

# INTERNAL HERNIA

## REPORT OF TWO CASES

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The unique experience of discovering 2 cases of internal hernia, and the rarity of the condition, prompt me to report the cases. In my view they bring out certain differences, and I propose to submit evidence from the literature showing that there are 2 types of internal hernia, namely (1) into the paraduodenal fossa (right or left) and (2) retroperitoneal.

### CASE REPORTS

*Case 1.* Mrs. E.v.S., aged 33 years, complained of a persistent pain in her right side since a Caesarean section 16 months previously. Her bowel acted regularly. She did not suffer from abdominal

distension. On examination of the patient no abnormality other than tenderness in the right iliac fossa was found.

A barium-meal report by Dr. K. V. O. Gunn read, 'A few coils of jejunum appear to be in an internal sac; no obstruction exists'. The plate (Fig. 1)<sup>1</sup> brought out very clearly the translucent 'paper bag' containing small bowel, as described by Exner (see Lahey and Trevor<sup>2</sup>). A diagnosis of internal hernia was made. At operation I found all the small bowel except the terminal 12 inches of ileum within a peritoneal sac (Fig. 2). The opening of the sac, in the region of the ligament of Treitz, faced towards the left and easily admitted the closed fist. The small bowel was very easily withdrawn. I was able to close the neck of the sac without injury to the superior mesenteric vessels which lay in its free margin. The sac I obliterated by 'purse string' sutures in its anterior wall. Subsequent con-



Fig. 1. Barium-meal X-ray of a right paraduodenal-fossa hernia showing characteristic translucent 'paper bag' containing small bowel. This picture was published on a larger scale in the *Journal* (1954): 28, 516.<sup>1</sup>

valescence was normal, and a later X-ray revealed small bowel again free in the pelvis.

This case is one of hernia in the right paraduodenal fossa, corresponding to those described by Francis R. Brown<sup>3</sup> and by Lahey and Trevor.<sup>2</sup> Brown's case had a neck to the sac which admitted 4 fingers. He was able to turn the sac inside out, suture the neck, and remove the sac. Lahey and Trevor, at an exploratory operation in one of their 2 cases, revealed a herniation of the proximal jejunum through the right paraduodenal fossa. The jejunum was pulled out of the sac, its opening sutured, and a small portion of the jejunum then buttressed against the opening.

*Case 2.* A soldier V.A.T., aged 46 years, was admitted with acute abdominal pain. He stated he first experienced this generalized abdominal pain in the early hours of the previous day. Before this he had enjoyed good health except for constipation in the past 2 years. Later during the day of admission the pain became even more severe, and settled in the right iliac fossa. On examination he was found to be tender over the right lower abdominal quadrant, with muscle guarding. The case was diagnosed as one of acute appendicitis.

A right gridiron incision was made. The caecum was congested and oedematous, but the appendix looked normal. An attempt to withdraw a loop of small bowel failed, and a doughy mass could be felt towards the mid-line. The appendix was removed, the incision closed and a fresh paramedian incision made. The whole of the small bowel was found to be lying behind a normal-looking peritoneal layer, which extended from the transverse colon above to the pelvic brim below, and from the ascending colon and caecum on the right to the descending colon on the left. It was noted that the terminal ileum, about 2 inches from the ileo-caecal junction, passed under a narrow arch formed by this peritoneal layer. There was no opening into the sac and certainly no neck. The terminal

