CLINICAL LECTURE

ON
RECENT ADVANCES IN ABDOMINAL
SURGERY.

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GENTLEMEN,—I have recently come across an ancient proverb which runs thus: "We only count our days; we ought to weigh them;" and if there was ever a time when such an aphorism could be truthfully quoted, and when the value of work done was of far greater importance than the time occupied in the doing of it, that time, at any rate so far as the profession of surgery is concerned, is the present.

There have been times in the past when great discoveries have been made, and when great minds have held sway over the surgical, as they have done over the medical, world. We have had our Cheseldens, our Bells, our Hunters, our Coopers; and the lights they have left burning are burning still as brightly as ever; but there never was a time in which the general progress was so great as it is in the present day, or when so many minds were ceaselessly given to the cultivation and extension of the science and the art of surgery, with the determination to extend its range, to increase its utility, and to perfect its advances; none in which the value of the work done would weigh so heavily.

When, responding to the request of the authorities of the Yorkshire College that, in conjunction with my colleagues, I should from time to time undertake to deliver a few surgical clinical lectures, I promised to do so, the subject of the advances that have been made in abdominal surgery in recent times very naturally suggested itself to my mind as one in which I might find something to say that would prove both interesting and instructive to you, and so I selected it as one of my proposed subjects; but, when I bring myself to book, and to consider the careful arrangement of what I should like to say, I find it so impossible to compress the matter into the compass of a single lecture, that I am compelled to ask you to accept this one of to-day as an instalment only, and to promise—should we be spared to meet again another year—to renew the subject, and complete it on a future occasion.

There was a time—and it is well within my recollection—when the entire domain of the peritoneum, and of every organ contained within its folds, was held to be ground sacred to the physician, and on which, except in cases of unavoidable necessity, the surgeon was forbidden to intrude.

A few operations, and only few, were supposed to be admissible; and even in these, so great was the fear of peritonitis and its results, that even they were undertaken with all the dread which the presence of the greatest surgical danger could inspire.

Moreover, the very few that were considered to be permissible, and permissible only because compulsory, were done in a manner which, in the present day, we should regard as rough and uncouth, and as savouring but little of scientific surgery. Thus, from all time, it has been occasionally necessary to relieve an abdomen distended with fluid by paracentesis; but the paracentesis of that day was as unlike the operation as now performed, as it was well possible to be; and it is no wonder that a proceeding even as simple as that was considered to be should have been regarded as attended by considerable risk.

Deferred to the last possible moment, until not only the abdominal walls were stretched to almost unendurable tension, and the diaphragm, from similar pressure, was almost disabled, we cannot wonder that fatal syncope was dreaded, or that it should sometimes occur. Many is the patient that I have seen "prepared" for the operation thus.

Seated in an armchair, and so surrounded by pillows that support should be afforded in all directions, a large towel was passed around the body to support the diaphragm, and the patient fortified by a stimulant, an enormous trocar was plunged into the abdomen, its size being regarded as of little or no moment, and the whole of the fluid was rapidly withdrawn. Occasionally the stream would be

arrested to allow the abdominal walls and diaphragm to contract, and to prevent faintness, and firm pressure was kept up all the time by means of the towel.

At that time, the distinction drawn between general and encysted dropsy was somewhat hazy; ascites and ovarian dropsy were not differentiated as they are in the present day; and, consequently, seeing that the fluid to be withdrawn might, as it then seemed by chance, prove either very thin or so thick as only to be capable of running through a cannula of large calibre, such an instrument as this was generally chosen for its evacuation.

What wonder, that we should be taught to watch our patient carefully, and, by noting the state of the pulse, and the action of the heart, to be on the alert to prevent the occurrence of syncope; or that, by keeping steady pressure on the towel, we should seek to support the diaphragm from under which so large a weight of fluid was being rapidly withdrawn?

The varying character of the fluid, and the varying amount of it which resulted from these operations, could not fail to strike even the least observant operators; and whilst, in some such operations, it was noted as being clear, transparent, and largely abundant, in others it was seen to be so thick and glutinous, that it failed to run freely even through cannulae so large as those I have shown you; and even Sir Astley Cooper has placed one case of "dry tapping," which occurred to himself, on record. It can hardly, then, be wondered at that facts such as these should lead men of observation to seek for the true pathological explanation of such differences as these.

In the cases of men, it was noted that the fluid was almost invariably abundant and thin, and it was only in female cases that the difficulties of withdrawal from unusual thickness or tenacity were observed.

Post mortem examinations gradually revealed the cause of these differences, and demonstrated that, while in males the ascites was almost, if not actually, always general, in women it was most frequently encysted, and, in a majority of cases, confined to diseased conditions, not of the peritoneum, but of the ovaries, or certain of their appendages.

