CLINICAL LECTURE

NEW OPERATION FOR THE RADICAL CURE OF HERNIA.

By T. N. FITZGERALD, L.R.C.S.I.,

Senior Surgeon to the Melbourne Hospital, and Examiner in Surgery at the Melbourne University.

GENTLEMEN,—In the course of your studies amongst the out-patients that daily attend this institution, many cases of abdominal herniæ have doubtless come under your observation.

Noticing the inconvenience that such abnormalities must necessarily occasion, requiring as they do the habitual wearing of a truss, and the element of danger that always exists in the event of the bowel becoming accidentally strangulated, it may have, perhaps, seemed singular to you that, whilst many operations have been devised, and are ever being successfully practised, for other congenital deficiencies and deformities, so few should be in vogue (and these comparatively so seldom performed) for the permanent cure of abdominal herniæ. There are, however, several reasons why surgeons are more reluctant than usual to resort to operative measures, if palliative treatment will suffice. There is the danger to life from peritonitis entailed by all surgical procedures hitherto proposed. Again, none of the measures as yet suggested have proved so adequately successful as to warrant their general adoption. According to the reports obtainable, some would appear to answer for a time, but, as soon as the support is put aside, the temporary adhesions either stretch or give way, and a fresh protrusion of the bowel inevitably takes place. Other operations apparently succeed in the practice of the surgeons who have been the means of introducing them; but, when they come to be tried in other hands, and the results published, their success appears to be very equivocal.

Herniæ, too, are usually seen at their worst amongst old or middle-aged men of feeble and relaxed habits, who are certainly not the subjects one would select for the scalpel or the needle. When met with in the young and vigorous, they are generally small, and easily restrained by well made trusses; so that, on the whole, the majority of those inconvenienced by a rupture prefer to bear the ills they have, rather than incur the risk of an operative failure. There are many cases, however, where it is of great importance that a rupture should be permanently cured by some operation, especially if this can be done without much danger to life. Take, for instance, the case of a man with hernia, dwelling far from populous centres; his life may be said to be at the mercy of his truss, and the accidental breaking of a truss-spring must, at all times, be to him most hazardous. This was shown in the case of the poor fellow who was recently admitted into No. 8 ward, with ruptured intestine caused by falling on an ill-made truss. Again, the existence of a rupture, however small, proves a most serious bar to those who are desirous of entering or retaining their position in the Government employment. In cases such as these, an attempt at cure by operation is undoubtedly justifiable; and the operation which I have introduced, and have practised for a length of time, is so devoid of real danger, that I think it ought to be carried out with very few exceptions.

I shall now briefly explain the principal operations that have, from time to time, been brought before the profession. I shall endeavour to point out where, in my opinion, their design is weak; and shall then describe the procedure you have very often seen me practise. (The lecturer here described Wutzer's, Wood's, Marcey's, Chisholm's, and Spanton's operations for the radical cure of hernia.) I have often seen Wutzer's operation performed in years gone by, but can confidently affirm that I never witnessed one case that ultimately terminated successfully; and I remember one case, followed by peritonitis and death, though in the hands of an excellent surgeon.

The plan answers very well for a time, but the pressure from above again separates the two sides of the canal, and the bowel, pushing forwards the invaginated issue, descends into the scrotal bag as before; in fact, I think the effects of the operation are generally to make matters worse than they would have been if the parts had been left alone. For it would seem that this artificial stopping of the external ring and anterior portion of the canal causes the intestine to dilate the internal ring, and that portion of the canal behind

the plug, in the same manner as the urethra becomes distended behind the seat of a stricture; and, when this plug comes away, as it invariably does, the opening is larger than ever.