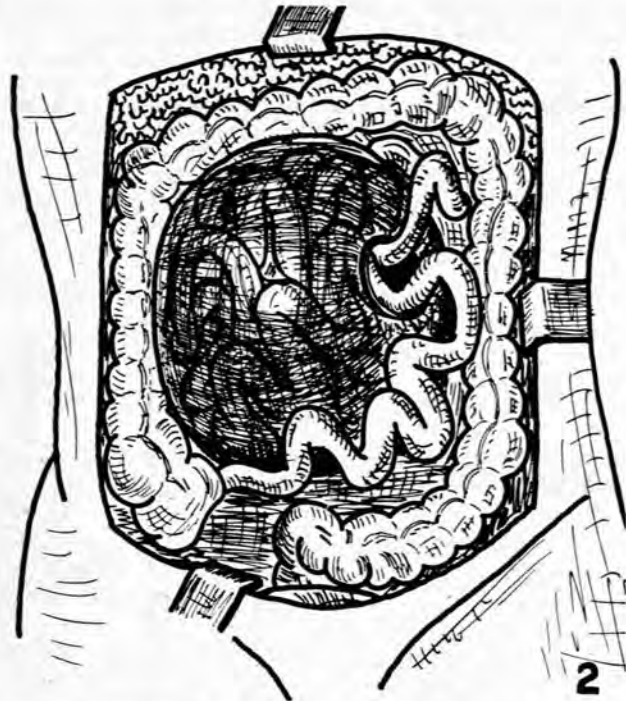


Fig. 2. Diagram of findings in case 1. A right paraduodenal-fossa hernia. Note well-formed sac with neck, and efferent and afferent loops of small bowel.

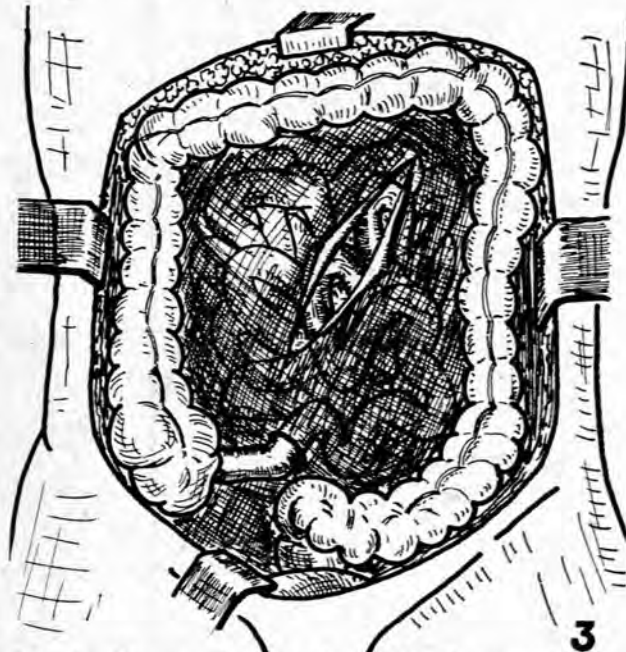


Fig. 3. Diagram of findings in case 2. A retroperitoneal hernia. The small bowel is completely covered by a translucent peritoneal layer. There is no sac and no neck.

ileum came out from the sac under the close fitting arch, but there was no entering loop. Dividing the pillars of the arch restored the normal colour of the caecum. Excision of the layer of peritoneum in most of its extent freed a normal-looking small bowel. Convalescence was uninterrupted.

This case is one of the retroperitoneal type of internal hernia. It corresponds to one of the 2 cases described by Longacre<sup>4</sup> in 1934: 'The small bowel was behind a glistening translucent peritoneum. The distal two-thirds of the descending colon and iliac colon were incorporated in the antero-lateral walls of the sac. Caecum and ascending colon were in the normal positions.' He points out that the significant findings in his 2 cases were the site and extent of the sac and the absence of any entering or departing loop. At no point in his case could any opening be discovered connecting the interior of the sac with the remainder of the abdominal cavity.

## DISCUSSION

All authorities<sup>2, 4, 5, 6</sup> report on the rarity of internal hernia, and how seldom it is diagnosed pre-operatively. Lahey and Trevor<sup>2</sup> reported in 1945 that only 2 cases had been seen at the Lahey Clinic from 1925 to 1944, and 2 cases of right paraduodenal hernia treated surgically at the Mayo Clinic from 1910 to 1939. They reported 2 cases successfully operated upon. Reviewing the pre-operative X-rays of one case they point out that a

