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REMARKS ON STRANGULATION

AND

RADICAL CURE OF HERNIA

BASED ON OVER 120 OPERATIONS

(WITH AN ILLUSTRATION)

BY

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Forty Additional Herniotomies, with Remarks on Strangulation and Radical Cure. By RUSHTON PARKER, B.S., F.R.C.S., *Professor of Surgery in University College, Liverpool.*

Two years ago I had the pleasure of addressing to the members of this Institution some remarks on hernia based upon seventy-four operations, containing a brief abstract of their character and results. The additional cases operated on have permitted a further insight into this important and interesting subject, and I propose this evening to consider, not so much the generalities of observation and result, as some of the rudimentary principles illustrated in the course of the series.

The anatomical features of inguinal hernia are often entirely commonplace, but now and then I have had opportunity of noticing the constrictions that mark off the several portions of the unobliterated vaginal process of peritoneum. In the highest degree of human development the peritoneum should be shut off near the internal abdominal ring, and the tunica vaginalis should reach no higher than the top of the testicle, while all the intervening portion of the vaginal process that previously lay in the inguinal canal, and along the spermatic cord, disappears. It is convenient to name this in two portions, the inguinal and the funicular, for either may persist without the other. The point where they may be separated is about the level of the external abdominal ring, marked by a con-

striction when total obliteration has not occurred. An entire persistence of the vaginal process on one or both sides occurs in some persons, and favours the production of hernia or hydrocele, both called congenital. But the scrotal hydroceles of after-life, though shut off from the abdomen, are not always confined to the region of the testicle, for some reach up to the external abdominal ring, and others into the inguinal canal, according as the funicular and also the inguinal portions of the vaginal process, in addition to the testicular, remain unobliterated. If these higher portions of the process be alone unobliterated and the seat of fluid, we have a hydrocele of the cord.

The multiplication of operations for laying open hydroceles in some quarters, for their radical cure, has led to much light being thrown upon their varying, and often complicated, anatomy. Similarly, the increased frequency of herniotomy for purposes of radical cure, before the sacs have undergone secondary alteration by the pressure of the rupture, has revealed these vestiges of the natural process which, when complete, discourages rather than favours inguinal hernia.

About twelve years ago, in relating one of my earliest cases of herniotomy in this Institution, I showed a diagram of the sac open down to the testicle, and consisting of two compartments with a constriction above them. This I had supposed to be the neck of the hernia dragged down from the position of the internal abdominal ring to a point below the inguinal canal, in what was the chronic hernia of a labouring man. I have since met with several such, and have ceased to regard them as extraordinary, for I consider them to be examples of hernia, having for a sac the unobliterated vaginal process of peritoneum, marked off into sections by one or more points of constriction that indicate imperfect degrees of natural occlusion. These constrictions are on various scales, some being rigid and indurated, others thin and sharp; while I have sometimes seen the appearance of a hymen, consisting of a thin fibrous diaphragm, with a central aperture. In a case strangulated at its first descent, this hymen had been forced by intestine which

thus became tightly nipped, causing, as may be supposed, very acute symptoms during the few hours that preceded operation. I have seen these constrictions in cases where the tunica vaginalis testis was shut off in normal fashion, and free from intrusion of the hernia. In one such case, in a lad of eighteen, I operated on both sides for radical cure. The left was a bubonocoele, in the sac of which was a marked constriction at the internal abdominal ring, and the contents sometimes came down when he removed his double truss, but that on the right had not been seen for years. On operation the sac was found, and its neck at the internal abdominal ring constricted to a mere pin-hole. It was accordingly tied, but it was evidently process of cure under the pressure of the truss.

Although these herniæ belong to the variety called acquired, it cannot be doubted that their sacs were composed of the inguinal portion of peritoneal process that originally accompanied the testicle in its congenital passage through the abdominal wall, the funicular portion only having been obliterated. I have nothing to say here against the notion of truly acquired inguinal hernia further than that a congenital predisposition to the disease is not confined to those cases where the vaginal process of peritoneum remains open down to the testicle.

