CASE REPORT

Intestinal obstruction due to the fossa of Waldeyer hernia

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Introduction

Internal hernia is an uncommon cause for intestinal obstruction and accounts for 1% of all such cases (1). However, a 20% risk of mortality is associated with this condition as a result of herniated bowel rapidly progressing to strangulation (2). Because this is not a common cause for intestinal obstruction, a high degree of suspicion is needed for timely intervention, especially in resource poor settings where CT scans are not readily available. Here we present a case of a 16-year-old boy who developed small bowel obstruction due to a right-sided para duodenal hernia.

Case presentation

A sixteen-year-old male patient was admitted to the surgical casualty unit at Base Hospital Awissawella with a 3-day history of colicky abdominal pain and repeated episodes of vomiting. His symptoms were worse after meals. He had not opened bowel for the past 3 days but had passed flatus. There was no associated fever. Two months back he has had a hospital admission with an episode of similar symptoms and had been discharged after one day following spontaneous improvement. He did not have a history of any past abdominal surgeries.

On this admission, he was found to be dehydrated but with stable haemodynamic parameters, the abdomen was minimally distended with non-specific tenderness over the epigastric region. The external hernia orifices were normal. Bowel sound was exaggerated and digital rectal examination revealed an empty rectum. Blood investigations revealed a mild leucocytosis of 12.35 x 103 (normal 4.0- 10.0 x 103) with 77.8% neutrophils, low serum potassium (3.2 mmol/L, normal 3.5- 5.3 mmol/L) and a normal serum amylase level. A metabolic alkalosis was noted on the arterial blood gas analysis, which was supportive of repeated emesis. Supine X-ray of the abdomen revealed a double bubble appearance suggestive of an upper small bowel obstruction. An ultrasound scan of the abdomen was arranged as CT was not available at our centre. Apart from confirming the presence of a distended stomach, it was uninformative.

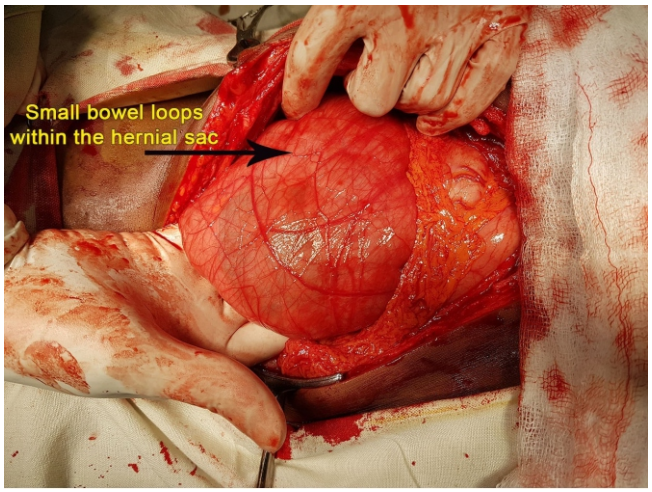

Figure 1. The hernial sac containing small bowel loops

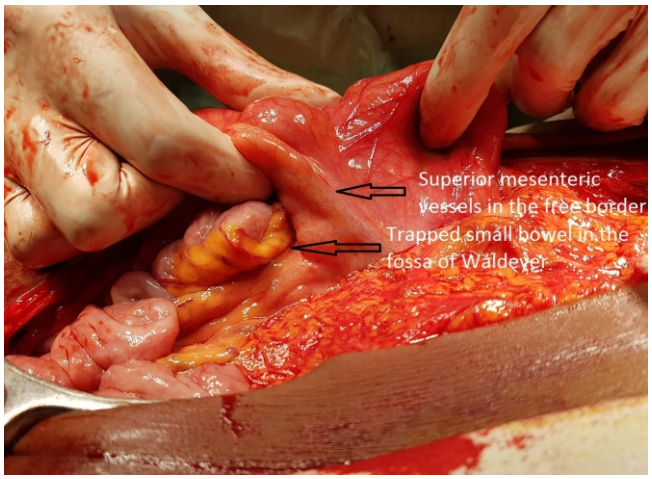

Figure 2. The relationship of the superior mesenteric artery

As the patients' symptoms progressively worsened with time, an exploratory laparotomy was planned. He was kept nil by mouth and resuscitated with intravenous 0.9% NaCl solution with added potassium. A nasogastric tube was inserted to decompress the stomach and it was kept on free drainage. After fluid resuscitation, the patient was taken to the operating theatre.

