Transmesenteric internal abdominal hernia- Multi-detector row computed tomography findings

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Introduction
Transmesenteric hernia (TMH) is an uncommon type of an internal hernia that can occur through a congenital or an acquired defect in the mesentery. It most commonly presents with intestinal obstruction and highly prone to volvulus and strangulation. It is difficult to diagnose clinically.

Comment
An 80-year-old lady presented to the emergency department with subacute intestinal obstruction features. There was no past history of surgery, diabetes, hypertension, or previous exposure to tuberculosis. A multi-detector row computed tomography (MDCT) with angiography showed a cluster of mild dilated small bowel loops containing air-fluid levels on the right side of the abdomen [Figure 1a]. Engorged and crowded vessels were seen in the pedicle [Figure 1b]. The vessels were converging at the hernia entrance, with a twisted vascular pedicle [Figure 2a]. Another case was a 56-year-old female who had undergone hepaticejunostomy for post laparoscopy common bile duct injury six years back and now presented with features of intestinal obstruction. There was no other significant medical history. MDCT angiography showed a cluster of mild dilated small bowel loops in the mid-abdomen [Figure 2b] without features of bowel ischemia. Twisting of the vascular pedicle (whirlpool sign) was seen suggestive of volvulus [Figure 3]. Defect closure with repositioning of the bowel loops and fixation of the mesentery was done surgically with
uneventful postoperative recovery. The patients were doing well at follow-up. TMH accounts for nearly 8% of all internal hernias. TMH usually occurs near the origin of mesentery at the ligament of Treitz or close to the ileocecal valve. The defect size ranges from 2–5 cm in diameter. The acquired mesenteric rents are mostly secondary to surgery, trauma, or inflammation. Internal hernias are dormant as long as they reduce spontaneously. Symptoms range from mild digestive complaints, abdominal distension, continuous vague discomfort in the epigastric region, intermittent periumbilical pain, nausea and vomiting to recurrent episodes of intestinal obstruction. They become clinically apparent only when there is small bowel obstruction. The herniated bowel loops may present as a palpable tender lump. Nonspecific clinical features make the diagnosis challenging. A contrast-enhanced MDCT scan with angiography is very helpful in diagnosing the condition. The characteristic MDCT finding of an internal hernia is a sac-like cluster of dilated small bowel loops. The absence of a sac or a surrounding membrane differentiates it from an abdominal cocoon. A transition zone is seen between the proximal dilated small bowel loops and the normal or collapsed distal bowel. The vessels in the vascular pedicle of the herniated bowel loops appear crowded and stretched on CT angiography. The mesenteric vessels converge at the entrance of the hernial sac with whirling of the vascular pedicle (whirlpool sign) at the point of the mesenteric twist. In cases of strangulation, bowel ischemia signs, like wall thickening and enhancement, pneumatosis, and ascites, may be seen. Identification of the characteristic MDCT findings can help in early diagnosis of TMH and rescue the affected bowel loops.

**Informed Consent**

We confirm that the patient consent was obtained for publication.

**References**


**Figure 1a:** Contrast-enhanced MDCT of the abdomen, axial section image shows a sac-like cluster of dilated small bowel loops (within the circle) for an 80-year-old lady presented to the emergency department with subacute intestinal obstruction features.

**Figure 1b:** Contrast-enhanced MDCT abdomen with angiography, axial maximum intensity projection (MIP) image shows engorged and crowded vessels in the vascular pedicle (arrow).
Figure 2a: Contrast-enhanced MDCT abdomen with angiography, axial MIP image showing twisting of the vascular pedicle with engorged vessels (arrow).

Figure 2b: Contrast-enhanced MDCT abdomen, axial section image shows cluster of dilated small bowel loops (arrow).
Figure 3: Contrast-enhanced MDCT abdomen with angiography, axial MIP image showing twisting of the vascular pedicle (arrow).