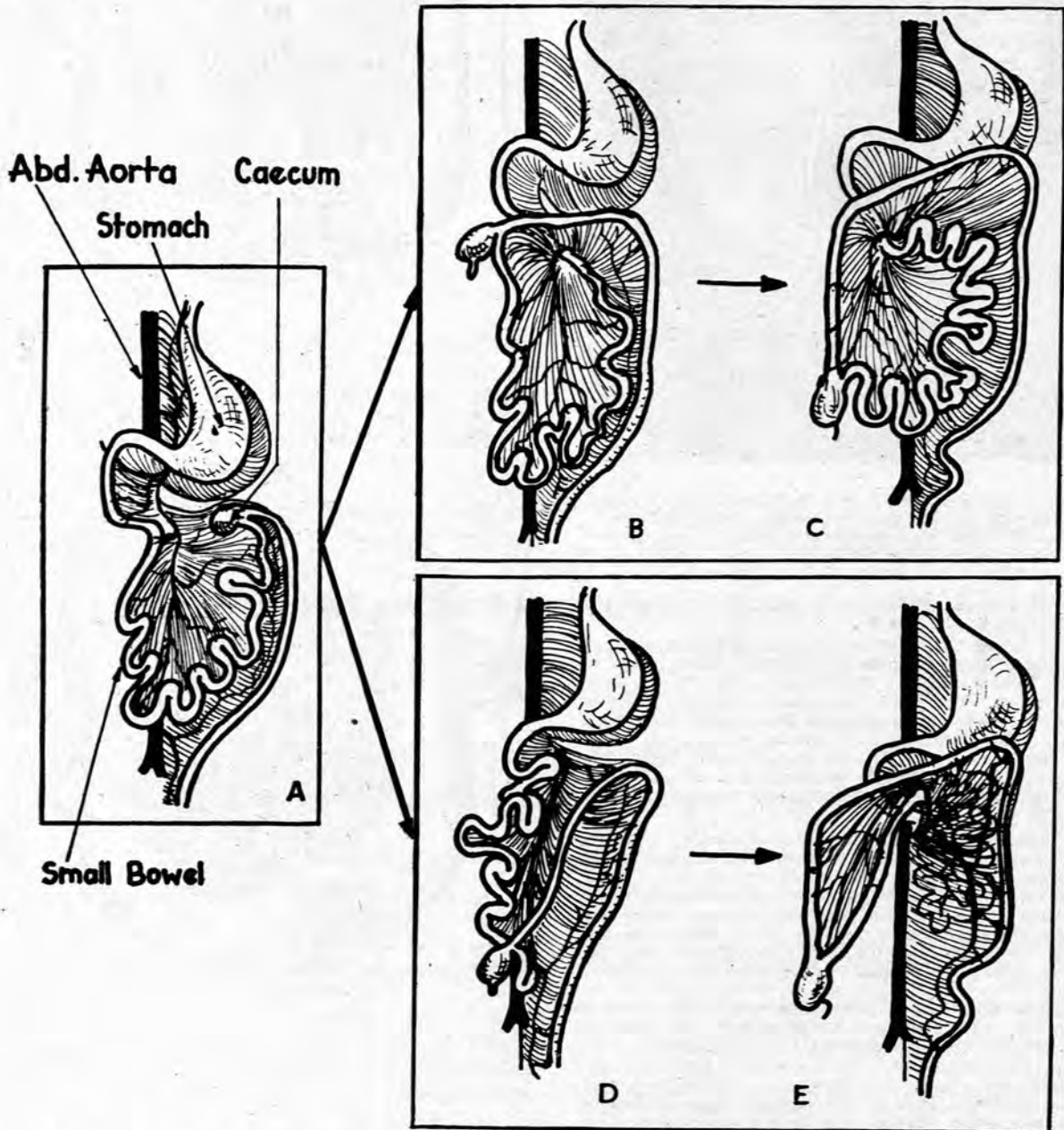


Fig. 4. Development of colon. In normal development the caecum anlage grows first across the abdomen and then down the right gutter (A, B and C). Thus it grows around the centrally placed small bowel. In abnormal development the caecum anlage grows first down then across (A, D and E). Thus it imprisons a mass of small bowel between the mesentery of the developing colon (after Andrews in *Surg. Gynec. Obstet.*<sup>6</sup>).

pre-operative diagnosis might have been made if the differential points described by Exner<sup>2</sup> were observed. These are:

1. The appearance of the small intestines as if they were contained in a spherical translucent 'paper bag', from which restricted position it is usually impossible to disturb the intestinal coils by manual palpation or postural change.

