POST-GRADUATE TEACHING OF SURGERY.

THE INAUGURAL ADDRESS FOR 1914-15 DELIVERED BEFORE
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BY

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TWENTY-FIVE years ago registration was the trade-mark of lifelong efficiency to a medical practitioner. For centuries advances in medicine and surgery had been so slow that a good medical education then sufficed for a lifetime. But, on the other hand, progress has since been so rapid that Sir William Osler has said with truth that in five years the isolated practitioner requires a month of hospital work to bring his knowledge up to date, that in ten years he requires a year of study, and that at the end of twenty years he is in such depths of ignorance as to be hopeless. The consequence of this rapid advance is that post-graduate study is a necessity of to-day, and my object now is to offer views as to how post-graduate teaching of surgery may be made most useful to the practitioner.

In my early days physicians and medical practitioners occupied a much more important position than they do at present, and surgeons were accustomed to be used as an unpleasant form of treatment, on their advice. For the present surgeons are pre-eminent, but this is only a temporary phase, because the general practitioner, as soon as he realizes the position, will again become, as he always has been heretofore, the backbone of the profession. The position is this: It is essential to recognize that diagnosis and treatment of any but the simplest case may be beyond the capacity of the most capable single man, and may require the combined aid of a bacteriologist, a pathologist, specialists, a physician, and a surgeon. The fashionable demand for further advice (which should always be forestalled by the practitioner) is generally a reasonable one, though apt to follow unreasonable channels. It must be better guided, controlled, and considered by the practitioner if he is to recover his lost prestige.

My suggestions to-night refer only to the post-graduate teaching of surgery. Surgical advances have forced surgeons to become specialists, so that surgical details are out of place in such a course, and the principles of surgery should have been learned at an earlier date. The chief object of it should be to emphasize practical points in diagnosis, to suggest means of avoiding serious mistakes, and to draw special attention to any definite surgical advance which has a bearing upon treatment. It will be my endeavour in the time at my disposal to suggest directions in which I think such teaching may be made useful.

Diagnosis, every one admits, is the most difficult problem in either medicine or surgery, and the greatest authorities are too often made to realize their impotence when faced by anything beyond the ordinary. It is fortunate that in practice the most important question for the practitioner is: Does this case require surgical treatment or not?

Treatment cannot be satisfactory where diagnosis is faulty; hence the importance of the latter. More and more diagnosis is becoming based upon proof—the discovery of a bacillus, hooklets, spirochaetes; *x* rays, and other illuminations; laboratory tests; instruments of precision, etc. But, for ever, a great part of diagnosis will remain an art dependent upon the "clinical instinct" and the proper interpretation of history and physical signs. The art of diagnosis is the stronghold to be specially cared for by the practitioner, because it is yet the most useful and often the only guide.

The general appearance and behaviour of a patient, if rightly interpreted, may afford the clue to a diagnosis by suggesting that some organic cause is at the bottom of the disturbance in health. A first striking impression of something seriously wrong should never be neglected or forgotten; the insatiable, irritable restlessness preceding a fatal termination in many serious illnesses is not likely to

mislead the experienced; the chronic anaemia of small repeated haemorrhages; the sallow, hopeless face of cancer patients; the pallid transparency consequent on tuberculous infections; or the muddy anaemia of syphilis, may be more useful than any other guides.

Symptoms such as pain, loss of weight and condition, repeated chills, frequent micturition, recent development of irregularity of the bowels, rises in the temperature, and other common complaints, should no longer be regarded simply as conditions requiring treatment, but as danger signals of something wrong and calling perhaps for frequent and difficult investigations in order to discover their cause. The time has passed when decision as to treatment was a choice between castor oil and opium, because advances in surgery have made the first consideration a surgical one.

Nothing that is too strong can be said against indiscriminate operations for diagnostic purposes, but if there are doubts which cannot be cleared up, and at the same time reasonable possibilities of an operation doing good, patients should not be deprived of the chance operation offers. This statement is devoid of real meaning unless we know who entertains the grave doubts, but an example will make my meaning clear. A physician of scientific repute has made a diagnosis of pyloric stricture, probably malignant. Local examination shows a pyloric lump and a dilated stomach. There are no signs of secondary deposits in the peritoneum either by abdominal or rectal examination, no discoverable deposits in the liver, no enlarged supraclavicular glands, and the general condition of the patient is good enough to justify an operation. All will agree that it should be done.

In a similar case an enlarged supraclavicular gland is discovered. If this is cancerous, abdominal exploration would be a useless cruelty. By excising this gland with a local anaesthetic and submitting it to microscopic examination I have more than once saved patients from further operation for hopeless cancer.

Public and professional faith in "exploratory operations" has, however, been so strong that I have known patients with cancer of the stomach, who had cancerous neck glands and the "rectal shelf," characteristic of cancerous invasion of the pelvic peritoneum, both evident to any careful observer, submitted to operation "to ascertain whether anything could be done." It is often said of exploratory operations that they "do no harm," but nothing could be further from the truth; at the best they are a confession of ignorance, and their failure does harm to the patient, harm to the surgeon, and harm to the progress of surgery. My endeavour, then, will be to offer some examples of the sort of information which I think should be given in post-graduate teaching.

