

## TRANSMESENTERIC HERNIA – A RARE CAUSE OF ABDOMINAL PAIN IN ADULTS: A CASE REPORT AND REVIEW OF THE LITERATURE

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**Abstract:** Transmesenteric hernias (TMHs) are a rare subtype of internal hernias, often attributed to iatrogenic or congenital causes. Here, we present a case of congenital transmesenteric hernia in a 40-year-old woman with no prior surgical history or comorbidities. Despite its rarity, awareness of TMHs is crucial for timely diagnosis and surgical intervention to prevent potential complications and reduce mortality rates associated with this condition.

**Keywords:** internal; hernia; transmesenteric.

## INTRODUCTION

An internal hernia occurs when abdominal organs, especially loops of the small intestine, protrude into a space within the abdominal and pelvic cavity through an opening in the peritoneum or mesentery. This phenomenon is commonly linked to structural features like openings, indentations, and depressions within the body. Moreover, abnormalities in the mesentery and the membrane lining the abdominal organs, resulting from factors such as genetic predisposition, surgical procedures, injuries, inflammation, and circulatory problems, can also contribute to the development of hernias.

While internal hernias are relatively uncommon, comprising less than 1% of all cases, they account for as much as 5.8% of small-bowel obstructions. The uptick in internal hernia incidence in the last years, is linked to the greater prevalence of liver transplants and gastric bypass surgeries performed for managing obesity.

Of all internal hernias documented, paraduodenal hernias are the prevailing type, representing over fifty percent of cases, as reported by Blachar, Federle, and Dodson (2001). Additionally, various other forms of internal hernias have been identified, such as transmesenteric, supra and/or perivesical, intersigmoid, foramen of Winslow, and infrequently omental hernias.

Commonly, diagnostic imaging methods such as barium studies and computed tomography (CT) scans often detect distinct indicators of different internal hernias. These indicators include irregular placement of an intestinal segment in susceptible regions like the minor sac, accumulation and entrapment of small bowel loops within the peritoneal cavity, presence of contrast medium within the intestinal lumen and enlargement of the adjacent bowel segment.

For individuals suspected of having internal hernias, prompt surgical intervention may be necessary to decrease the elevated rates of morbidity and mortality.

## CASE REPORT

A 40-year-old woman who was followed by oncology for ovarian mucinous neoplasm and peritoneal carcinomatosis undergoing neoadjuvant chemotherapy treatment.

She reported a progressive increase in abdominal volume associated with diffuse abdominal pain for 6 months.

There were no previous comorbidities and no previous abdominal surgical procedures.

A computed tomography and a MRI of the abdomen and pelvis was requested, which showed findings compatible with intestinal malrotation and transmesocolic hernia (figures 1, 2, 3 and 4).

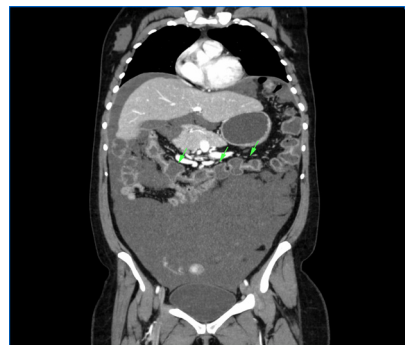


Figure 1. Coronal image of contrast-enhanced tomographic examination. Continuous arrows demonstrating the path of the transverse colon.

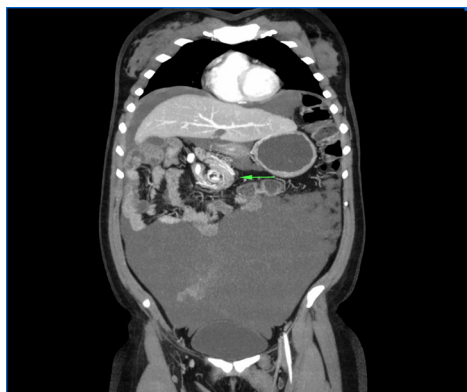


Figure 2. Coronal image in a plane anterior to figure 1. MPR of contrast-enhanced tomographic examination. Continuous arrow demonstrating torsion of slightly ectatic mesenteric vessels.

