

Clinical Lecture

ON THE

DETAILS NECESSARY IN THE PERFORMANCE OF ABDOMINAL SECTION.¹

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GENTLEMEN,—We have now got to that position in our course at which it becomes necessary for me to demonstrate to you the details which must be attended to in the performance of an abdominal section, and my purpose in this direction has been made capable of easy display by the ingenuity of my friend and colleague, Mr. Christopher Martin, who has, as you will see, arranged a dummy upon which I can perform a number of the operations in gynæcology. By "abdominal section" we mean a rigid inclusion of all cases in which the peritoneal cavity is opened, and we do not in our estimates include any other cases, no matter to what extent operative proceedings may have taken place almost in the abdominal cavity. The division is, like all of its kind, purely artificial and not entirely accurate, but it is so convenient that I for one have given my adhesion to it, and, except that it every now and then involves some little confusion about some individual case as to whether it may or may not be an abdominal section, it affords an extremely convenient basis of statistical record. The simplest form of abdominal section is that which we call "exploratory incision" or "confirmatory incision," and up to that point, with very little deviation, all abdominal sections are identical; and the real difficulties begin at that point where, having opened the abdomen, we are determined not to close it again without completing an operation which will be more than exploration or mere emptying the cavity of a quantity of serous fluid.

But you have to be prepared to meet all kinds of emergencies and incur every complication, and be ready to deal with them; indeed, so much is this the case that I warn you never to regard any exploratory incision lightly; for all you may know it may end in what you little expected—one of the gravest operations in our surgical lists. Be prepared, therefore, in all cases with your full armamentarium, ready to do anything. In considering how you will best perform an abdominal section upon any patient, your first consideration of course will be the surroundings of the patient—where shall the operation be done? So forcibly have we been struck by the advantages which hospital patients possess over those in private practice, in that they are under the discipline, conduct, and constant guiding direction which are impossible in a private house, that a custom has grown up, which I follow to a very large extent, of dealing with all my patients in institutions devoted to the purpose, and in which nothing else is done. There are many reasons in favour of this practice, some of which are not immediately under our notice, but they may be summed up to this effect—that the patients are placed under conditions in which external complications likely to be adverse to their interests are excluded, and they are removed from those exciting incidents of domestic life and those mistaken interferences on the part of misguided but well-intending friends, which cannot be avoided in the private house. I have constantly had to experience during an exceptionally extensive practice that the most hostile influences against the recovery of my patients are directed by well-meaning friends, and that these friends are far more troublesome to deal with than the patient herself. Countless illustrations of this I might give you, but the end of it is that I always advise my clients to this effect—that operations performed in private houses, or in houses not regulated for the purpose of this particular kind of work, add a very serious and large percentage to the risk of any operation; and this is increased just in proportion as the severity of the operation is advanced. It is perfectly true that I have over and over again performed operations of emergency in the most wretched hovels—in lofts over stables, and under sanitary conditions where one would almost certainly expect

the patient to die, yet where recovery has taken place; but such exceptional experiences are no argument against the conclusions that I have come to. Some patients and their friends, however, are ill-advised enough to insist upon operations of the most serious kind being performed in their own residences, at a distance from the immediate supervision of the medical attendant or operating surgeon, and nothing can be done but to give way to their desires and to accept the increased risk. Public opinion, however, is rapidly maturing against this practice, and I venture to say before long that it will only be operations of emergency which will be performed at the homes of the patients.