Then, there slowly dawned upon the minds of men the possibility of more perfect differentiation in their cases, and, before many years were passed, it was known that such diagnoses could be made with tolerable clearness and accuracy. Then the greater and more vital question began to be asked, Could encysted dropsy be more effectually dealt with than by simple tapping and evacuation? At this point, and ranging itself around this question, there arose a great crisis in surgical science; and though to you, who almost every day of your lives see operations performed such as even in my early days were not as much as thought of, to those of us who are able to remember it, this crisis was intensely interesting and exciting. Reared and educated in the ancient belief of the sacredness of the peritoneum, we heard of, and we listened, almost with bated breath, to the recital of, cases in which the abdomen had been opened, and such tumours had been emptied and removed! And we wondered at the recklessness of those by whom such things had been done! It might well happen, it was argued, that here and there a solitary case might struggle through, and might in the end recover; but could such recoveries ever be looked upon as likely to become general? As a fact, only few such cases did ever struggle through, and what reasonable prospect was there that such recoveries could ever become numerous?

In any very arduous undertaking or exploration, it is well that a halt should occasionally be called, and that, with an eye to careful scrutiny, a searching glance should be thrown, not only over all that lies yet ahead of the explorer, but also over the way that has been traversed, and over the difficulties that have been overcome. In the science of abdominal surgery, such a crisis as this had now clearly arisen. The way that had been covered had been long, but it had been very fruitless, and the prospect opened up was very tempting; but it was filled to overflowing with difficulties and danger.

We had seen heroism under human suffering carried, as it was thought, to the highest pitch of endurance; and the question was asked, shall I say querulously, Is it possible that the abdomen can be laid open, its contents handled and examined, the peritoneum be freely explored, and that the subjects of such barbarities should yet live? By the majority, such possibility was denied, and by men of the very highest rank in the surgical world such operations were condemned and were pronounced unjustifiable; by some such, it was even declared that the man who dared to undertake them was a murderer! Nevertheless, such things were done, and were now and then successfully done, and surgery was not found wanting in its heroes who were ready to do all and to dare all in its cause.

England cannot lay claim to the origination of the operation of

ovariotomy; for this, the greatest boon that our profession has ever given to the world; and the gift by which the greatest number of useful lives has been saved, was the gift of an American country practitioner, who undertook it in the simple performance of his daily routine, and who thought so little of his achievement, that, for a long time, the world knew nothing of it.

The idea of its performance was suggested to his mind while in England; and if you desire to read an account of him and of his discovery, you will find it given by Sir Spencer Wells in his treatise on *Ovarian Diseases*, and may learn how it was suggested by the eloquence of his teacher John Bell. "It is said of him by his biographer (Dr. Gross) 'that he was enraptured by the eloquence of his teacher, and the lessons which he imbibed were not lost upon him after his return to his native country.' Bell is said to have dwelt with peculiar force and pathos upon the hopeless character of ovarian tumours when left alone, and on the practicability of removing them by operation" (*Diseases of the Ovaries*, by T. Spencer Wells, p. 294.) So the seed sown in those eloquent lectures so long ago as 1794 has grown into the strong and vigorous tree of the ovariectomy of to-day. Naturally, in its earlier years, it was but a tiny and slow growing plant; and, if it had not been for other most happy discoveries, the chiefest of which was the discovery of anæsthetics, it might not even yet have attained its present noble proportions. By anæsthesia it has been robbed, not only of its first and greatest horror, the ordeal of the operation itself, and also of much of the nervous shock inseparable from the performance of such an operation, but from many of the dangers inherent in it also, and only to be safely overcome by an expenditure of time which, without the aid of insensibility, could not be endured.

Pleasant as it would be, and instructive too, if time were not an object, to linger over the contemplation of these early days of progress in abdominal surgery, I must not let the temptation overcome me; but simply pointing out to you that it is to the patient, persevering, and indomitable courage of such men as Dr. Clay of Manchester, Sir Spencer Wells of London, and Dr. Keith of Edinburgh, that we owe the great lesson first taught and demonstrated by the practice of ovariectomy, and which it is my object, in this lecture, to impress upon you; that, with reasonable care, prudence, gentleness, and patience, operations, involving even the dreaded peritoneum, may be safely undertaken and carried to a successful issue.

Look for a moment or two at the proof of this assertion; and let me imagine that you put to me these broad questions.

To what do you attribute the exceeding difference in the results of the ovariectomies of early, as compared with those of later, days? Is all due simply to increased gentleness, cleanliness, and care? No, certainly not.

Much, very much, has come of accumulated experience, and much has, also, to be set down to the effects of another of the great discoveries of the age, the discovery of antisepticism in surgery.

