A REVIEW OF RECENT METHODS FOR THE RADICAL CURE OF HERNIA.*

BY

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It was on November 17th, 1883, that the first operation for radical cure was performed at the Salop Infirmary, upon a boy, one W. H., aged 4, from Much Wenlock. In the next year there were four operations, including one upon a young woman aged 21. Ten years later (in 1893) twenty operations were performed, and now it is quite usual to see two or more in a single morning, and it has been said that this procedure is the commonest operation in surgery, except that for removal of post-nasal adenoids.

Early Results.

In 1890, at the request of Mr. Eddowes, then senior surgeon to this infirmary, I collected all the cases operated on here from November, 1883, to November, 1890, and I subsequently extended the list to include all cases up to the end of 1894. The result of this inquiry was communicated to Mr. Rushton Parker of Liverpool, and embodied by him in a paper read at the annual meeting of this Association in London in 1895, and I quote from his paper as follows:

Out of 81 operations performed at the Salop Infirmary by Mr. William Eddowes and his colleagues, 45 were in 43 children and infants of 12 years old and under:

25 from 6 months to 2 years,
10 from 2 years to 4 years,
10 from 5 years to 10 years.

The only fatal case died from pneumonia, the wound having healed; in none had strangulation existed, and the hernia is not known to have recurred in any. I quite expect that other surgeons will be able to produce reports which, like this one of Mr. Eddowes, are more favourable than my own, and add confirmation to the favour with which I regard herniotomy in children.

So much, then, for our results sixteen years ago in the case of children; what can be said in regard to adults? I regret to say that these were far from satisfactory. Most of the patients replied that they were much better, and that the rupture was now easily controlled by a truss and gave no trouble; others that they were quite cured, and yet others that the operation had failed and that they were as bad as ever. Not very reassuring you will agree, but I hope to show the reason for this, and to tell you that by improved methods of operating on adults the tale is a very different one to-day.

Varieties of Inguinal Hernia.

1. In about 5 per cent. of the so-called congenital type where the sac is large there is no closure at all of the funicular process, which normally becomes obliterated from below. The testes seem to be inside the sac, but are not really so.

2. The funicular process is partly obliterated, but a definite processus vaginalis is present. This is the commonest variety, constituting about 95 per cent. of all hernias in children.

3. "The infantile," where the hernia in its descent pushes a fresh sac before it, inverting the unobliterated portion of the funicular process below and obscuring the diagnosis.

4. The ordinary acquired form.

Etiology.

Mr. Hamilton Russell, now of Melbourne, and formerly house-surgeon at this infirmary, published in the *Lancet* in 1899 a letter which attracted considerable attention at the time, and from which I will briefly quote the most important points:

1. Oblique inguinal hernia is *invariably* caused by the presence of a congenital sac which is provided in nearly every case by a patency in whole or in part of the processus vaginalis.

2. There is no evidence to support the view that congenital weakness of the abdominal wall in the inguinal region is a factor in the causation of inguinal hernia.

* Read before the Shropshire and Mid-Wales Branch of the British Medical Association.

3. While actual weakness of the abdominal wall in the inguinal region is frequently met with, and is an occasional cause of recurrence after operation, such weakness is not congenital, but is an acquired weakness due to the existence of the hernia and the prolonged use of a truss.

4. Complete removal of the sac when performed before the abdominal wall has sustained such damage will not be followed by recurrence.

5. The causes of recurrence after operation are:

- (a) The above mentioned acquired weakness.
- (b) Incomplete removal of sac.
- (c) Traumatism the result of a mistaken method of operating.

The acceptance of these views leads to the conclusion that ordinary inguinal and femoral hernias are not ruptures in the sense of being due to strain, but are primarily due to a congenital sac and are impossible without it.

If this be so, it follows that most of the operations formerly practised for the radical cure, which dealt so largely with suturing the canal, are unnecessary, and that those that divide the canal freely to obtain access or to divert the cord are injurious; no doubt these same operations also treat the sac, but such treatment is not so much insisted upon as the repair of the canal and the suturing of the pillars of the ring.

Striking confirmation of the frequent presence of this pre-existing sac has been recently brought forward by Mr. R. W. Murray, and is referred to in Professor Alexis Thomson's *Manual of Surgery*. Mr. Murray made 200 consecutive *post-mortem* examinations upon persons in whom during life there had been no history or evidence of hernia, and in these he found no less than 68 diverticula of the peritoneum, of which 44 were femoral, 22 inguinal, and 2 umbilical, showing clearly that this pre-existing sac is no mere hypothesis.