Wood's operation is still occasionally performed in the majority of recognised hospitals. Its results are more favourable than Wutzer's, but not sufficiently so as to create any enthusiasm in its behalf. It is an operation that has been altered and modified in several ways, but without very much improvement being effected in its results. In my opinion, its great demerit lies in the early disturbance of the sutures, which must be removed before the parts can possibly have become consolidated and firmly united. This is one defect; another consists, as in Wutzer's, in the unnecessary invagination of the soft structures. Closure of the anterior inferior portion of the canal and external ring is procured for a while, no doubt; but, unless the entire canal be occluded, and the arch of the abdominal walls rendered complete, infundibuliform dilatation at the internal ring must, I apprehend, occur in course of time. In cases where the operation has been a success—and this, I know, has repeatedly happened—the happy result has been obtained in consequence of the whole of the canal having been plugged right up to the fascia transversalis. But this was not the intention of the originator of the operation; nor, by following Mr. Wood's description, can such an event be assured. The procedures of Marcey and Spanton both entail artificial plugging at the seat of the hernia, which, as I have said, is, in my opinion, not only unnecessary, but even hurtful, as it prevents the walls of the canal from coming into such apposition to one another, that union can be procured along its whole course. Mr. Mitchell Banks separates the sac, but cuts it off after passing a catgut-ligature securely round its neck; the pillars are then stitched together with catgut, which are allowed to remain permanently *in situ*. This plan is to me certainly an improvement on the preceding methods, but it involves rather dangerous handling of what is really a process of the peritoneum. Nor do I conceive that so soft, elastic, and absorbable a material as catgut can be sufficient to permanently restrain a hernia. Still, the statistics published show excellent results, better than those that have followed any other procedure.

Impressed with the manifest failure of Wutzer's, and the limited success of Wood's, plans, some years ago I schemed out an operation, of which the following is a modification, and which I have performed a large number of times.

The only instrument employed is a long stout needle, similar to those used in perineal operations, but the hank is longer and the point less curved. Sometimes I suggest, though I do not use it myself, a long needle without a handle, with an eyed point at each end; the employment of which, at one stage of the operation, avoids what appears to be an awkward movement of the hands, and enables the operator to pass his stitches more easily than perhaps he otherwise would do.

The patient having had his bowels cleared by a purgative the evening before, and an enema in the morning, is placed on his back, with his hips raised on a pillow. An anæsthetic is administered, and as soon as complete muscular relaxation is effected, the hernia, external ring, and neighbouring parts, should be carefully examined; notice being taken as to the size of the ring, and whether the rupture is oblique or direct. The hernia, if descended, should be reduced, and the index finger of the left hand, pulp uppermost, carrying the scrotal integument in front of it, pushed through the external ring into the inguinal canal. If the opening be large, two fingers must be introduced; but above all, care should be taken that the hernia, once reduced, be prevented from slipping down. It may be necessary to obtain the aid of a skilled assistant to effect this, by pressing on the abdominal wall over the internal ring. The needle is then inserted about two inches from the inner column of the external abdominal ring (A), and about half an inch above the pubes, pushed downwards and outwards, keeping the point of the needle deep and quite close to the abdominal muscles, till it meets the internal pillar fully a quarter of an inch from its free edge; this it pierces, and also picking up the conjoined tendon, is carried over the forefinger, lying in the canal, and guarding the spermatic cords and vessels, till it reaches the external pillar; under this boundary of the ring it passes for a quarter of an inch, when it is thrust through Poupart's ligament, till, travelling under the skin and superficial fascia, it comes to the surface at the same distance from the external pillar as its point of entrance was from the inner column (B).

By this means a substantial hold is taken of both pillars, which, before they are pierced, are tilted forwards, by the point of the forefinger from underneath, so as to avoid wounding the structures beneath. When once the digit is in the canal, and the operation

commenced, it should not be removed till the stitches are finally pulled together.

Fig. 1.

Figs. 1, 2, 3, and 4 show the four positions in which the needle is inserted in the course of the operation. Throughout, A represents the spot where the needle is first inserted; B, the point where the first stitch comes out; C, point where the second suture is inserted; D, spot where needle first enters for third stitch.

Fig. 2.

The next step is to thread the needle (at B) with a piece of pure gold wire from fifteen to eighteen inches in length, and sufficiently stout to withstand a tolerable strain; the needle is then withdrawn,

and the wire left in its track. The second stitch is made by inserting the needle (at C) about two inches from the inner pillar of the

Fig. 3.

external abdominal ring, and an inch higher up than the first stitch. This time it is made to pierce the integument, subcutaneous tissue, and conjoined tendon; then it is passed on over the forefinger and Poupart's ligament (or the external pillar) to emerge at (B), the

Fig. 4.

point where it came to the surface, in passing the first stitch; the needle is then wired, with the end hanging out there, and withdrawn

as before. In passing the third stitch, a little more difficulty is occasionally experienced, and to do it neatly requires a certain

Fig. 5. *See page 1111 for description.*

amount of dexterity and some manipulatory skill. The long needle, sharp at either end as described, would render the operation less troublesome. If the same needle be used by the surgeon all through, the right hand and arm must be swept round the lower part of the

Fig. 6.

