

Case Report

CONGENITAL MESENTERIC DEFECT WITH HERNIATION OF ILEUM LEADING TO STRANGULATION AND NECROSIS

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ABSTRACT

A congenital mesenteric defect is very rare, but can potentially cause internal hernia with consequent incarceration or strangulation of the small intestine. Intestinal obstruction due to internal hernia is very dangerous and lethal because it may be silent or may present as severe acute abdominal pain. We have described a trans mesenteric hernia recently who came to our accident and emergency department, which was diagnosed intra-operatively. A 45 year old male patient presented with presented with upper abdominal pain and nonspecific abdominal signs with diagnosis of acute intestinal obstruction without any previous history of surgery. Explorative laparotomy revealed gangrenous ileum herniating through congenital defect in mesentery. Resection of gangrenous ileum with end proximal ileostomy and repair of mesenteric defect was done. The postoperative period was uneventful and he was discharged ten days after surgery. Hence, it is important to consider the possibility of trans mesenteric hernia in patients with signs and symptoms of intestinal obstruction; even in cases with no previous abdominal surgery was done.

Keywords: Congenital internal hernia, mesenteric hernia, small bowel obstruction, necrosis strangulation

INTRODUCTION

The definition of an internal hernia is the protrusion of intestines or other abdominal organs through a mesenteric or peritoneal fossa, occasionally leading to strangulation or incarceration, and is a rare form of both hernia and small bowel obstruction [Fitzgibbons *et al.*, 2002]. The incidence of internal hernia is less and trans mesenteric hernia is a particularly rare type of internal hernia [Martin *et al.*, 2006]. The overall mortality is more than 50% in cases with strangulated small bowel obstruction [Meyers, 2000]. In adults, trans mesenteric hernias are most often caused by previous surgical procedures, abdominal trauma or intraperitoneal inflammation, and trans mesenteric hernia in a person without a surgical history is extremely rare. We report such a case of trans mesenteric congenital hernia which become symptomatic in adulthood leading to strangulation and necrosis of intestine.

CASE

A 45 year old male patient presented with upper abdominal pain and nonspecific abdominal signs with diagnosis of acute intestinal obstruction without any previous history of surgery. Explorative laparotomy revealed gangrenous ileum herniating through congenital defect in mesentery. Resection of gangrenous ileum with end proximal ileostomy and repair of mesenteric defect was done.

DISCUSSION

An internal hernia is a protrusion of viscera through a defect, either mesenteric or peritoneal, and may be either congenital or acquired. Most internal hernias are para duodenal (53%) and are acquired postoperatively, resulting from incomplete closure of surgically created mesenteric defects [Martin *et al.*, 2006]. There are several other types internal hernias based on their location, as traditionally described by Meyers. These consist of pericecal (13%), foramen of Winslow-related (8%), trans mesenteric and trans mesocolon (8%), inter-sigmoid (6%), and retro anastomotic (5%), with the overall incidence of internal hernia being 0.2%-0.9% [Meyers, 2000]. A trans mesenteric hernia is a form of internal hernia through a

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congenital defect in the mesentery. Despite the congenital nature of trans mesenteric hernia they can present at any age, though they are more common in the paediatric population [Gyedu *et al.*, 2010].



Figure 1: Showing herniation of ileum through mesentery of jejunum with gangrenous ileum



Figure 2: Showing defect in mesentery of jejunum after reduction of herniating ileum

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The pathogenesis of mesenteric defects is uncertain with one popular hypothesis suggesting the cause may be prenatal intestinal ischemia and subsequent thinning of the mesenteric leaves, because prenatal intestinal ischemia is associated with bowel atresia in 5.5% of the paediatric population [Nouira *et al.*, 2011].

Only 13 adult case reports (male: female ratio 5:8) of bowel obstruction secondary to congenital mesenteric defects have been documented in published literature, one of which was diagnosed at autopsy, and four of which were documented to have developed bowel ischemia [Jain *et al.*, 2011]. Internal abdominal hernias present a nonspecific and intermittent clinical presentation, like some cases can be asymptomatic, or can cause discomfort ranging from constant vague epigastric pain to intermittent colicky periumbilical pain, while additional symptoms include nausea and vomiting, therefore presurgical diagnosis is rare [Martin *et al.*, 2006].

The first case of a mesenteric hernia was reported by Rokitansky in 1836, describing a postmortem examination of the cecum herniating through a defect close to the ileocolic angle [Gatewood *et al.*, 1934]. Mortality rates may increase well over 50% in patients who are symptomatic and treated untimely [Sato *et al.*, 2012]. There are cases of sudden death of a child because of an intestinal obstruction caused by a large congenital mesenteric defect. Currently, the role of computed tomography (CT) scans in diagnosing internal hernias is not fully agreed upon; however, the use of ultrasound imaging may be helpful in ruling out other possible pathologies [Takeyama *et al.*, 2005].

Surgical exploration remains the mainstay of diagnosis and treatment and any delay can have significant ramifications as it may lead to bowel necrosis. Furthermore, trans mesenteric hernias may carry a greater risk for segmental volvulus and bowel ischemia compared to other types of hernias [Okino *et al.*, 2001]. The most common location of mesenteric defects is in the region of the small bowel (70% of cases), with 53% of these being in the ileocecal area of the mesentery [Janin *et al.*, 1997]. The defects are typically small, although there are rare reports of large defects [Liu *et al.* 1997]. Like in our case also there was small defect present in mesentery of proximal ileum where the incidence is quite low. Mesenteric defects are an established cause of internal herniation even in non-operated abdomens and provide a potential site for intestinal incarceration or strangulation. Congenital mesenteric defects most often occur in the small bowel mesentery and less commonly in the colonic mesentery. The vast majority of these cases have been reported in infants or children and very rare in adult as seen in our patient [Murphy, 1964] In adults, defects are most commonly acquired as a result of either blunt abdominal trauma or abdominal surgery. In our case, however, the mesenteric defect was congenital because no secondary factor was present. Clinical presentations varied from diarrhea, vomiting and non-specific abdominal signs to severe abdominal pain, shock and unexpected death [Gomes, 2011], Lack of specific clinical, radiological or laboratory findings renders the preoperative diagnosis difficult if not impossible. Misdiagnosis and delayed exploration contribute to bowel ischemia and subsequent mortality.

The recent trend of diagnostic laparoscopy in acute abdomen is likely to facilitate an early diagnosis. Operative management entails timely laparotomy, reduction of hernia, resection/ anastomosis of devitalized bowel and closure of the defect. A defect near the root of mesentery is challenging due to limited exposure and proximity of mesenteric vessels near the edge of the defect. The preoperative diagnosis of mesenteric defect is difficult because of wide range of acute abdominal symptoms, and there are no specific radiographic findings [Gyedu *et al.*, 2010].

CONCLUSION

Trans mesenteric hernia is a rare cause of small bowel obstruction. A congenital mesenteric defect should be considered as one of the differential diagnoses in a relatively young patient with bowel obstruction without external hernia, previous abdominal surgery or trauma. Surgical decision-making is on the basis of clinical findings of intestinal strangulation or ischemia, and emergency laparotomy should be performed without preoperative diagnosis of such a rare disease. When mesenteric defect is incidentally detected during unrelated abdominal surgery, the defect should be closed to prevent it from causing internal hernia in future.

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