In the earlier days of this great advance, as I have said, a few, and only a few, cases struggled through to a successful issue; but, year by year, the successes became more numerous, and the deaths fewer, until to-day I am able to point to such a table as this which I hold in my hand, which exhibits the results of the operations performed by Dr. Keith in the Royal Infirmary at Edinburgh during three years, in which, of seventy-nine operations, only five have resulted in failure.

It is very reasonable that you should seek to ascertain how such wonderful results have been brought about, and how an operation, pronounced in its earlier days to be "unjustifiable," should have been brought to such pre-eminent perfection.

Unquestionably, some part of the success may be attributed to the care exercised in the selection of the cases to be submitted to operation; but, I venture to assert, not nearly so much as is generally supposed. Cases which in the early days would, without hesitation, have been put aside as unfit for surgical interference, are now successfully operated on almost every day.

"Adhesions," for instance, or the fear of adhesions, between the tumour and its surroundings, were formerly ranked amongst the evils most of all to be dreaded. Now they are thought comparatively little of, and, when they are found to exist, are for the most part overcome without very great difficulty.

I remember being present, somewhere about 1846 or 1847, at a consultation in which the supposed existence of adhesions was held, by the then most celebrated operator of the day, Dr. Clay, of Manchester, to be a fatal objection to an operation, and in which, when death occurred some months afterwards, no trace of an adhesion was to be found; and I have myself operated, in this hospital, not very long time ago, upon a case in which the tumour was so closely adherent to

everything around it, that it took an inordinate length of time to dissect carefully through all the adhesions and to liberate it from the pelvis, and which nevertheless recovered.

In former years, this case would certainly have died, even if it had been completed, because the effect of care in the separation of adhesions, and in the minute tying of all bleeding points, was not sufficiently appreciated or relied upon, and the after-decomposition of the blood effused and allowed to remain in the pelvis was not sufficiently considered.

Now this is one of the points which I put down as a combination of care with the antiseptic principle; for by the antiseptic principle I do not mean just the use of the Listerian spray and cleanliness of instruments, but that, combined with the knowledge that, if decomposable matter be left in the body, whether in the form of blood or of serum, or of any extraneous animal fluid, it may, by putrescence, become the most powerful factor of danger, and may be sufficient to outweigh all other care that may have been expended upon the case. This, without doubt, in my mind at least, was the common cause of a great many of the early deaths; and what should have been regarded as septicæmia was put down to the liability of the peritoneum to inflammation.

Another way also in which this liability to septic poisoning was incurred arose from the method adopted in the treatment of the pedicle. This, indeed, for many years seemed to be the crucial point around which all our difficulties clustered, and how best to deal with the pedicle was the great question of the day.

At first we were in the habit of fixing it, with a stout hare-lip pin in the wound, between the walls of the abdominal incision, and, our cases generally did well for the first few days; but no one who has not passed through the experience can appreciate the dread with which we used to anticipate the withdrawal of that pin; and the fall of the stump of the pedicle into the pelvis. That was almost invariably the signal for commencing danger, and it was dreaded accordingly.

That it was to be attributed to the mere presence of the stump itself in the peritoneum, cannot be maintained, though, at the time, we used to think so; for we now always drop the stump in from the beginning, and rarely have reason to attribute any evil to our doing so. No, we kept the stump out until it became septic, and then, when it fell into the pelvis, it lighted up further mischief, which only too often ended in fatal consequences.

Next followed the clamp in a great variety of forms, and this, by keeping the pedicle so fixed in the wound that it became adherent to it, and did not slip into the interior, gave better, but by no means perfect, results; and thus, little by little, the study of the treatment of the pedicle, and of the doctrine of septic poisoning together, led us to a truer appreciation of the real danger that lay in our path, and to the exercise of the infinitesimal care, which you now see taken in every case, to leave the peritoneum free from all possibility of avoidable, and especially of septic, mischief when we close the wound.

Another method of dealing with the pedicle, which was extensively followed at one time, and which is even yet, apparently, in favour with Dr. Keith of Edinburgh, was its treatment by the cautery. In following this method, the pedicle is seized by a clamp, and, when firmly secured, the tumour is separated by dividing it very slowly with the actual cautery. The whole of the divided surface is then carefully seared, and if, when it is released from the clamp, it show no bleeding point, it is dropped into the pelvis, and no more is seen of it; if oozing points be seen, they are to be secured before the seared end is lost sight of.

