of the trunk that matters, not the apparent deviation of the tips of the spines of the vertebrae. One must therefore take the long view, and be ready to adopt a line of treatment which anticipates the oncoming deformity, and not be deceived by the apparent deformity. We have to deal with the same fundamental principles, whether we are dealing with early cases in which the patient can by voluntary effort correct the apparent deformity—the type of case sometimes called “postural,” but this word is here used with a meaning wholly different from that attached to it in the phrase “postural reflex”—or with more advanced cases in which the patient cannot voluntarily correct, but the surgeon, by using external force, can correct the apparent deformity which some would call “early structural”; or with cases of a third type with gross bony changes or paralysis of nerves supplying muscles.

The first type may be cured by any intelligent system of exercises which helps the patient to correct the deformity automatically and not only by a conscious effort of will.

The second type may be corrected if the surgeon can first correct the deformity by external force which holds the patient in corrected position by means which prevents relapse but in no way impedes further correction. This must be followed by re-education in posture by means of exercises, which must become automatic to be effective.

The third type can only be pushed into some sort of vertical position and sometimes held there, so that the patient can hold an erect posture with one gross deformity more or less compensating another; but the main line of the centre of gravity falls pretty well between the feet, and not in a lopsided manner away over one foot with a steady tendency to get worse. With this last type the practitioner of experience may make some sort of a patch-work. For the purposes of this discussion they are of no interest to us, for if our modern movement towards finding our physical defectives early by properly staffed orthopaedic clinics grows and succeeds, few cases will ever be allowed to pass into this stage in another generation.

The orthopaedic surgeon of the next generation must prevent the third stage from occurring, except in rare cases. For example, tuberculous disease of bone and joint to-day is not allowed to produce the gross deformities which occurred when I was a student. In many areas public opinion has been so educated that the mothers of the village will insist that every lame child must go to the orthopaedic clinic which is to be found in the nearest market town. That point has been already proved in the county of Shropshire. Dame Agnes Hunt has seen to it that in that county no new preventable deformity shall occur.

Reverting to the second group of cases—those in which the surgeon can, by the use of external force and control, produce a correction of the deformity of the trunk as a whole. Three essential factors must, I believe, be recognized and acted on.

1. That in the thoracic region rotation deformity is the dominant difficulty to be overcome; and that Hoke has shown that the ribs are a lever rotating the vertebrae. This factor of deformity can be corrected by training in breathing, which can be reinforced, if need be, by suitable splinting.

2. That in the lumbar region correcting the lordosis helps materially to correct the lateral deformity and indirectly corrects the rotation. In this connexion extending the pelvis on one thigh exercises a correcting influence on the lumbar twist, and this correction can be obtained even in the sitting position. The flexed plaster jacket compels the patient to exercise the extension of the hip-joint for postural purposes, and therefore secures this action, as is done in an Abbott's jacket.

3. Deviation of the body weight on to the foot which the patient is not in the habit of using, taken either as a system of training or as part of posturing by jackets, alters the whole postural reflex habits of the patient and helps to correct the deformities, if properly applied. This is the foundation of Haglund's jacket.

Finally, gymnastic treatment serves only two purposes: (a) To loosen joints—that is, to increase the range of inhibition and movement of muscles. All ordinary move-

ments in the gymnasium contribute to this. Such exercises are not corrective, but only preparatory. (b) To re-educate the patient in habitual posture so that the postural reflexes which are automatically used by the patient in ordinary life shall tend to correct, not to perpetuate, the deformity. This training must be done outside the gymnasium by the patient's own will power. For this reason I have never allowed myself to run a gymnasium for curative exercises. Also in my practice these exercises are entirely devoid of arm and leg wagging: they consist of correct balancing and breathing when lying, sitting, or standing, and can be practised habitually on ordinary school or nursery furniture, in buses or trains, and walking down the street without doing anything conspicuous.

This training is entirely psychological, and I hold it as a matter of prime importance that the patient should have all ideas connected with corrected breathing and posture associated with the ordinary occupations of life, not with some gymnasium or other. For this reason I hold that the gymnast must train the patient in her own home surroundings to get the best results.

My best results have not been obtained in hospital patients; the psychological environment of the ordinary life of the patient is not conducive to the highest form of success.

To conclude. I would suggest that more attention should be paid to rotation deformity, that apparent deviation of the spines of the vertebrae be almost disregarded, for this deformity is often deceptive and never an accurate measure of the real distortion.

Lastly, do we treat our cases with sufficiently powerful means of correction in the early stages?

