A Clinical Lecture

ON

HERNIA THROUGH THE SEMILUNAR LINE AND DIRECT INGUINAL HERNIA.

DELIVERED AT ST. THOMAS'S HOSPITAL, LONDON.

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MANY cases of hernia come under your notice in your hospital work, but in the majority there is little difficulty in making a correct diagnosis. It is my object now to draw your attention to some of the more rare forms which have been under my care, and of which the exact nature was not certain until it was settled by operation.

HERNIA THROUGH THE SEMILUNAR LINE.

The first case I bring before you is a hernia through the semilunar line above the level of the inguinal canal.

Ventral herniae occurring along the semilunar line may be divided into two groups—those of cicatricial and those of spontaneous origin—as is the case with those occurring elsewhere through the belly wall; my case belongs to the second group. Direct inguinal herniae are of this same class, but they are placed below the deep epigastric artery in the inguinal canal, and to them I shall refer later. Along the rest of the semilunar line herniae are very rare above the level of the umbilicus; most of them are placed in the neighbourhood of the semilunar fold of Douglas, and the following case is an illustration:

A widow, aged 70, was admitted under my care on March 29th, 1907. She had been healthy all her life. On the 24th she was unable to retain her food, vomiting a short time after meals, and on the 26th there was acute pain in the right iliac fossa at a point just above Poupart's ligament; there had been constipation for four days.

Examination showed a little general distension of the belly without any obvious peristalsis; there was no apparent hernial swelling. A small round lump about the size of a walnut was to be felt at the border of the rectus just above the inguinal canal; it seemed fixed behind the abdominal wall and not in it, and apparently fluctuated; it was tender on pressure. There was no inflammation of the belly wall.

An incision was made over the lump parallel to Poupart's ligament, and the external oblique was split in the line of its fibres. The sac of a small hernia was then exposed which had thinned and separated the fibres of the internal oblique and transversalis. The sac was opened and a knuckle of small intestine was seen, rather dark in colour but with good polish; this was able to be reduced after slightly enlarging the opening into the sac upwards and outwards. The opening was shown to have been a very small one, not larger than a sixpence, and coming also through it was some omentum which was adherent to the upper wall of the sac; this omentum was ligatured, divided, and reduced. The peritoneal opening was closed by a purse-string silk suture and the rest of the sac removed. The opening in the abdominal wall was proved definitely to be just external to the semilunar line and also to the deep epigastric artery. The remains of the internal oblique and transversalis were brought together with catgut, the external oblique with silk, and the skin with horsehair. She made a good recovery, the after-history being quite uneventful.

The first point to comment on is the uncertainty of the diagnosis. The incidence of the symptoms with constipation, swelling in the appendix area behind the abdominal wall, with apparently deep fixation and fluctuation and the absence of any hernial bulging, pointed to the possibility of having an appendix abscess to deal with; against this might have weighed, supposing the history correct, the rapidity of the local abscess formation, absence of inflammation of the abdominal wall, and the about normal state of the pulse and temperature, although in an elderly subject these may not be so helpful. What was not borne in mind was the possibility of getting a hernial swelling of this nature at this site.

Herniae in this position are rare, a very small number of cases being recorded. An important point disclosed at the operation was that the abdominal wall was only partially penetrated; it was a so-called "masked hernia." Macready¹ says it is a remarkable circumstance, attending herniae in the linea semilunaris, that sometimes they penetrate only partially the abdominal wall and form no manifest swelling. This peculiarity seems to have been known to La Chausse, who terms it "a rare and hidden

species of hernia." These herniae, "*laparocèles spontanées*," as the French term them, were described by Astley Cooper, who stated that where the vessels pierce the transversalis at the margin of the rectus weak spots are formed. Ferrand later (*Thèse de Paris*, 1881) maintained that where the deep epigastric artery pierced the fascial structures at the fold of Douglas similar weak spots were produced.

When such a hernia at the semilunar line is placed below the fold of Douglas, only careful observation at the time of operation may prevent its misinterpretation. Thus, it may be considered an interstitial hernia—a term to be limited to a hernia coming through the internal ring with an intraparietal diverticulum; the site of the opening in the abdominal wall will here show which of the two it is, and any pouching of the sac between the muscles will give additional help. In position this hernia, the subject of my paper, resembles somewhat the "parainguinal" of Tuffier, coming through an opening external to the internal ring but not in such intimate relation to the semilunar line, but in this form the hernial sac also pierced the external oblique aponeurosis. In conclusion, the possibility of the occurrence of this hernia must be remembered, for if small it might, except on careful examination, remain undetected, and for the obstruction so produced a medium incision would be made in error. With signs of obstruction and some little thickening about the semilunar line, tender on pressure, exploration should be first made at this spot.