In a thesis published at Dorpat, in 1885, by Hugo Sachs, dealing with the relations to hernia of the vaginal process in males, and the canal of Nuck in females, the literature of the subject is ably analysed in the light of his own dissections made upon 305 foundlings at St Petersburg. The infants varied in age up to eleven months after birth, and gave the following record of proportional obliteration and patency.

Out of 155 boys both vaginal processes were properly obliterated in 30·3 per cent. only; both were quite open in 16·8 per cent., while the percentage of varying combinations of openness and closure between the two sides is also given. In 150 girls both canals of Nuck were obliterated in 75·3 per cent., both open in 7·3 per cent., and the percentage of varying combinations between right and left is added.

The tendency to hernia thus presented is therefore much greater in male than in female infants, while in both sexes the right side is found more often open than the left.

With regard to strangulation, of which the typical symptoms, pain, constipation, and vomiting, are not difficult to appreciate when typically present with a hernial tumour, I think the part played by this last in determining the diagnosis is apt to be undervalued, though it is the only point distinguishing strangulated hernia from other kinds of intestinal obstruction. Of the symptoms themselves there are great varieties in suddenness and severity, and if it were not for the accompanying tumour surgeons would often be in great doubt as to the necessity of operating.

First, as to the possible cause of the diversity of symptoms, it will be thought that intensity and suddenness of symptoms should be a natural measure of the tightness of strangulation. Sometimes it truly is, especially when bowel descends for the first time. This, by the way, may occur under two circumstances, either at the first descent of the hernia, in which case it is very noticeable; or at the first entrance of intestine into an old hernia, containing only omentum, but with a very narrow neck. This may be striking enough if thought of, but is liable to be overlooked.

This discovery of tight strangulation with slight symptoms has sometimes been due to operation when in doubt, and because of doubt, a golden rule that has saved many lives. To those who have seen but little it is an admirable substitute for experience, to which it however leads; while no man has seen so much as to be able to dispense with it. The oftener any one has acted up to it, the more he prizes it.

I remember a young man sent in with his doctor's request that the surgeon on duty should be summoned at once. There was a history of hernia, strangulation, and taxis, and a soft inguinal tumour with a liquid feel, and a slight impulse on coughing, but no abdominal distension, vomiting, or any symptom. I was guided entirely by the urgent message that he should be seen at once, and was in a state of extreme doubt

as to the exact condition. I operated at once, found a hernial sac filled with blood-stained serum, but no viscus. On searching upwards, however, a loop of intestine, still strangulated and reduced *en masse*, was pulled down from the abdomen and relieved. The patient got well. While on the subject of reduction *en masse*, I should like to mention another method of fallacious reduction that may happen to anybody practising the most careful taxis, and of which I met with an example a year ago. A strangulated femoral hernia was apparently reduced in taxis by Dr Shain. The symptoms being unrelieved, and the tumour having reappeared, operation became necessary. This I was requested to do, and found the bowel adherent throughout the sac. In the apparent reduction the bowel had evidently been emptied of its fluid contents, but not itself reduced. This bowel was as nearly as possible gangrenous, but it was returned, and the patient did in all respects well.

It is not, however, for the purpose of merely insisting upon or illustrating the value of the golden rule "when in doubt operate," that I mentioned the case of reduction *en masse*, but because it was a striking case of strangulation of two days' standing, without symptoms at the time of operation, and with but slight symptoms previously. I could mention several other cases to illustrate the same point, were it worth while. Also the converse cases, where the symptoms are severe, but the strangulation of intestine but slight.

So it is certain that the suddenness or severity of the symptoms are not always a guide to the character of the strangulation.

In fact, persons suffering from strangulation of a hernia, or any other cause of intestinal obstruction, no less than persons not habitually at sea, appear to vary in their susceptibility to sickness, whether from differences of individual disposition, or from what is called the state of their bowels, which may vary enough to render the same person more susceptible at some times than at others. There can be little doubt also, that previous fulness of the bowels, and none whatever that the subsequent swallowing of food, aggravates the sickness in all

these conditions; and I have felt disposed, in many cases of strangulated intestinal hernia, to attribute noticeable slightness of the symptoms to the paucity of intestinal contents before the seizure. A diminished natural susceptibility may have contributed, but it is difficult to estimate without special investigation, which I have never attempted.