The object of this method of treatment was, and is, clearly, twofold: the first aim being to get safely rid of it from the first, before it has had time to become septic; and the second, to do so without the use of extraneous material in the form of ligatures around it, which must be dropped with it into the body. This again, had, for many months, been a fertile source of danger with us; and, when I remember the amount of whipcord, China silk, and other absorbent material with which it was considered necessary to tie it, I really wonder that any case was able to recover. Then, though the cautery stood us in good stead for a long time, it, in its turn, failed us in a few cases; and, by *post mortem* examination, we learned that death had been caused by secondary hæmorrhage from the stump. Hence we were driven back upon the ligature in some form, and so far, for many years, we have depended upon a single thickness of silk strong enough to bear a sufficient strain, and thoroughly carbolised beforehand.

With this, I feel that I have reached the acme of safety at present known with regard to the treatment of the pedicle; and when, in removing such a tumour, I have thus secured it, I drop it, with faith, into its resting-place, and I cannot recall to mind a single case in which I think I can fairly attribute a subsequent death to its presence.

them perfectly aseptic to begin with, it does no poisonous harm; imbedded, as it very soon becomes, in effused lymph, it does no mechanical mischief; and the ligature, being itself an animal substance, is presently entirely removed by absorption, and, ultimately, no trace of it can be found.

Another very fertile source of danger has been found to lurk in the use of sponges, concerning the purity of which it has been possible to entertain a doubt; and I mention this only to justify me in reiterating my belief that a fatal issue, when it arose, more frequently did so from septic than from inflammatory influences; or was, at any rate, more likely to have been initiated by septic than by inflammatory causes. For many years I have made it, when it has been possible to do so, an inflexible rule never to use a sponge twice over for any surgical operation; and the rule which I apply to my sponges I also apply, as far as I can possibly do so, to all my instruments, feeling with regard to them that the least failure in the most scrupulous cleanliness may suffice to outweigh all the care I may otherwise exercise in the performance of any operation.

Such instruments as I cannot have new for every operation, I have freshly cleansed by my cutler, and as perfectly carbolicised as possible; and such as I can renew for each operation I do, and especially those most unsafe ones, my needles.

Picture to yourselves the mortification of seeing an ovarian operation, perfectly performed, uncomplicated by any untoward occurrence, and in every particular promising success, but brought suddenly to grief by suppuration commencing in your stitch-holes, and spreading from them to the interior of the wound. This has happened to myself, and I feel confident that I have seen it happen in the practice of others; and I now, therefore, make it an invariable rule, in any case in which I desire union "by first intention," never to use a needle which has been used before. Its cleansing, with the very best intention in the world, may nevertheless have been imperfect.

Now all this is what I mean when I speak of "antiseptic surgery." Some surgeons there are who profess not to believe in the value of antiseptics, and who hold that, by strict cleanliness, all the advantages claimed for antiseptics may be secured. This very cleanliness itself is one form of antiseptics, and, when aided by a thorough use of germicides, such as you see practised in this hospital, will go far towards insuring success, which I venture to assert is unattainable without them.

In making this review of ovarian surgery, I have been guided by my desire to make clear, in the first place, my argument that, provided due care be exercised, there is no more special danger in attacking diseases which necessitate the exposure and opening of the peritoneum than of any other of the more delicate structures of the body; and secondly, that it follows, as a consequence of this knowledge, that many diseases formerly deemed wholly beyond the power of surgery, are now almost daily successfully dealt with by the surgeon.

Thus the ovaries are not unfrequently removed for diseases other than ovarian dropsy. These organs are, unfortunately, liable to many other conditions, which, if not equally burdensome and unsightly, are even more painful and exhausting, and which, by general consent of surgical opinion, call equally for their removal. They may be so afflicted with neuralgia as to render life wholly unendurable. Atrophy, indurations, tubercular and malignant degenerations, and adhesions may, in another way, induce such conditions as may render their removal the only price at which ordinary comfort and freedom from pain can be purchased, or by which otherwise uncontrollable hæmorrhage from the uterus can be commanded; and thus it may become a simple duty to remove them—a duty from which no conscientious surgeon of the present day will shrink.

In dealing with these organs, and with the uterus, we have the comfort of knowing that they are organs not essential nor even necessary to life. They perform no functions the loss of which can endanger the stability of the future health of the patient; and their loss, supposing their removal to be recovered from, is a loss not necessarily grievously felt by the patient, either at the cost of future suffering or even discomfort. And of the uterus itself the same may be said; and, as a natural consequence of our increasing boldness in dealing with the peritoneum, many uterine operations, and even the entire removal of that organ also, are now considered well within the range of available and justifiable surgery.

Uterine fibromata are now—I ought not as yet to say often, but, at any rate, occasionally—exposed by abdominal section, shelled out from their bed in the uterine walls, and the cavities from which they have been displaced so closed as to render recovery not only possible, but highly probable; and, unless I am mistaken, you have within very recent times had an opportunity to see such an operation performed and brought to a successful issue.

