Annals of Surgery and Surgical Case Reports

Case Report

doi: 10.39127/2575-9670/ASSCR:1000131
Pavithra SK, et al. Ana Surg Surgi Cas Rep: ASSCR: 131

Paraduodenal Hernia: An Unpredicted Cause of Acute Intestinal Obstruction-A Case Report

Vinayaka H J[1], Radhakrishna Ramchandani[2], Ashok Kumar Sahoo[3*], Dixit Kapil Vishwas[4], Avegubalji T[5]

[1]MBBS, Junior Resident, Department of General Surgery, All India Institute of Medical Sciences, Raipur- 492099, India
[2]MBBS, MS, Associate Professor, Department of General Surgery, All India Institute of Medical Sciences, Raipur- 492099, India
[3]MS, DNB, MRCSEd, FMAS, MNAMS, FIAGES, Assistant Professor, Department of General Surgery, All India Institute of Medical Sciences, Raipur- 492099, India
[4]MBBS, Junior Resident, Department of General Surgery, All India Institute of Medical Sciences, Raipur- 492099, India
[5]MBBS, Junior Resident, Department of General Surgery, All India Institute of Medical Sciences, Raipur- 492099, India

[*]**Address for correspondence:** Dr. Ashok Kumar Sahoo (MS, DNB, MRCSEd, FMAS, MNAMS, FIAGES), Assistant Professor, Department of General Surgery, All India Institute of Medical Sciences, Raipur- 492099, India. Tel: +91-9655653969; Email: dr.ashoksahoo2010@gmail.com

Citation: Vinayaka HJ, Ramchandani R, Sahoo AK, Vishwas DK, Avegubalji T (2023) Paraduodenal Hernia: An Unpredicted Cause of Acute Intestinal Obstruction-A Case Report. Ana Surg Surgi Cas Rep: ASSCR: 131.

Received Date: February 12th, 2023; **Accepted Date:** February 16th, 2023; **Published Date:** February 22nd, 2023

Abstract

Introduction: *The para duodenal hernia is the most common type of congenital internal hernia. It can occur on either the left or right side with the left side being three times more common than the right. It can be asymptomatic, present with vague abdominal symptoms or as acute intestinal obstruction.*
Case report: *Here we present a case of a 23-year-old male presenting with acute intestinal obstruction. The relevant radiological investigations were undertaken. But the correct diagnosis of which can only be revealed on the operation table. The postoperative period was uneventful.*
Conclusion: *A good history eliciting and physical examination along with CECT abdomen can diagnose most of the cases preoperatively. But strong suspicion along with good anatomical knowledge is required to deal with this condition properly and to minimize postoperative complications.*

Keywords: *Para duodenal, Congenital, Internal, Obstruction, Postoperative.*

Introduction

Internal hernias are protrusions of bowel loops through a retroperitoneal fossa or a foramen within the abdominal cavity [1]. It may be congenital or acquired. Even though rare, with an overall incidence of <1%, they are responsible for around 6% of all acute intestinal obstructions [2]. The para duodenal hernia is the most common type accounting for around 53% of all congenital hernias [1]. The prevalence of left paraduodenal hernias is three times that of right paraduodenal hernias [3]. The spectrum of clinical features starts from being asymptomatic throughout life to chronic non-specific abdominal pain, postprandial pain to acute intestinal obstruction [4]. Even with a thorough history and examination, the clinical diagnosis is challenging. It can be suspected in the CT abdomen, but the final diagnosis is often done intraoperatively [4]. The treatment is usually surgery either laparoscopic or open. Laparoscopic surgery has a quicker recovery period, although both procedures have comparable long-term results [5]. In this paper, we are reporting a case of a 23-year-old male who presented with acute intestinal obstruction and was diagnosed with a para duodenal hernia intraoperatively.

Case Report

A 23-year-old man presented to the emergency unit with four days of abdominal pain and vomiting. The pain was acute in onset, spasmodic in nature, predominantly in the periumbilical region and non-radiating. It was associated with bilious vomiting, acute in onset, non-projectile about 4-5 times per day. The patient was also complaining of not passing flatus and faeces for one day. The patient was earlier taken to a primary health centre and was then referred to our institute. Previously the patient had experienced similar complaints twice. One episode was years back and another episode was one month back. Both times, the patient was managed conservatively without any definitive diagnosis. He was not having a history of any addictions.