FRACTURES AND DISLOCATIONS.

Scarcely anything in my experience has been the cause of so many troubles to practitioners as the diagnosis and treatment of fractures. These can only with certainty be avoided by insistence upon a rule to have an *x*-ray picture in every case of injury where any doubt is possible. The revelations will many times come as a surprise (Figs. 1, 2, 3, 4). No medical man who values his reputation, unless obliged by extraordinary circumstances to do so, should undertake the treatment of a fracture unless he can be guided throughout by *x* rays.

The rules I give my students for their guidance in the treatment of fractures are:

1. Apply first aid.
2. Examine for complications—local and general.
3. Reduce deformity.
4. Keep it reduced.
5. Restore function.

Each of these rules should be borne in mind and acted upon if damaging mistakes are to be avoided.

The indications for operative treatment in fractures may be summarized by saying that they are such as imply failure to satisfy any of the rules for treatment. For example, recently I have had to operate because first aid failed to prevent gangrene of a patch of skin over a displaced tibia; because a fractured humerus had ruptured the musculospiral nerve; because deformity could not be reduced; because reduction could not be maintained; and because a fractured astragalus left a useless foot.

The mention of fractures would be incomplete if emphasis were not laid on the importance of attention to bandaging. A bandage should *never* be put under a splint.

Fig. 1.—"Bad sprain of hand." Skiagram shows fracture of third metacarpal.

missed for the lack of such examination. (Figs. 5 and 6.)

It should *always* be taken off and readjusted if the patient says it is too tight. Provision should be made for observation of the peripheral circulation beyond the bandage. It is only by this care that ischaemic contractions, ulcerations, sloughing, and gangrene from bandage pressure can be avoided.

Dislocations.

The same need of x-ray examination is evident in cases of dislocation, for a year never passes but that I see cases of dislocation of the shoulder and of the hip missed, and

INJURY TO NERVES.

One of the most serious complications of injuries and wounds, and one which has been forcibly impressed on me through legal actions arising from the overlooking of it, has been injury to nerves. These have occurred most frequently from fractures affecting the lower two-thirds of the humerus, from dislocation of the shoulder, and from wounds over the front of the wrist. The result of a serious injury to nerves is, at the best, incapacity for ordinary work for a period of from one to two years, and neglect may mean lifelong incapacity. Fortunately, rough and easily applied tests indicate whether important nerves have been injured or not, and they should never be forgotten or neglected in cases of accident. The sensibility of the skin should be tested by a series of pinpoint contacts, and it is wisdom to strengthen the position by asking the patient to move the muscles and tendons below the seat of injury. Deep pressure, it is well to remember, may convey erroneous information, because the patient may feel this even after complete nerve division.

WOUNDS AND SEPSIS.

Every one admits the danger of sepsis, but it still holds first place as the cause of death and delayed convalescence in surgical cases. The importance of its prevention is not yet sufficiently realized. Perhaps the usual treatment of scalp wounds is the best evidence of this.

Scalp Wounds.

Very few of these are dealt with in such a manner as to satisfy the requirements of present-day surgery. Excepting those arising from a trifling cause, and certainly superficial, all should be regarded as serious happenings and dealt with accordingly. If there is pulsation of blood, discharge, or lotion lying in the wound, it is evident that the skull is fractured, but it has surprised me to note how frequently this striking sign can be overlooked. In dealing with a scalp wound, it should first be packed with gauze wrung out of antiseptic, and the hair surrounding it should be completely removed with scissors or a razor. The wound should then be fully explored with the help of retractors or by a sterilized gloved finger, or, if a punctured wound, by a sterile probe, to exclude the possibility of a foreign body being left in it or of a fracture of the skull being missed. Many times I have removed foreign bodies over which the divided scalp has been carefully sutured (Figs. 7 and 8), and at others have heard when the patient was hopelessly ill from septic meningitis, or at *post-mortem* examination after he had died of it, that no suspicion had been entertained of anything seriously

Fig. 2.—"Sprained elbow." Skiagram shows a longitudinal fracture of the head of the radius.

Fig. 3.—"Sprained hip." The patient walked into hospital. Skiagram shows impacted fracture of the neck of the femur.

Head Injuries Requiring Operation.

If a depressed fracture, or one over important blood vessels, is found underlying a scalp wound, most surgeons agree that the patient should be trephined. Most would also agree that a depressed fracture, whether compound or not, should be trephined. It is when these local indications are wanting that difficulties

and doubts arise, and these require grave consideration. In the past indiscriminate operating for serious head injuries and the many consequent failures have brought disrepute on cranial surgery, but lives are

now lost which might be saved by a timely operation. I have had the opportunity of seeing *post-mortem* examinations when death has followed extradural and menin-

Fig. 4.—"Sprained neck." The skiagram shows fracture dislocation.

geal haemorrhages which have not been successfully dealt with because there was no other serious damage. I have also seen oedema, consequent on bruising of the brain over a limited area, the cause of a fatal result.

