

**Acute Abdomen due to Congenital Transmesenteric
Internal Hernia in a 12-Year-Old Patient: Case
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***Corresponding author**

*Dr. Gaby Ajcip, Department of Pediatric surgery , Guatemala, Spain.
Email: gaby.ajcip@gmail.com

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Dr. Gaby Ajcip*. Advisor: Dr. Jacqueline Carrera

*Department of Pediatric Surgery , Guatemala, Spain.***Abstract**

An internal hernia is a defect inside the abdominal cavity that can be found in different locations, 12% are transmesenteric, it can be of acquired origin (traumatic or previous surgeries) or congenital defect, the finding is usually incidental. Intestinal peristalsis can allow passage through this defect and in most cases it reduces spontaneously, however in some cases an adequate return is not allowed and the irrigation of the structures is compromised causing an acute abdominal clinical picture, usually the symptoms tend to be obstructive and sudden. As it is a rare entity, preoperative diagnosis is infrequent.

The case of a 12-year-old male patient who consults for abdominal pain of 8 hours' duration, previously healthy, is presented with a regular general condition, paleness, tachycardia, painful abdomen, palpable mass in the left hemiabdomen, muscle guarding and signs of peritoneal irritation, laboratory and imaging studies suggestive of an obstructive process, is taken to the operating room where a defect is found in the mesentery 2.3 meters from the duodenojejunal angle (ADY), inside it there is 1.3 meters of small intestine with irreversible ischemic changes, so resection and anastomosis of the affected portion is performed. The patient spends 3 days in intensive care under mechanical ventilation, due to having an adequate evolution he is successfully extubated and continues 7 more days in pediatric surgery service with good evolution and is discharged.

There are few documented cases of this pathology, the diagnosis is usually not preoperative, however timely medical and surgical intervention allows for satisfactory outcomes, since being a rare entity the appropriate treatment can be delayed increasing the possible complications.

Introduction

An internal hernia is the passage of one or more organs through an opening within the peritoneal cavity. Depending on where it is located, it can be: Winslow hiatus, ileocecal fossa, paraduodenal, transmesenteric, intersigmeoid, broad ligament of the uterus, and retroanastomotic. Of the internal hernias, the transmesenteric hernia occupies 12% of them and can be congenital or acquired. 35% occur in the pediatric population, they are usually incidental findings during a laparotomy, laparoscopy, or autopsy.

Transmesenteric hernia is a rare entity. The defect is usually located at the level of the small intestine and the size can vary from 2 to 15 centimeters, on average it is 3 centimeters. It is more common in male patients and about half of the cases suffer ischemic necrosis. One of the main and most feared complications is that due to the pressure exerted on the intestinal section inside the defect, it may suffer ischemia, subsequently infarction and necrosis that ends in intestinal perforation and peritonitis.

Case presentation

A 12-year-old male patient, originally from and resident in Guatemala City,

presented with abdominal pain of 8 hours' duration, which was of sudden onset, located in the right hemiabdomen, intensity 6 out of 10, did not radiate, was associated with nausea and anorexia, which did not improve at home, which is why they brought him to this health center. He had no significant medical, surgical or traumatic history.

On admission, the patient was found to be in an antalgic position, with generalized pallor, complaining, tachycardic (heart rate 120 beats per minute), afebrile, with a flat abdomen, decreased gastrointestinal sounds, muscular defense, a painful mass was palpated in the left hemiabdomen, with Blumberg's sign, psoas and positive obturator muscles. He was initially evaluated by pediatrics, who suspected acute appendicitis, so he consulted pediatric surgery.

Complementary studies were performed, in which leukocytes were found at 20.39 K/uL, neutrophils at 93.97%, hemoglobin at 16.7 gr/dl, hematocrit at 47%,

platelets at 246.70 k/uL, creatinine at 0.64 mg/dr, urea nitrogen at 7.70 mg/dl, sodium at 141 mmol/L, potassium at 4.3 mmol/L, C-reactive protein at 0.5 mg/dL. The imaging studies performed were abdominal ultrasound, in which they reported a small amount of intra-abdominal fluid with fine echoes and septa inside at the time of the study. The simple abdominal X-ray (see figure 1) presents with poor gas distribution and radiopaque image in the center, obliteration of the POAS, no distal gas.

The patient's clinical picture did not improve. The abdomen continued to be painful and tense, with a palpable mass in the left hemiabdomen. The patient was therefore taken to the operating room for acute abdomen, with intestinal intussusception or volvulus being one of the suspected diagnoses. The approach was through a supraumbilical transverse incision. The findings showed a defect in the intestinal mesentery 2.3 meters from the duodenojejunal angle, approximately 4 cm in diameter and with regular edges (see figure 2). Dilated intestinal loops were



Figure 1: Standing X-ray, obstruction data.

