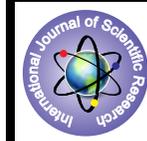


## Small Bowel Gangrene Secondary To Transmesenteric Internal Herniation – A Case Report and Review of Literature



### Medical Science

KEYWORDS :

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### ABSTRACT

*35 years old female admitted with features of adhesive intestinal obstruction, not responding to conservative management. On exploratory laparotomy, about 40cms of small bowel (ileum) found to be gangrenous, secondary to transmesenteric herniation of ileum through the mesentery. Ileal resection anastomosis with repair of the mesenteric defect done. This case is being presented for the rarity of its incidence and to impress upon the need for emergent management in transmesenteric hernias with or without bowel gangrene.*

### Case report:

A 35 year old female was referred to our centre with 2 day h/o pain abdomen, vomiting and abdominal distension. Patient had an insignificant past history, except for a tubectomy done 2 years back. Patient was managed at a hospital outside for suspected intestinal obstruction with nil per oral and intravenous fluids and then referred to our centre in view of increasing distension and pain abdomen. At admission, patient was found to be adequately hydrated with stable vitals. Her abdomen was distended with mild tenderness in the lower abdomen. Bowel sounds were sluggish. X ray abdomen revealed dilated small bowel loops with air fluid levels. Abdominal sonogram showed ascites with dilated small bowel loops. Patient was planned for conservative management of suspected adhesive subacute intestinal obstruction. 12 hours after admission, patient developed tachycardia with increasing abdominal distension. Per abdomen examination revealed tenderness and guarding in the lower abdomen with ascites.

She was planned for an emergency exploratory laparotomy in view of worsening general condition. At laparotomy, about 1 litre hemorrhagic fluid was seen in the peritoneal cavity. About 40cms of ileum was found to be gangrenous, starting 20cms from the ileocaecal junction. A loop of ileum was found to be herniated through a 2x1.5cm rent in the ileal mesentery. The bowel loops proximal to the herniation were seen to be dilated and gangrenous with significant bowel wall edema. The herniated bowel loop was reduced back to its original position through the mesenteric defect. Ileal resection with end to end ileal anastomosis was done. The mesenteric defect was closed with interrupted silk sutures. The patient had an uneventful post operative recovery.

### Discussion:

An internal abdominal herniation is the protrusion of an abdominal organ through a normal or abnormal mesenteric or peritoneal aperture.<sup>1</sup>

Internal abdominal herniations can be either acquired through a trauma or surgical procedure (iatrogenic internal abdominal herniations) or constitutional and related to congenital peritoneal defects. The responsible hernial orifices are usually pre-existing anatomic structures such as foramina, recesses and fossae.

Three main types of orifices may be involved in an internal hernia – normal, abnormal, or paranormal.<sup>2</sup> The orifice can be normal (epiploic or omental foramen) with either a larger than usual foramen or a high mobility of the right colon or a long

mesentery.

The orifice can be abnormal as with a congenital/ iatrogenic hole in the mesentery or omentum: transmesenteric, transmesocolic or transanal: greater or lesser. The orifice can also be paranormal - retrocecal or para- and retroduodenal.<sup>3</sup>

Post-mortem studies have shown that the incidence of holes in the mesentery range from one in 50 to three in 1,600 autopsies.<sup>4</sup>

The classifications of internal abdominal herniations was devised by Ghahremani, dividing internal hernias into 6 main categories.<sup>5</sup>

Paraduodenal (Lt.>Rt.) - 53%

Foramen of Winslow - 8%

Transmesenteric & Transomental - 9 -12%

Pericaecal - 13%

Intersigmoid - 6%

Supravesical and pelvic - 6%

### Transmesenteric hernia:

Transmesenteric hernias are seen most commonly in children, they are thought to develop from a congenital defect in the small bowel mesentery, near the ileocecal region or the ligament of Treitz, possibly related to prenatal intestinal ischemia.<sup>2</sup>

In adults, transmesenteric ischaemia is most commonly after surgery. a recent review has highlighted the high incidence of transmesenteric hernias after abdominal surgery, especially after the creation of a Roux-en-Y anastomosis for hepatic surgeries or gastric bypass.<sup>6</sup>

Transmesenteric hernias are usually asymptomatic, manifesting as mild abdominal discomfort or with vomiting. Internal hernias are clinically apparent only when

strangulation/ ischaemia results. Internal hernia is a rare cause of small bowel obstruction. The incidence is only 0.2 -0.9%.<sup>7</sup> Due to the small size of the defect, once incarceration of the bowel occurs, strangulation and gangrene follow immediately; a high associated incidence, 50%, has been reported. The mortality rate with this condition is about 15%, but in the presence of gan-

grene of the bowel, the mortality rate is more than 50%.<sup>8</sup> When a considerable amount of tissue occupies these small defects, the blood supply of the small bowel is compromised, rapidly resulting in ischemia and necrosis. Furthermore, the pressure of the herniated bowel loops and their mesentery compress the vessels in the free margins of the defect and may cause ischemic changes in the loop forming the margin of the mesenteric defect.<sup>9</sup>

imaging modalities aid in the diagnosis of transmesenteric ischaemia – plain X ray abdomen and contrast enhanced CT abdomen being 2 important diagnostic aids.

The characteristic CT findings are: Sac like mass / cluster of dilated bowel loops, mesenteric vascular pedicle - stretching, crowding, twisting, displacement (Displacement of mesenteric vessel is labeled only when main mesenteric vessels

are seen outside the lateral margin of aorta by more than the width of the aorta) and signs of bowel ischaemia - wall thickening, pneumatosis intestinalis and ascites.<sup>7</sup>

CT angiography also helps in detecting ischaemia, as the mesenteric vessels at the site of herniation show abrupt termination, tapering or an abnormal course.

Early operative management with laparoscopy/ laparotomy, reduction of the herniated contents and closure of the hernia defect is the primary modality of treatment. Small bowel gangrene mandates resection and anastomosis as appropriate.

#### Conclusion:

Transmesenteric hernias are a rare entity, causing intestinal obstruction. Typical presentation in cases is identical but early diagnosis and appropriate management is an important determinant of prognosis in such patients. Role of CT abdomen and CT angiography is well documented and is a useful aid in diagnosis. Presence of bowel gangrene is a positive predictor of morbidity and mortality in cases with transmesenteric hernia with intestinal obstruction.

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