THE TRAINING OF THE GYNAECOLOGIST.*

BY

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WHEN a physician's labours are confined largely to one sphere of activity he is often prone to think that his is the only field worth while. It is essential for him to mingle frequently with his colleagues of other branches. For years it has been my good fortune to be associated with that master gynaecologist Howard A. Kelly, and to him I owe an eternal debt of gratitude. Over a period of ten years I made frequent visits to a hospital in a remote part of the State of Maryland. Here I found many poor people who needed urgent attention, and in this small institution it became incumbent on me to do all kinds of surgery. I believe that it was this experience that did more than anything else to convince me that every gynaecologist must be an abdominal surgeon. In other words, when he opens an abdomen he must be prepared to deal with any condition that he may find, whether or not it be gynaecological in the strict sense.

One practitioner may prefer to do stomach and gall-bladder surgery, and another pelvic surgery in the female, but when either has an abdomen open it is only fair to the patient that every lesion found in that abdomen be treated at the time if it be humanly possible. It is no excuse for one to say that the lesion is out of his line, or that he is not capable of doing the operation, and then close the abdomen. In the short time at my disposal I shall attempt to amplify this viewpoint.

Naturally a fundamental knowledge of medicine is absolutely essential. In the next place, every surgeon, if he is to get the most out of his work, must have a thorough grounding in general pathology, and also in the surgical pathology of the particular branch which is to become his life-work.

Let me state the method of training that the men who are going to be gynaecologists receive at the Johns Hopkins Hospital. Each year five of the graduating class are

* Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Manchester, 1929.

assigned to the gynaecological department. During the year these men have charge of the patients in private and public wards, take all the histories, assist at operations, and work in the gynaecological and cystoscopic dispensaries. At the end of the year, after a conference with the house staff and the visiting staff, one of the five men is selected for promotion. The other four obtain hospital appointments elsewhere or enter private practice.

The man who has been selected now drops out of the gynaecological department for a year and becomes an assistant of Dr. William G. MacCallum, professor of pathology. During his intern year this man has obtained a very good idea of the difficulties encountered in the various abdominal and pelvic operations, and consequently is better able to appreciate the opportunities afforded him in the pathological department. He is, however, no novice in this laboratory, because in his undergraduate days he received his instruction here. He is now permitted to make numerous necropsies and gains a clear idea of gross pathological lesions. While making the necropsies he has the opportunity of dissecting out the ureters and of learning the relations of the pelvic structures. He is continually dissecting out the bile ducts to see if they are patent, and has ample opportunity to observe the lymphatic ducts carefully. He also gains a lasting knowledge of the relations of the abdominal organs and of the blood supply. After a year's opportunity in such work he should never again get lost in the abdomen. In addition to all this he gains an insight into the lesions in all parts of the body, and has the opportunity of studying the various histological pictures presented at necropsy. He likewise has the privilege of attending again the undergraduate classes in pathology, and of participating in the invaluable pathological conferences that are held each week.

At the end of a year our assistant in pathology returns to the gynaecological department; he examines and describes all material coming from the gynaecological operating room, supervises the cutting and staining of sections, and gives a detailed and careful description of the histological findings. Ample time is afforded him to work on special gynaecological problems, and he is within easy distance of that mine of information the Surgeon-General's Library, where practically every medical book and periodical that is worth reading can be obtained. He also has an opportunity to see all the interesting cases treated in the department. During the following year he is first assistant, assists at operations, has general supervision of the wards, and when the resident is away is in charge. During his final and fifth year he is the resident gynaecologist and has full charge of the department, and, in addition to assisting the visiting surgeons, performs many major and minor operations himself.

The finished product is: (1) A man who has a good knowledge of general pathology and an intensive knowledge of gynaecological pathology. (2) A man with a comprehensive knowledge of gynaecological and abdominal diseases. (3) An expert gynaecological and abdominal surgeon. (4) A surgeon who has formed the habit of looking at his cases from every viewpoint.

A man with such a training will not only do justice to his patients, but should also prove an admirable teacher. He is bound to add to the sum total of our knowledge of gynaecology and abdominal surgery. Few men who have become real investigators will ever be satisfied to relinquish this fascinating field during their active period of surgical life.

Every gynaecologist and general surgeon has a group of cases that worry him greatly. Some of these patients have had pelvic operations, others have had their appendices or gall-bladders removed and still are far from well. They have pains in the right or left lower abdomen or on both sides; occasionally they have discomfort in the renal region, and often they complain of frequent urination. The urine itself may contain an occasional pus cell or be practically normal. This group of cases has given the conscientious surgeon untold anxiety, and he has often been at his wits' end to determine just what is the matter and what he should or should not do for them.

In recent years my colleague and friend Guy L. Hunner, associate professor of gynaecology in the Johns Hopkins

Medical School, has pointed out that many of these patients have unilateral or bilateral ureteral strictures, and that by dilating these strictures the patients are relieved of their symptoms and again become normal individuals. In some of these cases it is necessary to re-dilate the ureters from time to time, just as one must do when strictures exist elsewhere. Hunner's epoch-making labours are receiving more and more attention the world over, and before long his methods of treating ureteral stricture will be employed everywhere.

