Strangulated left paraduodenal abdominal hernia. Case report

Alejandro Barboza, Joaquín A. Solarana Ortiz, Gonzalo Gayo, Mauricio Pontillo Walerovsky

Hospital del Cerro, ASSE, Montevideo, Uruguay

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INTRODUCTION

Internal abdominal hernias are defined as the passage of organs or tissues through a peritoneal or mesenteric opening, resulting in entrapment within an abdominal compartment. These anomalies are associated with bowel obstruction and occur as a result of bowel rotation abnormalities during intrauterine pregnancy. They constitute a rare occurrence, representing only 1% of all hernias.[1,2] Among these, paraduodenal hernias are the most prevalent, accounting for approximately 50%.[2] First described by Neubauer in 1786, only a few cases have been reported in the international literature.[2-4]

Although the incidence is very low, the importance of these cases lies in the diagnostic problem they represent. The symptoms are nonspecific, ranging from abdominal discomfort accompanied by nausea and vomiting to the presence of complete bowel obstruction, which may be associated with complications such as peritonitis due to ischemia or perforation.

We present our experience in the management of a 63-year-old female patient with bowel obstruction secondary to a strangulated paraduodenal hernia.

CASE

A 63-year-old woman with a history of cesarean delivery presented with moderate, diffuse, cramping abdominal pain that had persisted for 72 hours. The pain was associated with abdominal distension, vomiting, and absence of stool and flatus since the onset of symptoms. On admission, the patient exhibited a good general condition accompanied by diffuse abdominal distension, increased bowel sounds, and a digital rectal examination that revealed no stool in the rectal ampulla. Blood tests were normal, and imaging studies showed findings consistent with bowel obstruction. A plain abdominal X-ray showed small air-fluid levels in the central abdomen, suggesting a small bowel obstruction in the erect position (Fig. 1A), and distended loops with a characteristic coin-stack appearance indicative of the valvum connivens (Fig. 1B) in the supine position.

Figura 1. *Radiografía simple de abdomen.* ***A.*** *De pie. Se observan niveles hidroaéreos centro abdominales pequeños correspondientes a intestino delgado (líneas blancas).* ***B.*** *En decúbito dorsal. Asas centroabdominales distendidas, generando la clásica imagen de pila de monedas (círculos blancos).*

The authors declare no conflicts of interest. **Alejandro Barboza:** alejandrobarbozamartinez@gmail.com
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Alejandro Barboza ORCID: 0009-0001-8828-3628; Joaquín Solarana ORCID: 0000-0001-9633-7086; Gonzalo Gayo ORCID: 0000-0002-3931-6403 Mauricio Pontillo ORCID: 0000-00

A subsequent computed tomography (CT) scan of the abdomen and pelvis revealed dilated jejunal loops with air-fluid levels and a transition zone with flat loops in the mid-abdominal region (Fig. 2). No signs of ischemia, such as altered wall enhancement or parietal pneumatosis, were identified.

