Original research article

Primary mesenteric hernia in an adult causing small bowel obstruction: a case report

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ABSTRACT:

Internal hernia is one of the rare causes of small bowel obstruction. A primary mesenteric hernia due to congenital mesenteric defect is a very rare cause of acute intestinal obstruction especially in adults. A 47-year-old man came in emergency with acute abdominal pain and vomiting that did not improve with conservative treatment. The CECT abdomen diagnosed small bowel obstruction but no definite cause could be established. He underwent emergency laparotomy and was found to have a defect in small bowel mesentery through which ileum was herniating that was healthy and could be successfully reduced and the mesenteric defect was closed. Primary mesenteric hernia should be kept as one of the possibilities in adults presenting with bowel obstruction without obvious cause and early surgical intervention helps in salvaging the obstructed intestine.

Key words: Congenital mesenteric defect, acute small bowel obstruction, adults.

INTRODUCTION

Hernia can be external or internal hernia (IH). In external hernia, there is protrusion of viscera through an abdominal wall or pelvic defect whereas internal hernia is protrusion of viscera through a normal or abnormal peritoneal or mesenteric opening within peritoneal cavity. IH is either congenital or acquired; later constituting the majority. Causes of acquired IH in adults are previous abdominal surgery (liver transplantation, bariatric procedures like gastric bypass), trauma or post inflammatory defect. The congenital or primary IH is rare and includes both normal apertures such as foramen of Winslow and abnormal apertures arising from anomalies of internal rotation and peritoneal attachment.¹ The IH is a rare cause of acute intestinal obstruction and strangulation or incarceration in adults. Pre-operative suspicion and diagnosis of IH in an emergency setting is difficult due to rarity of the condition and non specific clinical presentation.²

There are currently only a few case reports of primary IH and no standard guidelines have been laid down to treat such conditions. We report one such rare case of primary IH due to mesenteric defect presenting in an adult as acute small bowel obstruction that was managed successfully.

CASE REPORT

A 47 year old male presented in emergency with the history of pain abdomen, vomiting, non-passage of flatus and stool for the last four days. Pain was of acute onset, moderate in intensity non-radiating and relieved on
taking medications. Pain was associated with recurrent episodes of bilious vomiting. Patient also had two similar episodes of pain abdomen in the last 4 months. There was no history of fever, cough, anorexia, weight loss and bleeding per rectum. There was no history of chronic illness in the past.

On general physical examination, the patient looked pale and dehydrated with normal temperature, respiratory rate of 16 per min, pulse rate of 100 beats per min and blood pressure of 106/70 mmHg. There was no lymphadenopathy. Chest examination was normal. The abdomen was distended and mildly tender; but no definite lump was palpable. On auscultation, the bowel sounds were exaggerated. On hematological investigations, his hemoglobin was 9 g/dl, total white cell count 9,200/cmm with 62 % polymorphs, blood urea 38 mmol/L, serum sodium 130 mmol/L, and serum potassium 2.9 mmol/L. X-ray of the chest was normal and plain X-ray of the abdomen (erect) revealed multiple air fluid levels in the central abdomen suggestive of small bowel obstruction. Ultrasound of the abdomen showed dilated bowel loops up to 54 mm in diameter.

CECT of the abdomen also showed dilated small bowel loops involving jejunum and proximal ileum whereas the distal ileal loops, ileo-cecal junction and large gut were collapsed. Abrupt zone of transition was seen between proximal and distal ileal loops and a diagnosis of ileal stricture was made (Fig 1).

Figure 1: CECT abdomen showing dilated small gut loops with abrupt zone of transition (arrow).

The patient was initially managed with intravenous fluids, electrolyte replacement, parenteral antibiotics, analgesics and nasogastric aspiration. The exploratory laparotomy was performed since his abdominal distension and pain persisted despite conservative management. The operative findings revealed a mesenteric defect measuring 3x2 cm on mesenteric border of the proximal ileum through which ileal loops were herniating leading to small bowel obstruction (Fig 2, 3). The proximal gut loops were hugely dilated and distal gut was collapsed. Rest of the gut and viscera were healthy. The segment of herniated intestine was found to be viable after its reduction and gut resection was not required. The hernial defect was closed with non-absorbable interrupted sutures. There was no malrotation of gut. Post-operative recovery was uneventful and patient was discharged on 5th post operative day.
DISCUSSION

