to the larynx or radiated to the ear were frequently observed. With the elimination of the pain, dysphagia was relieved and the patient's nutrition and general well-being improved. Also cough diminished and expectoration became easier, permitting more pulmonary and general rest and sleep. Hoarseness disappeared, and the voice was restored to normal. A more optimistic mental attitude on the part of the patient followed these favourable changes. The improvement in the laryngeal lesions was striking as treatment progressed. Ulcers showed a rapid epithelization and healing that was comparable with the results seen in pharyngeal cases, provided the treatment was carried out consistently and well tolerated by the patient. A good therapeutic response was had by patients with various degrees of vegetative granulation. Other manifestations of the disease cleared up also satisfactorily. The patients with marked edema obtained the least effect, with complete failure in several. After treatment was continued from two months to one and a half years the lesions of 24 patients remained unimproved (8 died during the course of treatment), 42 improved subjectively and objectively and the lesions of 25 healed. The tuberculous empyema of 17 patients with no bronchopleural fistulas responded favourably to aspiration of the pus and to its replacement by small amounts of cod liver oil. No local or general reactions were observed. The purulent pleural exudate of 2 patients was reduced to a minimum and thus they became eligible for thoracoplasty for obliterating the infected, gaping pleural cavity. When marked general debility or amyloidosis was present, cod liver oil therapy failed. Cod liver oil aided the formation of healthy granulation, reduced purulent secretion and accelerated epithelization in operative wounds with a delayed tendency to heal. The oil was also of benefit in suppurating tuberculous lymph nodes (when seen early), conjunctivitis, keratoconjunctivitis, cold abscess secondary to bone tuberculosis, fistulas originating from tuberculous epididymitis, ischiorectal fistulas and scrofuloderma.

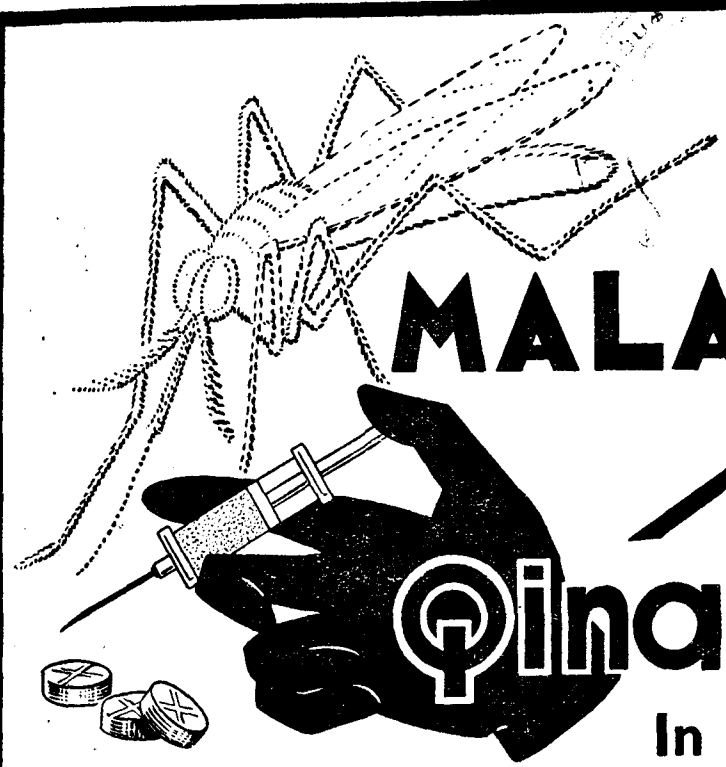
Medical Miscellany.

In organised medicine we have the happy combination of ideals and organization. Individuals may worthily desire to serve and build, to imbibe deeply of friendliness, tolerance and understanding, but alone they fail to impress the armoured hide of indifference, selfishness, hate and bigotry. But with an organization of men similarly imbued with and fortified by an exchange of ideas mutual helpfulness, and a splendid association which marshals for him an array of leadership, experience, facts and literature, and binds all together in a perfect union, he becomes an integral part of a great altruistic force for human good.

Illinois Medical Journal, August 1940.

Among the epoch-making advances in the domain of medical science in recent times is the discovery of the sulphonamides. The current medical literature abounds with therapeutic successes scored by sulphanilamide, sulphapyridine, and sulphathiazole. These products have their particular indications, and produce marvellous results when properly administered. A more recent derivative of the sulphonamide group, sulphaguanidine, is still being subjected to rigid trials before being put into the market. If further laboratory work in the synthesis of similar compounds leads to newer products which could effectively deal with diseases like typhoid fever, tuberculosis, leprosy, filariasis, and other conditions which baffle the clinician, one could very well erase these diseases from text-books. Optimism of this degree is justifiable when we see the enormous suffering around us. It will be ideal if these products are easily available to medical men and at moderate cost. But the war conditions and the uncertainties of shipping permit only very small supplies of these drugs reaching our country. British supplies of these drugs reach our country in small dribbles and our chemists have not been slow in practising the art of profiteering. America manufactures these drugs and American supplies would be welcome at least till British supplies are adequate to meet our demand. America sends military supplies in enormous quantities, and she can also send medical supplies, particularly the sulphonamide group of drugs. For the treatment of disease and the alleviation of suffering—both of which are in abundance in this country—medical men should utilize the best and most potent drug, whatever the country of manufacture may be.





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*“RECENT ADVANCES IN MALARIAL THERAPY” by Dr. Menino De'Souza, B.Sc., M.D.
Medical Bulletin, Vol. VII, No. 19, Oct. 7, 1939.

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