



## Dealing with intramesosigmoid hernia: A rare variety of internal hernia

Ankit Shukla, Ramesh Bharti, Satish Kumar, Rajesh Chaudhary

### ABSTRACT

Internal hernia, as the cause of acute intestinal obstruction, is rare and sigmoid hernia is not one of the most common internal hernias. Moreover, intramesosigmoid hernias are of the rarest variety. Establishing precise preoperative clinical diagnosis is a challenge for a surgeon. Strangulated sigmoid hernia has high morbidity and mortality. Prompt exploration has to be undertaken based on clinical signs and symptoms rather than searching for the exact cause of obstruction. Here, an extremely rare case of intramesosigmoid hernia is presented with a defect in the medial leaf of the mesentery leading to small bowel obstruction.

**Key words:** *Intramesosigmoid, internal hernia, sigmoid hernia, acute intestinal obstruction*

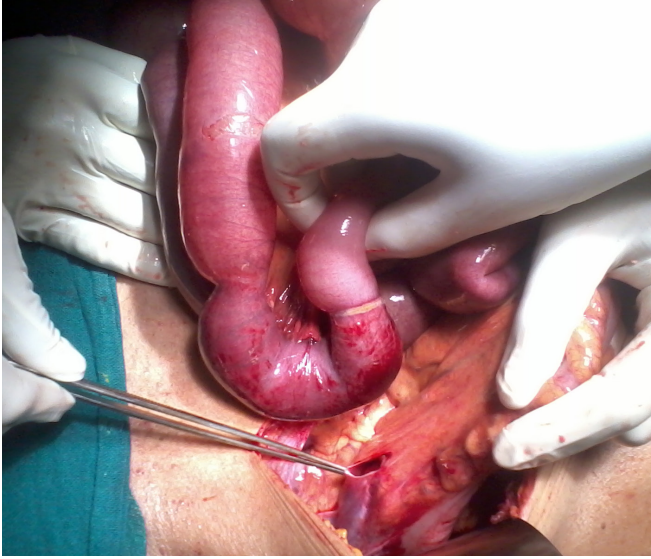
### Introduction

Internal hernia is said to be present when abdominal contents or viscera protrude through one of the foramen, fossa, recess or defects (congenital or acquired) present in the abdominal or pelvic cavity. Internal hernias are seen in less than one percent of cases, though internal hernia as the cause of acute intestinal obstruction is seen in 5.8 % of cases, sigmoid hernias not being one of the most common, accounting for only 5% of all internal hernias [1]. Preoperative diagnosis is a challenge based on nonspecific signs and symptoms and computed tomography (CT) can be helpful in establishing the cause of obstruction. Here, a case of a 62-year-old gentleman with an extremely rare intrame-

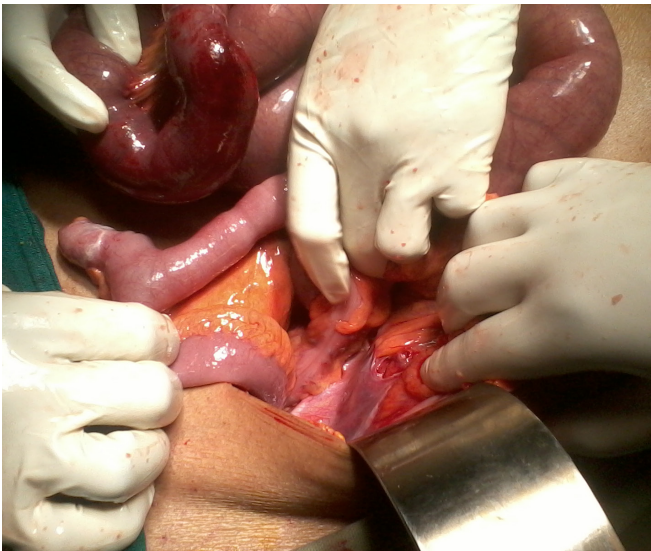
nosigmoid hernia possessing defect of the medial or right leaf of the sigmoid mesentery leading to acute small bowel obstruction which was also associated with uncomplicated broad-based Meckel's diverticulum, bronchial asthma and uncomplicated bilateral direct inguinal hernia, is presented.

### Case Report

A 62-year-old gentleman was admitted to emergency for sudden onset of colicky abdominal pain for five days and absolute constipation and distention of the abdomen since four days earlier. The pain was diffuse, colicky in nature and of moderate intensity initially, becoming persistent later and accompanied by three episodes of bilious vomiting with no associated fever.



**Figure 1.** Defect in mesentery adjacent to sigmoid.



**Figure 2.** Intramesosigmoid hernia defect with Meckel's diverticulum and an unhealthy bowel.

Patient was a known case of bronchial asthma with no history of previous surgeries or trauma. Upon physical examination, the patient was dehydrated with a pulse of 110 per minute. Upon abdominal examination, distention and diffuse tenderness was present with guarding and rebound tenderness in the left iliac fossa. Bowel sounds were exaggerated. Bilateral direct inguinal hernia was present without features of obstruction or strangulation. Digital rectal examination did not reveal any abnormalities. Laboratory investigation results were within normal limits except a rise in leukocyte count to  $18000/\text{mm}^3$ . Abdominal radiographs in the standing and supine positions showed multiple air fluid levels and dilated small bowel loops. Ultrasonography of the abdomen showed dilated small bowel loops with

minimal interloop fluid.