An operation is not likely to be useful if the injury is a very serious one, as when a fall from a great height, or an overwhelming blow, or a serious crush, is the cause of it. On the other hand, an unexpected calamity may follow an apparently trifling injury, as illustrated by a recent *post-mortem* examination I saw. A healthy miner, aged 40, struck his head against the roof while at work on Friday. He did not lose consciousness, and after a rest returned to work. He worked on Saturday, played on Sunday, worked again on Monday, and on Tuesday morning at 11 o'clock was found lying unconscious in the mine. Next morning, after a series of general convulsions, he died. *Post-mortem* examination showed a bruise on the scalp over the anterior superior parietal region, with indentation of the skin over its centre. Bruise-staining extended to the skull, which was not fractured. There was a large subdural haemorrhage covering the left hemisphere, the base of the brain, and the lower half of the right hemisphere. There was no other sign of injury or disease.

In determining whether an operation is or is not desirable, the next aid, after consideration of the character of the injury, is afforded by the progress of events. A bruise on any part of the body is followed by swelling around the injured area, and the brain furnishes no exception. The swelling, by causing increased intracranial tension, may cause death. Rupture of an insignificant intracranial blood vessel may cause death in a similar fashion. In either case relapse of unconsciousness may occur after a partial or entire recovery. If, after a period of improvement in the symptoms, there is relapse, a decompression operation should be performed without delay, and this may be the more readily be undertaken since Dr. Harvey Cushing has shown us how it can be done quickly and with safety.

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In spite of exceptional instances, it is a rule that, if a serious head injury is immediately followed by profound unconsciousness, and there is a quickening pulse and rising temperature, an operation will do no good, because the injury is a fatal one.

The Danger of Probes and Interference with Septic Tracts.

A desire to get at the bottom of things, and to find out "exactly" what is wrong, has been, and still is, a cause of surgical calamity. If this is to be avoided it is necessary, before "exploring" anything, to take special care. In illustration may be given our experience with compound fractures, especially those due to indirect violence. It has been the exception to see them develop septic infection if they have been treated by the simple application of a first-aid dressing; they have rarely failed to "become septic" after being explored by finger or probes before coming for treatment.

Two painful experiences of my own are examples of this, and emphasize, what every surgeon knows, the danger of interference in septic areas.

A gentleman consulted me regarding an anal fistula of eleven years' duration. After an illness associated with the original abscess, he had never been ill or off work for a day with it, though occasionally when it did not discharge he had some discomfort until it did so. I entertained no reasonable doubt that there was an internal as well as an external opening, but, as my finger in the rectum could not discover it, I introduced a probe easily, without causing pain, and arranged to operate at his convenience. He then went to his office, developed a rigor, and passed through a dangerous illness of some weeks' duration from diffuse inflammation followed by suppuration round his rectum.

A young man consulted me regarding a sinus in his groin. He looked the picture of health, and only complained of a small escape of watery discharge which necessitated a daily dressing. From the history it was clear that a year previously a large tuberculous abscess had discharged spontaneously in the position of the sinus, but the discharge had been steadily decreasing, and his health had been restored. No one had been able to tell him the cause of this, and to discover it I injected the sinus with bismuth paste, and had him x rayed. A narrow track could be seen running up to the front of the sacrum, and every one concerned was much pleased that the source of the mischief had been so painlessly discovered. The same evening he had a rigor, for some weeks was dangerously ill from sepsis, and only recovered with difficulty. If he had been left alone, his sinus would have healed without further trouble in the course of time.

Fig. 5.—"Sprained shoulder." Skiagram shows subglenoid dislocation of the shoulder.

Fig. 6.—"Bruised hip." Skiagram shows dislocation of the hip.

ABDOMINAL EMERGENCIES.

A differential diagnosis of the cause of a sudden pain in the abdomen may occasionally be impossible, but it is of urgent importance to know whether it is of a serious character or not.

Fig. 7.—Boy who fell off a hay cart and wounded his face. The wound was cleansed and sutured, and healed by first intention. Two years later it "began to gather," and the prong of a steel fork (Fig. 8) was found to be the cause.

Fig. 8.

The most serious causes are visceral perforations (Fig. 9), intra-abdominal haemorrhages, and colics, of which the variety due to intestinal obstruction is of the greatest danger.

By watching the development of diagnostic skill in my house-surgeons, who were changed every six months, I soon learned that they had developed faith in only a few points, and that under ordinary conditions they were seldom wrong.

In the presence of an abdominal emergency it is a good rule to exclude, by examination of the hernial sites, a

strangulated hernia, which is still too often missed.*

The appearance and conduct of the patient are above every other sign in estimating the serious or trifling nature of the condition.

Sex is a useful guide, because in women ovarian cysts (Fig. 10) and fibroids with twisted pedicles (Fig. 11), or ruptured ectopic gestations, have to be reckoned with, and in the male they may be excluded. In both sexes it is good to remember that acute appendicitis is the most common, and therefore the most likely, cause of an abdominal emergency.

