



Right Paraduodenal Hernia: A Case Report and Literature Review

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Received 25 February 2022;

Accepted 15 March 2022;

Published 21 March 2022

Abstract

Paraduodenal hernia is a rare congenital anomaly that arises from an error of rotation of the midgut. The duodenum and the small intestine become trapped in a sac which is lined by the peritoneum, behind the mesentery of the colon, either to the right or left of the midline. It is therefore a rare and potentially life-threatening condition that can cause intestinal obstruction progressing to strangulation and perforation. The present report shows the case of right paraduodenal hernia in a 21 years old patient, Diagnosed with CT scan and underwent a surgical successful management.

Keywords: Internal hernia, Paraduodenal hernia, surgical management

Introduction

Internal hernia (both Congenital or acquired), consider to be a rare cause of small-bowel obstruction, with a percentage of 2% of all the reported causes [1]. A type of internal hernia which is paraduodenal hernias (PDH), occur due to malrotation of midgut and the formation of a potential space near the ligament of Treitz [2]. The most common presentation of these hernias, is the incidental finding on imaging or at laparotomy [3]. If the diagnosis of PDH missed due to the non-specific abdominal signs and symptoms, this can lead to fetal complications such as acute small bowel obstruction, ischemia and bowel perforation [4].

Paraduodenal hernias considered the most frequent measured type of congenital internal hernia, with Left paraduodenal hernia (which is known as hernia of Lanzert) is more common than the right paraduodenal hernia (known as Waldayer's hernia) by about three folds [5,6]. There is a different in the gender distribution between the Right and left PDH, with a male preference in the right PDH, with a 3:1 male-female ratio, whereas Left PDH does not have a gender bias [7,8]. Surgical management, whether open or laparoscopic, aim at hernia reduction and obliteration of the hernial orifice or excision of the sac.

Case report

A 21 years old gentleman known case of mental retardation, Bronchial Asthma and ectopic right kidney presented to the emergency department with 3 days history of constant diffuse abdominal pain. There were no relieving or aggravating factors. The pain was so sharp and was followed by non-bilious emesis consistent with gastric contents. There was no abdominal distention and he was able to pass flatus infrequently. The patient denied any history of weight loss, chronic abdominal pain, or other gastrointestinal symptoms.

On physical examination, the patient was moderately dehydrated with mild tachycardia (96 pulse / min) but had normal blood pressure. The abdominal examination showed generalized tenderness but no signs of peritoneal irritation.

Laboratory studies were significant for an elevated white blood cell count of 13,600 with a left shift on differential smear. Total bilirubin 27.2 and direct bilirubin 7.5.

Plain abdominal radiograph showed prominent dilate small bowel (**Figure 1**).

Computed Tomography CT scan showed clusters of small bowel loops in a typical location (the right upper quadrant) adjacent to the second and third part of duodenum suspicious for paraduodenal internal hernia with mild twisting of mesenteric vessels, There is also associated focally distended distal ileal loop with fecal matter at the suspected hernia neck which could

represent early partial obstruction. Mesenteric root fluid is also seen. No evidence of bowel ischemia (**Figure 2**).

The patient was consented for Laparoscopic exploration, Intra operative finding showed right Paraduodenal hernia and healthy small bowel content that was reduced and defect was closed laparoscopically. (**Figure 3,4**).

The patient hospital course was uneventful and discharged in satisfactory condition 3 days postoperatively. The patient followed up in the surgical clinic with good condition and discharged.



Figure 1: plain radiographic film showed markedly dilated small bowel.

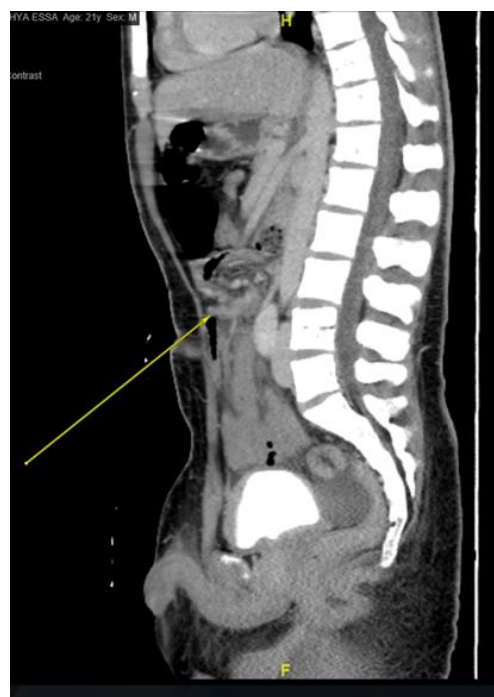


Figure 2: Clusters of small bowel in a typical location in the right upper quadrant adjacent to the duodenum along with hold up of gastric content highly suspicious for right paraduodenal internal hernia.

