PROGRESS IN SURGERY DURING THE PAST TWENTY-FIVE YEARS

BY

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The request to describe the changes in surgery during the last twenty-five years gives food for thought in several directions. In the first place it makes the writer aware that time is passing, and in the second it makes him realize that he has no accurate knowledge of what was standard in 1910. This difficulty lies in the fact that a surgeon, in the active practice of his profession and in daily contact with colleagues and students, assimilates so easily and painlessly the improvements as they come about that he is not actively conscious that the surgery he is practising to-day differs greatly from that of twenty-five years ago. The older the surgeon the truer is this statement, possibly because the mind of youth is more keen and nimble.

The first thing in this task is to try and get some idea of what was happening in those distant days. This can be done by turning to the books and periodicals of the day. The textbooks for students will be a bit behind the actual practice, as they had to be careful that procedures were accepted before passing them on to the surgical aspirant. The *Proceedings* of societies will have erred in the other direction: they put forward individual ideas and theories not yet passed into accepted practice. A study of the literature of the last twenty-five years reveals the fact that progress has not been so rapid as it would appear. It shows that the line traced by improvements is not a straight line, but rather like that traced by the fly on the cartwheel—even if it does not actually bend back on itself. Many things that are a matter of debate and discussion to-day were in the same state years ago; no finality has been reached. On the other hand, there are many things we now have which are a definite advantage—better and surer knowledge, and better and keener weapons.

Surgery of the Abdomen

Twenty-five years ago surgeons still thought it worth while to publish statistics showing their successes in treating perforated ulcers of the stomach and duodenum. The cause of the ulcer was, as now, a matter of debate, and the problem presented to the surgeon much as it is to-day. The same may be said about the treatment, except that gastro-jejunostomy was considered more of a cure-all than at the present time, and that gastrectomy was not so popular as it has been in the intervening time. Surgeons nowadays, having tried many things and garnered much experience, seem again inclined to let their medical colleagues have a good innings before stepping in to supplant them. Looking at it broadly, we seem to be more or less back where we were as regards the acuter forms of these evils.

The Appendix.—The surgeon had wrested the acute appendix from his colleagues, and was in full blast of attacking the acute disease without discrimination. Getting nearer to the present time, a number of surgeons began to doubt if it were wise to rush in when confronted with the acute disease in its later stages. Those who practise the misnamed "delayed operation" are satisfied with their results, but are rather looked down upon by those who disagree with them, though the "root and branch" fraternity never seem to have understood the inwardness of the question. Allied to this subject is the drainage of the peritoneum; this is employed a great deal less than formerly, though there are those who mistrust the remarkable self-defence of this serous sac.

The Rectum.—The abdomino-perineal excision has been placed before the profession and ably advocated. It was planned after much patience and scientific observation; it has obtained brilliant success in many cases, but time has shown that scientific accuracy is somewhat discounted in its application by the disability of the organism to withstand the demands made on it by a scientific attack. The perineal and abdomino-perineal operations still fight for supremacy.

Misplaced Organs.—The time under discussion has seen the rise and fall of operations for the fixation of loose and displaced organs. Fixation of the kidney is an old operation, still admittedly useful in certain cases, but there seems no justification for the almost reckless manner in which it was practised, nor for the argument that mental disturbance was likely to follow failure to keep the organ still. A multitude of evils were also attributed to an imperfectly situated colon. The fixation of the offending gut had for a time a considerable vogue, but seems now to have passed into the list of operations best omitted.

Injuries, Fractures, and Deformities

As a result of the war orthopaedic surgery may be said to have come out of the side streets into the main thoroughfares. Formerly orthopaedics confined itself to making the crooked child straight; with great patience and perseverance it moulded and gave to the cripple a better use of his limbs. In and after the war it vastly increased its domain, its boundaries being almost invisible; now it is settling down to a more defined sphere. It has taken to itself the treatment of fractures, about which, in the latter years, there has been much heartburning; those obscure cases of aches and pains which follow trauma; and the re-education of the injured by means of physical therapy. Fortunately it is young enough and enterprising enough to take under its aegis those ills the treatment of which have hitherto been without the pale.

