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CASE REPORT

A Rare Case of Complex Left Paraduodenal Hernia with Cocoon Abdomen

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Abstract: Paraduodenal hernias are rare congenital hernias that account for approximately 0.2-0.9% of all internal hernias. Among them, left paraduodenal hernias are even rarer, with an incidence of about 0.8%. Cocoon abdomen, also known as sclerosing encapsulating peritonitis, is a rare condition characterized by the encapsulation of the small bowel by a thick fibrous membrane, leading to intestinal obstruction. We present a rare case of a 45-year-old female patient who presented with complaints of left upper abdominal pain, intermittent vomiting, and abdominal distension for two months. Imaging studies revealed a complex left paraduodenal hernia with cocoon abdomen, leading to subacute intestinal obstruction. The patient underwent exploratory laparotomy, reduction of small bowel contents from the hernial sac, excision of the hernial sac, extensive adhesiolysis, and closure of the hernial defect. Intraoperatively, the entire small bowel from the duodenojejunal flexure to the ileocecal junction was encased in a thick peritoneal sac, with dense interbowel adhesions and a thick hernial sac. The postoperative course was complicated by paralytic ileus, which was managed conservatively. The patient recovered well and was discharged on a low-residue diet and appropriate medications. This case highlights the rare coexistence of a left paraduodenal hernia and cocoon abdomen, emphasizing the importance of early diagnosis and timely surgical intervention to prevent potential life-threatening complications.

Keywords: Left paraduodenal hernia; Cocoon abdomen; Intestinal obstruction; Adhesiolysis; Paralytic ileus.

1. Introduction

Paraduodenal hernias are rare congenital internal hernias that result from the abnormal rotation or peritoneal membrane failure during embryonic development [1]. They account for approximately 0.2-0.9% of all internal hernias and can be classified into left, right, and bilateral types based on their location relative to the ascending or descending portions of the duodenum [2]. Left paraduodenal hernias are exceedingly rare, comprising only 0.8% of all paraduodenal hernias [3]. Cocoon abdomen, also known as sclerosing encapsulating peritonitis, is a rare condition characterized by the encapsulation of the small bowel by a thick fibrous membrane, leading to intestinal obstruction [4]. This condition can occur idiopathically or secondary to various factors, including peritoneal dialysis, abdominal surgery, and certain medications [5]. The exact pathogenesis of cocoon abdomen is not well understood, but it is believed to involve a chronic inflammatory process leading to the formation of a fibrous membrane encasing the small bowel [6].

The coexistence of a left paraduodenal hernia and cocoon abdomen is an extremely rare phenomenon, with only a few reported cases in the literature [7][8]. The combination of these two conditions can lead to significant diagnostic challenges and potential life-threatening complications if not promptly recognized and treated. Left paraduodenal hernias are typically asymptomatic and often discovered incidentally during imaging or surgical procedures [9]. However, when symptomatic, they can present with various clinical manifestations, including abdominal pain, nausea, vomiting, and intestinal obstruction [10]. Cocoon abdomen, on the other hand, typically presents with symptoms of intestinal obstruction, such as abdominal pain, distension, vomiting, and constipation [11]. Diagnostic workup for these conditions often involves imaging modalities, such as computed tomography (CT) and magnetic resonance imaging (MRI), which can provide valuable information about the location and extent of the hernia and the presence of bowel obstruction or other associated findings [12][13]. However, the definitive diagnosis of a left paraduodenal hernia and cocoon abdomen may not be established until the time of surgical exploration. In this case report, we present a rare case of a 45-year-old female patient with a complex left paraduodenal hernia and cocoon abdomen, resulting in subacute intestinal obstruction. We discuss the clinical presentation, diagnostic workup, surgical management, and postoperative course, highlighting the importance of early recognition and timely intervention in such rare and challenging cases.