DIRECT INGUINAL HERNIA.

This form of hernia, which is usually classified with, and considered as having a close relationship with, the ordinary oblique inguinal hernia, is really of another type, being again a hernia in the semilunar line, only below the level of the deep epigastric artery; it thus, strictly, should be regarded as ventral rather than as inguinal. This hernia penetrates the abdominal wall through the space known as Hesselbach's triangle, and it is to Hesselbach we are indebted for some of the earliest clinical records. Various percentages have been given as to the frequency of this form, but taking those cases confirmed by operation, the proportion to the oblique hernia is relatively small.

Ten cases have been under my care which have been proved to be direct by operation, and an analysis of these brings out certain points of interest.

As to the time of its first appearance, middle age is usually the period of its development, and this agrees with the table drawn up by Macready; five of my cases, curiously, have started under 30, and among these are two cases in females. He gives no case under the age of 16, but in one of mine, a little girl aged 9, the hernia appeared as young as 4.

Macready refers to no cases in females, and it would seem very uncommon in them. My two cases I thus think worthy of record, and the following are the details:

A little girl, aged 9, under my care in November, 1901, had had a hernia for five years; it was a small rounded swelling on the right side, just outside the external ring, and reducible. At the operation the hernia was shown to be an external direct one; the sac was seen just internal to the deep epigastric artery, and on its inner side there was a definite cord-like structure running upwards and inwards, which was considered to be the obliterated hypogastric artery; the conjoined tendon was made out intact; on its inner side. The opening into the sac was comparatively large, and the peritoneum about its margin lax. The parietal peritoneum at the neck was drawn taut with a purse-string suture and the rest of the sac cut away.

Woman, aged 45, admitted September 3rd, 1903, gave a history of having had a right hernia since 20, for which she had worn a truss, but this had never been very efficient. Two years before she had had a radical cure done at another hospital, but the hernia recurred three months afterwards. On August 31st she had pain in the hernia, and later signs of strangulation, for which she was sent into the hospital on September 3rd. She was operated on without any delay, and the omentum was found constricted; it was freed, ligatured, and removed. The opening into the sac was internal to the deep epigastric artery. The sac was removed, the cut edges of the parietal peritoneum being brought together by a purse-string suture. The margin of the conjoined tendon was drawn down and sutured with silk to Poupart's ligament.

This hernia is said to occur chiefly on the right side, and it is frequently double. Six of my cases were right-sided, and two were double. In one case there was a congenital oblique hernia on the other (left) side.

The clinical features of a direct hernia are well recognized: the rounded swelling by the side of the root of the

penis, the little tendency of this to descend into the scrotum, and the inner opening close behind the external ring. The latter feature does not help us very much, for it is common for the site of exit of an oblique hernia, the internal ring, to be dragged inwards behind the external ring. Now the test point between the two should be the position of the deep epigastric artery; this is, however, difficult to feel, and if it is thought to be felt, it very possibly, after all, is one's own pulse. On putting the finger into the external ring the horizontal ramus of the pubes, should the inner opening of the direct hernia be large, would be more distinctly felt than in the oblique hernia, where the inner opening has been dragged down, and in such case would be certainly large. The position of the spermatic cord may assist in the diagnosis. Typically, it should be below and to the outer side of the sac, especially if it is the internal direct form. We must bear in mind that its position in the oblique form may vary, and thereby discount some of its diagnostic value in determining whether the hernia is a direct one.

Direct herniae are divided into the external and internal varieties, dependent on the relationship to the obliterated hypogastric artery; the site of the latter varies considerably from being quite close to the epigastric artery or behind the rectus, but its normal situation is considered to be at the outer edge of the conjoined tendon. It is doubtful, however, whether the obliterated hypogastric artery really plays any part in determining the one or other variety; whether this is so or not, anatomically we have two varieties through Hesselbach's triangle—an external one outside the conjoining tendon and an inner one through it. The inner one seems to be the more frequent, but with a sac of large size it is certain that nearly the whole of the triangle is involved. If the sac is of small size the opening in the conjoined tendon may be small and round, or linear, or oval in the line of the fibres; if large the margins of the opening will be felt to be the edge of the rectus and the horizontal ramus. Those herniae which are of gradual origin cause thinning of the conjoined tendon and the spreading out of its fibres over the wall of the sac; the tension of the tendon about the neck of the sac is thus reduced, and strangulation from this cause is not so likely. Should this form occur suddenly there will be splitting of the tendon, with considerable pressure at the neck of the sac, and probably strangulation.