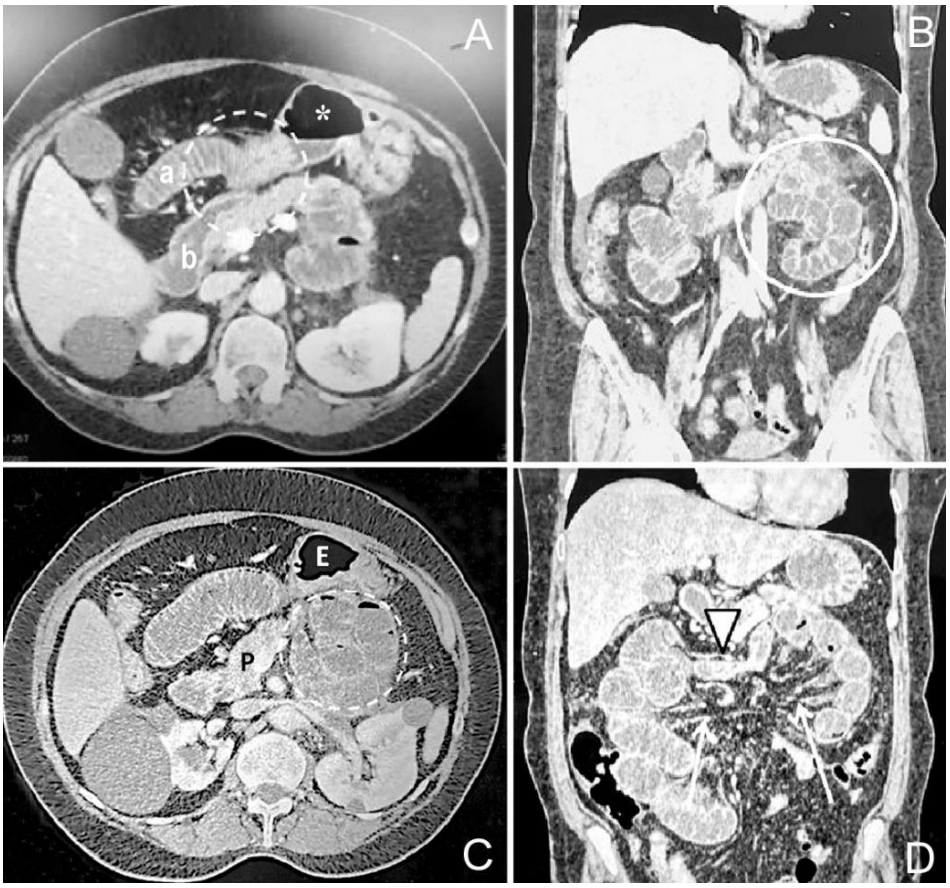

Figura 2. *Tomografía computada abdominopelviana.* ***A.*** *Corte axial. A nivel centro abdominal se puede observar la zona de transición (círculo blanco) entre la asa aferente distendida (a) y la eferente chata (b). El asterisco marca la presencia de un nivel hidroaéreo.* ***B.*** *Corte sagital. Se observa a la izquierda de la línea media un ovillo de asas delgadas distendidas (círculo blanco) en la topografía en que luego en el intraoperatorio se halló la hernia paraduodenal, correspondiendo al contenido del saco herniario.* ***C.*** *Corte axial. Marcado con se observa ovillo de asas delgadas distendidas con niveles hidroaéreos en su interior en el sector superior izquierdo del abdomen (círculo blanco), entre el estómago (E) y el páncreas (P).* ***D.*** *Corte sagital. Se observan los vasos mesentéricos estirados (flechas) y convergiendo hacia el sitio de herniación. La punta de flecha marca el sitio de transición asa chata-asa distendida.*

Based on the imaging findings, the patient was diagnosed with bowel obstruction secondary to adhesions. Medical treatment was therefore initiated, including fasting, fluid and electrolyte replacement, intravenous analgesia and antiemetics, concomitant with nasogastric tube placement for gastrointestinal decompression. After 72 hours, the patient remained symptomatic, and abdominal X-rays clearly showed signs of bowel obstruction. An exploratory laparotomy was performed, revealing a left paraduodenal hernia with jejunal loops (Fig. 3A and B). Following reduction, the transition zone from a thin to a thick loop was evident above the hernial ring, with ischemic changes and perforation, and minimal bilious content in the sac (Fig. 3C). A resection (Fig. 3D) and a handsewn side-to-side entero-entero anastomosis were performed. The patient progressed favorably in the ward, resuming oral intake on the third postoperative day and bowel transit on the fourth day, and was discharged on the seventh day.

DISCUSSION

Since internal hernias are rare defects that often present with complications requiring surgery, the international literature consists primarily of case reports. This precludes the obtaining of reliable data on gender distribution and other demographics. In 2019, Schizas et al.[5] published a systematic review with 115 studies, mostly case reports, and 18 case series, encompassing 119 patients. The mean age at presentation was 44 years, with a male-to-female predominance ratio of 2:1, unlike what was reported in this presentation. As expected, all patients required surgery given their associated complications. Mortality in these conditions can be high if there is associated vascular compromise in the affected viscera, which occurs in up to 20% of cases.[1,2] Conversely, on many occasions, these hernias are discovered incidentally as imaging findings or during surgical procedures.