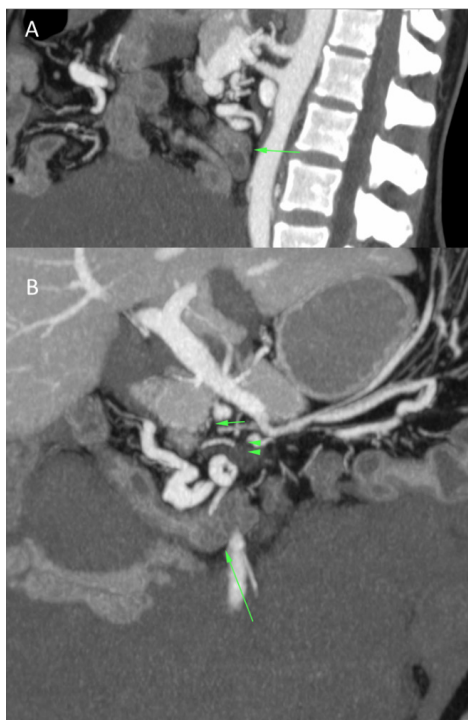


Figure 3. A. Tomographic examination image with MPR reconstruction in the sagittal plane. The solid arrow shows the transverse colon; B. Tomographic examination image with MPR reconstruction in the sagittal plane. The single short continuous arrow demonstrates the absence of the uncinata process in its usual topography, absence of second duodenal portion (double arrowheads) and in this topography passing the transverse colon.

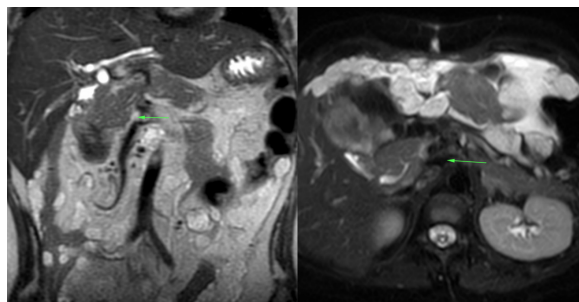


Figure 4. A: Coronal T2 FSE image and B: axial T2 FS image demonstrating absence of the uncinata process due to intestinal malrotation.

## DISCUSSION

A transmesenteric hernia develops when there is a congenital or acquired anomaly, affecting both layers of the mesentery of the small intestine, typically found near the ligament of Treitz or the terminal ileum.

In adults, internal herniation primarily arises from surgically induced openings, inflammation, or trauma, with bariatric patients who have experienced rapid weight loss emerging as a particularly vulnerable subgroup. The rarity of internal hernias in adults originating from congenital factors is acknowledged, with only a few cases documented in medical literature.

There are three types of transmesenteric hernias. Among them, the most common is the “transmesocolic” hernia, characterized by the protrusion of bowel loops through a surgical defect in the transverse mesocolon, potentially leading to compression of the stomach and displacement of the transverse colon. Another variant, the “jejunojejunostomy mesenteric” hernia, occurs when bowel prolapses through a defect in the small-bowel mesentery at the jejunojejunostomy site. Lastly, the “Petersen type” involves bowel loops protruding behind the Roux limb before passing through a defect in the transverse mesocolon.

Alhayo et al. (2017) highlight the varied presentation of transmesenteric hernias,

ranging from asymptomatic to severe cases of acute abdomen and even unexpected death. Furthermore, it has been suggested that transmesocolic hernias are more prone to complications such as volvulus, strangulation, ischemia, and perforation compared to other subtypes of internal hernias.

In the past, small-bowel oral contrast studies were commonly used to evaluate these hernias. However, CT scans have now become the preferred imaging method due to their availability and improved diagnostic capabilities. Radiographic features observed in barium studies may include the encapsulation of distended bowel loops within the hernial sac, abnormal positioning or clustering of small-bowel loops, signs of obstruction with segmental dilatation and stasis, and apparent fixation and reversed peristalsis during fluoroscopic assessment. Additionally, CT scans may reveal further findings such as abnormalities in mesenteric vessels, such as engorgement, clustering, twisting, and stretching, which often indicate the underlying diagnosis. Other CT observations, like the clustering of distended small bowel loops in the outer regions without

any covering omentum, might suggest the existence of transmesenteric hernias.

In our case, distension of the peritoneal cavity with liquid content facilitated the diagnosis of transmesenteric hernia.

According to Willems et al. (2018), failure to diagnose correctly or delaying surgical intervention inevitably results in bowel necrosis and, ultimately, mortality rates that have been documented to reach as high as 50%.

## CONCLUSION

Transmesenteric hernias pose a diagnostic challenge, particularly on imaging studies such as CT scans. However, recognizing the characteristic features of TMHs is vital for prompt surgical management, mitigating the risk of irreversible bowel damage and minimizing associated mortality rates. Radiologists play a pivotal role in identifying these hernias, thereby facilitating expedited treatment and improving patient outcomes. Continued vigilance and understanding of TMHs are essential in enhancing clinical outcomes and reducing morbidity associated with this rare pathology.

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