Here I should like to say that while in the male urology is logically a distinct specialty, in the female bladder and ureteral lesions are so intimately associated with pelvic infections and pelvic tumours that it is essential that the gynaecologist of the future be a good urologist. As we all know, the diagnosis of pelvic lesions is often very obscure, and it is frequently impossible to forecast just what one will find when the abdomen is opened. For the benefit of those who are general practitioners—the backbone of the medical profession—I shall mention a few cases illustrating these difficulties.

I often tell my students that the abdominal cavity suggests to me a long, partially collapsed silk balloon moulded to the various abdominal structures and covering over the inner abdominal walls. This simile is of surgical importance; for example, suppose that we have a case shortly after labour in which there is thickening in the right lower abdomen, and the diagnosis lies between broad ligament induration and an acute appendicitis. If it be an acute appendicitis the abdomen should be opened at once and the appendix removed. If, on the other hand, the thickening be due to broad ligament induration, in no circumstances should the balloon be opened. All that is necessary in this case is to make a gridiron incision as for an appendix, and when the peritoneum is exposed to push it gently inward until the area of thickening in the broad ligament is reached and a drain can be laid down to this area. The induration usually softens up in a few days, and as the abdominal cavity has not been opened there is little or no danger of a streptococcus peritonitis.

On one occasion, while in the country, I saw a patient with what appeared to be an adherent myoma of the posterior surface of the uterus. Not being absolutely sure of the diagnosis I did not operate on her at the local hospital, but brought her to Baltimore. On opening the abdomen we found diverticulitis of the sigmoid low in the pelvis and a small abscess in Douglas's cul-de-sac. Because of the extensive inflammatory thickening, it was thought wise to do a resection notwithstanding the abscess. Fortunately the patient made a good recovery.

Recently I saw a patient with a multinodular myomatous uterus filling the pelvis and extending halfway to the umbilicus. She had pain of short duration in the right lower abdomen. Was the condition a pus tube or an acute appendicitis associated with the myoma? If a pus tube, we could perform hysterectomy and remove the pus tube at the same time; if an acute appendicitis with abscess formation, it would be fatal to attempt hysterectomy at that time. We made a gridiron incision and found an appendix abscess. The appendix was removed and the abscess drained. The hysterectomy will be done four or five months later.

During the last few years I have seen several cases in which an acute appendicitis complicated a pelvic tumour, and in each case only the appendical trouble was treated, the tumour being removed later.

Now let me refer briefly to a few cases in which the pelvic surgeon must go far afield. We have a large myomatous uterus that has persisted for years. A loop of bowel is so firmly adherent that it cannot be saved. In addition to the hysterectomy an extensive bowel resection is necessary.

I have already recorded a case in which a large myoma almost filled the abdomen. Its upper part had suppurated, grown fast to, and opened into the transverse colon. The uterus was amputated at the cervix, completely freed from the broad ligaments, the cervix closed, and the pelvic toilet completed. The pelvis was then filled with gauze and the myoma and transverse colon lifted out of the abdomen, carefully walled off, and the diseased portion of the

transverse colon removed with the myoma. During the entire operation not a drop of pus escaped.

One Sunday afternoon a coloured woman was brought to the hospital as an emergency. The pelvis was choked with a myoma. As soon as this had been removed we found a carcinoma of the sigmoid. For this a resection of the bowel was necessary.

A frail little woman, 58 years of age, for years had been carrying about a very large abdominal tumour. It finally gave rise to so much dyspnoea that operation was imperative. When she went on the operating table she weighed 174 lb.; when she was returned to her room her weight was 85 lb., and by the time the oedema had left her extremities her weight was 80½ lb. The tumour, a cystic myoma, weighed 89 lb. It was attached to the uterus by a pedicle no thicker than one's finger. The myriads of blood vessels going to it had been supplied by the omentum, stomach, and liver. It was necessary to remove a piece of liver with the tumour. This patient lived to be nearly 80.

A patient had had a previous operation in a neighbouring State. She had two faecal fistulae in the abdominal scar, and in the pelvis a globular mass, about 10 cm. in diameter, that felt like a myoma. An elliptical abdominal incision was made embracing both fistulous openings. In the abdominal cavity the intestines were more tied up and twisted than any skein of wool could possibly be. I could follow a loop for a short distance; it would gradually contract. It communicated with the pelvic tumour by a fine opening. Nearly all loops that I picked up ended in the same manner. It was absolutely impossible to unravel the tangle. Finally, remembering that the bowel and mesentery may be likened to a fan, the roots of the mesentery being the handle and the bowel the fringe to the fan, I went down to the mesentery, traced it up to a normal-looking loop of bowel, and clamped the bowel at this point. Going back to the mesentery, I traced it up to another normal loop at a distant point and clamped. All the intervening bowel was now cut away, the ends closed, and a lateral anastomosis done. Even in the laboratory it took a long time to get one's bearings. The supposed myoma was a faecal cloaca into which many loops opened. The patient made a prompt recovery.