On examination, the patient was conscious and oriented. He was well-built and nourished. The patient was dehydrated during the presentation. His pulse was 110 beats per minute, blood pressure was 110/80 mmHg, eupneic and clinically

afebrile. His abdomen was distended with visible dilated small bowel loops. On palpation, he was having tenderness with no guarding or rigidity. There was no organomegaly. There was no palpable mass. There was evidence of free fluid elicited by shifting dullness. The bowel sounds were hyper peristaltic. Digitorectally, the rectum was empty and collapsed with no faecal staining of gloves. There was no evidence of any mass per rectally.

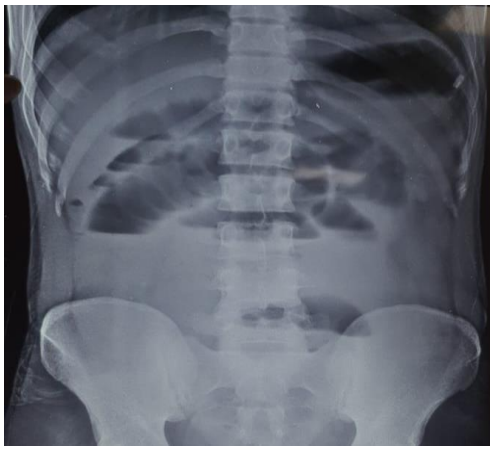

Figure 1: Erect abdominal X- Ray showing Multiple air fluid levels (≥ 4) suggesting intestinal obstruction.

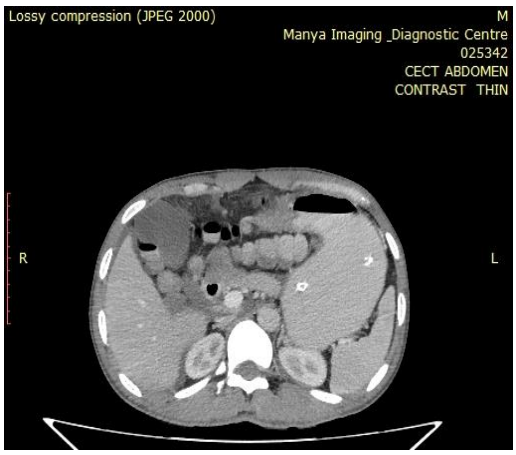

Figure 2: CECT abdomen showing crowding of ileal loops in left paraduodenal space. Ryles tube can be seen inside the stomach.

The abdominal X-ray showed dilated jejunal loops along with multiple air-fluid levels (Figure 1). The patient had got contrast-enhanced computed tomography of the abdomen (Figure 2). It showed dilated small bowel loops with mild ascites. The transition zone between dilated and collapsed bowel was seen near the terminal ileum.

The patient was then diagnosed as having acute intestinal obstruction. Large-bore intravenous access was achieved and resuscitation was started immediately. A nasogastric tube and Foley catheter were inserted and urine output monitoring was started. The patient was immediately taken to emergency surgery after adequate resuscitation and preoperative preparation.

The patient was taken to surgery under general anaesthesia. A Midline incision was given. There was around 200ml of clear free fluid. There were multiple dilated loops of the jejunum and ileum (Figures 3 and 4). On tracing the bowel, it was seen that a jejunal loop and another ileal loop after getting twisted were herniating into a sac on the left of the fourth part of the duodenum. The herniating ileal loop was around 10cm proximal to the ileocecal junction. The bowel in between the herniating jejunal and ileal loops was dilated. The herniating bowel loops were gently reduced back from the hernial sac. The length herniating bowel was around 20cm jejunum and 30cm ileum. There was no evidence of any vascular compromise or luminal narrowing in the herniating loops. There was empty space in the left paraduodenal space after reducing the hernial contents. It was bounded medially by the 4th part of the duodenum and mesentery and laterally by descending mesocolon. Herniotomy was done. The rest of the bowel was traced and there were no gross identifiable abnormalities detected. The bowel loops were placed back and the abdomen closed in layers.