It is not profitable to argue much, or to attempt too great a refinement of pathology or motive, when one has to do with unreduced intestine in a hernia, attended with symptoms. Whatever else is to be done, the bowel should be safely reduced, either by taxis or in herniotomy, even if afterwards there should be reason to believe that the symptoms were unconnected with the hernia. For there are cases of this kind, chronic herniæ, sometimes irreducible, and then more easy to recognise, where symptoms from time to time occur, and are relieved by rest and avoidance of food.

It is well to bear some of these facts in mind, in view of the not frequent but well-known class of cases where symptoms of strangulated hernia—that is, of intestinal obstruction—are relieved by herniotomy, though only omentum is found in the sac.

To judge some of these cases, at first sight it is hard to avoid the conclusion that mere constriction of omentum produces the symptoms. But cases of strangulated omentum vary in their symptoms, as do those of strangulated intestine.

I had a patient who, with a distended abdomen and a mass of omentum impacted in a hernial sac, had griping constipation and nausea, with eructation, followed by vomiting. Here the patient was deliberately left for a day to see if relief could be procured by medical means, rest, morphia, and fasting; but these failed, and it was plain that the symptoms were in some way due to the hernia, which was recognised as omental only. In the operation omentum was found, but entirely unconstricted. There was nothing approaching the physical condition of strangulation before operation, during which, however, I placed about six ligatures upon separate portions of the omentum, cutting off what lay beyond, a large mass. There was no

stricture in the sac, the neck of which was very wide, but on being released from a globular diverticulum of the sac, into which it had been crammed and held down, the stump of omentum forcibly reduced itself, and slipped several inches out of sight. The symptoms never returned, though the omentum was now really strangulated in half a dozen places. What had caused them was, I believe, a drag on the colon, and its obstruction brought about by the retention of about half the omentum in the sac of the hernia, situated several inches lower down than was comfortable for the transverse colon, until the release, when all abdominal discomfort ceased.

But other cases of omental strangulation occur, in the entire absence of symptoms from first to last. Mr Puzey told me of a case, and showed me the omentum cut away, where the strangulation was so tight as to have caused inflammatory induration and vascular injection at the seat of pinching, but in the absence of any symptom whatever. I have had one or two cases of the kind this year.

Another source of fallacy is the existence of symptoms due to functional obstruction of intestine, in the presence of irreducible omental hernia. I have seen one case of this kind, and have heard of several others, where the symptoms were easily relieved by medical treatment without interfering with the hernia. These cases are not easy to decide, and in most of them one would feel bound to operate, because in doubt, as well as to favour a radical cure.

But I have also had a case where, on account of symptoms, and a femoral hernia, I operated and found the sac empty. It was a case of functional obstruction of intestine, and no question of accident to the hernia could then exist. The sac was tied for the radical cure and the patient was discharged relieved, after medical treatment of her symptoms. A month or so later I heard that she had a return of her symptoms, which had to be treated medically again. So, before deciding that omental hernia, when under suspected strangulation, is the cause of the same kind of symptoms as intestinal, even if milder, there are several explanations already given of the phenomena, that are more

likely. Another is, that the symptoms may be started by the strangulation of intestine, along with omentum, and may persist after reduction of bowel and only disappear after herniotomy and reduction of omentum.

As a curiosity I may mention a case of right femoral hernia in which I suspected strangulation, although there were no intestinal symptoms. I operated at once, and found the tip of the vermiform appendix only inside the sac. The patient did perfectly well.

With the exception of my first sixteen cases, all have been submitted to ligature of the sac with a view to radical cure, whether previously strangulated or not. Those sixteen occurred in 14 persons, and comprised 2 umbilical, 8 femoral, and 6 inguinal. There were six deaths, all femoral and all gangrenous. Since I adopted ligature of the sac my cases number 107, with 10 deaths, or $9\frac{1}{2}$ per cent. The strangulated comprised 5 umbilical, 15 femoral, and 20 inguinal—40 in all, with 8 deaths, or 20 per cent. The unstrangulated were 9 umbilical, 9 femoral, and 48 inguinal—66 in all, with 2 deaths, or 3 per cent. By computing a number of double operations previously returned as one a slight addition is made to some of the figures. Thus the former series of 74 is really 76, in the same 64 persons. The new series comprises 41 persons and 46 operations, with 3 deaths.

