CASE REPORT

Absolute constipation caused by sigmoid volvulus in a young man

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SUMMARY

We describe a challenging case of sigmoid volvulus where a previously unrecognised anatomical condition, rather than the patient's age, was the main predisposing factor. A man in his thirties presented to the emergency department with a 3-day history of constipation and acute abdominal pain. Initial assessment and studies were inconclusive, but a CT scan revealed torsion of the large bowel. Sigmoid volvulus is a frequent cause of bowel obstruction that can be missed if appropriate imaging is not available. Clinical presentation and blood analysis can be similar to the findings in acute abdomen caused by other more common causes.

BACKGROUND

Doctors should consider sigmoid volvulus (SV) in the differential diagnosis of both elderly and young, healthy patients with acute abdomen as it is a life-threatening condition whose outcome depends largely on rapid identification.

CASE PRESENTATION

A young man in his thirties presented to the emergency department with severe abdominal pain, distention, nausea and acute absolute constipation that had lasted for 3 days. Physical examination revealed a distended abdomen, diffuse pain on palpation and significant tympanic percussion. There were no important findings on rectal examination.

INVESTIGATIONS

Blood tests only showed mild C-reactive protein elevation. A plain abdominal x-ray revealed a highly dilated sigmoid colon with a small amount of fluid, while an erect x-ray showed absence of gas in the rectum (figure 1). A CT scan suggested SV (figures 2 and 3). The typical coffee bean pattern was seen, which was not clearly shown on plain x-ray, with the sigmoid narrowing towards the point of torsion to give the 'bird beak' sign; the 'whirl' sign was also noted (figures 3 and 4). There were no signs of perforation.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis included other causes of acute abdomen, especially acute appendicitis, diverticulitis, pancreatitis and perforated colon. Although volvulus was the most likely cause given the clinical examination, it was not until the CT scan was performed that the diagnosis was confirmed.

Figure 1 Erect abdominal x-ray image shows gross dilatation of the colon with apposition of the medial walls and the presence of air/fluid.

TREATMENT

Colonoscopy was performed, showing a closed loop at the rectosigmoid junction, mucosal oedema and signs of ischaemia. The patient was admitted to the surgical ward and colonoscopic reduction was successfully carried out. However, 36 h after the initial reduction the patient experienced the same acute symptoms and an emergency

Figure 2 Coronal CT image reveals a very dilated colonic loop extending from the pelvis to the left hypochondrium, with the characteristic inverted U loop or coffee bean appearance.

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Figure 3 Axial CT slice showing the 'bird beak' sign (arrow) formed by tapering of the converging sections of the looped obstruction at the site of the torsion, with proximal bowel dilatation.

laparotomy was performed. A long, redundant sigmoid colon was found with an enlarged mesentery, but no signs of transmural necrosis were present. Sigmoid resection and a primary anastomosis were performed.

OUTCOME AND FOLLOW-UP

After surgery, the patient remained in the surgical ward for a further 7 days until he was able to eat, and was discharged home with no postoperative complications.

DISCUSSION

Volvulus is the third most common cause of large bowel obstruction in adults, after colorectal neoplasia and colonic diverticulosis,¹ and occurs when the bowel twists around its mesentery causing partial or complete obstruction, often with disruption of blood flow. SV is the most frequent (60–85%) type of volvulus^{2–3} due to the fact that the sigmoid colon has its own mesentery. The main structural cause of SV is a long sigmoid loop with a long and free mesentery, known as a

dolichosigmoid.⁴ In our case the patient had a non-documented dolichosigmoid, although some indications could be seen on previous x-ray studies of his lumbar spine.

Described trigger factors for SV include chronic constipation, use of laxatives, diabetes, neuropsychiatric disorders, Chagas disease, peritoneal adhesions due to surgery, and chronic inflammatory disease. SV is more frequent in men (65%) due to a higher incidence of dolichosigmoid in males, and is more common between the ages of 50 and 70 years.

Clinical presentation depends on the speed of onset of the bowel twisting, resulting in either acute abdomen or colicky, recurrent abdominal pain with a broad range of intensity. Occasionally, abdominal distention may be the only symptom.

As SV is a mechanical problem that is not usually reflected in blood analysis results, its diagnosis is based on both clinical presentation and x-ray findings. The typical coffee bean pattern is present in only 50% of cases,^{2–5} and can be difficult to detect when the sigmoid colon is filled with fluid or the proximal colon is very dilated (figure 1). An abdominal CT scan confirms the diagnosis in up to 90% of cases, as in our patient. Possible complications such as ischaemia or perforation can also be detected by CT scan.

Colonoscopic reduction has a high rate of success and few complications, and can be scheduled, thus avoiding the high risk associated with urgent laparotomy.⁶ It is safe and effective as an initial treatment, even when the recurrence rate is high (20–43%).^{2–7–8} Elective surgery is then indicated in order to prevent recurrence, with the preferred technique being sigmoidectomy with a primary anastomosis.^{1–2} Urgent surgery is performed only when ischaemia or perforation is present.

As regards the abdominal approach, laparoscopic surgery is not considered by some to be cost-effective and is not usually indicated for urgent cases. Nevertheless, when surgery is scheduled after colonoscopy, laparoscopy has several advantages including low complication rates and quick postoperative recovery in both elderly⁹ and young patients. In addition, economic factors such as a shortened hospital admission and less sick leave from work make the laparoscopic approach a very attractive option.^{10–11}

Learning points

- ▶ Sigmoid volvulus must be suspected in the emergency department in elderly patients with high co-morbidity and in young patients who present with acute constipation.
- ▶ Timely diagnosis and early treatment by a multidisciplinary team are essential for a successful outcome.

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Contributors SPN and MDMR took care of the patient, made the diagnosis and wrote up the case. RDS processed the images and contributed to the diagnosis. OLGB solved the case by performing the initial colonoscopy and also reviewed the bibliography. SSP-G contributed to image processing and to English translation.

Competing interests None.

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Figure 4 Coronal CT image showing the 'whirl' sign (arrow) indicating the twisted colon and mesentery.

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