Diagnosis of acute intestinal obstruction was made and the patient was prepared for exploration. Intraoperatively, the jejunum and ileum were dilated. Approximately 200 ml of serosanguinous fluid was present in the abdominal cavity. The ileal loop, approximately 2.5 feet from the ileocecal junction, was herniating into an intramesosigmoid defect on the medial aspect or right leaf of the sigmoid mesentery. After reduction, the ileal loop was dusky in colour with a constriction ring proximally. There was a defect of 2 cm X 1 cm in the medial aspect of the sigmoid mesentery (Figure 1). Uncomplicated broad-based Meckel's diverticulum was also present (Figure 2). Resection anastomosis of the affected part was accomplished and the defect in the sigmoid mesentery was closed. The patient recovered well after surgery but developed respiratory distress from the exacerbation of bronchial asthma and succumbed to it two months later.

#### Discussion

Internal hernias account for less than one percent of cases and, by definition, is herniation of the hollow viscus through a natural or unnatural peritoneal or mesenteric defect within the peritoneal cavity [1,2]. Most common internal hernias are considered to be paraduodenal hernias but a recent trend of increasing incidence of transmesenteric hernias has been noticed [1,2]. Other sites of internal hernia are pericaecal, foramen of Winslow, broad ligament, transomental, retroanastomatic and sigmoid mesentery. Sigmoid mesentery hernias are classified into three types by Benson and Killen – intersigmoid, transmesosigmoid and intramesosigmoid [3].

Intersigmoid hernia is the most common variety, which is herniation through the lateral aspect or to the left of the sigmoid mesentery into the intersigmoid fossa. Transmesosigmoid hernia is herniation of the bowel through an isolated oval defect in the sigmoid mesentery with involvement of both leaves of mesentery and lacks a hernial sac [4]. Intramesosigmoid hernia is the rarest of these three and is herniation of the bowel through an isolated oval defect, which may be situated in the sigmoid mesentery either on the medial aspect or lateral aspect adjacent to the sigmoid colon involving only one leaf of the sigmoid mesentery [5].

Benson and Killen were the first to report the rarest variety intramesosigmoid hernia in 1964 [3]. An extensive review of English and Japanese literature revealed that barely more than 50 cases of intramesosigmoid hernias have been reported since 1964 [6,7]. Intramesosigmoid hernia has a preponderance towards male sex and is usually seen in the sixth decade of life [1,6]. Clinical symptoms may be intermittent, nonspecific and usually include distension, nausea, vomiting, epigastric discomfort and abdominal pain, patients presenting with partial or complete acute intestinal obstruction. Preoperative clinical diagnosis of a sigmoid hernia as a cause of obstruction is rarely made and distinguishing its subtypes clinically is not possible.

Investigations helpful in diagnosing sigmoid hernia are plain abdomen radiographs, barium studies, enteroclysis and CT. Out of these modalities, CT has a sensitivity and specificity of 63% and 73%, respectively, in diagnosing internal hernias [8]. Barium meal follow through and enteroclysis have also been used in the past for preoperative diagnosis of the intramesosigmoid variety of sigmoid hernia [9]. In these, the small bowel appears either as C- or U-shaped loops with stenosis of the afferent or efferent sides [2]. Peculiar CT findings suggestive of sigmoid hernia include bird beak appearance pointing medially towards the pelvis [10]. Intramesosigmoid hernias seen through CT present with a mass of the bowel loop displacing the sigmoid colon and displacement of the tributaries of the inferior mesenteric vein.

The management of intramesosigmoid hernias includes reduction of the hernia and repair of the defect which can either be accomplished laparoscopically or by an open approach [9]. In this case, an immediate open approach was preferred as clinical symptoms and signs were verging towards strangulation or gangrene of bowel. Mostly, a diagnosis was established intraoperatively. There is a high incidence of small bowel strangulation mostly because of delay in diagnosis resulting in resection, increasing morbidity and mortality. To avoid strangulation, early exploration should be undertaken rather than searching for the exact cause of obstruction.

### Conclusion

Internal hernias are not very common and sigmoid

hernias are not one of the most common among these. Intramesosigmoid hernias, being the rarest form of sigmoid hernias, and in this case was associated with uncomplicated Meckel's diverticulum, bronchial asthma and bilateral direct inguinal hernia. However, no correlation to these conditions has been mentioned in the literature, though this can be the result of paucity of cases. Diagnosis of intramesosigmoid hernia as a cause of acute intestinal obstruction is seldom established preoperatively, yet a CT scan may be helpful before surgery. Strangulated sigmoid hernia has a high morbidity and mortality and to avoid unfavorable outcomes, prompt exploration must be undertaken.

### Conflict of interest statement

The authors have no conflicts of interest to declare.

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