Surgical tubercle, which now hardly finds a place in a general hospital, has become the ward-mate of the cripple—a sensible arrangement, seeing that the hygienic requirements of both are very similar. Another thing to note is the growth of mechanical surgery, as exemplified by the use of autogenous bone graft. One criticism which might be levelled at the orthopaedic surgeon of to-day is that he is a little forgetful that he had a mother from which he sprang, but this defect is perhaps only an attribute of youth. The success attained by plastic surgery (a specialism within a specialism) can hardly be realized by him who practised making noses twenty-five years ago. It is one of the few things for which we can thank the war. It is a wonderful mixture of skill, patience, ingenuity, and knowledge. We may hope that it will keep itself to its legitimate business.

Radiation

Radiation in its various forms has made a very distinct impression on surgery, possibly more than any other recent innovation. In two well-known student textbooks extant in 1910 radium is dismissed in a line. In the *Medical Annual* it is stated that a voluminous literature had already been accumulated, but it appears that the use of radium was almost entirely limited to surface application, often without screenage, though the part of filters was

being discussed. Interstitial radiation as now understood came into use about 1912, and deep therapy in 1920. In the case of the tongue, the lip, the fauces, buccal mucous membrane, and sinuses about the superior maxilla, radiation has almost replaced surgery. It is a formidable competitor in carcinoma of the larynx. It has made little or no progress in the treatment of the alimentary canal below the pharynx. In the case of the breast the results of radiation by itself or combined with surgery appear to equal the results of surgery alone. It has been put forward that one of the advantages of attacking cancer of the breast with radium is the absence of shock. This I think could have been said with truth twenty-five years ago. In those days a house-surgeon who had assisted at an amputation of the breast often had a very anxious time during the ensuing evening. Nowadays these cases cause considerably less anxiety. It is difficult, perhaps, to determine the cause, but in my mind it is connected with the turning topsy-turvy of the operation—that is, with the modern practice of starting at the axilla and ending up with the removal of the organ, in contradistinction to the old operation, which attacked the axilla last.

Speaking of radiation as a whole, it may be said that a primary growth can be made to disappear, but in the case of glandular infection the problem that faced the surgeon twenty-five years ago remains the same. Isolated metastasis can be destroyed or kept in check, but generalized metastasis is still beyond the power of radiation or surgery. Intimately connected with radiation is the part that physics is taking in the clinical world. Some knowledge of physics has always been part of medical education, but instruction was limited to the early years, and no contact was established with the man in actual practice. It was in 1910 that a professor of physics was first appointed to a hospital as distinct from a lecturer in physics to a medical school. And now about the country physicists are holding the hand of the clinician and enabling him to apply a new therapeutic substance with some measure of accuracy.

Thoracic Surgery

Writing about the year 1909 a well-known surgeon said that thoracic surgery was making great strides. He himself had excised a portion of a lung on account of a bronchiectatic cavity. There was much discussion about the means to be taken to avoid the dangers consequent on opening the pleural space and about the merits of plus or minus pressure. Another surgeon had operated for cancer, sarcoma, and for a lung cavity. Multiple resection of the ribs had been practised for tuberculosis. Much experimental work was being done on animals, but in this country complaint was made that the laws hindered investigation.

In the later stages of the Great War both physician and surgeon turned their efforts to improving the condition of those suffering from wounds of the chest; it cannot be said that the results were very great, but the experience gained in overcoming the problem seemed to promise an extension of thoracic surgery after peace had come. For a good many years progress was slow, but in recent times the words spoken by the surgeon in 1909 have really become true, and what has been accomplished constitutes perhaps the greatest advance of surgery in the present day.

