

SMALL BOWEL OBSTRUCTION DUE TO AN INTERNAL HERNIATION THROUGH A DEFECT OF THE BROAD LIGAMENT

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We report on a case of internal hernia through a defect of the broad ligament of the uterus. Early diagnostic may be possible with multidetector CT and lead to early treatment. MDCT can help achieving early preoperative diagnostic and allows early laparoscopic treatment with prompt recovery.

Key-word: Intestines, stenosis or obstruction.

A hernia through a defect of the broad ligament is a very rare cause of internal hernia and its preoperative diagnostic was not frequent before the multidetector CT, with often late diagnostic and treatment. Improvements in CT scanner technology now allow in many cases the depiction of the uterine tube and the ovary, which are the upper border of the broad ligament, and this may lead to a preoperative diagnosis of broad ligament herniation (BLH) and an early laparoscopic successful treatment. We report such a case.

Case report

A 38-year-old lady, with no medical or surgical history, who had had two pregnancies with vaginal delivery was admitted for very acute mid and lower abdominal pain during the past 3 hours. There was no vomiting and clinical examination was normal, with no abdominal distension and a normal basic biology workup.

A CT scan (64 slices multidetector HD750 General Electric, 120 Kv, 70 seconds after injection of iodinated intravenous contrast, without any oral or rectal opacification) was performed to exclude perforation and showed a few dilated bowel loops in the posterior pelvis, without any infiltration of the related mesentery but with some fluid around the distended loops (Fig. 1). On oblique "targeted" reconstructions, it was possible in this case to follow the right Fallopian tube from the uterine fundus to the ovary (Fig. 2A) and to see that the mesenteric vessels related to the dilated loops were located just under that Fallopian tube, directed from anterior to posterior (Fig. 2B and fig. 3). Proposed preoperative

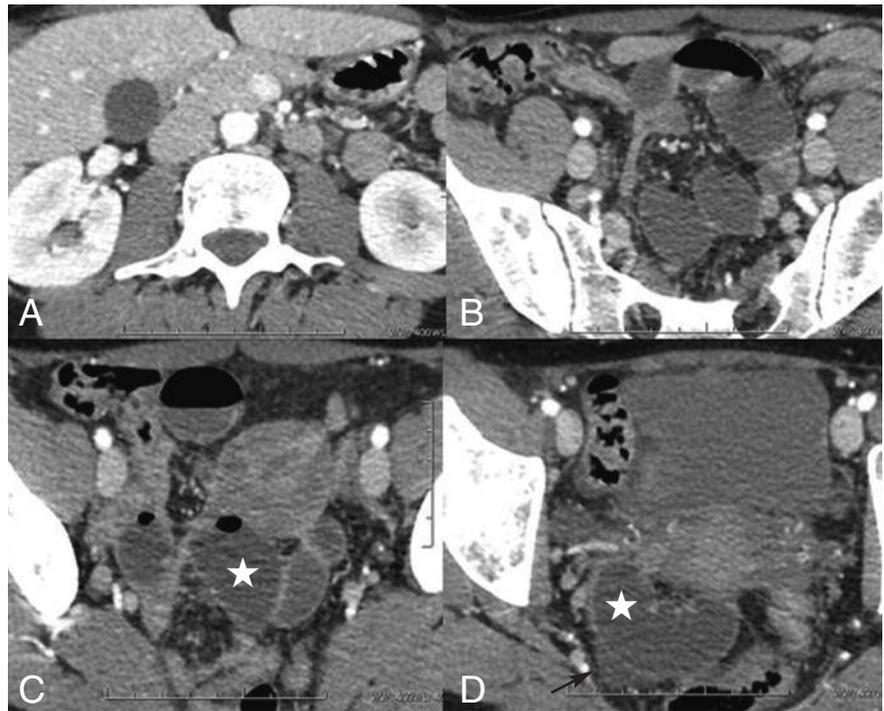


Fig. 1. — A "Standard" axial CT slices after injection of intravenous contrast. No bowel distension in the upper abdomen. B Presence of a few dilated loops in upper pelvis. C and D: Fluid-filled dilated small bowel loops in the posterior pelvic cavity (star) and minimal fluid effusion around the distended loops (arrows).