The most important aids in forming a diagnosis are:

(1) The history preceding and immediately following the

Fig. 9.—Acute perforating gastric ulcer.

attack—for example, in perforating gastric and duodenal ulcers, a preceding history of "indigestion," and accompanying the attack a sudden "deadly" pain which continues; in appendicitis, a history of similar attacks, though perhaps short and trifling, with, during the attack, at first a diffuse or epigastric or umbilical pain, not so sudden as that of duodenal perforation, later tending to localize in the right iliac fossa, and sickness, generally followed by a rise in temperature; in ruptured ectopic gestation a history of menstrual irregularity and previous threatening cramp, followed by a haemorrhagic vaginal discharge; in gall-

stone colic, violent epigastric pains which "caught the breath," possibly followed by jaundice; in renal colic, frequent micturition during the early part of the attack, possibly macroscopic or microscopic haematuria later on; in acute intestinal obstruction pains of a more paroxysmal character, wind retention, and urgent sickness. For each variety a special previous history and a particular type of onset.

All of them are apt to progress in three stages:

1. Shock (Fig. 12).
2. Reaction (Fig. 13).
3. The stage special to each variety.

It is often of supreme importance to remember this sequence, because after the shock stage has passed a patient with ruptured stomach, intestines, liver, or spleen, with stab or gunshot wounds of any or several of the viscera, may soon have so complete a reaction as to enable

Fig. 12.—Appendicitis: Acute inflammation. First stage: Shock and colic from efforts of appendix to empty itself.

Fig. 13.—Appendicitis: Total destruction—gangrene. Second stage. Reaction = cessation of afferent impulses because the nerves are destroyed.

him to pull himself together and walk home, and so otherwise conduct himself as to lead any but the most careful observer astray. Now, if operations could be performed in every acute abdominal case during the first or second stages, the mortality would not be more than 5 per cent. The present large fatality is due to delay, chiefly arising from uncertainty in diagnosis, and has diminished with each decade, though not so quickly as it should have done. The physical signs during the second stage, to which we have learnt to attach great importance, are two in number

Fig. 10.—Volvulus of ovarian cyst.

Fig. 11.—Volvulus of subperitoneal fibroid.

—namely, tenderness around the seat of the lesion, and rigidity of the muscles overlying it. A third sign—shifting dullness in the flanks—has so often aided me that I attach considerable importance to it also.

All available evidence has proved—

1. That the fate of a patient, the victim of an abdominal emergency, chiefly depends upon the skill and promptitude of his doctor, and that very special surgical skill is of altogether secondary consequence.

2. That when the history and the signs suggest a possibly serious abdominal lesion, the patient should be sent at once into a properly equipped hospital for observation, and, if necessary, operation.

* Since this address was delivered I have seen two such cases.

DIAGNOSIS AND TREATMENT IN URINARY DISEASES.

All of us know the great importance of surgical cleanliness in using a catheter, but some lives are lost, and the health and happiness of many more are still ruined yearly, for want of a small employment of skill and a large use of scrupulous care. For surgical purposes it is well to regard the urinary tract as often in fact, and always potentially, a septic one. The dangers of probing and of explorations will then be appreciated. No such alarming surprises can be experienced as here, where the most painless and

Fig. 14.—Dilated urinary bladder with enlarged prostate and "incontinence."

apparently simple manipulations may be followed by most serious consequences. The disturbances produced by an attack of acute urinary retention can scarcely be misunderstood, but it is sometimes forgotten that the bladder, like all other hollow viscera, soon ceases to respond to ordinary stimuli when it has to deal with an unsurmountable obstacle. The forcible contractions which have caused the early pains abate, passive dilatation of its wall occurs, and a painless distension of its cavity with pressure overflow of its contents follows. This is well illustrated in elderly men with prostatic retention (Fig. 14). After hours of suffering their retention is relieved by dribbling, and patients in this condition are apt to complain chiefly of "disturbance of their stomachs," and possibly forget to mention their "incontinence." It is a good rule to remember that in adults "incontinence" generally means retention and overflow. This knowledge, however, requires careful application, as a painful experience, early in my surgical career, taught me. I was consulted by an elderly gentleman in regard to his stomach. He had no appetite, was always thirsty, often sick, occasionally troubled by hiccough, and looked sallow and ill. On examination, I discovered a urinous odour and that his clothing was wet. The incontinence had followed and relieved an attack of retention three months before. The distended bladder formed a distinct prominence reaching to his umbilicus. I passed a large silver catheter, and to his surprise withdrew more than a quart of urine. Next day I found that he had passed no urine, and an instrument withdrew only a few drops of blood-stained fluid from his bladder. From that time his kidneys excreted no more, and in three days he died. I now know that if his bladder had been emptied slowly through a very small instrument during a period of some days and with scrupulous care he would have recovered. This knowledge is even more important now than it was then, because it would now be possible to remove the prostate successfully at a later stage. Prostatectomy represents one of the greatest recent advances in surgery. It is not even yet appreciated at its full value, and Freyer has made the whole world his debtor by his strenuous advocacy of its indubitable claims.