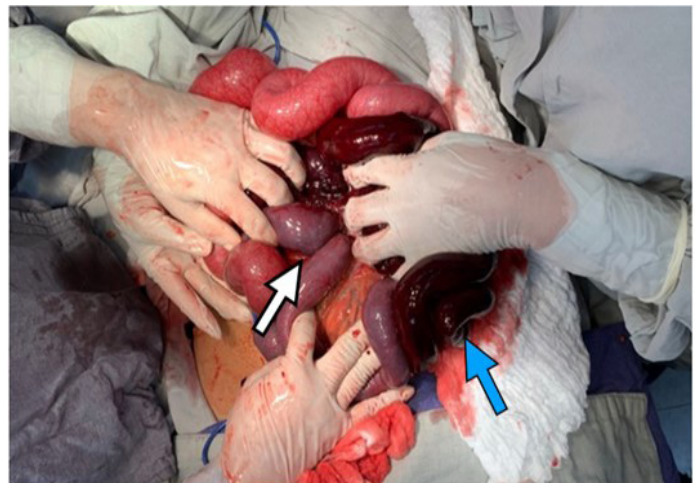


Figure 3: Intestinal loops inside through transmesenteric hernia (white arrow), dilated loops with irreversible ischemic changes (light blue arrow).

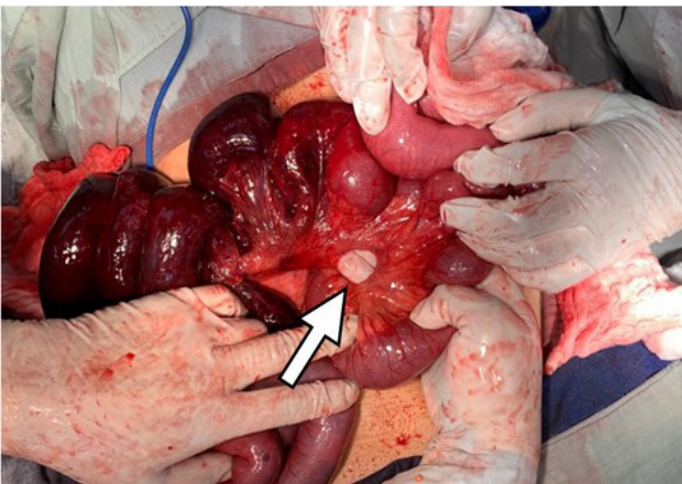


Figure 2: Defect in mesentery 2.3 meters from the duodenojejunal angle.



Figure 4: Intestinal portion with irreversible ischemic changes resected.

found inside, with irreversible ischemic changes 2.4 to 3.7 meters from the duodenojejunal angle (see figure 3) and 400 cc of inflammatory fluid in the cavity. Upon evidence of these findings, the hernia was reduced and a 1.3-meter intestinal resection was performed (see figure 4) and an end-to-end anastomosis of 2.4 to 3.7 meters of the duodenojejunal angle with 5-0 polypropylene with monoplane hemo-seal with single, separated serosubmucosal sutures. No leaks were seen and the diameter was adequate. The hernia defect and the mesentery of the anastomosis were closed with 4-0 polyglactin, inflammatory fluid was aspirated, the cavity was washed with saline solution,

aspiration was performed and hemostasis was verified, definitive closure of the fascia with polydioxanone 1, continuous single sutures and skin with 3-0 nylon single sutures.

The patient was evaluated in his immediate postoperative period by pediatrics who decided to leave him under mechanical ventilation and move him to the pediatric intensive care unit, where he remained for 72 hours under mechanical ventilation. Due to clinical and metabolic improvement, he was successfully extubated and on his fourth postoperative day he was transferred to the pediatric surgery unit. He was started on an oral diet with liquids and progressed until he tolerated a free diet. He was on antibiotic treatment for 10 days with metronidazole and ceftriaxone. On his tenth postoperative day he was discharged successfully.

Discussion

As the literature has described, the finding of internal hernias is usually incidental. In the case presented, the patient was taken to the operating room for acute abdomen. In this patient, peristalsis allowed the passage of the small intestine through the mesentery defect and when the irrigation and drainage of the intestinal loops were compromised, the inflammatory process began which later progressed to ischemia with irreversible changes. Since it is a rare pathology, a definitive diagnosis could not be obtained beforehand; however, it is considered that early surgical intervention was one of the pillars for the adequate and satisfactory evolution of the patient.

It has been described that tomography is useful for diagnosis, but in our environment the use of tomography in pediatric patients is infrequent, so the diagnosis must be guided by the history, clinical picture, laboratory tests, ultrasound and X-rays. The diagnosis should be suspected in patients with sudden abdominal pain who present symptoms of obstruction and who have no history of previous surgeries or traumatic events. The decision to perform a timely surgical intervention can prevent catastrophic outcomes, as in this case.

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