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2. Case Report

2.1. Case Presentation

A 45-year-old female presented to the emergency department with complaints of left upper abdominal pain, intermittent vomiting, and abdominal distension for two months. The patient reported a history of similar symptoms a few years ago, which had resolved spontaneously. There was no associated fever, jaundice, hematemesis, or melena. On examination, the patient was conscious and coherent, with a blood pressure of 100/70 mmHg, pulse rate of 106 beats per minute, and oxygen saturation of 98% on room air. Abdominal examination revealed a distended abdomen with increased bowel sounds. Digital rectal examination revealed a roomy rectum.

2.2. Diagnostic Evaluation

Initial laboratory investigations, including complete blood count, serum electrolytes, and liver function tests, were within normal limits. An erect abdominal X-ray showed dilated small bowel loops with multiple air-fluid levels, suggesting intestinal obstruction.

Subsequently, a contrast-enhanced computed tomography (CT) scan of the abdomen and pelvis was performed, which revealed a complex left paraduodenal hernia with encapsulation of the small bowel by a thick fibrous membrane, consistent with cocoon abdomen. The CT scan showed the entire small bowel from the duodenojejunal flexure to the ileocecal junction encased in a thick peritoneal sac, posterior to the left transverse mesocolon. Dense interbowel adhesions were present within the hernial sac, and the hernial sac itself was markedly thickened.

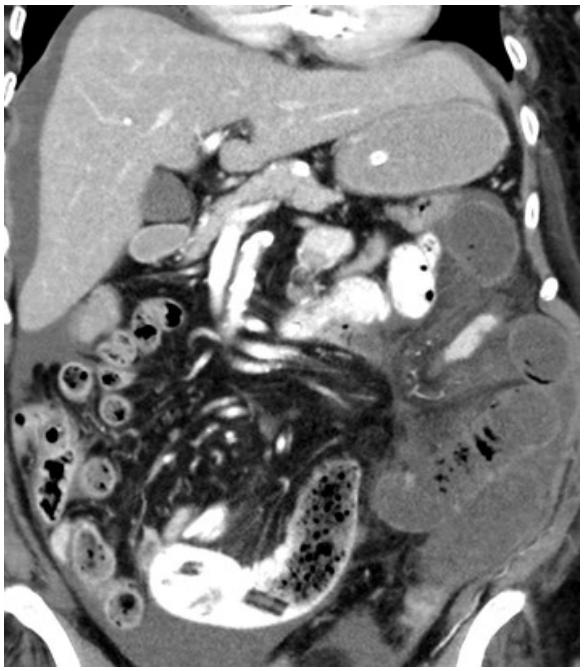

Figure 1. CT scan showing encapsulation of the small bowel by a thick fibrous membrane

Additionally, the left lobe of the liver was found to be densely adherent to the anterior abdominal wall, and the stomach and transverse colon were partially covered by a thin peritoneal membrane. An upper gastrointestinal endoscopy was also performed to rule out any associated pathology, which revealed no abnormalities. Based on the clinical presentation and radiological findings, a diagnosis of subacute intestinal obstruction due to a complex left paraduodenal hernia with cocoon abdomen was made, and the patient was scheduled for surgical intervention.

2.3. Surgical Management

After proper preoperative evaluation, including cardiac assessment and preanesthetic check-up, the patient was scheduled for exploratory laparotomy on 04/04/2023. Intraoperatively, the findings were consistent with the preoperative imaging studies. The entire small bowel from the duodenojejunal flexure to the ileocecal junction was encased in a thick peritoneal sac, posterior to the left transverse mesocolon. Dense interbowel adhesions were present within the hernial sac, and the hernial sac itself was markedly thickened. The left lobe of the liver was densely adherent to the anterior abdominal wall, and the stomach and transverse colon were partially covered by a thin peritoneal membrane.

The surgical procedure involved the reduction of the small bowel contents from the hernial sac, excision of the hernial sac, extensive adhesiolysis, and closure of the hernial defect. The entire large bowel, from the cecum to the rectum, appeared normal.

