

# Congenital internal hernia: a rare cause of small-bowel obstruction

V Yagnik, P Patel, A Patel

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## Abstract

**Background:** Congenital internal hernia is an uncommon cause of small-bowel obstruction. Clinical manifestation can vary from asymptomatic to acute small-bowel obstruction which requires operative intervention. **Methods:** A case report with review of literature is presented in brief. **Results:** The usual outcome in such patients is good with unremarkable post-operative recovery. **Conclusion:** A high index of suspicion is required and good knowledge of the anatomy of the potential site for internal herniation; small-bowel series are a good investigation for diagnosis of subacute obstruction.

## CASE REPORT

A 7-year-old female presented in the out-patients' department with complaints of on-and-off recurrent colicky abdominal pain and abdominal distension for 6 months. There was also a history of on-and-off vomiting and she had been treated at a local hospital and then referred to our hospital with similar complaints. No other significant history like fever, absolute constipation or previous surgery was available. The patient's blood pressure and pulse rate were normal. On examination, her abdomen was distended, with no guarding or rigidity and no organomegaly. Bowel sounds were hyper-peristaltic; per-rectal examination was normal. X-ray of the abdomen (erect) showed few air-fluid levels, ultrasonography showed grossly dilated small bowel and no evidence of free fluid in the peritoneal cavity. Blood investigations like haemoglobin, total count, differential count, RBS, serum creatinine and blood urea were normal. Serum potassium was slightly low. We decided to treat by conservative management and kept the patient NPO, with NG tube aspiration, analgesics, antacids, and IV fluid. After 2 days, the patient was showing signs of improvement, so we started liquid orally and again she developed pain in abdomen which was the same as before admission. We stopped the liquid and advised small-bowel series which showed grossly dilated small bowel. A dilatation of approximately 7cm was seen in the ileum with partial obstruction distally (fig. 1). It was decided to explore the abdomen; on opening it, gross dilatation of the small bowel was found with a defect in the mesentery (fig. 2, 3). Bowel was also strictly adherent to the bladder wall.

Decompression of proximal bowel with adhesiolysis from the bladder wall was done. The adhesions were quite dense and during adhesiolysis there was a rent in the bowel followed by resection and anastomosis. The defect in the mesentery was closed with vicryl 2-0. The post-operative course was unremarkable.

**Figure 1**

Figure 1: Gross dilation of small bowel with partial obstruction.



