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Cecal volvulus caused by a large uterine leiomyoma

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ABSTRACT

INTRODUCTION: Cecal volvulus is a relatively uncommon encountered clinical condition.
PRESENTATION OF CASE: A 48-year-old patient known with a large uterine leiomyoma, presented with progressive abdominal pain since one week. An abdominal computed tomography scan revealed a very large leiomyoma of the uterus, severely distended loops of the small bowel with a caliber change and a suggested 'whirl sign' of the mesenteric vessels. A laparotomy was performed, showing a very large uterus as well as torsion of the mesentery of the cecum with a sharp demarcated area of necrosis of the right hemicolon.
DISCUSSION: Cecal volvulus due to a large uterine mass is a rare encountered clinical entity. The suggested mechanism might be the same mechanism causing cecal volvulus during pregnancy; the enlarged uterus raisingout the mobile cecum out of the pelvis. Obstruction may occur from kinking of the colon at a fixed point.
CONCLUSION: This case demonstrates that uterine leiomyoma can be a cause of a cecal volvulus, leading to severe intestinal strangulation.

1. Introduction

Cecal volvulus is a relatively uncommon encountered clinical condition, with a reported incidence ranging from 2.8 to 7.1 per million people, per year [1]. First described by Rokitanksy in 1837 as a cause of intestinal strangulation, [2] it is anatomically characterized by the axial twist of the cecum, terminal ileum, and ascending colon around their mesenteric pedicles [3,4]. In about 10% of all cecal volvulus cases, the cecum and ascending colon fold anteriorly or posteriorly and upward without an axial twist. This is referred to as cecal bascule [1]. Cecal volvulus and cecal bascule share many similar clinical features, including the potential for intestinal obstruction and strangulation [1]. The etiology of cecal volvulus has been linked to the late embryology in which the cecum rotates counterclockwise from the left side of the abdomen to the right lower quadrant [5]. During this process, the right colon mesentery attaches to retroperitoneal structures and incomplete intestinal rotation generally leads to inadequate right colon fixation which is associated with the potential for cecal volvulus [1,5]. Other predisposing factors for cecal volvulus have been defined including previous abdominal surgery with adhesions forming a point of fixation of the mobile right colon to rotate about, chronic constipation, distal colon obstruction, high fiber intake, ileus and prior colonoscopy. [5] Here, we report on a case of a patient presenting with abdominal pain due to a cecal volvulus, which appeared to be caused by a large uterine leiomyoma.

2. Presentation of case

A 48-year-old female patient known with a large uterine leiomyoma, for which a hysterectomy was already scheduled, presented at the emergency department with a history of abdominal pain since one week. At the time of presentation the constant pain in the (lower) abdomen had worsened, patient had vomited three times, she had a normal defecation pattern and there were no other genitourinary abnormalities. At abdominal examination a palpable mass could be palpated above the pubic bone, without signs of rebound tenderness, guarding or rigidity. Laboratory tests showed a white blood cell count of 24.2/nL [normal range 4–10/nL], C-reactive protein (CRP) <3 mg/L [normal range 0–3 mg/L], normal liver and renal function tests and a potassium of 2.8 mmol/L [normal range 3.5–4.5 mmol/L]. An abdominal computed tomography (CT) scan showed a very large leiomyoma of the uterus, as well as distended loops of the small bowel with a caliber change of the small bowel in the right upper quadrant (Fig. 1A). There was a suggested 'whirl sign' of the mesenteric vessels (Fig. 1B), and

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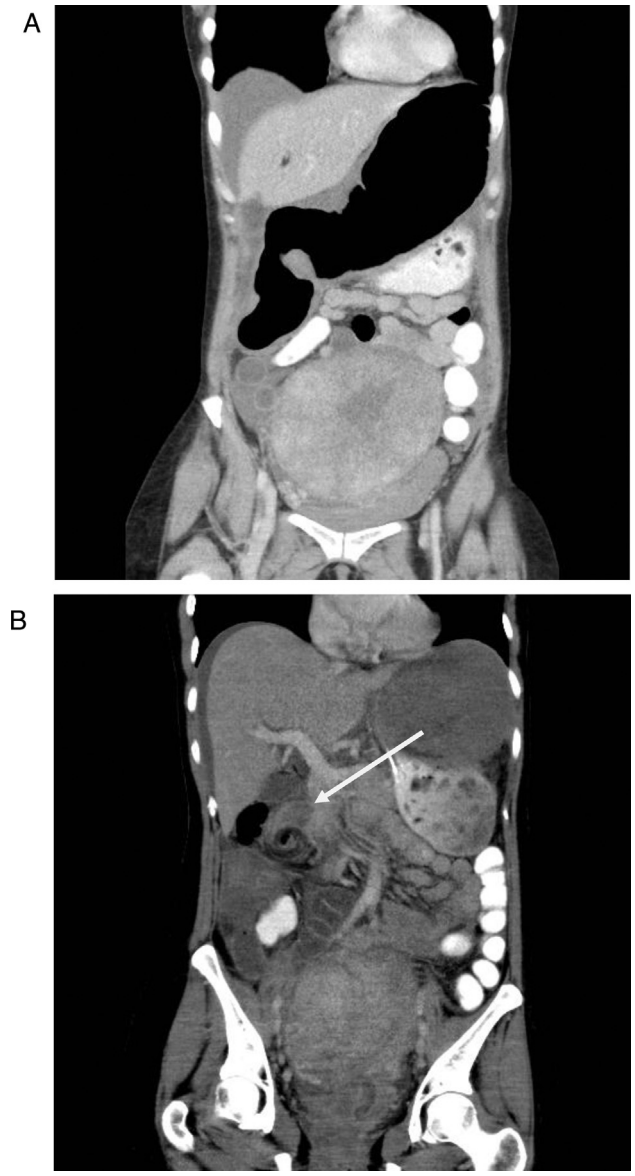