diagnostic was an internal herniation through the broad ligament, inflammatory or tumoral causes being excluded. Laparoscopic surgery performed 4 hours after patient admission confirmed the herniation through a defect in the right broad ligament, the incarcerated bowel was viable and no resection had to be done. The patient left the hospital 21 hours after surgery and clinical follow-up was favorable.

Discussion

Internal herniation is a rare cause of small bowel obstruction (1%), and broad ligament obstructions represent only 5% of internal herniations (1). Clinical presentation of internal herniations is often difficult and misleading, the occlusion being often a closed loop obstruction, with equivocal or non specific findings from emergency plain abdominal radiographic studies (2), with no abdominal distension, no vomiting. Diagnostic is often late, with vascular incarceration having caused necrosis of parts of the small bowel.

In the cases of BLH, the herniated structure is nearly always the small

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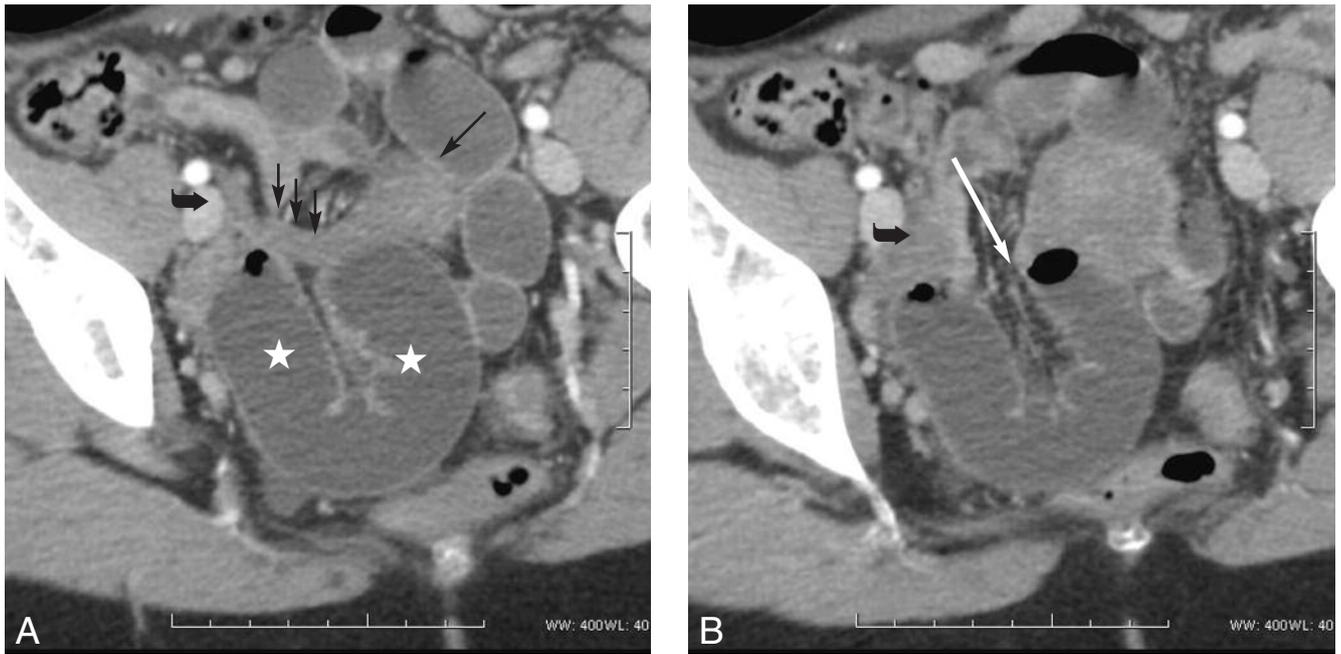


Fig. 2. — A. “Targeted” slightly oblique slice through the uterine fundus (large arrow), uterine tube (small arrows) and ovary (curved arrow), structures that delimitate the upper border of the broad ligament. B. Just below this area (uterine fundus and ovary still visible), a bowel loop with its vessels and non infiltrated mesenteric fat around those vessels, directed from anterior to posterior (white arrow) is seen.