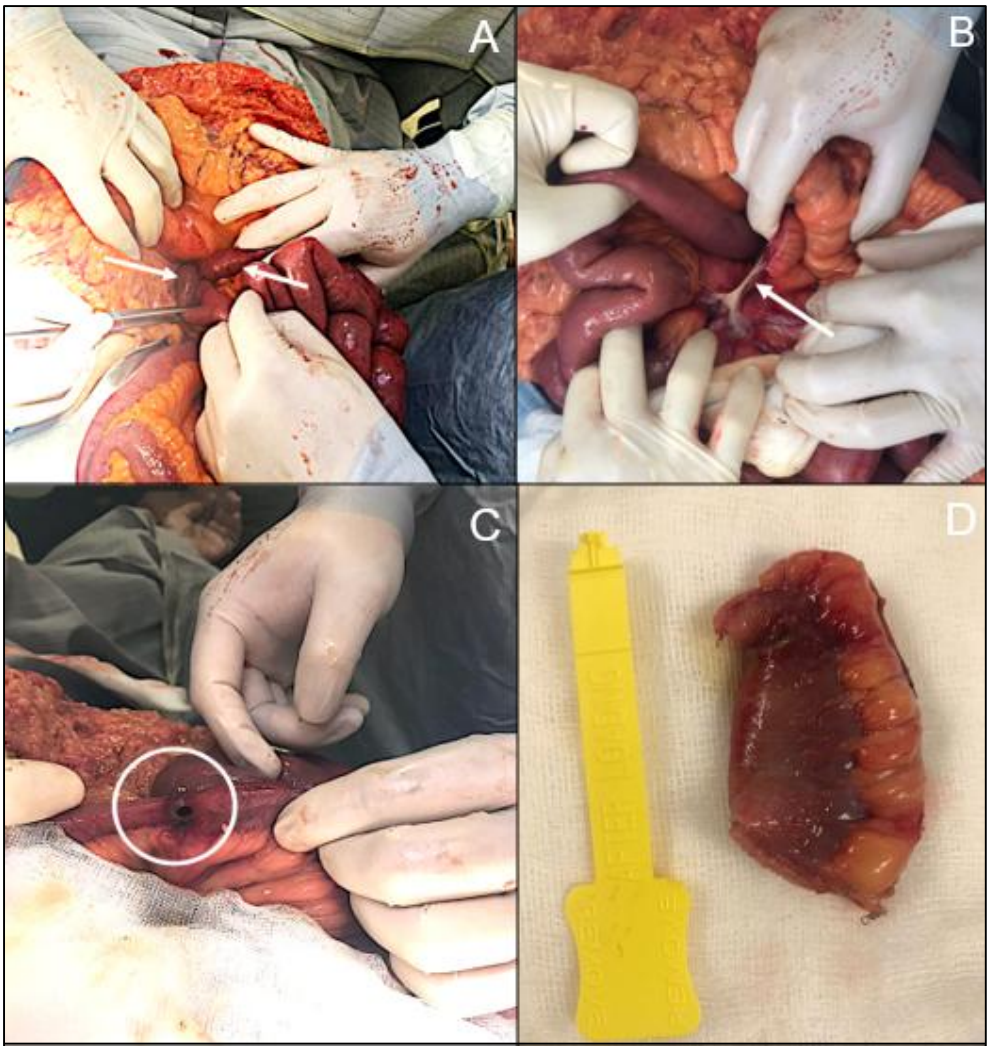

Figura 3. A. *Hernia paraduodenal izquierda con contenido de asas delgadas. Se ve marcado con las flechas blancas las asas aferente y eferente entrando y saliendo del defecto herniario.* ***B.*** *Hernia paraduodenal izquierda. Marcado con la flecha blanca se ve el defecto congénito, fusión del mesocolon con el peritoneo parietal posterior llevando a la formación del saco herniario.* ***C.*** *Marcado con un círculo blanco se observa ya reducida la hernia, sobre la zona de transición un sector con sufrimiento isquémico ya perforado de intestino delgado.* ***D.*** *Pieza de resección de intestino delgado con sufrimiento isquémico.*

These congenital hernias are secondary to an abnormality in the development of the peritoneal cavity due to a lack of resorption of the sacs or pits of the splanchnic mesoderm. This causes the mesocolon to fuse with the posterior peritoneal wall to form the hernial sac (Fig. 3B).[1,4] They can be found on the right or left side of the duodenum (Fig. 4), the latter being the most common form and the one presented in our patient.

