

Imaging diagnosis

Case 443

4. Cecal volvulus

【Progress】

She received laparotomy that revealed cecum rotating around the center of ileocecal artery and vein. The free cecum was surgically fixed to the peritoneum of left ovary and uterus.

【Discussion】

It is known that there are two colon volvuli: sigmoid colon volvulus and cecum volvulus. Sigmoid colon volvulus is the most, followed by cecum volvulus (1, 2). Elongation of the sigmoid colon is the cause of sigmoid colon volvulus, while cecum volvulus is caused by incomplete fixation to the retro-abdominal wall.

It is documented that cecum volvulus is categorized into three types; 1 type, axial torsion type, cecum rotates at the center of horizontal axis; 2 type, loop type, cecum and ascending colon rotates at the center of ileocecal artery/vein; bascule type, cecum bends to cranio-caudal direction (3, 4). Axial torsion type cecum volvulus situates at the right lower quadrant of abdomen, loop type cecum volvulus situates from left upper quadrant to right lower quadrant, and bascule type cecum volvulus situates at the lower middle abdomen. Of these, loop type cecum volvulus grows to enlarge the most, the enlarged gas-filled cecum faces from left upper quadrant to right lower quadrant of abdomen.

Radiological findings of cecum volvulus are known to be listed: whirl sign, beak sign, knot sign, kidney bean sign, embryo sign (3-6). Of these, kidney bean sign or embryo sign might be intuitively useful because the whole image of cecum volvulus is alike kidney bean or embryo. This might be the same situation as that coffee bean sign is intuitively useful for sigmoid colon volvulus. The first inspiration of the whole image links to the speedy diagnosis. In others, whirl sign is useful to indicate the site of occlusion. Beak sign or knot sign represents the occlusion site itself. The differences of sigmoid colon volvulus or torsion ileus versus cecum volvulus are: there are two-beak sign or two-knot sign in sigmoid colon volvulus or torsion ileus versus there is one beak sign or knot sign in cecum volvulus.

Treatment of cecum volvulus is served by an ileus tube and/or surgical management of cecum fixation or cecum resection plus bowel anastomosis (6).

In our case, marked bowel dilation whose diameter is more than 9cm, one beak sign (= one knot sign), little gas in colon indicative of constriction of colon. Large bowel distension filled with gas situates at the left upper quadrant to right lower quadrant that is alike embryo or kidney bean, compatible with cecum volvulus loop type. She underwent ileus tube insertion and laparostomy of fixation of free cecum to mesentery of left ovary and uterus.

【Summary】

We presented a seventy-six-year-old female presented with abdominal pain. She had previously received ileus tube and/or surgical management. Large gas-filled bowel distension of 9cm or greater at the left upper quadrant like a embryo or a kidney bean, beak sign, colon constriction are depicted on abdomen CT. It is borne in mind that embryo sign or kidney bean sign with one beak sign is diagnostic for cecum volvulus.

【References】

1. Peterson CM, et al. Volvulus of the gastrointestinal tract: appearances at multimodality imaging. Radiographics 2009;29: 1281-1293. Hasbahceci et al. Cecal volvulus. Indian J Surg. 2012; 74(6): 476–479. DOI: 10.1007/s12262-012-0432-9
2. Lee NK et al. Complications of congenital and developmental abnormalities of the gastrointestinal tract in adolescents and adults: evaluation with multimodality imaging. Radiographics 2010; 30: 1489-1507.
3. Correia BR, et al. Cecal volvulus: CT signs of a diagnosis often missed on radiography. ECR 2025 Poster Number: C-25454
4. Delabrousse E, et al. Cecal volvulus: CT findings and correlation with pathophysiology. Emerg Radiol 2007;14: 411-415.
5. Moore CJ, et al. CT of cecal volvulus: unraveling the image. AJR Am J Roentgenol 2001;177: 95-98.
6. Consorti E, et al. Diagnosis and treatment of caecal volvulus. Postgrad Med J 2005; 81: 772-776.

[back](#)

2026.8.7