Pericaecal internal hernia with small bowel obstruction

Clinical History:

A 72-year-old female patient presented to the emergency department with pain in the right iliac fossa starting 12 hours earlier, with associated nausea and vomiting. She had a history of chronic constipation, without previous abdominal surgery. Clinical examination showed right lower quadrant pain and tenderness. Laboratory tests were unremarkable.

Imaging Findings:

Ultrasound examination was performed for a suspected appendicitis and revealed dilated small bowel loops and a small bowel loop cluster in the right iliac fossa, with a small quantity of intraperitoneal fluid.

Investigation followed with CT using intravenous contrast administration which showed a small bowel loop cluster in the right iliac fossa with slight wall thickening, pushing the caecum/ascending colon anteriorly, in addition to dilated, fluid level filled, proximal small bowel loops, without distal dilatation. The respective mesenteric vessels were engorged.

Terminal ileum and appendix were seen without evident pathological changes.

Surgery was performed and confirmed a pericaecal internal hernia.

Discussion:

Internal hernias consist of protrusion of abdominal viscera through a peritoneal or mesenteric orifice, which can be an anatomic fossa/oramen or an acquired defect [1].

Clinical presentation can range from asymptomatic patients, unspecific and intermittent symptoms to closed loop bowel obstruction.

Although rare and infrequent cause of small bowel obstruction (SBO) [2], internal hernias are a diagnostic challenge. Clinically it is difficult to distinguish them from other aetiologies, and they should be included in the differential diagnosis, especially in patients without previous surgeries [1].

CT is a useful imaging modality to study patients with SBO [3]. Generally, internal hernias show a sack-like cluster of
dilated small bowel loops and engorged mesenteric pedicle with converging vessels at the hernial orifice. Special attention should be devoted to the sack location and mesenteric pedicle displacement, which are key to distinguish the type of internal hernia. Bowel wall enhancement patterns help to identify small bowel strangulation.

Paraduodenal hernia is the most frequent internal hernia (more than 50%), followed by pericaecal (13%), Winslow foramen, transmesenteric, transomental, intersigmoid and pelvic hernias [1].

Pericaecal herniation can happen in recesses formed by peritoneal folds in the ileocaecal region, which are superior ileocaecal recess, inferior ileocaecal recess, retrocaecal recess and paracolic sulci, although there can be anatomic variations due to different embryologic development. Usually, the ileal loops occupy the right paracolic gutter and may displace the caecum and ascending colon anteriorly and medially [1], with a transition zone in the right iliac fossa with a “beaking” appearance, signalizing the hernial orifice.

Teaching points:
• Internal hernias are an important differential diagnosis of SBO, especially in patients without surgery history
• CT is the best modality to study a suspected internal hernia.
• Sack-like cluster of bowel loops in an abnormal location and engorged mesenteric pedicle in a patient with SBO are important signs, and a good anatomic understanding of the peritoneal cavity is essential to correct CT interpretation.

Differential Diagnosis List: Pericaecal internal hernia with small bowel obstruction., Adhesions, Complicated appendicitis (right lower quadrant pain), Internal hernia

Final Diagnosis: Pericaecal internal hernia with small bowel obstruction.

References:
Description: Ultrasound showing dilated ileal loops (arrow) in the right iliac fossa. Origin: Gomes A, Serviço Imagiology Geral, CHLN-Hospital de Santa Maria, Lisboa, Portugal.
**Description:** CT demonstrating the caecum (with the ileocaecal valve - arrow) displaced anteriorly and medially. Notice the dilated ileal loops and peritoneal fluid. **Origin:** Gomes A, Serviço Imagologia Geral, CHLN-Hospital de Santa Maria, Lisboa, Portugal.
Description: CT showing the sack-like cluster of dilated ileal loops (arrow). Origin: Gomes A, Serviço Imagiology Geral, CHLN-Hospital de Santa Maria, Lisboa, Portugal.
Figure 4

Description: CT demonstrating the mesenteric pedicle with the respective blood vessels (arrow).
Origin: Gomes A, Serviço Imagiology Geral, CHLN-Hospital de Santa Maria, Lisboa, Portugal.
Figure 5

**Description:** CT coronal oblique reconstructions depicting a sack-like cluster of dilated ileal loops (arrow) and dilated proximal bowel loops. **Origin:** Gomes A, Serviço Imagioologia Geral, CHLN-Hospital de Santa Maria, Lisboa, Portugal.
**Description:** CT coronal oblique reconstructions depicting a sack-like cluster of dilated ileal loops (arrow), dilated proximal bowel loops and non-dilated distal loop (arrowhead). **Origin:** Gomes A, Serviço Imagioologia Geral, CHLN-Hospital de Santa Maria, Lisboa, Portugal.
Description: CT coronal oblique reconstructions depicting a sack-like cluster of dilated ileal loops (arrow), dilated proximal bowel loops and non-dilated distal loop (arrowhead). Origin: Gomes A, Serviço Imagiology Geral, CHLN-Hospital de Santa Maria, Lisboa, Portugal.
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