

## **Case study**

# **RIGHT PARADUODENAL HERNIA**

## **Uncommon cause of a common surgical problem**

### **A CASE REPORT**

#### **Abstract**

Objectives :

Paraduodenal hernia is the most common type of internal hernia. Patients generally present to the emergency with a short history of abdominal pain, associated with episodes of nausea and vomiting. Ischemia of the herniated bowel loop may set in as a result of closed loop obstruction,

Subjects and methods :

A 32 years old male patient who presented with complaints of pain abdomen, breathlessness and multiple episodes of vomiting for a day.

Results :

He underwent emergency exploratory laparotomy with excision of the hernial sac, bowel resection with duodeno-ileal anastomosis and was discharged on post op day 5 on a liquid diet.

Conclusion :

An early diagnosis with appropriate imaging techniques, X-ray or CT scan of the abdomen is essential to reduce the associated morbidity. Early surgical intervention is the deciding factor in the associated mortality in these patients. The surgery should be done with the intent of reduction of the contents with or without excision of the hernia wall/sac and simple closure of the defect with non-absorbable interrupted sutures, staying away from the vessels that form the walls of the hernia.

**Keywords: Right, Paraduodenal hernia, Internal Hernia, Small bowel ischemia.**

Internal hernia is the protrusion of viscus through an opening in the peritoneal or mesenteric folds, accounting for 0.6 to 5.8 % of all cases of acute intestinal obstruction.<sup>[1]</sup>

There are two theories pertaining to its development:

- a. Moynihan's theory: Attributed it to physiological adhesions, arising as the bowel returns to the abdomen during development and fusion of the common dorsal mesentery with the posterior abdominal wall, leading to the development of fusion folds and fossae.
- b. Andrew's theory: Attributed it to the developmental fusion defects of peritoneum, which incarcerated the small bowel beneath the developing colon. <sup>[2]</sup>

Internal hernias may present early in life, with recurrent sub-acute obstructive symptoms like, recurrent pain abdomen, episodes of vomiting or intermittent cramping as and when the gut loops herniate and get relieved as they reduce spontaneously or late in life, when the herniated gut loops are unable to reduce spontaneously presenting with symptoms of acute intestinal obstruction.

Paraduodenal hernias account for 53% of all internal hernias, of which left is more common than right. Right paraduodenal hernia has a male preponderance with a ratio of 3:1.

### **Case**

A 32 years old male, presented to our emergency department with pain abdomen, multiple vomiting episodes and breathlessness for a day, without any past history of similar complaints. On examination, he was tachycardic(120 bpm), tachypnoeic(26 per minute) and in shock (unrecordable BP), had a tense abdomen, with diffuse tenderness and guarding. Patient was evaluated using ultrasound abdomen, showing, small bowel loops dilated upto 4.5 cm with moderate ascites, chest and abdominal x-rays showed, multiple air fluid levels and CECT abdomen showed, a peritoneal sac herniating through the right paraduodenal fossa with the small bowel loops as content. He was taken for exploratory laparotomy under the cover of inotropes, I.V. fluids and antibiotics. Intra-operatively, small bowel loops were seen herniating through the defect with ischemia of the jejunum and ileum, ischemic segment resected with a duodeno-ileal anastomosis. The patient was discharged on post-op day 5 on a liquid diet and is doing well on a 2-month follow-up.

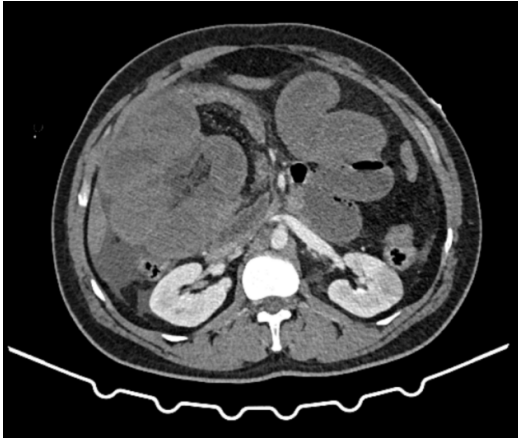


Figure 1 CT scan of the patient showing a right paraduodenal hernia with a well-formed peritoneal sac (arrow) with the small bowel as its content.



Figure 1 The peritoneal cavity with the bowel loops seen herniating through the fossa of Waldeyer.



Figure 3 Zone of vascular transition seen at proximal jejunum



Figure 4. Long segment Small Bowel resection

## Discussion

Internal hernia is the protrusion of the viscus through an intra-abdominal aperture without traversing fascial planes, majority of these occurring between the 4<sup>th</sup> and 5<sup>th</sup> decades of life, with a mortality of 31 to 50 %. Plain abdominal radiography films of these patients may reveal a distended, fluid filled stomach or dilated small bowel loops in an ovoid mass lateral to the midline- "the classical empty abdominal sign".<sup>[2,3]</sup>

CECT scan of the abdomen is the gold standard imaging modality for diagnosing paraduodenal hernia, with a sensitivity of 94% and accuracy of 90-95%.<sup>[4]</sup> It shows clustering of small bowel in the left upper quadrant with mass effect on the posterior stomach and transverse colon, and inferomedial displacement of the duodenojejunal junction in case of a left hernia, or in the right upper quadrant with displacement of the descending duodenum superiorly and the transverse and ascending mesocolon anteriorly, where the jejunal arterial branches may course superior and posterior to the SMA.<sup>[1,5]</sup>

The acquired internal hernias are most commonly seen following rearrangement of the intra-abdominal structures following surgeries like, bowel resection and anastomosis, hepaticojejunostomy or most notably after Roux-en-Y gastric bypass. Congenital hernia has

a delayed presentation, with mortality mostly arising from the septic complications arising from bowel ischemia. <sup>[1]</sup>

Left paraduodenal hernia occurs into the Landzert fossa, which is typically obliterated during the 5th to 10th weeks of gestation as the left colonic mesentery, inferior mesenteric vein (IMV), and ascending left colic artery fuse with the retroperitoneum while the small bowel is simultaneously undergoing its 270-degree counter clockwise rotation around the superior mesenteric artery (SMA). These patients present with a history of negative workups for postprandial abdominal discomfort. A right paraduodenal hernia occurs into the Waldeyer fossa, which is typically obliterated as the SMA and right colon mesentery fuse with the retroperitoneum after passing over the third portion of the duodenum during the third stage of intestinal rotation. <sup>[1,5]</sup>

Early surgical intervention is advised with reduction of the contents with or without excision of the hernia sac and closure of the defect with non-absorbable interrupted sutures, staying away from the vessels that form the walls of the hernia. Considering the chronic, intermittent history of these hernias, there are usually dense interbowel adhesions between the bowel loops, which may require adhesiolysis or bowel resection.

## Conclusion

In conclusion, paraduodenal hernia is an uncommon but significant cause of intestinal obstruction which requires early surgical intervention and if diagnosed late can be a fatal problem.

## References

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