In women equally dangerous mistakes may be made in these chronic retention cases. I have had young women with backward displacement of the pregnant uterus and elderly women with fibroids sent to me for operation for ovarian cysts, the passage of a catheter revealing a distended bladder.

Another of the greatest surgical advances has been made in urinary work by the introduction of the cystoscope and ureter catheter, which have revolutionized this branch of surgery. (Fig. 15.) The discovery of blood or pus in the urine followed by immediate cystoscopic examination may lead to the discovery of an early cancer or tuberculosis of the bladder or kidney, both curable by operation. Two patients from whom I excised the kidney for tuberculous pyonephrosis, the first twenty and the second fifteen years

ago, are still alive and well. It is not yet common knowledge that genito-urinary tuberculosis is not at all rare, that it is frequently due to infection from a single kidney, that diagnosis is possible when it is thus limited, that the disease can be permanently arrested by excision of the diseased kidney, and that nephrectomy, in competent hands, is an operation of small danger. Without operation many of these cases live for prolonged periods. One patient of mine did so for at least fifteen and another for eight years, the diagnosis in both cases being verified by *post-mortem* examination. Death, however, after prolonged misery is the only reasonable expectation, and exceptions are so rare that many experienced surgeons deny their possibility. An early diagnosis, followed by nephrectomy, is the only known means of averting this.

THE SIGNS OF MALIGNANT DISEASE.

It is the accepted general belief that cancer in its earliest stage is a local disease, and is then curable by excision. It is also becoming increasingly recognized that cancer seldom develops on or in a healthy part, but is preceded by some chronic change to which the name "pre-cancerous" has been given. Recognition of these changes and excision of the diseased area are the most promising advances in the prevention of cancer. The importance of an early diagnosis in developed cancer cannot now be over-estimated, because recent surgery holds out not only hope, but a good prospect of cure.

Unfortunately there are often no early characteristic physical signs and nothing to cause the patient serious pain or any alarm. The textbook description of cancer is based upon examples of advanced disease, more often than not complicated by septic infection, and patients often relate how a lump or an ulcer which had been discovered months earlier occasioned neither their doctor nor themselves any alarm, because there was no pain in it and no

Fig. 15.—Hydronephrosis demonstrated by ureter-catheter injection of collargol and x rays. (R. J. Willan.)

symptoms to cause uneasiness. There are, however, certain symptoms and signs so suggestive of malignant disease that, in the elderly especially, this should be excluded, if possible, first, by a complete and thorough examination.

These symptoms and signs are:

Hæmorrhage.

Bleeding from the stomach, from the bowel, from the genito-urinary tract, from nasal polypi, especially in elderly patients, should always suggest the possibility of cancer, as it is the most common cause.

* In some cases the bladder may be distended to the umbilicus and the patient still has control.

The Discovery of a Tumour.

If a tumour is hard in consistency, nodular on its surface, has an indefinite edge, and is infiltrating the parts in its neighbourhood, there can be no difficulty in the diagnosis. But in patients over 35 especially it should be

Fig. 16.

Eventually fresh development occurs, it becomes more cellular, less fibrous, and in the end sarcomatous. Consequently, these tumours should always be removed.

The swellings most resembling cancer are due to chronic abscess and fibrosis from sepsis and tubercle, to cysts, and to the condition known as chronic localized interstitial mastitis. The difficulties of diagnosis are usually so great that no doctor should be found willing to take the responsibility of it. If action is postponed till a clinical diagnosis of cancer is possible, only 25 per cent. of cures follow the most radical operation. Bloodgood, of Johns Hopkins Hospital, reports cure of at least 90 per cent. of cases in which removal of the tumour for pathological diagnosis, before a clinical diagnosis of cancer could be made, was followed by immediate radical operation.

In adult males eight out of ten abdominal tumours, recently discovered, are malignant.

Polypi in the rectum and colon, and papillomata there, and in the bladder and larynx of adults, frequently hide a cancer.

Symptoms of obstruction in the hollow viscera suggest cancer. Twenty-nine out of thirty adults who, without a known cause, develop difficulty in swallowing due to oesophageal stricture, have cancer. The diagnosis of oesophageal stricture is usually easy if the patient be watched while taking fluid or liquid nourishment; it is made certain by skilled examination with x rays. It should be borne in mind that, when the stricture is at the lower end of the oesophagus or at the cardiac orifice of the stomach, patients complain of "vomiting," because I have found that doctors are often misled by this story. In these cases the "vomiting" is regurgitation of oesophageal, not of stomach, contents, and, as the oesophagus dilates above the stricture, food may even be retained for a short time before it is expelled. "Vomiting" immediately after food is taken, or the finding that the "vomited matter" is not acid in reaction, should suggest the probability of stricture of the oesophagus. The discovery of a stomach tumour in

a rule that any tumour which does not offer a definite history and present symptoms and signs of its benignity must be widely excised for microscopic examination. A favourite situation for such tumours is the female breast, where, above this age, 50 per cent. are cancers. A fibroadenoma of the breast, its ordinary simple tumour, is never in my experience seen in women over 30 years of age. It is simple and benign from 15 to 25, and if left alone may not grow larger for some years.