Fig. 1. A computed tomography (CT) scan of the abdomen showed a very large leiomyoma of the uterus, distended loops of the small bowel with a caliber change of the small bowel in the right upper quadrant (A) as well as a suggested 'whirl sign' of the mesenteric vessels (B).

compression of the rectosigmoid due to the large uterine leiomyoma was seen. There were no signs of intra-abdominal free air. A laparotomy was performed, immediately revealing a large amount of hemorrhagic fluid as well as a very large uterus. In the right upper quadrant a torsion of the mesentery of the cecum was seen with a sharp demarcated area of necrosis of the right hemicolon (Fig. 2). No adhesions or other causes for a cecal volvulus were found. A right hemicolectomy was performed with a side to side ileotransversostomy, followed by a hysterectomy. Postoperatively, the patient was treated at the ICU due to an abdominal sepsis probably caused by bacterial translocation through the necrotic right hemicolon. After 5 days, she could be discharged to the surgical ward. The patient made an uneventful recovery and could be discharged on the 9th postoperative day. Histopathological examination of the cecum showed extended ischemia without signs of malignancy. Histopathological examination of the uterus showed a large leiomyoma with a diameter of 12 cm.

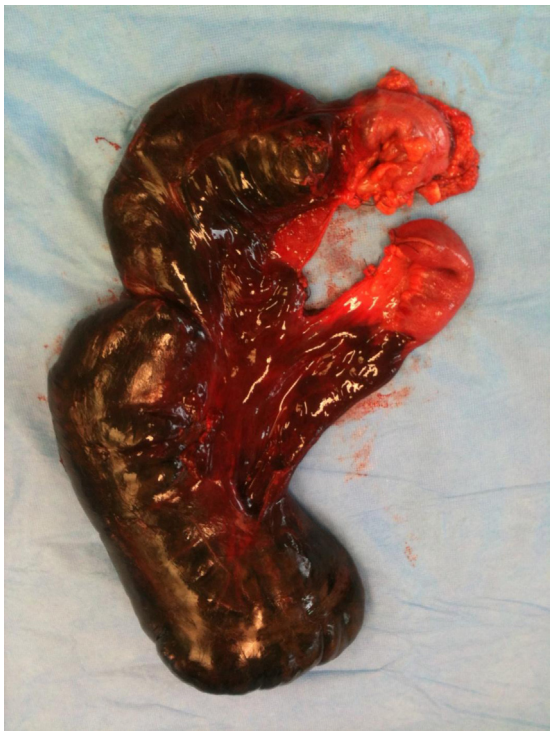

Fig. 2. Specimen of ischemic right hemicolon.

3. Discussion

To our knowledge, only one case report has been published reporting on cecal volvulus around a large uterine leiomyoma [6]. However, several case reports have been published reporting on cecal volvulus during pregnancy, with a reported incidence of 1/2500–1/3500 [7–12]. The suggested mechanism of cecal volvulus during pregnancy most likely also applies in the case of cecal volvulus due to a large uterine mass. The enlarged uterus raises the mobile cecum out of the pelvis and obstruction may occur from kinking of the colon at a fixed point; displacing the distended colon superiorly and thus producing torsion [5,8]. The risk of cecal volvulus increases with duration of gestation and is greatest at time of rapid uterine size changes [8,9]. As described by Gingold and Murrell in their excellent review on the management of colonic volvulus, patients with cecal volvulus will often have non-specific complaints of pain, obstipation, nausea, and vomiting which may resolve spontaneously and recur in an intermittent pattern although patients with acute obstructive or fulminant patterns will present in a similar fashion to small bowel obstruction, with obstipation and abdominal pain [5]. As in our patient, progression of the volvulus to intestinal strangulation will lead to increasing abdominal pain, peritonitis and sepsis [5]. Diagnosis can be made by plain abdominal X-ray, although an abdominal CT scan is the preferred imaging modality for the diagnosis of acute cecal volvulus. This may show the "coffee bean", "bird beak", and "whirl" signs; i.e. an axial view of a dilated cecum filled with air and fluid that may be visualized anywhere within the abdominal cavity; images correlating with the progressively tapering of efferent and afferent bowel loops terminating at the site of torsion; a soft tissue mass with internal architecture containing swirling strands of soft tissue and fat attenuation [13]. The treatment of cecal volvulus is primarily surgical and although detorsion and fixation have been suggested as viable treatment options, the preferred treatment consists of a right hemicolectomy with a primary anastomosis or ileostomy (with a mucous fistula) [5].

4. Conclusion

Our patient demonstrates that a large uterine leiomyoma can be a predisposing factor for developing a cecal volvulus. Therefore, caution should be given to patients with a large uterine leiomyoma presenting with (a sudden) increase in abdominal pain, although we also have to bear in mind that the chance of developing a intestinal strangulation due to a cecal volvulus in these patients is still very low.

Conflicts of interest

None.

Sources of funding

None.

Ethical approval

Written informed consent was obtained from the patient for publication of this Case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

HS de Vries – study design, writing.
B. Maresch – writing.
R.K. Samlal – writing.
M. Hoven-Gondrie – writing.

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