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At laparotomy, we found a mass of small bowel loops ensheathed within a thin membranous sac (Figure 1). The mass was placed right to the midline. The opening of the sac was facing left and the superior mesenteric artery was running on its free anterior border (Figure 2). Our intraoperative diagnosis was a right-sided para duodenal hernia leading to small bowel obstruction. The trapped small bowel was reduced from the sac and was found to be healthy and viable. The peritoneal sac was excised and routine closure of the abdomen was done.

The recovery of the patient was uneventful apart from a fever spike on a postoperative day 1. He was gradually started on oral feeds and was discharged from hospital on postoperative day 3.

Discussion

An internal hernia is defined as the protrusion of intraabdominal viscera into a normal or abnormal aperture within the peritoneal cavity (2). The aperture may be congenital or acquired. The commonest cause for acquired internal hernia is mesenteric defects secondary to Roux-en-Y loops. As obesity-related Roux-en-Y gastric bypasses are becoming more common, the incidence of acquired internal hernia appears to be on the rise (3).

Para duodenal hernia is the commonest site for congenital internal hernia and account for 53% of them. Pericaecal (13%), transmesenteric (8%), foramen of Winslow (8%), intersigmoid (6%), transomental (1- 4%), supravesical and pelvic (6%) foramina and recesses are other possible sites through which internal hernia can occur (1). Seventy-five percent of paraduodenal hernia is left-sided. The less common right sided variety which was seen in our patient has a 3:1 male preponderance while left-sided hernia have an equal gender distribution (4).

In a right-sided paraduodenal hernia the small bowel herniates into the fossa of Waldeyer, which lies below the transverse segment of the duodenum and behind the superior mesenteric artery. It is a rare but normal anatomical variation, present only in 1% of the population (3).

The hernia sac extends behind the ascending mesocolon and the herniated small bowel may have normal rotation or partial malrotation (1).

The presentation of a paraduodenal hernia can range from nonspecific abdominal pain to full-blown acute intestinal obstruction. Occasionally the herniated viscera can spontaneously reduce leading to relief of symptoms (3). This may explain the first hospital admission of our patient. Worsening of pain after meals are described as a typical feature of para duodenal herniation and this was noted in our patient as well (5).

In the patient with subacute or chronic symptoms due to a suspected internal hernia, oral contrast studies of the small bowel were the first line imaging modality in the pre CT era (3).

The classic finding of a paraduodenal hernia on a contrast study was an empty pelvis devoid of small bowel in the upright position with small bowel loops trapped in a smooth mass. The mass will be predominantly right or left-sided depending on the laterally of the paraduodenal hernia (4).

At present, the use of contrast-enhanced CT (CECT) has simplified the diagnosis. On CECT, in addition to distended small bowel loops trapped within an abnormal location the abnormal appearance of the mesenteric vessels in the form of engorgement, crowding, twisting or stretching supports the diagnosis (3).

In a patient who presents with acute symptoms, it is vital to act in a timely manner to prevent life-threatening complications. A contrast CT which is quick to perform is the ideal investigation is this situation (2). However, in the resource-poor setting such as ours where CT is not available proceeding to laparotomy with the clinical diagnosis may be in the best interest of the patient.

For a right-sided paraduodenal hernia two surgical approaches have been described. The first method involves the opening of the sac laterally and reducing the trapped small bowel followed by excision of the sac. The second method involves the right medial visceral rotation to deliver the herniated small bowel (4). We utilized the first method in our patient. It is important to bear in mind the relationship of the superior mesenteric vessels to the opening of the sac to prevent inadvertent damage (4).

Conclusion

Acute intestinal obstruction due to internal herniation of small bowel is uncommon but should be entertained as a cause for small bowel obstruction, especially in the young patient with a virgin abdomen. A high degree of clinical suspicion and timely surgical the intervention will prevent the life-threatening complications that may result from a delayed diagnosis.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

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Learning Points:

- Congenital or acquired internal hernia accounts for 1% of all intestinal obstructions.
- Herniation of the small bowel into the paraduodenal recesses is the commonest location for a congenital internal hernia.
- A high degree of clinical suspicion with supportive evidence form CECT will clinch the diagnosis and timely intervention will prevent the complications of intestinal strangulation and perforation.