Having insisted, then, that the sac is pre-existing and is the cause of hernia, it follows that its complete removal will cure the condition, and so it is found in practice.

But it will be asked, Is any one bold enough to act upon this, and is it not necessary in addition to strengthen the canal and to obliterate the rings? To this I answer that I believe such patching is entirely unnecessary, and usually a source of weakness and further trouble, and is always to be avoided except when one is obliged to open the canal in order to deal effectively with adherent omentum or retained testes; then, of course, any damage done to the canal must be repaired by suture; but the sac is the thing.

I had lately a conversation with Mr. Edward Deanesly, of Wolverhampton, upon this subject, and he has kindly placed his most recent figures at my disposal for the purposes of this paper. From November, 1906, to November, 1908, Mr. Deanesly had in his hospital clinic 250 operations for radical cure of inguinal and femoral hernia, and in all save an insignificant proportion the inguinal canal was left absolutely unsutured, and the femoral canal was left open except for a simple pursestring in the fascia lata and pectineus fascia. In perhaps 2 or 3 where the hernia was excessively large or complicated by undescended testis, the external oblique was sutured so as to narrow the external ring. The patients were discharged in ten to twelve days, and returned to work in four weeks. The cases were absolutely unselected, and none wore a truss after operation. This series included all sizes of hernia up to that of a football, and all ages, from 6 months to 60 years.

It is well known that if the operation fails the hernia will again show itself within the first twelve months, so that these figures of 1908 may reasonably be examined and tested for recurrence, and we find that only 9 had recurred, and these have all been cured by a second operation.

Guiding Principles in Operations.

The method of operation used by Mr. Deanesly is that of Professor Kocher of Berne (second method). I think that nothing more need be said to prove that the treatment of the sac is the treatment of hernia, and in order to treat the sac thoroughly great attention must be paid to its neck. The fundus may be cut away at an early stage of the operation if it is much enlarged or likely to interfere with subsequent steps. The neck of the sac is much longer than is often supposed, but it must be clearly separated

from the cord to its actual junction with the peritoneum—a point which Kocher has shown to be marked by a pad of subperitoneal fat, which forms an outlying spur of the pre-vesical fat; after being thus freed, it is displaced upwards and outwards by drawing it through an opening in the internal oblique and transversalis muscles at a point $\frac{3}{4}$ in. above and to the outer side of the internal ring. The whole of the lax peritoneum present in the neighbourhood of the internal ring is thus rendered taut, and there is no trace remaining in the form of dip or dimple.

Kocher formerly recommended that the sac should be laid down over the roof of the inguinal canal and there pressed down into it, as it were, through the roof, and retained by sutures, but this suturing, combined with transfixion and torsion, occasionally led to necrosis of the sac, and has been abandoned in favour of simple removal after dislocation upwards and outwards.

I remember particularly one of my cases in which this necrosis took place, and I quite expected the operation would fail, especially as the man was a repairer of motor cycles, and often had the severe strain of pedalling those unwieldy machines some distance; but I have seen him lately, and am glad to say that he has no hernia.

Mr. Stiles, of the Royal Sick Children's Hospital in Edinburgh, has long discarded all suture of the canal or rings, and I learnt from him that he recently completed a series of 1,000 cases with a mortality of 6–700 of them with a mortality of 2 only, a total mortality of much less than 1 per cent. Results could hardly be better, and would compare favourably with those of the operation of circumcision. The best age for operation is 5 to 6 months, before dentition begins.

Mr. Stiles has given up the use of trusses at the Sick Children's Hospital altogether, being guided to this conclusion mainly by the fact that cases which were apparently cured by truss pressure were those of the congenital type, which were really cured by the natural obliteration of the funicular process occurring from below upwards. That this view is correct is shown by the number of waiting cases which, on being sent for for operation, are found to be already cured.

It may seem difficult sometimes, when dealing with infants, to say positively whether a rupture exists or not; the parent will assure you that a lump does come in the groin, but, on inspection and examination of the two rings, they seem of equal size. If, however, the cord be carefully isolated, it is quite possible to feel in all cases of hernia that something, the empty sac, is present coming down the inguinal canal.

The surgeon must be prepared to find other structures than small intestines and omentum inside a hernia sac. I myself in the last year have met with the Fallopian tube, the caecum with appendix, and the urinary bladder, but such findings do not materially increase the gravity of the operation and are readily dealt with.

Children.