Concerning the diagnostic process, the clinical picture is nonspecific, manifesting with intermittent abdominal pain, abdominal distension, nausea and vomiting, or symptoms of complete bowel obstruction. Laboratory tests are also ineffective in establishing a diagnosis, as their primary function is to detect potential repercussions for the patient. Consequently, the pivotal role of imaging in clinical practice is evident. Radiology can provide data suggesting an occlusion, such as small air-fluid levels in the central abdomen. However, it is also unable to diagnose an internal hernia. Abdominopelvic computed tomography (CT) scan provides more detailed information about the topography of the occlusion and, in some cases, allows for the diagnosis of this condition. However, its greatest usefulness is ruling out other causes and assessing associated complications.[6]

When analyzing CT images, it is essential to identify some elements that may suggest this condition. In left-sided paraduodenal hernias, a cluster of thin loops is observed in the upper left abdomen, typically sited between the stomach and pancreas, which may displace the colon (Fig. 2A, B, and C). In addition, stretching of the superior mesenteric vessels is observed, which tend to converge toward the hernia site (Fig. 2D), and occasionally the superior mesenteric artery and vein are seen running parallel to the medial aspect of the hernial sac.[7]

Given all the above, it is understandable that a definitive diagnosis is often only reached intraoperatively. Treatment of this condition is surgical and involves reduction of the hernia and management of the contents. Depending on the vascular involvement, bowel resection and anastomosis may be necessary. Resection of the sac is unnecessary, and the defect should be closed to prevent recurrence.

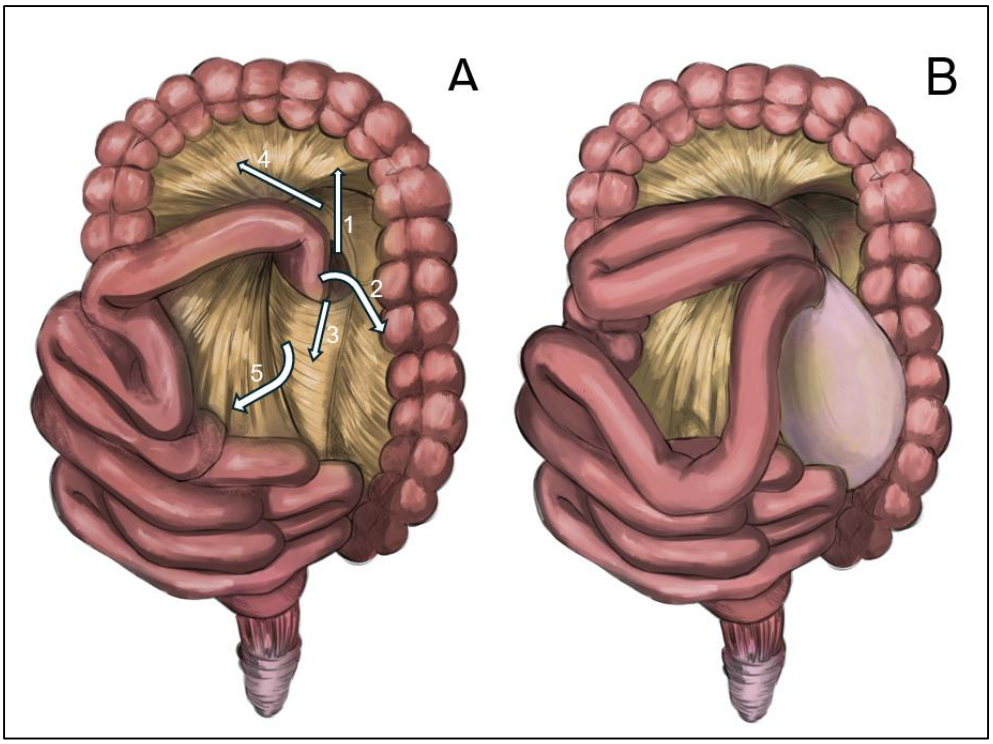

Figura 4. A. *Tipos de hernia paraduodenal: fosita de Treitz (1), fosita de Landzert (2), fosita inferior de Treitz (3), fosita de Broesike (4), fosita de Waldeyer (5).* ***B.*** *Hernia paraduodenal izquierda. Saco configurado a la izquierda de la línea media, a nivel del mesocolon transverso. La vena mesentérica inferior forma parte del saco. Figura realizada por la estudiante avanzada en licenciatura en animación y videojuegos de la Universidad ORT, Uruguay, Martina Gubitosi.*

CONCLUSIONS

Internal paraduodenal hernias usually present with an associated complication, most frequently a proximal intestinal obstruction, which requires surgical intervention. Its low incidence merits a high clinical suspicion, since the early arrival at an accurate diagnosis conditions the evolution and prognosis. Imaging studies, mainly CT scan, play a fundamental role but do not always clarify the picture, and the definitive diagnosis is established intraoperatively.

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