The Sympathetic System: The Thyroid: Anaesthesia

The surgical attack on the sympathetic nervous system is older than some people would think. In a review of contemporary French surgery in 1914 it is stated that the solar plexus had been stretched for tabes and the nervous

sheath stripped from an artery for Raynaud's disease; both were said to have been without result. Periarterial sympathectomy, however, gained ground, and has been fairly extensively practised for the pain and loss of function that follow a diminished blood supply. The investigations of an anatomist suggested an extension of the method by the excision of ganglia. It was hoped that this would abolish or lessen a spastic condition of the muscles. This hope has not been fulfilled, but the method, after adequate investigation of each case, is giving results in a variety of conditions in which the blood supply is deficient, also in congenital dilatation of the colon and in causalgia.

Although in the hands of some surgeons thyroidectomy for exophthalmic goitre was giving good results more than twenty years ago, the disease in this country was still in the hands of the physician, who seemed loath to hand over the case until the patient was in a condition which rendered operative intervention hazardous. Great stress was laid on the use of local infiltration anaesthesia at this time. Now, when the operation in the early stages has gained general acceptance, the improved outlook for the patient under a wise combination of medical and surgical treatment is one of the pleasing things in surgery.

The passing years have seen the introduction of many anaesthetics and of different ways of administering them: cocaine and its derivatives under many designations—local, regional, paravertebral, spinal, and parasacral—also the newer anaesthetics used intravenously or by the mouth or rectum. In spite of all these, inhalation anaesthesia seems to hold its own. This may be put down in some degree to the development of the gas-and-oxygen method, but principally to the high technical knowledge and skill of our anaesthetists.

Apparatus

Much ingenious apparatus has been invented. Some has come to stay, even if a proportion will end its days high up on a shelf in the surgery. The artificial lighting of theatres has been brought to a high pitch of perfection; so much so that many prefer it to the light of day. The electric illumination of cavities has been vastly improved, as exemplified in the electric ophthalmoscope, which has brought the evasive disk into the vision of the tyro. The cystoscope, laryngoscope, and bronchoscope can now be described as almost easy to use. Diathermy in its various forms has found much favour with the surgeon, especially the diathermic knife, that is said to lessen the danger of dissemination and has certainly rendered the removal of oral growths easier and more bloodless.

Surgery and the War

Something must be said about the war, for it gave rise to a great surgical effort. It brought no great change in surgery, certainly less than that produced in medicine and pathology, using this last word in its big sense. It showed what can be done by well-directed organization, and may have brought a State medical service nearer than before. Its main effect was bringing together the laboratory and the clinical worker. It was remarkable to see the physiologist and the surgeon working together to solve the same problem—an example, perhaps, of the lion lying down with the lamb. This association was pleasant and fruitful while it lasted; but, alas! the physiologist has again retreated to the fortress of his laboratory. Before the war there were four main theories to account for surgical shock; during the war the chemical therapy of shock arose, and seemed for a time to offer a reasonable explanation under certain conditions. Recently facts have been put forward which seem to disprove what formerly seemed proved, and

the subject is more or less back in the condition that it was before 1914—another instance of that forward and backward movement that constitutes progress. The war familiarized British surgeons with blood transfusion. This procedure has now become a very useful part of our surgical armamentarium, made safe as it is by a knowledge of the blood groups. Gum saline was put forward as a substitute for blood transfusion and was extensively practised, with results that certainly satisfied those who used it: now for the time being it seems to be passing from popular favour.

Conclusion

If one tries to gauge the changes in surgery since the early years of the present century I think it is true to say that the period is marked more by an improvement in methods already in use than by any outstanding innovation. As to those in whose hands lies the art it can be said that the youthful surgeon is now better equipped to press forward, for he has a better comprehension of the ancillary sciences, in a knowledge of which lies our hope of progress.