Strangulation is rare in children, and when it occurs it is generally in infants under 1 year. This condition is most frequent on the right side, because it is the caecal herniae that usually become strangulated. Moreover, it must not be thought that irreducibility is a very urgent matter in a young child. There is no hurry about operation, for in them strangulation is a slow process. A dose of chloral and bromide may be given by mouth or rectum and hot fomentations applied to the hernia, the knees being bent over a pillow so as to relax the structures about the external ring, where the tightness is usually greatest, and a delay of twelve hours advised. Failing reduction in this way, it may often be effected under chloroform; but if this with mild manipulation fail, the operation must be performed exactly as in non-strangulated cases.

I would advise that all preparations for operation be made before taxis under chloroform is resorted to, so that valuable time may not be lost.

A few words may be said about the dressing and the after-treatment. It is necessary to protect the wound in some way, yet ordinary dressings are very difficult to keep clean; dry collodion has been tried, but it does not give free exit to the serum, which must be produced in any wound where the tissues have been much separated and handled. Stiles always uses a paste consisting of iodoform one part, bismuth subnitrate two parts, kept in a

solution of 1 to 1,000 mercury perchloride. A piece of gauze is placed over this and a small flannel binder over all as a temporary dressing. When the child is put to bed the temporary dressing is removed, leaving nothing on the wound but the paste. The legs are controlled by clove-hitch bandages applied to the ankles over a layer of lint. Over the body is a small wire cradle, from which hangs a diaphragm of towelling, on to which he micturates. The shoulders are lightly fastened to the mattress by the usual reins of knitted material, and the hands are prevented from coming in contact with the wound by another small draw sheet pinned under the reins and over the cage. A piece of boracic lint is pinned over and under the child's vest, which reaches to about the umbilicus. No sepsis has occurred in connexion with this method of treating the wound in children.

A mattress stitch or two is used to obliterate the deep wound, which is removed on the second day; the skin is sewn with horsehair, which is removed on the sixth or seventh day, and the child is discharged on the eighth or ninth day. It is not necessary that the child should be weaned.

Adults.

In adults the wound is dressed in the usual way with dry gauze and wool, drainage being very seldom employed, and bandaged with a flannel or domette spica 3 inches wide; it is well to bandage the opposite side also, including the two in a St. Andrew's Cross. This serves to support the scrotum, preventing oedema, and rendering the after-treatment much more comfortable.

Finally, I always use an elastic bandage applied in St. Andrew's Cross fashion, as this keeps the edges of the superficial dressing secure and prevents any accidental contamination by involuntary movements of the patient's thighs during the first few hours.

There are, of course, many other forms of abdominal hernia to which I have not referred (one author describes fifteen in all), but it would only lead to confusion if I attempted to include the treatment of these in my brief paper. I will therefore simply say once again that the treatment of all is essentially the same, and that the great underlying principle is to find the neck of the sac and to occlude it thoroughly. You may then do what you please with the other parts, varying the detail according to circumstances, and putting in such supporting and obliterating sutures through canal and rings as your experience may determine.

A CASE OF PERFORATED PEPTIC ULCER OF THE OESOPHAGUS COMPLICATED BY PYOPNEUMOTHORAX.

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THE following case is of interest because it is a very typical example, both as regards history and pathological appearances, of a rather rare condition, though one probably more common than is generally believed. The author is indebted to Professor Wyllie for allowing him use of the clinical notes taken by his resident, Dr. Leslie.

History.

W. A., aged 42 years, admitted to Ward 34 on March 18th, 1910, under Professor Wyllie, complaining of pain across the lower part of the chest, worse on the left side, and pains across the back.

Up till the beginning of January, 1910, he was in good health. He had been accustomed to take considerable amounts of alcohol in bouts about every other week for the last eight years. Subsequent to these drinking attacks he suffered from his stomach, being unable to take food and vomiting bile. Since January, 1910, he had suffered from lassitude, uneasiness in the stomach, flatulence and vomiting about an hour after each meal, followed by relief to symptoms. He has been afraid to eat and thus has lost weight considerably. On March 14th, after vomiting his dinner, he went to bed, and has not got up since then. The day before admission, when suffering from severe pains in the chest, he called in a doctor, who diagnosed pleurisy, and recommended his admission to the hospital. During the days that intervened he had been unable to retain anything in his stomach. The vomited food was tinged brown. The patient suffers severely from thirst; he has no difficulty in swallowing, but has some uneasiness in the lower part of the chest, between the ribs where they join the sternum. No