

TITLE: Ambiguous Anatomy and its Pain

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QUESTION

A 46-year-old female presented to the emergency department (ED) with a one-day history of sudden onset colicky central abdominal pain. She had been passing flatus until that morning and her last bowel motion was the day before. She had been tolerating diet without any nausea or vomiting. She had no significant medical history and had otherwise been previously fit and well throughout her life. She had no previous surgery and no previous endoscopic procedures. She was an active smoker. Her vital signs were normal on surgical review. Initially she appeared comfortable however on serial observations she appeared to develop waves of colicky and severe cramping pain. There was no abdominal distension noted. Her abdomen was generally tender maximally in the epigastrium with localized guarding. Her white cell count was $12.9 \times 10^9/L$ and her C-reactive protein was 2.0 mg/L. Her serum electrolytes, renal function, liver function tests and lipase were all normal. What would be the causes of severe cramping abdominal pain in a patient with no previous surgical history and grossly unremarkable laboratory investigations?

ANSWER

Computed tomography (CT) revealed a whirlpool sign of the small bowel mesentery in relation to the superior mesenteric artery and unusual anatomical findings of the abdominal viscera (Figure A). The entirety of the small bowel was noted to be in the left abdominal compartment. The entirety of the colon was noted to be in the right abdomen with the caecum sitting in the midline and the sigmoid colon against the right pelvic sidewall. The liver was enlarged and spanned the entire upper abdomen (Figure B). The porta hepatis and gallbladder were noted in the midline. There were several splenunculi in the right upper quadrant consistent with polysplenia. The stomach and duodenojejunal flexure were noted to be right sided. The pancreatic head was noted to be in the midline and inferior to the gallbladder (Figure C). The pancreatic tail was right sided. The aorta and inferior vena cava were appropriately positioned within the abdomen. These findings were consistent with a midgut volvulus in the context of a newly discovered situs ambiguous with polysplenia. The patient was taken emergently to the operating theatre for a diagnostic laparoscopy, which confirmed the CT findings with the small bowel contained within its own peritoneal sac (Figure D). A prophylactic laparoscopic appendectomy was performed. Conversion to laparotomy was performed due to the distorted and atypical anatomy. The sac containing small bowel was opened revealing mildly congested small bowel (Figure E). A Ladd's band was identified from the duodenojejunal flexure to the mesentery at the ileo-caecal junction contributing to the midgut volvulus. The Ladd's band was divided and the small bowel was untwisted on its pedicle (Figure F – demonstrating divided Ladd's band held by forceps). The colon and small bowel were placed in the position of minimal torsion. The caecum was moved to the left iliac fossa with the transverse colon in the upper abdomen and the sigmoid colon unmoved from the right pelvic sidewall. The small bowel was placed centrally. Ultimately, the new intestinal configuration was like the configuration found in abdominal situs inversus. The patient recovered well and was

discharged on the sixth postoperative day. To our knowledge, this is the first described case of this phenomenon. To the operating surgeon and gastroenterologists, it is important to be aware of patients with situs anomalies and the anatomic challenges it presents.

REFERENCES

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