The entire series thus consists of 122, with 16 deaths, or 13 per cent.—53 strangulated, with 14 deaths, or 26.4 per cent., and 69 unstrangulated, with 2 deaths, or under 3 per cent.

I have also stitched the pillars of the ring in some inguinal cases, as from the first I intended to do when it seemed advisable. In some cases the effect has apparently been all that is desired, but not always with impunity, for retention of discharges in the iliac fossa has resulted sometimes.

For these sutures, as for ligature of the sac, I have almost always employed cat-gut, which I often also use for stitching the skin.

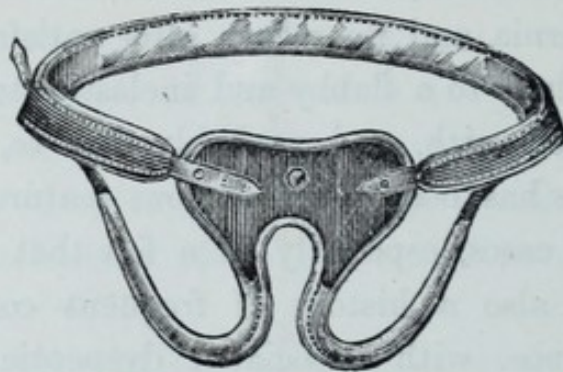
As to adult umbilical cases, which owe their existence to corpulence, the same cause tends to recurrence, and the patients

must take their chance, which seems to vary. It is not often that mere corpulence is a serious cause of femoral or inguinal hernia, but there is an allied condition which seems to favour the origin of hernia, and its return after satisfactory occlusive operation. I allude to a flabby and inelastic state of the lower abdomen, coupled with, and probably due to, atony of the intestines. This has been a conspicuous feature from the first in some of my cases, especially in a few that have recurred. When there is also a history of frequent constipation and habitual flatulence, with associated dyspeptic symptoms, a little attention to diet, with the judicious use of laxatives or enemata, should be enjoined in the interests of the herinal regions no less than for the general comfort of the patient.

In my former paper reference was made to the case of an old gentleman upon whom I had operated near Bristol some five or six months previously, and which I recorded as so far successful. His inguinal herniæ, however, both returned eleven months after operation, and I went there and operated again a month later. This time I felt it right to sew the pillars of the rings in addition to ligature of the sacs. Speedy primary union resulted as on the first occasion, but I got him also to wear a truss that seems to possess advantages over all others for fastidious, fidgetty, and wayward patients, as well as for the rough usage of those who work hard. I saw him in September 1887, more than sixteen months after the second operation, in his usual health, and entirely free from hernia. But in spite of a sound condition at the seat of operation, the appearance of his lower abdomen, which has the flabby-gutted look I have referred to, and a slight tendency to impulse, without the truss, led me to advise it in this and similar cases.

The truss is made by Critchley of Liverpool, and consists of a triangular steel plate covering the inguinal and femoral canals of both sides, and the intervening pubes. It fits around the genitals, and, when once adapted to the shape of the individual wearer, there is no likelihood of wearing it loosely or ineffectually if it be put on at all. It appears also to be

quite a comfortable instrument, judging from a sample I once tried on. A wood-cut illustration is here given.



Critchley's double hernia truss.

In two cases I have removed the testicle in order to more effectually close the inguinal canal, which may be very wide, apart from cases of imperfect descent, where also the affected testis is better away. In three recent herniotomies, after tying the sac, I have flexed it acutely round the aperture in the abdominal wall, and then stitched it through and through to the aponeurosis of the external oblique, in the hope of obtaining a result similar to that aimed at by Dr Macewen of Glasgow.

And now, Sir, I must ask indulgence for the many imperfections of my paper, having undertaken it at very short notice, and subject to many interruptions.