The next condition is that you must attach to the patient a specially trained nurse, and this is the line of life in which nurses require special training just as much as the surgeons do, for there are minute details of nursing attendance on these cases to be observed, of infinite importance to the patient, which a nurse whose training has been only general would be certain to regard as not essential. For the due preparation of the patient, after her sanitary conditions have been made as satisfactory as possible, all that is necessary is that a slight aperient should be given the night before, and that some few minutes before the operation is performed the lower bowel should be washed out by an enema. The reasons for this are twofold—first, distended intestines get in the way of the operator's fingers to an extent that empty intestines do not, and it is essential to give the patient as much pelvic and abdominal rest as possible for the first eight-and-forty hours after the performance of the operation. I always prefer that the patient should receive no nerve shock by seeing any kind of preparations for the proceeding. The room in which the patient is to stay and in which the operation is performed is never disturbed till the patient has been anæsthetised, and as soon as this has been completed sufficiently, at a given signal nurses enter the room and silently lift carpets, move furniture and introduce the necessary apparatus. The patient is placed upon an operating table, which is simply a deal board resting upon two trestles; as I deprecate all kinds of complicated apparatus, I deprecate any kind of complication in the table upon which I am to perform the operation. It carries the patient easily and steadily, and can be carried easily by one person. On it is laid a folded blanket and a couple of pillows. The patient is secured to the table by a couple of webbing belts, one tied tightly just above the knees and the other passed round the forearms and tied under the table, so that no kind of assistance is required to steady the patient in the event of any struggling. A light warm wrapper is placed over the limbs and a clean towel over the chest and another towel is placed over the wrapper, and upon this the instruments are laid. Again I say that in all my instruments two things have to be regarded; first of all, scrupulous simplicity, and, secondly, scrupulous cleanliness. A good deal has been written the last ten or fifteen years upon so-called antiseptic methods of performing operations, and antiseptic precautions to be taken during the performance of the operation and after it. I do not propose to take up further time in discussing a matter which clearly has come to its end, save to note that the last assertion of those who advocate these antiseptic precautions is that antiseptics really mean absolute cleanliness. But this is not the case. It is a mere perversion to say anything of the kind, for eight or ten years ago the antiseptic doctrine was to overcome the entrance of germs by the use of potent chemical substances. We, who are opposed to the antiseptic doctrines and the antiseptic practice, argued that the germs were harmless if dead and dying material upon which they might feed were removed from the wound. The washing out of the abdomen, therefore, for the careful removal of all clots, dirt, and debris, and the free use of the drainage-tube, form the complementary practice of essential cleanliness, and paved the way to our recent enormous advances in abdominal surgery. I venture to predict that four or five years hence the use of the term "antiseptics" will be dropped, and we shall hear no more of this strange phase of surgical eccentricity. Simplicity of apparatus is the end to which I have ceaselessly striven, and you will see, therefore, that my whole armamentarium of weapons consists of simple little knives, simple catch forceps, a simple cannular trocar, and, for the special operation of hysterectomy, a simple wire clamp. You can carry the whole set of instruments in one coat pocket.

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The patient you now suppose to be anæsthetised, and I am about to commence my operation. You will see I take my knife in my hand as if I intended to cut by it, and not to write a prescription; with the pad of my forefinger placed just where the steel blade and the wooden handle meet on its right-hand side, I steady it with its point downwards and send it straight through the skin at an angle of 45° , rapidly drawing it down through that part of the skin I wish to divide with its edge at an angle of $23\frac{1}{2}^\circ$; I bring it out where my incision is to end again in a rectangular position, thus making a clean, well-made tailless incision exactly the length I require and dividing at one blow everything down to the tendinous aponeurosis. The next proceeding is to divide this structure, and you must divide it in a way exactly the opposite of that in which you are told to divide it in textbooks, where instructions are given to divide the linea alba; that is just the thing you must not divide. What you must do is to open the coat of the tendinous covering of one of the recti muscles, it matters not which, and, lifting the edge of the muscle outwards, you must divide the coat of the tendon on its inner side, for in this way you have some kind of security that you will have tendinous reunion, and that you cannot be sure of if you divide the white line. This double tendinous division you make as far as you think requisite; that will be as far as you have divided the skin; and then, by a few touches, you divide the sub-tendinous fat and come upon the transversalis fascia, a structure which you can easily recognise by its characteristic linear markings. You will notice that I say nothing about directors; in such operations directors ought never to be used; they are clumsy elements of danger which the experienced surgeon will never employ. Instead of them he will take a pair of his catch forceps, and he will take a delicate grip of the transversalis fascia, including, if he likes, the peritoneum in the same embrace, and he will take another smaller grip about half an inch away from the first, and in the same horizontal line. The assistant will put upwards and outwards one of these pairs of forceps, and the operator will pull up the other and nearer towards him. Between the two a slight ridge of fascia and peritoneum will rise, and a slight notch with the knife through this ridge will, if it open the peritoneum, immediately reveal a little chasm, the air entering the notch, and all below it will at once fall away. If he has not opened the peritoneum by his first cut, he will seize the peritoneum similarly, notch it, and then the subjacent textures, if they have not been embraced by the forceps as I have said, will disappear. A clumsy operator may seize omentum or even intestine in the forceps' grip, but such a mistake the light-fingered and skilful manipulator can easily avoid. If, however, such an undesirable embracing should have occurred, care must be taken not to divide these structures. The moment the air has entered the peritoneum—the black space beyond the opening will make the fact evident—the forefinger of the left hand must enter the cavity, and there must be no further use of the knife. The extension of the incision must be made by a ripping process by the fore and middle fingers, and must be continued till the opening has been made as extensive as that of the skin. Your abdominal section is now complete, and you see that I begin at once my exploration. It is impossible for me to enter now into details as to the hundred and one things which may be met with, each of which has to be discriminated and an instantaneous decision arrived at as to future proceeding. This, so far as I can find time for it, will be the subject of future discussion.