Figure 3: Intraoperative picture showing twisting of mesentery at the site of ileal loop herniation.

Figure 4: Intraoperative picture showing paraduodenal hernial sac with 4th part of duodenum and jejunum arising from it.

Postoperatively, the patient was started with oral sips after 6 hours and gradually his oral intake was increased and a normal diet was allowed by the end of postoperative day 2. The patient passed flatus on postoperative day 2 and passed stools the next day. Adequate analgesia was given throughout the hospital stay. The patient was then discharged on postoperative day 4 without any complications. The patient followed up in OPD on the 10th postoperative day the midline wound was healthy and healed and the sutures were removed. The was in regular follow-up in OPD and was in good clinical condition throughout the follow-up and did not have any other fresh complaints or complications.

Discussion

The causes of Internal hernias may be acquired or congenital. The acquired hernias are often due to mesenteric defects after bowel resection or surgery like during a Roux-en-Y procedure. They may also be seen after trauma, particularly gunshot wounds to the abdomen and secondary to inflammation [1]. The congenital hernias are left and right paraduodenal hernia, pericaecal hernia, Foramen of Winslow hernia, Transmesenteric hernia, transomental hernia, sigmoid mesocolon hernia, pelvic and supraavesical hernia. The para duodenal hernia is the most common type [1].

Para duodenal hernia was first described by Neubauer in the year 1786 [6]. Several theories have been formulated for the pathogenesis of paraduodenal hernia but only two out of those are well accepted.

1. Moynihan's Theory – He explained the para duodenal hernia on the concept of "physiological adhesions". According to this theory, when the bowel returns back to the abdominal cavity during embryological development, there is a fusion of the common dorsal mesentery with the posterior abdominal wall thus leading to the development of fusion folds and fossae (He described nine similar fossae). These fossae enlarge gradually leading to the development of a para duodenal hernia.
2. Andrews' Theory – His theory is similar to Moynihan's theory with slight modifications.

Para duodenal hernia also called Mesocolic Hernia can be either on the right or left [7]. The left-sided para duodenal is three times more common than the right [8]. The disease is three times more common in males and usually presents in 4th decade of life with the average age being 44.1 years [4, 9].

The left paraduodenal hernia is defined as the herniation of the bowel and sometimes organs into the left para duodenal space of Landzert [8]. The space is situated in the left upper quadrant bounded medially by the duodeno-jejunal junction, laterally by descending colon and superiorly by the inferior aspect of the stomach and pancreas [8]. The inferior mesenteric vein (IMV), ascending left colic artery, and left colonic mesentery normally fuse with the retroperitoneum from the fifth to tenth weeks of pregnancy, obliterating the space of Landzert as the small bowel rotates anticlockwise 270 degrees around the superior mesenteric artery (SMA) [9]. Thus, para duodenal hernia occurs due to midgut malrotation during embryonic development, together with aberrant peritoneal fixation and vascular folds [7]. The anterior border of the aperture of the hernial sac is made by IMV and the ascending left colic artery and the left colonic mesentery make it the anterior wall [9]. When there is significant herniation, the efferent limb of these hernias can extend as far as the ileum from the afferent limb, which is normally the fourth part of the duodenum [9].

The para duodenal hernia can be silent without any symptoms, may present with non-specific abdominal pain, nausea, vomiting or may present as acute intestinal obstruction. Some rarer symptoms that can be seen are biliary colic, pancreatitis and palpable tumefaction in the upper left part of the abdomen [4]. Diagnosing a para duodenal hernia is the most challenging aspect of management, particularly in cases of silent individuals or those with non-specific, long-lasting symptoms. In many cases of non-specific abdominal pain, a definitive diagnosis is not made for several years. Strong suspicion and a complete workup can make an early diagnosis of the condition and can prevent complications such as acute intestinal obstruction and a bowel perforation. In the present case, even though he was symptomatic twice earlier, due to a delay in diagnosis, the patient ended up having acute intestinal obstruction. Contrast CT scan (sensitivity 95–100% and specificity 95%), of the abdomen, plays a significant role in most situations in confirming the diagnosis in such cases along with a thorough medical history, clinical examination of the patient, abdominal X-ray, and laboratory tests [4]. Kummer in the year 1921 described the 'classical empty abdominal sign 'in radiography in which there is a total absence of small bowel loops in the true pelvis in an erect position with crowding of the small bowel as smooth, sharply circumscribed mass in the left upper abdomen [6]. It is important to remember that in certain individuals, a final diagnosis is made during surgery or an autopsy. Surgery is the definitive treatment for para duodenal hernia and should be offered for all patients including those who are asymptomatic. Surgery can be made laparoscopically or openly. It involves reducing the hernial contents from the sac and sac management. The sac can be managed by either closing the hernia defect by non-absorbable suture, or by the wide opening of the sac and thus preventing re-herniation. If the bowel cannot be reduced easily due to oedema, the bowel may be reduced with herniotomy of the sac lateral to the vessels [4, 9]. In case of severe adhesions due to intermittently inflamed bowel sac, some support ligation of the IMV and ascending colic artery is implicated in generating the aperture in the fact that it does not enhance the risk for left colonic ischemia in otherwise healthy patients [9].