The overall incidence of IH is only 0.2-0.9%. Internal hernias are of several main types, as traditionally described by Meyers based on their location. These consist of Paraduodenal (53%), pericecal (13%), foramen of Winslow (8%), transmesenteric and transmesocolic (8%), intersigmoid (6%) and retroanastomotic (5%). It is an important cause of small bowel obstruction due to internal herniation and can lead to high morbidity and mortality if left untreated. Clinical presentation is non-specific and they are usually detected at laparotomy and preoperative diagnosis in an emergency setting is very difficult and not suspected most of the times. Overall mortality is more than 50% if strangulated and left untreated. The congenital mesenteric hernia is an unusual type of internal hernia. It is mostly reported in infants and children and is very rare in adults. In children it usually arises from a congenital defect in the small-bowel mesentery, near the ileocecal region or ligament of Treitz. The cause of mesentery defect formation still remains uncertain. It has been suggested that isolated mesenteric defect represent a mild or incomplete, form of intestinal atresia. Another cause mentioned in the literature is prenatal intestinal ischemia and subsequent thinning of the mesenteric leaves leading to occurrence of congenital mesenteric defect. Other postulated causes are intraperitoneal inflammation, occult trauma, partial development regression, and fenestration of the mesentery by the colon during the embryologic displacement into the umbilical cord. The cause of mesenteric hernia in adults is iatrogenic, usually related to prior abdominal surgery, trauma and intra-peritoneal inflammatory pathologies.
Internal hernia occurs when incised mesentery has been left unclosed after gastro-intestinal anastomosis. Moreover IH is more likely to occur following laparoscopically performed Roux-en-Y anastomosis. Primary mesenteric hernia causing small bowel obstruction in adults is very rare. Katagiri et al in 2013 reported one case of primary mesenteric hernia in an adult patient and could collect only five such cases from the available literature at that time. Congenital or acquired defects of mesentery with internal hernia can present as small bowel obstruction and lead to incarceration or strangulation of bowel. Mesenteric defects are usually 2-3 cm in diameter. Clinically internal hernias can be asymptomatic or cause significant discomfort ranging from constant vague epigastric pain to intermittent colicky periumbilical pain. The additional symptoms include nausea, vomiting (especially after large meal) and recurrent intestinal obstruction. Symptom severity relates to duration, reducibility of hernia and presence or absence of incarceration and strangulation. These symptoms may be altered or relieved by change in patient’s position.

Because of propensity of these hernias to reduce spontaneously, patients are best imaged when they are symptomatic. Pre-operative diagnosis has continued to be difficult even with the use of modern imagining techniques such as computed tomography (CT) scan. CT features of IH include observation of a saclike mass or cluster of dilated small bowel loops at an abnormal anatomic location in presence of small bowel obstruction and finding of an engorged stretched or displayed mesenteric vascular pedicle and of converging vessels at hernia orifice. Complications of IH like gut ischaemia, necrosis and perforation can also be established on multidetector CT scan. However, CT scan is able to identify a transition point of bowel obstruction but frequently misses the mesenteric defects as happened in the present case.

Early surgical intervention based on clinical suspicion and/or CT scan findings is warranted for the management of IH presenting with intestinal obstruction. Reduction of the strangulated internal segment should be done as early as possible to prevent intestinal ischaemia, necrosis and perforation and thereby reduce resection rates. Hernia defects should be closed with non-absorbable sutures in order to prevent recurrence of IH through same orifice in future. Laparoscopic technique is also being used in the diagnosis and treatment of IH.

In present case, the timely intervention saved the small gut from irreversible ischemia and patient had uneventful recovery after surgery. The obstructed small bowel could be reduced through the mesenteric defect after manipulations. However, in case of difficulty, the mesenteric defect can be enlarged to reduce the obstructed bowel and the defect should always be closed to prevent recurrence. In case, mesenteric defect is detected as an incidental finding during laparotomy, then also it should be closed primarily so as to avoid internal herniation and subsequent complications in future. Thus it is recommended that in patients presenting with non-specific acute abdominal pain, close monitoring is essential and in case of deterioration, early surgical intervention is necessary even if definitive pre-operative diagnosis is not made. Only then the patient is salvaged and such rare diagnosis can be established.

CONCLUSION

When patients present with acute small bowel obstruction without obvious etiology such as adhesive obstruction due to previous laparotomy or abdominal trauma, external hernia, inflammatory or neoplastic lesions; the possibility of IH should always be kept in mind and all surgeons should have thorough knowledge of surgical anatomy of IH. Early surgical intervention is crucial to avert the high risk of associated morbidity and mortality.
REFERENCES