Fig. 5 shows the position in which the wire should appear, after the last stitch, and previous to bringing the walls together; E, outer skin; F, coats of abdomen. Fig. 6 shows how the parts should appear when the loops are tightened. Fig. 7, the same, showing the puckering of subcutaneous fasciae and tissues.

abdomen, and the point of the instrument introduced through the skin and external pillar at a spot (D) about an inch from (B), and allowing for the obliquity of the canal, opposite the puncture where the needle entered in commencing the second suture (C). Having perforated Poupart's ligament, it now passes over the fore-

finger across the ring, over the internal pillar, and through the skin at (A). If the long needle be used, its course is naturally reversed; entering at (A), it is thrust under the external pillar at the opening (D); the needle, whichever description is employed, is then threaded (at A), and the gold wire drawn through as before. A loop of wire is thus left projecting at (A) and (B), and the ends stand out at (C) and (D); by now passing the needle subcutaneously from (C) to (D) over the pillars and upper portion of the ring, the end of the wire

Fig. 7.

protruding at the puncture (D) can be drawn out (at C), so that the two extremities are left projecting from the same orifice. Traction is next carefully made on the wire, sufficient to draw the pillars of the ring together, without cutting or so squeezing them as to strangulate the tendinous structures, care being also taken not to kink the loops. The ends are then securely twisted, and cut off close to the skin, and allowed to fall back under the integument. A piece of lint as a protective pad is placed over the groin, and held in position by a spica-bandage, and the patient is put to bed. In a few days, the little tenderness occasioned by the punctures will have passed off, and a light easy-fitting truss may be applied and worn for a month or so.

I have depicted the operation as it is performed on the right side, the needle being worked by the right hand; the same description will suffice for stitching the other side—only, of course, substituting outer for inner, and so forth.

When the size of the external abdominal ring, in an oblique hernia, or the split in the tendinous structures in a direct hernia, is unusually large, it may occasionally be necessary to apply a second crucial stitch, above the first—making, as it were, a "double gate." This is performed in exactly the same manner, except that the stitches are made deeper, and not so far apart from one another as when only a single suture is used.

Sometimes, as the loops are withdrawn, they pucker the skin, or cause a certain amount of invagination, especially when the needle does not make its entrance and exit through exactly the same opening. This can be remedied by picking up the skin between the finger and thumb, and giving it a kind of shake or tremulous motion. If this be not sufficient, a tenotome may be introduced to disengage the wire. The sutures being of pure gold, and perfectly unirritating, are left in permanently, and form a perpetual barrier to the descent of the hernia, stimulating, to some extent, the natural intercolumnar bands.

Such is the operation; and I may now make mention of some points that are essential to its success. The left forefinger must be very carefully kept in the canal the whole time, so as to avoid injury to the intestine and peritoneum on the one hand, and the spermatic cord and its vessels on the other. Again, in introducing the sutures, it is of the utmost importance to include as much as possible of the subcutaneous structures, so that these may form a pad, which, while it assists in closing the canal from the outside (not by a plug within, as in the other operations), also prevents the sutures from cutting through the tendinous structures.

To do this, the needle must be entered well away from the pillars of the ring, and the first time should be passed deeply, close to the abdominal muscles, until the edge of the ring is picked up. The second time, the needle should be passed superficially, and close to the skin. When the ring is large, it is necessary to be sure and put in enough sutures, whilst care must also be taken not to close the ring too much, or the circulation in the spermatic cord may be interfered with, and atrophy of the testicle or varicocele may result.

I may mention that a former surgeon to our institution witnessed many of my early operations, and was so impressed with their success that he (having a large direct hernia) wanted me to operate on himself; however, I declined, as a truss kept it up easily without inconvenience, and also as he was a man advanced in years.

Of course, I, like most others, lose sight of my patients after a time; but I have never occasioned a death through the operation. In fact, it gives rise to so little local irritation or constitutional disturbance, that it is perfectly possible, though perhaps not advisable, for the patient to leave his bed two or three days after the operation.

[Here several cases, illustrative of the beneficial results of the operation, were brought forward.]

BRITISH MEDICAL ASSOCIATION.

FIFTY-FIRST ANNUAL MEETING

PROCEEDINGS OF SECTIONS.

AN ADDRESS ON CHRONIC INFLAMMATION OF BONE.

Read in the Section of Pathology.

By CHARTERS J. SYMONDS, M.S.Lond., F.R.C.S.E.,

Assistant-Surgeon to Guy's Hospital, and Demonstrator of Morbid Histology in the Medical School; Surgeon for Out-patients to the Evelina Hospital for Sick Children.