I am now supposing that we are dealing merely with the initial process of abdominal section, and up to this point the operation is one which ought to be familiar to every practitioner of medicine, for there is no line or condition of professional life in which there is absolute freedom from the performance of such an operation as this. There are many cases, the great majority of instances of diseases in the abdomen, which are what we may call operations of election, in which there is ample time to discuss the merits of the proceeding, the places and conditions in which it should be carried out, and to select the person by whom it shall be performed, and in such cases it will be unwise on the part of anyone not accustomed to deal with such cases to enter into their performance. It would, as a parallel instance, be extremely unwise of me deliberately to proceed to an operation for the cure of aneurysm by tying the femoral artery, an operation of election which is altogether

outside my line of life; but in the hours of midnight on the broad waters of the St. Lawrence I was called upon to tie the brachial artery under conditions which admitted of no delay; and whilst for the moment absolutely uncertain of the relations of that important trunk I might have committed serious blunders in the performance of the operation. I had to do the best I could for the patient, who otherwise would have lost her life, finally with a satisfactory result. So at any moment one of you in after life might be called upon for the relief of intestinal obstruction or for the relief of an incarcerated hernia, for the arrest of hæmorrhage from a ruptured tubal pregnancy or for the relief of an impacted labour, to perform the operation up to this point, and therefore you must be familiar with it, and you must also be familiar with certain other proceedings which in these cases of emergency proceed at once from this point.

It is impossible to expect that I should turn out all of you accomplished abdominal surgeons, but I do expect and I certainly hope that in your future practice, wherever you may be, none of you will either hesitate or be found incapable of opening an abdomen in order that you may do the best you can for the relief of any serious emergency such as I have instanced.

Let me now suppose that, in dealing with a case of malignant disease with ascitic effusion, you have emptied the abdominal cavity of the fluid as fully as you can, and that you find the conditions such that nothing more can be done, or that you have found some of the serious conditions to which I have alluded, and that you have done the best to remedy them. What further steps are necessary for the conclusion of your abdominal section? During the process of the making of your wound there has been some bleeding, perhaps one or two arterial points which required to be secured. These catch forceps, the original invention of M. Koeberle of Strasburg, enable us to dispense with the old-fashioned process of tying arteries almost completely, for as each bleeding point is noticed a pair of these forceps is applied, they are left to themselves, and the succeeding steps of the operation are proceeded with. By the time it has been accomplished the forceps may be removed, and it will be found in all probability that the forcible temporary pressure exercised by them has been sufficient to arrest the bleeding. It is quite rare in my practice that a vessel in the abdominal wall has to be tied. You have sponged away all clot; if necessary you have washed out the abdomen; you have secured by various contrivances, of which I shall afterwards speak, bleeding points that may have been met with in the abdominal cavity; you have carried through the various steps of the completed operation which may have become necessary, and now you are about to close the abdomen. It may be that you have had to introduce sponges. Be careful, be most careful, that you know exactly what you have done in this particular; no precautions that you can take concerning the cleanliness and good quality of your sponges can be too great; no precautions can be too great to be sure that you have a known quantity of sponges, and that you take away from the operating table just as many sponges as you brought to it—in fact, to secure that you leave nothing inside the patient's abdomen that was not there when you began. And now you have to close the abdomen. In spite of all that has been written on this subject, and in spite of all the useless experiments which have been made upon animals for the purpose of settling questions which ought never to have been raised, there is only one consideration that need guide you—that it is your duty to restore the parts you have disturbed to a condition as nearly as possible that in which you found them. You have divided skin, subcutaneous fascia and tendon (it may be also muscle), and peritoneum, and as all these structures have been divided, so they must all be put in such apposition that they may heal as accurately as possible. For this purpose there is nothing so good as a common sewing-needle and a piece of pure silk introduced as a continuous suture, but not drawn tight. You will see, as I proceed here, I leave a large loop at each insertion of the thread, and I do this with a purpose. First of all, it guides me in the more accurate insertion of my needles; secondly, it may be that it enables me to renew my sponging should that become necessary, for the continuous nature of the thread will not permit of its disturbance, and then the stitching is far more rapidly done in this way than by any other method. You have to decide whether or not you will insert a drainage-tube, and