In a neighbouring town I saw a frail woman with a pelvic and lower abdominal tumour. As it was evident that she would need unusual post-operative care, I brought her to the Johns Hopkins Hospital instead of operating at the local hospital. On opening the abdomen I found a carcinoma of the descending colon. This had eaten its way into a loop of small bowel, and the carcinoma had plastered itself against the posterior surface of the uterus. The appendix was also adherent to the tumour. The case seemed desperate, but the family physician urged operation, saying she could not live ten days without it. A supravaginal hysterectomy was done, both tubes and ovaries being freed with the uterus. The pelvic toilet was completed, and the pelvis filled with gauze. The appendix was freed from the caecum and covered over so that it could not infect the operative field. The involved bowel and the pelvic structures were now lifted out of the abdomen and carefully walled off. A large portion of the descending colon and the involved loop of small bowel were clamped and cut off, the portion of large bowel, the loop of small bowel, the appendix, the uterus, tubes, and ovaries being removed in one piece. The four ends of bowel were closed and two lateral anastomoses made. The patient made a slow recovery and lived in comfort for about a year and a half. She then died suddenly.

I have cited these cases to give you some idea of the extensive and alarming conditions with which the gynaecologist is now and then confronted. I need not elaborate on the frequency with which chronic appendicitis and gall-bladder conditions are associated with pelvic lesions.

From the foregoing it is clear that any man attempting to do abdominal surgery must be master of the situation, if such a thing be possible. Every man going into gynaecology must have a thorough training in the surgery of all parts of the abdomen. The supreme test is: What man would you select to do an abdominal operation on one of your own loved ones? The answer is: The man who can treat any lesion he finds in that abdomen. This being the

case, we are in duty bound to so train our young gynaecologists that they will be capable of handling any abdominal emergency that may arise, if that be surgically possible.

In short, I confidently predict that in the very near future no surgeon, except in the rarest emergency, will be accorded the right to open any abdomen unless he has been trained to handle any and all complications he may find in that abdomen. This applies to your country and to mine, and to all other countries where abdominal surgery has reached the high standard of to-day—a standard of which the medical profession of the world is so justly proud; a standard made possible through Louis Pasteur and our beloved and revered Lord Lister.

TOXIC ABSORPTION DUE TO FOCAL SEPTIC LESIONS:

ITS EFFECTS ON THE PRODUCTION OF EYE DISEASES.*

BY

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A WELL-KNOWN English writer, in an interesting article in one of the Sunday papers of April 28th last, described the superior skill of an ophthalmologist practising in a certain Continental town. The theme of the article was that British ophthalmologists think of nothing but ordering glasses, while the Continental surgeons investigate the patient's condition and cure it by treatment. In the opening papers and discussions at this Section on the selected subject, it will be evident that British ophthalmology is leading in the investigation and treatment of certain eye diseases, which in some other countries are looked upon as of unknown origin, or as dependent on some obscure constitutional condition.

As the article to which I have referred above has had a very large circulation, and will result undoubtedly in material benefits to the inhabitants of the town mentioned in it, I should like it to be known that not all cases treated in that town have such happy results. At the time of writing this paper I have under my care in the ordinary wards of Westminster Hospital a poor lady who has spent her small means in obtaining treatment for cataract at that town. The patient had received no benefit from her treatment abroad, nor was it likely that she would do so. As she was no longer able to walk about, I extracted her immature cataracts, to her great joy.

The subject which has been chosen for discussion is very important, and one in which I have taken great interest, especially during the last two years. Reports of clinical researches by me will be found in the *Transactions* of the Ophthalmological Society of the United Kingdom for 1928, and in the *Proceedings* of the Royal Society of Medicine, Section of Ophthalmology, 1928. Also an article by me on "The relationship between dental and ocular disease" appeared in the *Dental Journal* in 1928. Due acknowledgement was paid in them to the personal teaching of William Lang, and to his opening address on this subject at the Oxford Ophthalmological Congress of 1923.

Nature of the Products of a Focus of Sepsis, and the Channel whereby these Products reach the Eye.

The exciting agent of ocular changes must be living or dead bacteria, or the toxic products of bacteria, or the disintegration products which result from the action of bacteria on the body cells. In extraocular inflammations of the conjunctiva and eyelids, as well as in orbital cellulitis, it may be a bacterial infection which spreads by contiguity of tissue, or by way of the nose and lacrymal passage. In intraocular changes it is either the toxins of the bacteria or the disintegration products which are the exciting agents; their path to the eye must be by the

* A paper read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Manchester, 1929.