I MUST offer some apology for the title of the subject, the discussion upon which, I am about to open. "Chronic Inflammation of Bone" sounds somewhat vague, and suggests a dissertation upon almost every osseous affection. That it is not my intention to weary you, or the members gathered here, with a ramble over so wide a field, I will first say that it is rather my object to inquire into the causes which produce enlargement and hypertrophy of bone. It was this notion I wished to convey when asked, some time ago, by our Secretary, Dr. Goodhart, to suggest a subject; but the slight confusion which often attends such arrangements, particularly amongst people otherwise busily engaged, must be my apology. I trust, however, that the subsequent note, inviting communications upon the various diseases in which bones are enlarged, has been sufficient to give a general outline of the drift of my paper.

The conclusions at which I have arrived are drawn chiefly from the study of museum specimens, especially those in our own collection at Guy's Hospital, which is particularly rich in examples of thickened bones. I have also examined the specimens in the Museum of the Royal College of Surgeons, and those at St. Bartholomew's Hospital, where many of Mr. Stanley's preparations are to be found. From these, as well as from other sources, I have been led to certain conclusions, some of which differ considerably from those generally received. These I will put forward in a tentative way, desiring to suggest that the ground is still open to inquiry, rather than to make any dogmatic statement.

Another object I have in view is to single out from these numerous forms of thickened bone—variously described as hyperostosis, osteoporosis, hypertrophy, etc.—such as can be unmistakably referred to recognised causes, and to use the information thus derived for the elucidation of the more obscure affections.

In pursuing these objects, though I shall be found sometimes standing in opposition to long-established explanations, some of which bear the weight of our greatest authorities, I trust that my views may serve the purpose at least of reopening an old subject, and that, as an outcome of our discussion, we may find ourselves nearer the truth.

I must anticipate, however, the disappointment that many, who may hope that this obscure subject will be cleared up will feel; for it will appear that still I leave a considerable amount of ground unexplored. This, I admit, will be found to be the case; but, after all, if one be successful in lifting but one morbid process into its proper position, or in removing another from a position falsely attained, it will, I imagine, be allowed that some advance has been made. This much, at least, I hope to advance.

Our inability at present, in referring many of these thickened bones to their correct position in pathology, is the result of our ignorance of the lesions that have been associated with them. It will be another of my objects to indicate the direction in which we ought to work, with the greatest probability of attaining the truth.

For illustrating this subject, I have, through the kindness of our curator, Dr. Goodhart, been able to show a series of specimens from our museum.

In examining the various bones that undergo enlargement, it is convenient at first to separate them into two groups, and to consider first the long bones, for in these the processes are fewer and the explanations simpler; next, to take the cranial bones, placing these aside for separate consideration, since the whole subject is more obscure, and a greater number of morbid processes are in force.

Now, amongst the causes known to produce enlargement in long bones, there is no doubt that chronic inflammation is the most frequent. I will first, therefore, ask you to consider the manner in which this process effects the change in bone, and next inquire into the various causes upon which the process depends; and afterwards to consider what other processes than inflammation may produce this enlargement in bone. In this way, I hope to obtain information, which may be applied to the elucidation of the more obscure class of thickened skulls.

It is, I think, at the present day generally admitted, that inflammatory enlargement of bone may be due either to "expansion" of its tissue, or to a periosteal deposit upon its surface. As the proportion which each of these processes takes in producing enlargement is a debatable point, I may premise that I hope to show that the first, viz., "expansion," so-called, arising from osteitis, does not of itself lead to an increase in diameter in a bone, but that all such

Fig. 1.—Normal humerus.

Fig. 2.—Humerus enlarged.

enlargement, so far as simple uncomplicated inflammation is concerned, is due to the second cause, viz., periostitis; and that chronic osteitis never increases the diameter of a bone until the periosteum is reached, when the latter lays down, where healthy, a variable amount of new bone.

It is unnecessary for me to dwell upon the effects of simple periostitis in producing thickening of bones; the specimens are numerous, and admit of no cavil. But the effect of chronic osteitis, in producing enlargements by expansion of the bone, seems quite open to objection.

The specimens upon which this effect is founded are those in which, on section, an enlarged bone is found uniformly porous to its outer compact layer, no trace of the original compact tissue being visible. Such a bone is said to be "expanded" by an enlargement of its spaces, or to be "swollen."

The historic specimen upon which this observation is largely