upon that point I may have to give you some further instructions. All is finished save the closure of the wound. Let your needle and thread have been so inserted with regularity and evenness that the divided structures will come easily and fairly in apposition, skin to skin, muscle to muscle, and peritoneum to peritoneum. You will begin at one end of the wound, and you will fasten each point of suture first by a double hitch and then by one hitch over these, in order to diminish the chances of a "granny" suture. You must bear in mind that these sutures may have to bear very violent strain if the patient vomits. As each suture is completed the threads are divided by the scissors, and then you will find that the continuous suture is easily reduced to a gracefully arranged series of interruptions. Your dressing need consist only of a piece of unmedicated dry cotton-wool; or if you adopt, as I have done for the last few weeks with some advantage, an additional agent for drying your wound and keeping it dry (for that is the best of all forms of true antiseptics), the powder of boracic acid will be found the most satisfactory drying agent for any kind of wound.

Subsequent treatment of the wound need concern you very little; the chances are ninety-nine out of a hundred that it will heal without the slightest disturbance. You may require to renew, however, from day to day the dry dressing. The chance is that you need never disturb it till the sixth or seventh day, when you go to remove the sutures. If your wound has been extensive, and if the abdominal walls are thin, as they are in many of the cases of large tumours, and the sutures numerous, you will not remove them all at once, but you will remove alternative sutures, say, on the sixth day, and the rest on the eight or ninth. If a wound is fairly dealt with and kept perfectly dry, especially if the silk which is used is quite pure and has had its gum thoroughly removed by a scalding in hot water, you will not be troubled by stitch abscesses. If these do occur, you may sometimes be alarmed by a marked increase in temperature and pulse curve, sometimes to an extent which causes anxiety; but in the future treatment of your patient—if the instructions I have given you are followed out—you will find that the progress of the case towards recovery will be uniform and uninterrupted. The risk of a simple exploratory incision of this kind is a mere bagatelle, the assurance given by it that your patient suffers from a disease that cannot be relieved is complete, and in many instances a preconceived opinion that the patient is beyond hope is corrected, and a great surgical triumph may be the outcome of what seemed at first a hopeless and useless proceeding.

ON THE RADICAL CURE OF HERNIA, WITH ESPECIAL REFERENCE TO CERTAIN METHODS OF OPERATING.

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A CONSIDERABLE experience of the radical cure of hernia, strangulated and non-strangulated, in patients of all classes, ranging in age from one year to sixty years and upwards, leads me to submit the following conclusions, which will, I believe, in a general way, be accepted by the majority of surgeons who have had opportunities for acquiring extensive practical knowledge of the subject.

1. In patients who are otherwise healthy, the operation for the radical cure of hernia, by competent hands, in properly selected cases, entails no more risk to life than is continually present in almost all persons suffering from rupture.

2. In subjects up to the age of twenty-five or rather more, a perfect result may be often confidently anticipated, no truss being subsequently required under ordinary circumstances, provided that a proper operation be performed.