Fig. 3. — Oblique coronal CT slice of the parauterine fossa. Superior border of the broad ligament is visible through its landmarks (uterine fundus: large arrow, uterine tube: curved arrow and ovary: small arrows). Dilated small bowel loop seen just below (star) going through a defect in the broad ligament.

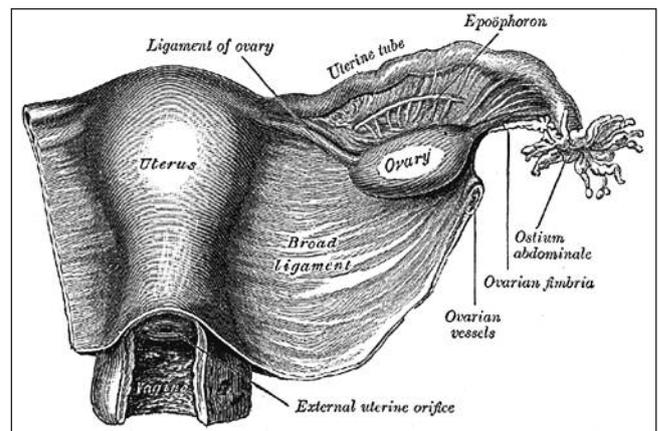


Fig. 4. — Anatomic drawing (Gray's *Anatomy of the Human Body*, published in 1918, the content of which is in the public domain: no copyright). Posterior view of the broad ligament that separates the lateral part of the pelvic cavity into an anterior and a posterior compartment. The upper border of this separation is the uterine tube connecting the uterine fundus to the ovary, and those structures that can often be depicted on multidetector CT.

bowel. Incriminated factors are surgery, endometriosis and treatment of endometriosis, pelvic inflammatory disease and congenital abnormality. Pregnancy and delivery could be factors associated with broad ligaments defects (3), only 3 of the 57 cases reported in Japan by Terado (1) had no history of pregnancy, Hunt (4) classified the internal

herniation through the broad ligament into two types: the fenestra type that involves both the anterior and posterior leaves of the ligament and the pouch type in which the defect involves one layer only. Previous reports generally have described the fenestrated type, and the defect in the present case was of the fenestra type.

The herniation of the small bowel loop can have an anterior-posterior direction (as in our case), or a posterior-anterior direction (1). Uterus displacement to the contralateral side by the herniated loop can be seen. While in our case there was no irreversible damage to the incarcerated loop, many patients are found to have segmental ischemia and

infarction necessitating segmental resection.

In the CT description of previous reports (1, 3), the location of the herniated loops and their close proximity to the uterus were considered CT findings strongly suggesting BDH. In many cases, thin slices and possibility of reconstruction in any plane allowed by multidetector CT can probably help the radiologist in assessing the location of the ovary and the Fallopian tube. The Fallopian tube constitutes the upper border of the broad ligament (Fig. 4). When this uterine tube is seen, and if the herniated loops cross below it, where the leaves of the broad ligament should be, the diagnosis of

BDH through a defect is easily made, followed by quick surgical treatment.

Conclusion

MDCT with its thin slices and its ability to perform oblique slices in any plane can help the radiologist in assessing the location of the Fallopian tube. This proved to be helpful in a case of small bowel obstruction due to internal herniation in a defect of the right broad ligament. The patient could be operated immediately laparoscopically, without any resection and with a rapid recovery.

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