Conclusion

Although para duodenal hernias account for approximately half of all internal hernias, there aren't many cases documented in the medical literature. Proper history eliciting and preoperative examination including contrast-enhanced computed tomography is necessary for early diagnosis and to prevent complications. Even intraoperative strong suspicion along with good anatomical orientation is required for a successful surgery to minimise surgical complications and hernial recurrence. If definitive management of the hernial sac is not done, there is a chance for recurrent hernia thus causing the

persistence of symptoms along with the risk of developing acute intestinal obstruction.

Acknowledgements: Nil

Conflict of Interest: Nil

Funding: Nil

References

1. Salar O, El-Sharkawy AM, Singh R, Speake W. Internal hernias: a brief review. Hernia. 2013 Jun;17(3):373-377. doi: 10.1007/s10029-012-1023-1. Epub 2012 Dec 9. PMID: 23224076.
2. Giordano G, La Mirata E, Politi V, Veroux M, Meli GA, et al. Left Paraduodenal Hernia in a Young Patient with Recurrent Abdominal Pain: A Case Report and Short Literature Review. Am J Case Rep. 2022 Jun 4;23: e935413. doi: 10.12659/AJCR.935413. PMID: 35660720; PMCID: PMC9175513.
3. Kadhem S, Ali MH, Al-Dera FH, Alzayer NA, Alyagoub HM. Left Paraduodenal Hernia: Case Report of Rare Cause of Recurrent Abdominal Pain. Cureus. 2020 Mar 2;12(3): e7156. doi: 10.7759/cureus.7156. PMID: 32257700; PMCID: PMC7108678.
4. Manojlović D, Čekić N, Palinkaš M. Left paraduodenal hernia - A diagnostic challenge: Case report. Int J Surg Case Rep. 2021 Aug; 85:106138. doi: 10.1016/j.ijscr.2021.106138. Epub 2021 Jun 29. PMID: 34256232; PMCID: PMC8369286.
5. Ghahremani GG. Internal abdominal hernias. Surg Clin North Am. 1984 Apr;64(2):393-406. doi: 10.1016/s0039-6109(16)43293-7. PMID: 6729672.
6. Mehra R, Pujahari AK. Right paraduodenal hernia: report of two cases and review of literature. Gastroenterol Rep (Oxf). 2016 May;4(2):168-171. doi: 10.1093/gastro/gou076. Epub 2014 Nov 6. PMID: 25381205; PMCID: PMC4863181.
7. Schizas D, Apostolou K, Krivan S, Kanavidis P, Katsaros I, et al. Paraduodenal hernias: a systematic review of the literature. Hernia. 2019 Dec;23(6):1187-1197. doi: 10.1007/s10029-019-01947-3. Epub 2019 Apr 20. PMID: 31006063.
8. Kelahan L, Menias CO, Chow L. A review of internal hernias related to congenital peritoneal fossae and apertures. Abdom Radiol (NY). 2021 May;46(5):1825-1836. doi: 10.1007/s00261-020-02829-4. Epub 2020 Oct 30. PMID: 33128101.
9. Yeo CJ, editor. Shackelford's surgery of the alimentary tract. Eighth edition. Philadelphia, PA: Elsevier; 2019.