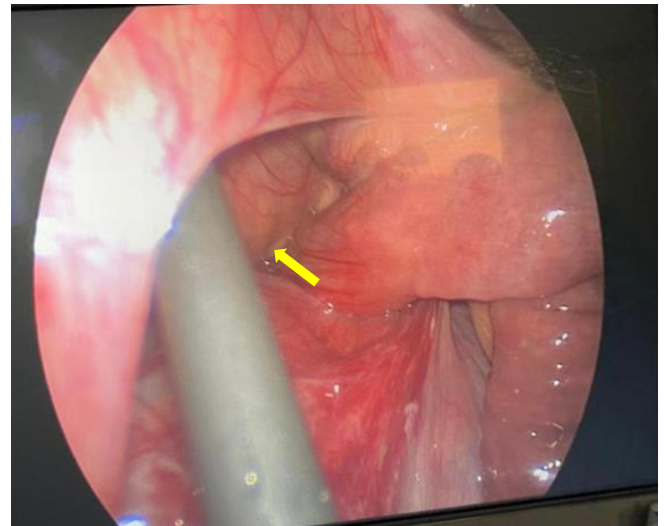


Figure 3: Intra operative picture showing a small right paraduodenal hernia through Waldayer's fossa with a healthy intestinal loop.

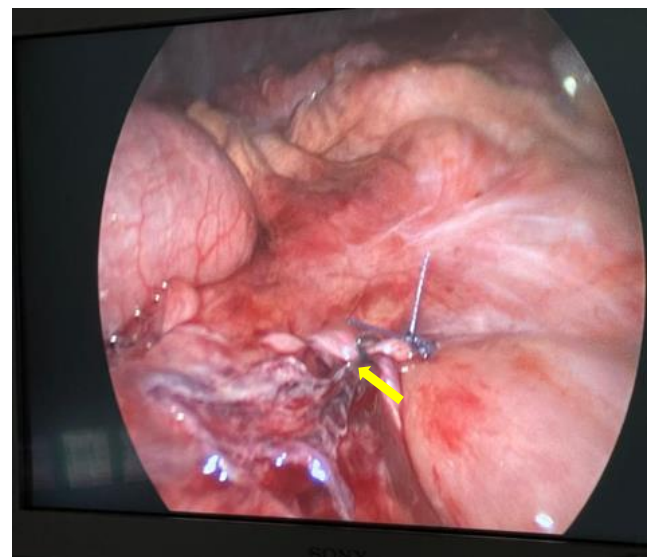


Figure 4: Intra operative picture after reducing small bowel & closing the defect.

Discussion

Internal hernias (Congenital or acquired) are uncommon cause of small bowel obstruction and occur when any abdominal contents are confined within a splitting of the abdominal cavity. It is a rare cause that represents < 1% of all cases of bowel obstruction [9-10]. The gender distribution represented with male/female sex ratio for internal hernia is approximately three [11]. Paraduodenal hernias demonstrate 53% of all cases of internal hernias, in which 40% are left PDH and 13% are right PDH [12-13]. This disorder involves the herniation of a viscus through a peritoneal or mesenteric defect [14].

There are many theories about the origin of paraduodenal hernias. The most sustainable one is that they originate from an intestinal malrotation and error in the fixation which could lead to an entrapment of the small bowel between the mesocolon and the posterior abdominal wall. Right and left paraduodenal hernias differ in their embryologic origin and anatomical position [15]. Left paraduodenal hernias are congenital anomalies that occur due to a malrotation of the midgut, that lead to small bowel entrapment between the mesocolon and the posterior abdominal wall, which formed the anterior wall of the hernia sac [16]. The space in which

the bowel herniates is called Landzert's fossa, which is found behind the fourth part of the duodenum [17].

In case of right PDH, during the embryological development counter-clockwise rotation of the midgut is arrested on the right side. Which lead to small bowel entrapment in a hernial sac formed by the peritoneum, behind the mesentery of the ascending and right transverse colon, through Waldayer's fossa, with superior mesenteric artery (SMA) is found on the free edge of the hernial sac [25].

The risk of intestinal obstruction with PDH is 50% in lifetime [18-19]. The overall mortality rate is 20%, and the mortality rate is up to 50% in case of treated and 100% in case of untreated strangulated bowel or ischemic bowel [20-22].

The laparoscopic approach in treating PDH is effective and provides an access for complete repair [23-24].

Conclusion

Paraduodenal hernia consider a rare cause of small bowel obstruction and acute surgical abdomen. Therefore, the diagnosis is often inaccurate and late due to the wide range of symptoms at the presentation. This cause should be consider as a differential diagnosis specially in any patient with small bowel obstruction without any previous abdominal surgeries. The early diagnosis with proper management and intervention, reduce the mortality and morbidity rate.

Ethics approval and consent to participate

Not applicable

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this paper.

Funding Statement

No funding was received

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