The sac through Hesselbach's triangle, instead of being a single large one, may show two pouches, and two of my cases illustrate this point:

Male, aged 59, had had a left hernia for twelve years. On admission there was a rounded swelling at the side of the root of the penis, and there was evidence of strangulation. The operation disclosed a hernia coming through the conjoined tendon, the outer fibres of which were intact and were causing the strangulation. In addition there was a second pouch, just internal to the deep epigastric artery, which communicated with the former.

Male with a left-sided hernia. The operation showed a finger-like process coming through the conjoined tendon, and external to it was a second pouch separated by some fibres of the tendon. The inner pouch had no contents, but the external one contained the sigmoid loop.

The origin of these herniae is uncertain. Englisch found peritoneal pouches in this region in 2 per cent. of 300 bodies examined, and Rokitsky records also the presence of these pouches. It is possible these diverticula are congenital, and this would be in accord with the views held by Russell and others, who consider similar congenital pouches to be the basis of oblique inguinal and femoral herniae. The age at which the majority of these herniae appear would point to want of muscular support here as an important factor in their development.

A successful radical cure will be largely dependent on the size of the hernia; the larger the hernia the larger will be its neck, and the more difficult will this be to close. What must be aimed at is the effacement of all pouching and the production of a flat or convex surface on the peritoneal side. This may be attained by cutting out the sac and bringing the peritoneal edges together, or, what is a more certain method, after freeing the sac thoroughly at its neck, to twist the sac, transfix its neck with a silk thread, and tie off; the redundant sac may then be cut away or not. In one case, after twisting and passing a stout catgut thread through the neck, I pushed the sac

inwards behind the rectus and then passed the thread through the muscle from behind, thus fixing the sac in this position. In the process of twisting and gathering up the peritoneum, the close relationship of the bladder must be borne in mind and great care taken not to include it. Most difficulty is experienced in effectually closing the opening in the tendon, especially if it is large. The remains of the conjoined tendon on the inner side with the outer edge of rectus must be drawn down and fixed to the remnants of the tendon attached to the horizontal ramus, and to Poupart's ligament behind the spermatic cord; if the opening is large, closure may be difficult and appear imperfect. With a limited external hernia the methods applicable with an oblique hernia may be employed. After radical cure of the internal variety one always fears the possibility of a recurrence, but, as far as I know, no such result has ensued in my cases.

REFERENCE.

¹ *Treatise on Ruptures*, p. 265.

CASE OF ACUTE APPENDICITIS,

WITH SLOUGHING OF ABDOMINAL MUSCLES AND SEVERE TOXAEMIA: DOUBLE VACCINE TREATMENT: RECOVERY.

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We have deemed this case worthy of record on account of some unusual and instructive features.

It is a case of very rapid gangrene of the appendix associated with a high degree of toxicity; the recovery being due, in the first place, to the prompt removal of the appendix as early as eight hours after the acute onset. At the operation there was scarcely a trace seen of any reaction against the infection from which the toxæmia resulted. After the removal of the appendix no further trouble arose from peritoneal infection, but an infection of the subperitoneal tissue set in, properitoneal cellulitis, which resulted in extensive sloughing of the abdominal muscles of the right side of the abdomen, severe toxic signs and symptoms, and a long illness comprising more than two months of a dangerous state, and thereafter a tedious convalescence. The organisms present were the colon bacillus and the *Streptococcus faecalis*, the latter being the more destructive. Throughout the illness there was marked slowness of reaction and of healing in the wounds. When the toxæmia was at its height, oedema of the feet, legs, and lower part of the back appeared. The heart-beat remained persistently quick throughout the illness (110 to 120 per minute), and was 96 six months after the beginning of the illness. As further evidences of severe toxæmia, it may be mentioned that there was some muscular tenderness and absence of knee-jerks. A part of the internal oblique and transversalis muscles, 15 in. long by 4 in. wide, came away as one slough, leaving a large irregular space which required several incisions before it healed, on account of the difficulty in providing drainage for such parts left in its process of irregular healing. Regurgitant sickness lasted three days, to be followed by incessant hiccup for nine days, and widespread poly-arthritis later. A most important clinical feature was the varying activity of the kidneys as evidenced by the amount of urine secreted. In spite of the extensive sloughing of the abdominal muscles and the six free incisions there is no herniation. The abdomen has become asymmetrical from the unopposed traction of the muscles on the left side.

Previous History.

J. G. S., aged 45, whilst shooting during the week-end before his illness, felt some discomfort in the right iliac fossa, and on looking backwards now he realizes that undoubtedly there had been attacks of pain, tenderness, and discomfort in the same region, which warning signs were not considered worthy of attention. On the Tuesday after this week-end's shooting he felt indisposed, but no more so than during the previous attacks. After taking some calomel and salts that night he felt quite well in the morning.