PROGRESS IN OBSTETRICS AND GYNAECOLOGY DURING THE PAST TWENTY-FIVE YEARS

BY

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This brief retrospect calls for main characteristics rather than specific points, and the first to be mentioned, as the most impressive feature in the obstetrics of the last twenty-five years, is the change in the attitude of mind in which its practice is approached. Its outlook has moved from the pathological towards the physiological field. A like change has occurred throughout medicine, but obstetrics has, in its more limited sphere, been relatively more deeply permeated by the principles of constructive hygiene and preventive medicine.

Ante-natal Care

The spread of these principles throughout midwifery practice has been stimulated by the institution of ante-natal care. Once accepted as an integral part of obstetrics and its aims fully understood, it has tended to leaven the whole. Before its start, however, it was the custom in hospitals with an outdoor and indoor service to examine their patients in order to select those in whom abnormality was present, or suspected, for management in the hospital. The tendency, therefore, was to regard the new system as an extension of the old and concentrate on the detection and correction, when possible, of abnormalities during pregnancy and conditions that might cause complication in labour. The public and voluntary clinics independent of hospitals started as complementary to the older infant clinics, and followed their ideals by placing in the forefront the hygienic, educational, and social aspects. Thus the obstetrical work was more thorough in the one and the constructive hygiene more thorough in the other, but it was long ere the one learnt from the other.

By 1910 little more than a beginning had been made, but thereafter advance was rapid, and the stage reached in 1912-13 can be gathered from a report of an inspection of the London maternity hospitals and departments by Dr. Janet Lane-Claypon,¹ which states that most of them arrange for the medical examination and, if necessary, treatment of women in their first pregnancy or of multiparae with a history of difficult labour; in a few hospitals all women applying for aid were seen by a member of the medical staff. Clearly this was an elementary stage with little constructive hygiene. After the Maternity and Child Welfare Act of 1918 the number of clinics was greatly increased, and gradually it came to be more and more recognized that ante-natal care was primarily a system of constructive physiology for all patients, the discovery and remedying of abnormal conditions being secondary and required in but a small proportion of cases.

¹ Report of Chief Medical Officer to the Local Government Board for 1913-14, p. 31.

Steady progress has continued, but the possibilities of a rational application of physiological methods have not been fully explored. It is, for instance, but recently that it has been fully realized that disordered uterine function rather than mechanical difficulties is by far the commonest cause of delay in labour, and that efforts must be made by ante- and intra-natal management to promote and maintain normal uterine action.

Toxaemias of Pregnancy

The toxaemias of pregnancy still warrant their designation of "a disease of theories," and constructive physiology has its limitations where there is no adequate basis of knowledge of the conditions that favour and those that hinder normal function. Thus there is here no rational basis for constructive physiology, and reliance must be placed on the early discovery of the signs of disordered metabolism and restoration of the normal attempted by lowering metabolism by rest in bed and a low diet, in order to avoid the more serious consequences that may ensue. The failure of such measures entails termination of the pregnancy. The recognition of the liability to permanent renal damage and to recurrence or aggravation in subsequent pregnancies is an important advance. Active intervention in eclampsia has almost entirely given place to treatment on the lines of the Stroganoff or the Dublin school, though there still seems to be a place for Caesarean section in certain acute cases with clearly marked signs of impending eclampsia.

Management of Labour and Prevention of Puerperal Sepsis

The problem of adapting the methods of the operating theatre to the labour room or ward is by no means definitely settled. While there is a fairly general consensus of opinion among obstetricians in favour of an antiseptic and against an aseptic system, there is considerable variance of view between clinicians and laboratory workers regarding the most useful antiseptics for general use. The mercurial salts, which in the view of the former have stood the test of clinical experience, have recently been again denounced by chemists and pathologists as quickly rendered inert by admixture with the body fluids.

The most noteworthy contribution to our knowledge of the causation of puerperal sepsis during the period under review is the part played by spray from mouth and nose in infecting hands, instruments, and dressings, or even the vulval area. Conveyance by carriers of throat infections has been definitely proved, although an accurate assessment of the proportion of infections arising in this way is not yet possible. Some of the cases of infection after