CASE REPORT

Primary defect of ileal mesentery presenting as internal herniation and strangulation of the small bowel: Case report

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Abstract

Primary internal hernia is a rare entity of acute intestinal obstruction. Delay in diagnosis and surgical intervention can cause ischaemia or gangrene of the small bowel and result in high morbidity and mortality. A 14-year-old boy presented to the emergency department with acute intestinal obstruction. On exploration, 3-4cm mesenteric defect was noted in the ileal region. Strangulated loops of the small bowel had gone through the mesenteric defect in a complicated way. Primary anastomosis was done after resection of the gangrenous small bowel.

Keywords: Primary internal hernia, Acute intestinal obstruction.

DOI: https://doi.org/10.47391/JPMA.3456

Introduction

Internal herniation leading to small bowel obstruction is a well-documented entity in paediatric surgery, ranging from 0.5% to 4.1%.[1] Internal herniation is either congenital or acquired; the latter being in majority. Congenital or primary internal herniation results from normal apertures such as foramen of Winslow or abnormal apertures arising from anomalies of internal rotation and peritoneal attachment. Preoperative diagnosis in emergency settings is difficult because of the rarity of the condition and non-specific abdominal symptoms.[2] Delay in decision making can result in bowel ischaemia and mortality up to 50%.[3] Here, we present a rare case of acute intestinal obstruction due to internal herniation because of congenital defect in mesentery in a 14-year-old boy.

Case Report

A 14-year-old boy presented to the emergency department of Mayo Hospital Lahore on June 16, 2020 with complaints of abdominal pain, and vomiting, since the last two days, and absolute constipation for last one day. Pain was central in the abdomen, acute in onset, colicky in nature, and non-radiating. Pain was associated with multiple episodes of vomiting containing stomach contents. There was no previous history of similar episodes. He gave no significant history of any comorbid condition, previous surgical intervention or trauma.

On presentation, the patient was dehydrated and pale with pulse 139 b/pm, blood pressure 130/80 mmHg, and respiratory rate 32/min. The patient was afebrile. On abdominal examination, distension and tenderness was present, which was more marked in central and upper abdomen. Bowel sounds were absent. Digital rectal examination was unremarkable. The rest of the systemic examination was insignificant. Abdominal X-ray showed dilated gut loops in the centre suggesting obstruction of the small bowel. There was no evidence of pneumo-peritoneum or peritonitis.

The patient was resuscitated and decision to perform exploratory laparotomy was made, with provisional diagnosis of small bowel obstruction. On exploration, there was a defect in the mesentery of about 4x3 cm in the proximal ileal region with multiple herniation of small bowel loops (Figure-1). The gut loops were dilated proximal to herniation and were collapsed distal to it.

Figure-1: Defect of 4x3cm seen in the mesentery at proximal ileal region after reduction of hernia contents.

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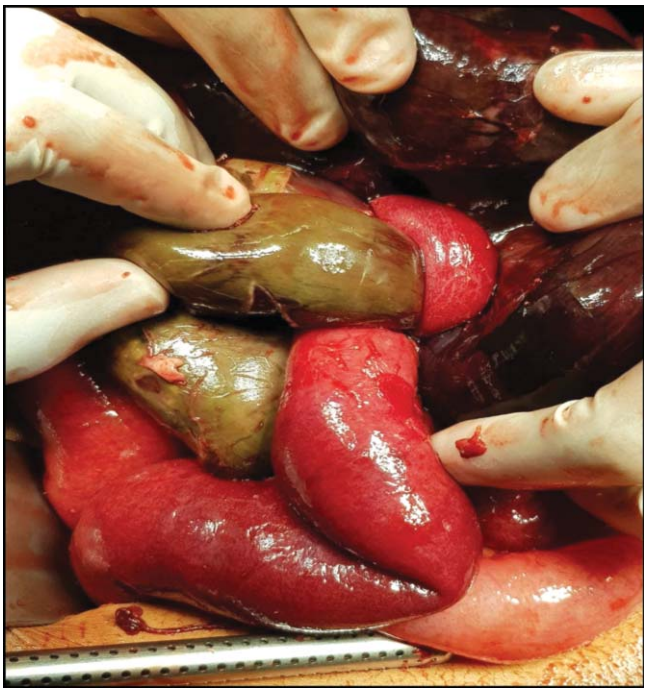

Figure-2: Per-operative findings showing gangrenous gut twisted in a complicated way through defect.