an elderly patient, especially if "indigestion" is a recent development, and if there is rapid loss of condition, is almost conclusive evidence in favour of cancer. If the tumour involves the pylorus it causes obstruction, and dilatation of the stomach follows. Chronic intestinal obstruction in the elderly is in the very great majority of instances due to cancer. This is most common in the sigmoid loop, and the history of greatest value is one of increasing constipation, with loud wind rumblings, increased by aperients, and spasmodic pains accompanying the flatulence. Cancer in the ileo-caecal neighbourhood often causes attacks of obstruction with spasmodic pain, wind rumblings, and vomiting, with alternating diarrhoea and constipation. Cancer of the rectum should always be suspected when alternate "diarrhoea" and constipation demand frequent attempts at evacuation with small result.

Fig. 17.—Burn scar which developed epithelioma.

Painless chronic jaundice in adult patients is seldom due to anything but cancer. If the jaundice is steadily increasing, and the gall bladder is distended, it is so almost without exception. When I say painless this refers to the commencement of the illness, and put in the form of an aphorism the position will be this: *Jaundice, preceded by pain, is most likely due to a gall stone, but commencing painlessly is due to cancer.* Though operation in these cases has exceptional risk, my view is that if there is no general contraindication it should be taken. Cholecystenterostomy will relieve the jaundice and the itching in most of them.

Chronic Jaundice.

Chronic Hoarseness.

In patients past middle age changes in the voice demand laryngoscopic examination. This is all the more important since cancer of the vocal cords, the most frequent cause of chronic hoarseness, has been proved to be one of the least malignant types of cancer, and, when limited to the cords, curable by a simple and safe operation—thyrotomy and excision of the cords.

Chronic Irritation.

The most important predisposing cause of cancer known is chronic irritation, but this knowledge is yet not sufficiently acted upon. Irritated ulcerated warts, moles, or naevi in adults are either cancerous already or so likely to become cancerous that they should be removed without delay.

Ulcers of the tongue which do not heal promptly after any source of irritation has been removed, or which have

Fig. 18.—Epithelioma on old burn scar of leg.

not healed after a few days of treatment with iodide and mercury, should be excised for microscopical examination. Patches of leucoplakia on the tongue (Fig. 16) or cheek, penis or vulva, require constant supervision, and when irritable or ulcerated should be promptly and widely excised, as they are frequent precursors of cancer. Cracked and irritated scars from burns or scalds, if neglected, always develop cancer (Figs. 17 and 18). Raised pigmented rough patches on the skin of elderly patients, scaly thickened patches, obstinate cracks (Fig. 19) or warts on the

lips (Fig. 20), sores on the nipple which resist ordinary treatment, are all likely to become cancerous, if not so already, and should be excised. The irritation effects of x rays, paraffin (Fig. 21), soot, etc., are so well known as predisposing causes of cancer as to require no further mention. Not so well recognized are the irritation of gall stones and of chronic gastric ulcer. The best surgeons

Fig. 19.—Skin cancer; old field worker. Area where tears trickle.

also recognize that cancer of the gall bladder follows the irritation of gall stones with sufficient frequency as to make their removal advisable for this reason alone.

The irritation of a chronic gastric ulcer is now accepted as a predisposing cause of cancer, so that, apart from the fact that the dangers of haemorrhage and perforation are greater than those of operation in competent hands, the predisposition to cancer is—without attaching too great importance to it—an additional reason for the recommendation of operation in ulcer cases. The diagnosis of stomach cases has been hindered rather than helped by chemical and laboratory advice, though all recognize that these may be useful aids. If a patient has been a long sufferer from "indigestion," and the pain, of which there has been most complaint, has been definitely related to meals, if spells of good health have alternated with bad turns, and if during the bad times the hours between 2 in the morning and before breakfast have been the best of the twenty-four, then any experienced surgeon will suspect a chronic gastric or duodenal ulcer, and advise operation. The operation might—though in my opinion it rarely does—disclose a cancer, the symptoms of which, unless it is causing obstruction, are less definite. They may be shortly described as "indigestion" which does not quickly yield to simple remedies, the patients being, moreover, elderly people.

In gastro-intestinal diseases x rays and barium or bismuth feeding or enemata have recently proved such important advances it is likely that very early cancers and strictures will be discovered and the presence of ulcers confirmed, so that useless exploratory operations can be avoided.

Certain tumours are precursors of cancer so frequently that special attention should be paid to them and endeavours made to remove them.

Multiple polypi in the rectum and colon, even in young patients, have so often in my experience preceded cancer that I have a special dread of them. The only case I have cured was by an operation suggested to me by my house surgeon, Mr. Saint. The patient, a boy, had multiple polypi in his rectum and lower sigmoid, many of which had already been excised. He was cured by an inguinal colostomy in the upper sigmoid, kept open for one

and a half years. This was in 1910, and the boy remains perfectly well.

Papillomata in the rectum, colon, bladder, or larynx of adults have an equally serious tendency, and predispose to cancer, if they are not already cancerous.