3. Between the ages of twenty-five and sixty-five a perfect result is attainable in some of the cases in which the rupture can as a rule be kept up by a truss; in cases in which a truss fails to prevent the continual or frequent descent of the hernia a radical cure, in the true sense, may be accomplished in a few instances, and in the remainder the parts may be at least put in a condition which will allow the truss to act with safety, certainty, and comfort.

4. The greater certainty of a perfect result in the class of younger subjects is to a considerable degree explained by

the natural tendency to closure of the ring from general contraction of the parts involved, in consequence of their resilience and developmental inclination.

5. In the class of older patients the probability of complete success is in directly inverse ratio to—(a) the age of the subject, (b) the chronicity of the rupture, (c) the size and rigidity of the hernial aperture, (d) the amount of bowel contained in the sac, and (e) the extent of the adhesion of the gut to the sac, omental adhesions to parts other than the bowel being no necessary bar to success.

6. The essential requirements of any properly devised operation are—(a) the provision of an effectual barrier across the internal aspect of the aperture through which the hernia escapes, and (b) the abolition of the hernial fossa in the peritoneum over the abdominal orifice of the canal.

7. In inguinal hernia the closure of the canal by sutures after the sac has been dealt with is altogether of secondary importance to the requirements just indicated. It is, however, most desirable that the canal should be thus closed as far as possible, especially with the object of aiding the natural tendency to closure which exists in young subjects and in all cases of recent hernia. Under any circumstances the sutures at least keep the parts approximated during the consolidation and adhesion of the structures designed to ultimately form the permanent barrier to the descent of the rupture.

In femoral hernia the closure of the crural canal by sutures is unnecessary; moreover, from the nature of the parts and their anatomical relations, it can hardly be considered practicable in any useful sense. On the other hand, in umbilical hernia, which in some respects stands alone in its relation to the radical cure, the chances of a perfect result depend entirely upon the closure of the ring.

8. All operations which leave any portion of the sac or omentum actually engaged in the ring or canal, whether fixed by sutures or not, are, for obvious mechanical reasons, faulty in principle and defective in practice.

9. Having regard to the necessary uncertainty and inconvenience connected with the use of trusses, and bearing in mind the undoubted fact that any person who has been the subject of rupture in childhood is especially prone to develop hernia later in life, although the original rupture may have apparently undergone spontaneous cure after the prolonged use of instrumental pressure, the operation for the radical cure may be conscientiously recommended and practised upon sound surgical principles in the following conditions occurring in otherwise healthy people up to sixty years of age:—(a) Cases of hernia in young subjects; (b) herniæ in which trusses are entirely useless, partially effectual, or effectual only at the cost of pressure which is sufficient to cause pain or serious discomfort; (c) irreducible hernia; (d) cases in which the occupations or necessary amusements of the patient tend especially to strains of a kind likely to force the rupture down; (e) cases in which the continual use of trusses, whilst not actually painful, is irksome or intolerably inconvenient; (f) herniæ occurring in candidates who have been rejected, or anticipate rejection, for the public services on account of "physical defect"; (g) all cases of strangulated hernia, occurring at any period of life, in which the bowel is sufficiently free from adhesions, and otherwise in a fit condition to be returned with perfect safety into the abdomen, the state of the patient being at the same time good enough to justify the necessary prolongation of the operation.

Of the many points of interest suggested by the above conclusions I propose to confine myself for the present mainly to the discussion of certain operative measures for the radical cure, with which I have good reason to be satisfied. The first of these differs somewhat in its details from any other plan that I have seen recorded; and the second is, so far as any published methodical proceeding is concerned, I think, a new modification. My object, however, in calling attention to this operation is not to claim any novelty for it, which is a matter of no consequence whatever, but merely to describe a method by the utilisation of material commonly sacrificed which in suitable cases offers, in my opinion, a better prospect of permanent relief than any other treatment with which I am acquainted.

Regarded solely from the point of view of the technique of operative measures for the radical cure, cases of hernia consist for practical purposes of two principal kinds. In the first of these the sac contains bowel or omentum alone, and in the second it is occupied by omentum together with bowel. Cases in which the sac contains bowel only are