Even cancer of the uterus, that terrible scourge of feminine nature, hitherto so intractable and so universally fatal, is to some extent, in these days, amenable to the knife of the surgeon, and will probably, as passing years enlarge the surgeon's knowledge, come more and more under his control.

As yet, the operations for the removal of the uterus and its appendages, *en masse*, have not been what can be called numerous, but such as have been performed have been attended by a reasonable amount of success; and, as it has been with ovariectomy, so, I doubt not, it will be with hysterectomy; that increasing knowledge, increasing appliances, and increasing surgical experience and skill, will bring the operation, in coming years, into greater acceptability, and to greater and more successful perfection.

Thus it may safely be asserted that the victory which has been won by the patient, the enduring, the unquenchable courage of the ovariectomists, has spread over territory to which even they, in the early days of the struggle, never looked; has brought the whole domain of the interior of the pelvis under their sway, and has enabled the surgeon to extend his operations also into unexpected regions.

Let me illustrate this by a few words on the subject of the operation of gastrotomy. Even to such of you as have only commenced the study of surgery in very recent years, this operation has come as a novelty; and yet it is one which has become quickly and firmly established.

I know no form of lingering agony which can be greater in intensity than that slow process of starvation which follows, not unfrequently, upon malignant diseases of the tongue, pharynx, œsophagus, or cardiac orifice of the stomach; and yet, until within times so recent, that almost the youngest of you can remember them, we have been powerless to help such unfortunate sufferers, or to assuage the consuming hunger and thirst by which life is made ceaseless torture to them.

Since, however, we have gained more confidence in attacking the peritoneum, we have learned that an artificial opening may be made into the stomach without any very serious risk; and that, through such an opening, food already peptonised, and otherwise so far chemically disintegrated as to be ready for admixture with the duodenal secretions, and for subsequent absorption, may be introduced, so that actual death by starvation may, in such cases, be averted.

It is not within my province in these lectures to attempt to describe to you how the various operations to which I point your attention are performed—that is the province of your systematic teachers; my object is to indicate the principles upon which new operations have been founded and introduced, and, in a very humble, but judicial spirit, to endeavour to place before your minds the views concerning them which have become settled convictions in my own mind.

Upon this subject of gastrotomy, I entertain no doubt, and I have as little that, when its full benefits come to be appreciated as they deserve, it will be much more frequently resorted to than it has been, and that, instead of there being only one Alexis St. Martin in the world, fistulous openings into the stomach will have become so numerous that they will cease to present features even of novelty; and that patients, otherwise condemned to a most painful and lingering death, by the mechanical obstruction to the ingestion of food *per vias naturales*, may yet be enabled to lay down their lives amidst something like serenity and peace.

With a view to effect the same purpose, other novel proceedings have, of late, been proposed, and occasionally carried into practice. Thus, on the same principle that other sphincters, the sphincter ani, the neck of the bladder, the orbicularis palpebrarum, when affected by spasm, by hypertrophy, or both, provided the disease be non-malignant, have been treated by forcible stretching or by division, to set them at rest, so the pyloric sphincter has been also treated.

Professor Loreta, of Bologna, does not hesitate, in such cases, to incise the stomach, and, introducing his fingers into the pyloric or cardiac orifice, as the case may be, forcibly to dilate it, and he reports some half-dozen cases successfully treated in this way.

I have never performed this operation myself, nor have I seen it performed; but I can accept it as correct in principle; and, in any very grave case of dilatation of the stomach which failed to yield to the siphon-tube, I would either perform it or sanction its performance with full hope of success.

Emboldened by these advances, and led in the attempt by the great Austrian surgeon Billroth, attempts have, of late years, been made to deal with malignant disease in portions of the stomach itself, and the complete excision of its pyloric extremity has been several times attempted. That such an operation is mechanically possible has been abundantly proved; and, if the art of surgery were the only or even the chief aim to be held in view in our study of its principles, we

should not be long before we saw it exalted far above its present position.

From time immemorial, the dexterity of surgical manipulation has been the admiration of the world; and, if surgery depended on such skill as the most perfect education of the hand and of the eye could confer, it would long ago have reached its acme; but, invaluable as the art of surgery may be, it is to its science that we must ever look as its crowning glory; and, unless an operation have something to recommend it beyond the mere possibility of its mechanical performance, I do not think it is likely to stand the tests of time and of extended repetitions.