2.4. Post-Operative Care

Following the surgical procedure, the patient was admitted to the intensive care unit for close monitoring and management of potential complications. In the immediate postoperative period, the patient developed profound paralytic ileus, which was managed conservatively with Ryle's tube aspirations, intravenous fluids, electrolyte correction, analgesics, proton pump inhibitors, prokinetic agents, and daily rectal enemas. On the 6th postoperative day, the patient's paralytic ileus began to resolve, and she was able to tolerate liquids orally and pass stools. However, a minor surgical site infection occurred, which was managed with daily dressings.

The abdominal drain was removed on the 7th postoperative day, and the patient was gradually advanced to a soft diet from the 9th postoperative day, which she tolerated well. After a successful recovery, the patient was discharged on the 12th postoperative day in a stable condition with the following instructions:

1. Low-residue diet and small, frequent meals were advised.
2. Medications prescribed included:
    Capsule Nexpro-L 40mg once daily (half an hour before breakfast) for 10 days
    Syrup Gaviscon 2 teaspoonfuls thrice daily (2 hours after food) for 15 days
    Tablet Ceftas-CV twice daily (after food) for 5 days
    Tablet Pruvict 1mg at bedtime (after food) for 1 week
    Syrup Zincovit 10ml thrice daily (after food) for 10 days
    Tablet Dolo 650mg as needed for pain
    Syrup Calcimax 15ml twice daily (after food) for 10 days
    Colax suppositories, per rectum, twice daily for 3 days
3. A follow-up appointment was scheduled after 1 week.

3. Discussion

The coexistence of a left paraduodenal hernia and cocoon abdomen is an extremely rare phenomenon, with only a few reported cases in the literature [14][15]. This combination of conditions poses significant diagnostic and therapeutic challenges, as the clinical presentation can be nonspecific, and the radiological findings may be complex and challenging to interpret.

Left paraduodenal hernias are congenital hernias that occur due to the abnormal rotation or peritoneal membrane failure during embryonic development [1]. They are often asymptomatic and discovered incidentally during imaging or surgical procedures [9]. However, in the present case, the left paraduodenal hernia was symptomatic, leading to subacute intestinal obstruction. Cocoon abdomen, or sclerosing encapsulating peritonitis, is a rare condition characterized by the encapsulation of the small bowel by a thick fibrous membrane [4]. The exact pathogenesis of this condition is not well understood, but it is believed to involve a chronic inflammatory process leading to the formation of a fibrous membrane encasing the small bowel [6]. In the present case, the cocoon abdomen likely contributed to the development of intestinal obstruction, further complicating the clinical picture.

The diagnostic workup in this case involved a combination of imaging modalities, including contrast-enhanced CT and upper gastrointestinal endoscopy. CT scanning played a crucial role in delineating the anatomical details of the left paraduodenal hernia and the presence of the cocoon abdomen, guiding the surgical management [12][13]. Surgical intervention was the definitive treatment in this case, involving the reduction of the small bowel contents from the hernial sac, excision of the hernial sac, extensive adhesiolysis, and closure of the hernial defect [16][17]. The postoperative course was complicated by paralytic ileus, which is a common complication following extensive abdominal surgery and adhesiolysis [18]. However, the patient responded well to conservative management, highlighting the importance of close postoperative monitoring and timely management of potential complications.

4. Conclusion

The coexistence of a left paraduodenal hernia and cocoon abdomen is an extremely rare and challenging clinical scenario. Early recognition and prompt surgical intervention are crucial to prevent potential life-threatening complications, such as bowel obstruction, ischemia, or perforation. This case report emphasizes the importance of maintaining a high index of suspicion for rare conditions, particularly in cases with atypical clinical presentations or complex radiological findings. A multidisciplinary approach involving radiologists, surgeons, and other relevant specialists is essential for accurate diagnosis and optimal management of such complex cases. This case highlights the need for close postoperative monitoring and appropriate management of potential complications, such as paralytic ileus, which can significantly impact the recovery process.

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