Patients with molluscum fibrosum and neuro-fibromatosis, in my experience, nearly all die of sarcoma.

Tumours of bone are frequently malignant, and x rays are of special service in their early diagnosis.

Appearance of Patient.

The general appearance of a patient with cancer may be that of rude health, though in the majority of cases friends or relations have noticed before any local signs developed that there had been some "falling off" or deterioration in condition, some loss of weight, or anaemia, or decrease in vigour, sufficient to suggest something wrong. The "cancerous cachexia" is too late a sign to be of practical use, and there is yet no reliable laboratory test, such as tuberculin or the Wassermann test, for cancer.

Fig. 20.—Epithelioma of lip; clay pipe smoker.

"NEUROTICS."

The most difficult problem for the practitioner is to discover what is best for the unfortunate patients who are called "neurotics." We all admit that the title is one which covers a multitude of sins and serves as a cloak for medical ignorance, but the attitude taken is a more satisfactory one than by teaching that underlying every such case there is some condition serious enough to require an operation for its treatment. The gynaecologist has had his turn and has discovered that a weird variety of plastic operations inside and out, and even the removal of the chief pelvic contents, have been a signal failure in effecting the cures promised and hoped for. The general surgeon, by the turn of fashion, is now having these unfortunates handed over to him. Some enthusiasts effect a cure by making, and others by removing, adhesions, and it is difficult, in reading their records—each equally brilliant—to discover a reason for their remarkable results. It appears as if the movable kidney had only to be fixed, or the immovable intestines to be released, to secure that health and happiness are restored, but the choice between the two presents insuperable difficulties. An early experience of my own concerning movable kidney made a lasting impression on me, and gave a bias against the operation of nephrorrhaphy which I cannot yet shake off. More than twenty-five years ago a thin, ailing, intelligent, "neurotic" woman came under my care, and I discovered what I thought was a movable kidney, and told her so. She had all the distressing symptoms then believed to arise from that condition. One day, after finding her unusually ill, I read a paper by the late Lawson Tait, saying, in the convincing manner of all he wrote, "there is no such thing as a movable kidney. All the lumps mistaken for this are distended gall bladders with gall stones in them." I went to the patient, told her what I had read, apologized for the mistaken diagnosis I had made, and offered to remove her gall stones by operation. She entirely approved of an operation, and said she did not know whether Mr. Tait was right or not, but she *did* know that the whole of her suffering came from the lump in her right side, and if it could be taken away she felt sure she would be cured. With this opinion I agreed. On opening the abdomen I found the gall bladder healthy, and the lump a freely movable right kidney, which I excised, as the operation of nephrorrhaphy had not been invented then. Careful macroscopic and microscopic examination proved it to be a healthy kidney, and for a few days after the operation I went about with the unhappy feeling that I had performed a criminal act. The end seemed to justify the means, because, as soon as the patient was well

Fig. 21.

enough, she declared that all her old symptoms had disappeared, that her health had been completely restored by the operation, and that she owed everything to my skill. This happy state of affairs continued for many months, then all her old symptoms returned, and for many years I was glad to go a long way round to escape an interview with her.

On many occasions I have undone adhesions in the abdomen, and seen cases operated on by others, for abdominal discomforts difficult to assign to any definite cause. Omitting those causing definite obstruction or associated with gross pathological change, I have never been able to satisfy myself that any benefit followed these operations, and patients are often worse after them. It is of interest in this connexion to note that Sir Arbutnot Lane, whose brilliant work has attracted the attention of the whole surgical world, has abandoned attempts to deal directly with adhesions because he has found these operations useless.

In conclusion, then, allow me again to offer a reason for my attempt to give an example of the type of post-graduate teaching that I consider ought to be offered in surgery.

The principles of surgery should be taught to students so thoroughly that they can never forget them. In the limited time at the disposal of practitioners they ought to be given as much information as possible, and their surgical teachers should give the results of their experiences in so practical a form as to serve as a safe guide to a diagnosis which suggests the need for surgical treatment.

Clinical Notes

ON

EPIDEMIC CEREBRO-SPINAL MENINGITIS:

WITH OBSERVATIONS ON TREATMENT.

BY

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At the present time cerebro-spinal meningitis is a disease of the greatest moment, because of its intense virulence and great rapidity of progression, and also because of its infectious nature.

An early diagnosis is of the greatest importance, for it gives better hope of recovery to the patient, and also lessens the danger of the spread of infection, as it enables immediate attention to be given to the disinfection of quarters and isolation of contacts—matters of vital urgency where moving troops are concerned.

Four cases of this disease having come under my care, some clinical notes, and some observations on treatment, may be useful to army medical officers and civilian practitioners, as cases of this form of meningitis have recently occurred both in the military and civil population, and in some instances a fatal termination has resulted, almost before diagnosis was made.

CASE I.

Trooper G. M., aged 19, was taken ill on February 12th, complaining of severe headache; he was admitted into the infectious hospital on February 15th. He was then very delirious at night and rambling all day, and complained of severe headache. Retraction of the head was well marked, and there was also some rigidity of arms and legs. Kernig's sign was very pronounced. Some pink spots were found scattered over his body, and some haemorrhagic blotches were present about the ankles and knees. *Tache meningitique* and pressure erythema were very well marked. The temperature on admission was 103°.