Judged by this standard, let us look at this operation of excision of the pylorus. That it is mechanically possible has been proved beyond question. Only a few weeks ago, while I was travelling with Mr. Jessop, he told me that he was about to perform this operation; and, in a few days afterwards, that he had done so. I was not fortunate enough to see the operation; you, doubtless, many of you were; and so recent an advance in surgery is it, that I do not for a moment hesitate to tell you that I have never seen it done. But, talking afterwards with Mr. Jessop of this case, he told me the lessons he had learned by its performance. It proved a very long and tedious proceeding, and it required infinite patience. The process of stitching together the divided segments of the alimentary canal, had been almost less difficult than he had anticipated, and more one of time than of anything else. The number of stitches required had been very great, but, in the end, the junction effected had been so perfect, that, had the patient lived, he should have had no fear whatever of leakage.

Unfortunately, the patient died; and, at the *post mortem* examination which followed, Mr. Jessop was able to prove and to demonstrate the perfection of the union, for, by attaching the stomach to the pipe of the water-cistern, he had been able to subject the junction to the full pressure of the water-power of the town without the escape of a drop. The art of the operation had, therefore, been perfect beyond dispute; but the examination revealed other points bearing upon its science, which place it in a different aspect. It showed, first, that, at any rate in this particular case, the operation, had it even succeeded primarily, would have come too late. The surrounding mesenteric glands were implicated, and were infiltrated with cancerous material; the disease, so far from being localised and confined to the pylorus, was diffused among the surrounding structures, and was not capable of entire removal; and, had the patient recovered from the operation, must very speedily have so increased as to prove fatal. All this, Mr. Jessop attributed to the delay which had taken place, and the time that had been wasted before resort was had to operation; and he expressed to me a pretty confident hope that, had he another opportunity in an earlier stage of the disease, he should be more successful, and that he should certainly not be dissuaded by anything he had seen in this case, from attempting it again under other and more favourable conditions.

And yet I doubt whether this operation will ever come to occupy a recognised place in curative surgery. Will it ever be resorted to for anything except for malignant disease? And, if only for cancerous conditions, with the certainty we have of the return of the disease, will the risk of the operation ever be worth the running, except as a last resource, when temporary and very evanescent relief is all that we can hope for from it? So powerful is the instinct of self-preservation, so strong the love of life, that here and there, perhaps, a gamester may be found to stake all upon the throw; but that the mere palliation, which is all that the surgeon can honestly promise as the result of his most effective and successful intervention, will ever be accepted as a sufficient inducement, save only to the very few, is, in my opinion, almost certain. I ought not, while speaking on this subject, to pass by—without allusion, at any rate—a recent attempt that has been made to secure for the patient the advantage to be derived from excision of the pylorus without running quite so serious a risk as must necessarily be involved in so grave a proceeding as its entire ablation. It has been sought, in such cases, to attach the lower end of the duodenum, or the upper portion of the jejunum, to the stomach, and, by opening a communication between these parts, to leave the pylorus out of the track of the food altogether, and so place it at absolute and final rest; but as this, and similar operations in other portions of the intestinal channel, are as yet only, as it were, “in the air,” I shall content myself just now with simply naming them. Should we live to meet again another year, I may perhaps have something more to say of them.

What I have said of excision of the pylorus will also, in my judgment, apply to another attempt that has, of late years, been made in the same direction; namely, the excision of the diseased structure in

cases of chronic obstruction of the bowel by a ring of cancerous growth. I have seen such a portion of bowel removed, and removed with an amount of skill, precision, and delicacy, that the mere art of surgery could not surpass, but with the same scientific aspect; the mesentery, which must be left, infiltrated, the system already impregnated, and the return of the disease certain; and yet, in many, very many, of these cases of chronic obstruction, I would not withhold the knife altogether.

Seeing how often it may arise from causes wholly independent of malignancy, and how difficult, how frequently impossible, an accurate diagnosis is, I think a patient so suffering should have the advantage that may possibly arise from an exploration placed fully before him; and I would urge the examination, by abdominal section, of the obstructing cause; but, if I found that cause to be a ring of cancer, I should hesitate most seriously before I proceeded to its removal; not that I should think it unjustifiable, but simply useless, and as likely to put out the little flame of still flickering life, or to revive it only for an extension of future suffering.

On the general subject of obstruction of the bowels and its relief by operation, I should like to say a few words, and to gather up, for your benefit, the experience of my surgical life. As a student, I never saw such a thing as an abdominal section for the exploration of such a case. I never heard it discussed in consultation. So long as any outward hernial cause could be detected, it was, of course, promptly examined, but when the obstruction was purely internal, palliative measures were all I ever saw attempted. I have seen the inflated and distended bowel punctured to give exit to its gaseous contents, and even that was looked upon as a great and dangerous thing to do; and of a truth it was so, for, while quite as likely to produce fatal mischief by the admission of foetid gas into the peritoneum as a more decided operation, the temporary relief afforded from pain and spasm was scarcely worth the risk that was run, and the remedy was never curative.