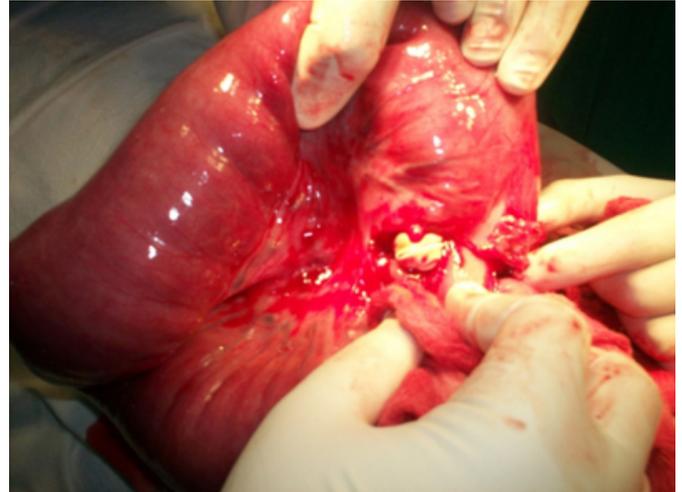
**Figure 2**

Figure 2: Small-bowel dilatation with internal hernia



**Figure 3**

Figure 3: Defect in the mesentery



## DISCUSSION

The term internal hernia is used to describe a protrusion of small bowel through a normal or abnormal peritoneal or mesenteric opening. Internal hernia is a rare cause of small-bowel obstruction. The incidence of internal hernia is around 0.2-0.9% on autopsy<sup>1</sup>. It may be congenital or acquired. About 0.5-5.8% of intestinal obstruction are due to internal hernia<sup>2</sup>. Anomalies of the mesenteric fixation and intestinal rotation during fetal development result in development of internal hernia. Internal hernia is a dangerous condition due to its associated complications like strangulation which, if not treated in time, can lead to gangrene of small bowel with septic shock. So, early diagnosis and treatment are essential to avoid high morbidity and mortality<sup>3</sup>. Common sites for internal hernias can be natural orifices like the foramen of Winslow, or abnormal ones like in paraduodenal, transmesenteric, transomental, pericaecal or supramesocolic hernias. Acquired hernias develop through a persistent defect in the mesentery after surgery (e.g. Roux-en-Y). As size of the sac, incarcerated bowel loop and inter-bowel adhesions increase with age, most internal hernias are diagnosed at a later age<sup>4</sup>. Diagnosis of this condition often requires a high index of suspicion and is challenging to the treating consultant as well as to the radiologist. About 50% of patients with internal hernia have chronic low-grade obstruction and the rest presents with acute high-grade obstruction. In both of these conditions preoperative diagnosis is very demanding and usually not possible<sup>5</sup>. For diagnosis of any case of small-bowel obstruction, history and physical examination are very important. These patients usually present with classical signs and symptoms of intestinal obstruction like pain, distension of abdomen,

vomiting and constipation. A patient with low-grade chronic obstruction will present with colicky abdominal pain and vomiting. In acute high-grade obstruction, physical examination reveals tachycardia, hypotension and dehydration with distended abdomen and hyperactive bowel sounds in the early stage and with paralytic ileus in the late stage. Signs of peritonitis suggest strangulation. Plain radiograph shows signs of small-bowel obstruction with multiple air-fluid levels. Small-bowel series shows bunched up small bowel displaced either right or left of the colon. Bowel proximal to the hernia is dilated and small bowel is usually absent from the pelvis. Ultrasonographic findings of small-bowel obstruction are dilated hyper-peristaltic loops, a zone of transition between dilated and non-dilated bowel, and a cluster of collapsed, crowded, and compressed small-bowel loops, as if enclosed in a bag.<sup>6</sup> Spiral CT scan of the abdomen with contrast is very useful in the diagnosis of unsuspected congenital internal hernia according to Zissin et al.<sup>7</sup> CT findings of small-bowel obstruction due to congenital internal hernia include: a sac-like mass of clustered small-bowel loops with converging of engorged mesenteric vessels towards its orifice, blurring of mesenteric vessels with localized fluid collection, dilated fluid-filled unopacified bowel loops within a pseudosac, bowel-wall thickening, hypoperfusion of dilated bowel segments, ascites and small-bowel faeces sign.<sup>7</sup> CT has a high diagnostic accuracy in case of small-bowel obstruction and most of the time etiology can also be identified by CT scan.<sup>8</sup> There is no pathognomonic finding in CT scan of the abdomen for internal hernia but diagnosis can be made by combination of history, good and accurate physical examination and CT scan. Traditionally, paraduodenal hernia was described as the commonest form of internal hernia, with an incidence of 50%. Because of the operations for morbid obesity, at present transmesenteric hernia is the most common variety of internal hernia after RYGB.<sup>9</sup> Treatment depends upon viability of the intestine. If the bowel loop is viable, the incarcerated loop is reduced and closure of the defect is done with interrupted suture. If the loop is gangrenous, resection

and anastomosis is recommended.<sup>10</sup> Iatrogenic internal hernia can be managed with laparoscopy and in congenital hernia, laparoscopy has also been described.

### **CONCLUSION**

Congenital internal hernia is a rare cause of small-bowel obstruction. It requires a high index of suspicion for diagnosis. Pre-operative diagnosis is very difficult and demanding. Great help can be obtained from contrast CT scan of the abdomen with angiography. Because of high mortality and morbidity of delayed diagnosis and strangulation, early operative intervention is recommended. In patients with small-bowel obstruction without previous operative history, diagnosis of congenital internal hernia should be kept in mind.

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**Author Information**

**Vipul Yagnik, MS, FMAS**

Pramukh Swami Medical College

**Paresh Patel, MD, FACS**

Pramukh Swami Medical College

**Apurva Patel, MS**

Pramukh Swami Medical College