Almost 4.5 feet small bowel (jejunum and ileum) was gangrenous as result of this herniation (Figure-2).

Gut loops were reduced from the defect and the gangrenous bowel was resected. A primary end-to-end anastomosis was made. Defect in the mesentery was sutured in interrupted manner. Post-operative course remained uneventful. Oral feed started on the fourth post-operative day which was well tolerated. The patient was discharged on the eighth post-operative day with an uneventful recovery.

Discussion

Primary internal hernia (IH) is extremely uncommon with reported incidence of not more than 1% in patients of small bowel obstruction.[4] Meyers categorised internal hernias as paraduodenal (53%), pericaecal (13%), Foramen of Winslow (8%), intersigmoid (6%) and retroanastomotic (5%).[5] Ghahremani described internal hernias as congenital and acquired. Hernias due to congenital abnormal apertures are classified as trans-mesenteric (10%), broad ligament (7%), or trans-omental (4%).[6] The acquired form is linked with previous surgical intervention or trauma to the abdomen and is reported in adult patients of acute intestinal obstruction.[7] Cause of congenital defect is still unclear. Some theories suggest the cause as antenatal compromised blood supply to the intestine leading to attenuated thin mesentery that results in defected mesentery, regression of dorsal mesentery or broaden mesentery.[1]

Pre-operative diagnosis is difficult as patients present with wide spectrum of symptoms attributable to many other reasons of acute intestinal obstruction, i.e. sudden onset of pain in the abdomen, vomiting, tenderness, and abnormal bowel sounds. Most of the literature reports this as the most common form of presentation which was also the clinical presentation of our patient.[8] Delay in surgical intervention due to incorrect diagnosis can result in gut necrosis and poor outcome of the disease with death rate greater than 50%. Disease course depends upon timely surgical intervention.[7]

Multi-detector CT scan is a valuable tool in the identification of the aetiology and particular site of obstruction in a haemodynamically stable patient. It can detect mesenteric defect and extra-luminal malformations, i.e. bunch of distended loops of small intestine at an unusual site and can observe the presence of a dilated or distorted trunk of mesenteric vessels in patients with intestinal obstruction. It can also reveal complexities like ischaemic changes or gangrene of bowel.[3,9] Despite use of CT scan the diagnosis of IH is challenging. However, it plays a crucial part in timely detection and early management of patients with acute intestinal obstruction due to primary internal hernia.[9-11] In our case, CT scan was not done due to non-availability. In order to prevent bowel ischaemia and mortality, high clinical sense of the surgeon and familiarity of radiologist with the characteristic features on CT scan is mandatory.[10,11] Despite all, most of the congenital mesenteric hernia diagnoses are made during the operation, as in our case.[8]

After adequate resuscitation of the patient, timely exploration and reduction of the herniated gut loops with gentle handling should be done as soon as possible to avoid complications and to obviate the need for resection. The presence of gangrenous segment mandates resection. Primary anastomosis after resection of the gangrenous segment is always preferred over stoma formation. To deter recurrence, the defect must be closed using non-absorbable sutures. Currently, laparoscopy emerged as a beneficial facility in doubtful cases.[1]

Conclusion

Primary internal hernia is uncommon but it must be kept in mind when dealing with patients presenting with acute intestinal obstruction with no prior history of operation or injury to abdomen, inflammation or neo-plastic lesion. As history and clinical assessment is non-specific, a good clinical assessment and emergency multi-detector CT scan is recommended. Emergent surgical decision based

on clinical status of patient even without definite preoperative diagnosis is crucial in avoiding catastrophic consequences (morbidity and mortality).

Disclaimer: None to declare.

Conflict of Interest: Author who signed approval letter is also co-author of this study.

Funding Sources: None to declare.

Consent: For publication of this case report, consent was obtained from the parents of the patient.

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