In the present day, as you know, many lives are saved, and are as valuable after an exploration as they were before, or more so; and the only question we have to determine is, the propriety or otherwise, in any given case, of an operation.

Where the obstruction is the result of prolonged peritoneal inflammation, and consequent enteric paralysis, it is manifestly absurd to suppose that any good can come of surgical interference. But there is a result of such peritoneal inflammation in which, by timely help, the surgeon may save life as easily as he does when he liberates a strangulated hernia.

By peritonitis, two or more coils of intestine may have become glued together, or bands of lymph may have been so stretched from point to point as to form snares, in which loops of healthy intestine may be caught and trapped, and life may thus be brought into sudden peril.

Such cases are usually as acute in the symptoms they produce as external herniæ are, and the symptoms by which they are accompanied are of the same order. Thus, a person in otherwise perfect health, at least as far as is known, is seized quite suddenly with severe abdominal pain, which soon culminates in prostration, nausea, hernial vomiting, with local distension and great tenderness of the belly, and complete constipation. No hernial tumour can be found, and yet all the symptoms are those of hernia, with strangulation; and, in the name of surgery, we are bound to explore the belly to see if there be not some such temporary obstruction, capable of relief.

If it can be ascertained that the patient has, on any former occasion, suffered from peritonitis, enteritis, perityphlitis, or from any inflammation likely to have been productive of lymph, which may have become stretched out into bands, so much the greater is the call for interference.

Even as I write these lines, many successful cases rise before my memory; and notably one in which a little boy, believed by his parents to have been in perfect health all day, was seized during the night with symptoms such as I have detailed. Every indication of acute strangulated hernia was present when I saw the child, early in the morning; and yet no hernial swelling could be found. After watching the case for a few hours, and seeing that collapse and death were becoming imminent, I placed the necessity for an abdominal exploration before the parents, and was rewarded by receiving their free permission to do whatever I thought might save the child. What I found was a small portion of one side of an intestine, not by any means an entire knuckle, tightly trapped in the left internal inguinal ring, quite insufficient to make any external appearance, but which I was able, without difficulty, to liberate from within; and the release of which was followed by immediate and perfect recovery. After the boy got well, he admitted that, during the day, he had fallen head over heels

down a long flight of stone-stairs, but had determined not to say anything about it to any one.

In acute cases such as this, then, I think the course of the surgeon is quite clear. He may find a band, or some temporary obstruction, which he may be able to relieve; he may find an intussusception, which he may be able to unfold; or an internal hernia, of some kind such as I have described.

Much more difficult cases to deal with are those of slower development, and less urgency of distress; such as may arise from occlusion by faecal accumulation, by some localised inflammation, by chronic invagination, or by implication in some diseased process, not inherent in the intestine itself, but in surrounding parts, and involving it. In such, we have more time for deliberation; and by careful observation, we may generally, I think, come to a safe conclusion as to whether nature may be trusted with the case, or whether an exploration has become necessary. But we are more liable to be misled in these than in the former cases. Let me relate a case in point.

I was once summoned to such a case at a distance, and was urged by the practitioner in attendance to explore. I at once declined, on the ground that the symptoms were neither sufficiently urgent to demand so serious a proceeding, nor was the time during which they had existed sufficiently long.

Moreover, I received from the patient, in justification of delay, the assurance that, on three previous occasions, she had passed through similar and worse symptoms and recovered, and felt quite sure she should do so again. I left her, and, I must say, felt no very great anxiety about her; but, on the fifth day afterwards, I was hastily summoned to her again, and found her in a condition of collapse, from which I saw in a moment that she could not recover unless something could be done by operation, and I proceeded to operate at once. I shall not readily forget the distress I experienced when I saw the solution of the difficulty, for I had lost an opportunity to save a life that might, perhaps, have been saved. Stretching from the left ilium to the front of the sacrum was an old inflammatory band, which formed a bridle across the rectum, and lightly obstructed it. Faeces passing from the sigmoid flexure into the rectum were, to some extent, obstructed by it in their course, and such obstruction had, no doubt, been the cause of the previous illnesses of which I had heard. But this time there was this much more: a large intestinal concretion, probably of biliary origin, had got so far on its way as the obstructing band; that it could not pass, and the band was too strong to yield; so in the struggle between them the intestine had become gangrenous around the obstruction, and had given way.

Of course, the patient died, and, though I could not charge myself with the blame of her death, I have never ceased to feel that, had I operated when I was first urged to do so, she might have been saved.