2. The location of small intestine well above the true pelvis.

Internal herniae do not as a rule produce symptoms and are usually discovered *post mortem*, at operation for another condition, or when strangulation has occurred. Few cases are diagnosed pre-operatively. Brown even states, 'So far not a single case of right paraduodenal hernia has been diagnosed before operation or necropsy.' Dowdle<sup>7</sup> also writes that they are rare and never diagnosed clinically.

In view of case 1, and applying the X-ray features described by Exner,<sup>2</sup> a pre-operative diagnosis should be possible.

#### *The Origin of Internal Hernia*

There are many divergent views as to the origin of internal hernia.

The paraduodenal type of hernial sac appears to correspond to the recesses of Landzert and Waldeyer. These recesses or paraduodenal fossae, have a large vessel in the free margin of their openings, and are named right or left according to the direction this opening faces. Treitz as far back as 1857 believed them to be the result of a widening and deepening of the paraduodenal fossa produced by pressure and peristaltic movement of small intestine. Longacre,<sup>3</sup> however, has shown in his dissections the paraduodenal fossae are present and empty. The case he describes is of the retroperitoneal type and the fossa would be expected to be normal.

McCarty and Present<sup>8</sup> report 2 similar cases to case 1. They suppose one or more loops of small intestine were caught at an early embryologic stage in a pouch formed by a very long mesentery of the proximal jejunum.

Andrews,<sup>6</sup> in 1923, advanced the theory that this condition was a congenital anomaly due to the imprisonment of small intestine beneath the mesentery of the developing colon. In the normal development of the colon the caecum in the upper left quadrant of the abdomen grows across the abdominal cavity, forming the transverse colon. It then passes down the right side to its normal position in the right iliac fossa (Fig.4). In doing so the developing colon passes around the small bowel, and does not imprison it. According to Andrews<sup>6</sup> if the mid-gut does not rotate or there is a reverse rotation, the caecum then comes to lie in the lower abdomen to the left of the mid-line. The caecum then

to reach its normal position passes first down and then across the abdominal cavity, and the small bowel will be covered by the colon mesentery.

This developmental anomaly would explain the origin of a retroperitoneal hernia, but not a paraduodenal hernia with its sac and neck.

Andrews made 4 observations in his article:

1. There is no *vis a tergo* to force contents into the sac of a duodenal fossa. Differential pressures are entirely lacking in the abdomen.

2. In all but a very small minority of cases reported the degree of herniation has been total or sub-total.

3. There are hundreds of other fossae never the site of hernia.

4. The herniated viscera are never anything but small intestine.

Regarding the lack of *vis a tergo*, herniation of bowel through the foramen of Winslow does occur. As already mentioned, the duodenal fossa would be normal in the presence of the retroperitoneal type of hernia.

#### CONCLUSION AND SUMMARY

Two cases of internal hernia are described, of different types. The one a right paraduodenal hernia and the other a retroperitoneal hernia. It is therefore suggested that the term 'internal hernia' should include 2 types of this condition—a paraduodenal (right or left) and a retroperitoneal. The two are probably of different origin. Early authors support the older view of Moynihan, that in the para-duodenal type it is a post-foetal herniation into an unusually large pre-formed duodenal fossa. The more recent theory is that it is due to an anomaly in the development of the jejunal mesentery. The retroperitoneal type, as Andrews suggests, is an anomaly of colonic mesenteric development.

The pre-operative diagnosis seems to be possible (as in case 1), if the features described by Exner are remembered. It is important to make the diagnosis pre-operatively, for the condition is invariably fatal when strangulation has occurred. Lahey and Trevor<sup>2</sup> make the suggestion that in every patient with unexplained and persistent abdominal symptoms, the region of the ligament of Treitz should be explored for possibility of such a hernia.

I should like to express my thanks to Dr. K. V. O. Gunn for permission to publish his X-ray plate.

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