On February 16th 30 c.cm. of turbid cerebro-spinal fluid were withdrawn and 20 c.cm. of anti-meningococcic serum injected. On February 19th 64 c.cm. of turbid fluid were withdrawn; on examination the fluid was found to contain the *Diplococcus intracellularis*; 10 c.cm. of serum were injected.

On February 20th 48 c.cm. of clear fluid were withdrawn, and 15 c.cm. of serum injected. By this date the delirium had decreased, the headache had gone, and he was sleeping well, but his neck was still very rigid, and his head retracted. Kernig's sign was still very marked. On February 21st 64 c.cm. of clear

fluid were withdrawn and 15 c.cm. of serum injected. On February 22nd he had no headache and no pains, and his delirium had decreased, though still present at night. There was less rigidity of his neck and less general rigidity, but Kernig's sign was still well marked. Pressure erythema was also still very evident, but the subcuticular mottling was fading and there were only a few scattered pink spots on the back and buttocks. He never had any hyperaesthesia. On February 24th patient had slept well, and had had no delirium during the night; he looked better and there was more movement in his neck, but Kernig's sign was still very definite. On February 25th movement of his head was better, but as Kernig's sign was still well marked, 48 c.cm. of clear watery fluid were removed at pressure. No diplococci were found in this fluid; 15 c.cm. of serum were injected. On March 1st his general condition showed considerable improvement, but there was evidence of cardiac weakness; the pulse was soft, of low tension, and inclined to be intermittent, and the heart sounds were feeble and weak. This continued until March 4th, when 2½ minim doses of liquor strychninae were ordered every six hours. Since that date there has been steady improvement of the heart's action, and also an abatement of the remaining nervous symptoms; all rigidity of the neck has gone, Kernig's sign has disappeared, and the skin eruption and *tache meningitique* have subsided. The temperature has remained normal since February 27th, and on March 19th he was able to get up and walk about the ward.

Case I.—A, 20 c.cm. serum; B, 10 c.cm. serum; C, 15 c.cm. serum.

CASE II.

Private H. H., aged 19, complained of feeling slightly unwell on February 14th. The following morning he reported sick, and complained of pains all over his body. As influenza was prevalent, he was treated with sodium salicylate, and kept in his billet. During the day he became much worse, severe headache, vomiting, and delirium supervening; the temperature rose to 102°. On further examination, some stiffness of the muscles of the neck, Kernig's sign, and *tache meningitique* were found to be present. The diagnosis of cerebro-spinal meningitis was made, and he was at once removed to the Isolation Hospital. The following morning the rigidity of his neck was more marked, and there was also retraction of his head, with hyperaesthesia of the calves, and a few pink spots on the upper part of his chest, left ankle, and neck.

Lumbar puncture was then performed; 30 c.cm. of turbid fluid were withdrawn and 28 c.cm. of antimeningococcic serum injected. The spinal fluid was found on examination to contain the *Diplococcus intracellularis*. The following day his condition had improved, the headache and delirium were less marked, and the temperature was below normal, but the retraction of the head and Kernig's sign still persisted. On February 19th another dose of antimeningococcic serum (15 c.cm.) was given after 48 c.cm. of clear fluid had been withdrawn. On February 20th 48 c.cm. of clear fluid were withdrawn and 15 c.cm. of serum injected. The same treatment was adopted on the following day, the same amount of fluid being withdrawn and the same quantity of serum injected. The delirium left him on the night of the 18th, and he slept well after this. A marked eruption of supraorbital herpes occurred on the right side on February 20th, and pressure erythema was very marked about the knees, ankles and hips. On February 22nd the erythema was still marked, but Kernig's sign had lessened, the head was less retracted, he had no headache, and no delirium, but some pink spots were still present on the left buttock. This improvement was maintained, but on February 24th he had an attack of urticaria all over his body.

The following day the temperature rose to 102°, and he complained of headache, but had no delirium. The rash was more marked on February 26th, and the temperature rose to 103° in the morning but steadily fell during the day. The other symptoms all improved until March 1st, when, as his temperature was on the upward grade, lumbar puncture was again made; 48 c.cm. of clear fluid at pressure were withdrawn and 15 c.cm. of serum were injected. On examination this fluid showed the *Diplococcus intracellularis* to be still present. On March 4th the patient had slept well, and had no delirium or headache, but the temperature at 10 a.m. was 102.6° and the urticaria, which had completely disappeared, recurred. There was no rigidity of the neck and Kernig's sign was only slightly marked. On March 8th Kernig's sign was more in evidence, and as his temperature had risen to over 102° with a rigor, 64 c.cm. of turbid fluid were removed and 15 c.cm. of serum injected. On March 9th patient was very restless and delirious during the night; lumbar puncture was again done and 64 c.cm. of turbid fluid withdrawn and 15 c.cm. of serum injected. On March 10th and 11th 64 c.cm. of turbid fluid were removed and 15 c.cm.