Then, finally, there are those long continued cases, manifestly chronic, commencing originally with almost unnoticeable symptoms, which go on growing worse and worse from week to week, and from month to month, until at last it becomes a case of either death or operation, and probably of death any way. These are the cases which generally depend upon abnormal growths of some kind or other, either in the intestine itself, or in neighbouring structures, in which, as I have said, I should feel inclined to explore as a *dernier ressort* and be guided by what I found as to what I did.

Into one or other of these three classes most cases of intestinal obstruction will fall; and just as the bent of your judgment is of the very active surgical order or the reverse, so, probably, will your practice be; and if you live to enjoy length of days, and much surgical experience, I feel pretty sure that, in the end, you will come to very much the same conclusion as I have done.

DISTRICT NURSING.—A very good work is being done by the various organisations for providing skilled nursing to the sick poor in their own homes. When this can be combined with a system of supplying the needs of small tradespeople, skilled artisans, and others able to pay a moderate fee, the work is not only more useful, but rests on a sounder basis. The East London Nursing Society recently held its annual meeting at the Mansion House, and the report gives a good idea of the magnitude of the work which may be done for a comparatively small expenditure. The number of serious cases attended was 1,577; of slight cases, 2,189; the total number of visits, 58,610; cases of night-nursing, 142; 1,426 of those nursed were women, many of them mothers of families; 621 were men, in almost all cases bread-winners; 492 were children under 14. This is one way, and a very good way, of relieving the congestion of which the hospitals complain.

LECTURES

ON

THE COMPRESSED AIR BATH AND ITS USES IN THE TREATMENT OF DISEASE.

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LECTURE I.

THE use of atmospheric air, under different degrees of barometric pressure, in the treatment of disease, is one of the most important advances of modern medicine; and when we consider the simplicity of the agent, the exact methods by which it may be applied, and the precision with which it can be regulated to the requirements of each individual, we are astonished that, in England, this method of treatment has been so little used.

In therapeutics, air is employed in three ways.

1. At diminished barometric pressure, or rarefied. 2. Air at increased pressure, or compressed air. 3. Air mixed with other gases and compressed.

Rarefied air was first applied to the human body by Junod, who, in 1835, contrived a hollow copper ball, $1\frac{1}{2}$ metres in diameter, to hold a man, and, by an exhausting apparatus, reduced the barometric pressure one-third, producing distension of the *membrana tympani*, dyspnoea, chiefly in the form of quick short respirations, turgescence of the superficial vessels of the body, as seen in the eyelids and lips, and diminution of the salivary, renal, and other glandular secretions. Junod, not being favourably impressed by these experiments, betook himself to the localised application of rarefied air to various parts of the body, in which he had more success, for his inventions of cupping-glasses, and of Junod's boot, by which atmospheric pressure can be reduced over large surfaces of skin, have been, and are still, largely used with great benefit.

Another method of reducing atmospheric pressure locally, is Waldenburg's apparatus, in which a mask closely fitting the mouth and nose is connected with an exhausting aspirator, and air is thus drawn from the lungs, giving rise to the respiration of an attenuated atmosphere.

Another way of using air at reduced pressure is by balloon-ascents, in which any and every degree of diminution can be attained, from the slight reduction experienced in captive balloons, often sent up at fairs and places of public amusement, to the extraordinary results of Glaisher's and Coxwell's adventurous voyages, where the reduction of the barometric pressure to $9\frac{3}{4}$ inches showed an elevation of 29,000 feet; and it is possible that even a greater altitude, and corresponding diminution of pressure, was reached by these aeronauts, after Mr. Glaisher had lost consciousness, and could no longer register observations.

The rapid ascent of balloons, the difficulties of steering, and the impossibility of remaining long in them, render this form of reducing pressure of little use for therapeutics. The most usual method, and the one best adapted for our purposes, is residence at high altitudes; and fortunately, among the various mountain-ranges, we have, in all latitudes, an abundant choice of sites at various elevations and exposures, where we can try the influence of rarefied atmospheres on invalids. While at Davos (5,200 feet) we get a diminution of 5 inches in the barometric pressure, at La Paz, the capital of Bolivia (13,500 feet), it amounts to 12 inches, and we have examples of every intervening grade of elevation. The heights principally used for treatment range from 5,000 to 10,000 feet, giving barometric pressure of from 25 inches to 20.5 inches, and a diminution of from 5 inches to 9.5 inches. It is not the object of these lectures to consider the effects of rarefied air in the human organism, which has been dealt with elsewhere (Treatment of Phthisis by Residence at High Altitudes, *Transactions of the International Congress*, 1881), but rather to treat of the second subject, namely, air at increased pressures, such as is to be obtained in compressed air baths. We know that the air of mines is considerably condensed, and that, if a shaft could be sunk 45 miles deep into the earth, the air at the bottom of it would be as dense as quicksilver; but no mines have been made deep enough to modify