CASE REPORT

Large bowel obstruction in a 27-year-old woman caused by a sigmoid faecal bolus

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SUMMARY

A 27-year-old woman presented to the emergency department with a 24-hour history of severe left iliac fossa pain associated with vomiting. She reported a history of ovarian cysts and was provisionally diagnosed with a ruptured ovarian cyst and admitted under the obstetrics and gynaecology team for further investigation. 24 hours later, she became haemodynamically unstable with increasing abdominal distention and developed a metabolic acidosis. A CT scan revealed large bowel obstruction (LBO) secondary to a faecal bolus in the sigmoid colon with appearances suggestive of adult-onset Hirschsprung's disease. She underwent an emergency laparotomy and decompressive transverse colotomy and was admitted to the intensive care unit overnight. After discharge, she presented again with small bowel obstruction (SBO) which resolved with conservative management. A follow-up colonoscopy and biopsies showed no anatomical abnormalities to account for the LBO and were inconclusive for Hirschsprung's disease.

BACKGROUND

Sigmoid faecal boli are rare causes of large bowel obstruction (LBO) and usually occur in elderly and debilitated patients. In contrast, we present a case of acute LBO secondary to a sigmoid faecal bolus in a previously healthy 27-year-old woman. To date, very few reports exist in the published literature describing a similar case to ours.

Furthermore, we highlight the unusual presentation of LBO that contributed to a 24-hour delay in diagnosis and potentially impacted the patient's outcome. The diagnosis was only established once the patient had acutely deteriorated; requiring an emergency laparotomy and transverse colotomy with associated increased morbidity. This case, therefore, stresses the importance of early cross-sectional imaging to achieve prompt diagnosis and facilitate earlier treatment.

CASE PRESENTATION

A 27-year-old Caucasian nurse presented to the emergency department with a 1-day history of severe, constant lower abdominal pain, nausea and vomiting. She reported being constipated for 4 days. She had no urinary tract symptoms, and her last menstrual period was 2 weeks ago.

The patient had a significant gynaecological history including endometriosis involving the upper rectum with cyclical pelvic pain requiring

laparoscopic excision and two ovarian cysts which were conservatively managed. Other relevant medical history included a laparoscopic appendectomy, laparoscopic excision of a single adhesion, irritable bowel syndrome and depression. On initial examination, the patient had a soft, mildly distended abdomen with a tender left iliac fossa (LIF). There were no signs of peritonism, and bowel sounds were present. Observations were within normal limits. Rectal examination showed an empty rectum.

In light of her gynaecological history, a ruptured ovarian cyst was suspected, and the patient was admitted under the obstetrics and gynaecology (O&G) team. The patient did not receive a senior O&G review overnight as the registrar was occupied in theatre with several emergencies.

Twenty-four hours later, the patient acutely deteriorated with a sudden increase in LIF pain and further episodes of vomiting. On reassessment, the patient had become tachycardic and feverish with a temperature of 38°C. The abdomen had become more distended with generalised abdominal tenderness, localised guarding and rebound tenderness in the LIF. Bowel sounds were present. Blood tests showed an acute rise in inflammatory markers with a C-reactive protein of 153 mg/L and a white cell count of $17 \times 10^9/L$. Venous blood gas analysis revealed a metabolic acidosis with a lactate of 4.1 mmol/L and a base excess of -5.6 mEq/L. Following a senior review, a CT scan of the pelvis and abdomen was requested which revealed LBO with features suggestive of adult-onset Hirschsprung's disease. The patient underwent an emergency laparotomy and transverse colotomy to achieve intestinal decompression and was admitted to the intensive care unit overnight for monitoring. The colotomy was then closed primarily.

INVESTIGATIONS

- Urinalysis and urinary Beta-Human Chorionic Gonadotropin were negative.
- A pelvic and transvaginal ultrasound scan revealed a small amount of free fluid in the pouch of Douglas and a left ovarian corpus luteum.
- An erect chest radiograph was negative for pneumoperitoneum but revealed dilated loops of bowel in the epigastrium.
- A CT scan of the pelvis and abdomen was performed which was reported as showing LBO with no obvious cause identified but

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Figure 1 A coronal (A) and transverse (B) CT image of the abdomen and pelvis showing a transition point in the rectosigmoid junction (black arrows) and significant faecal loading in the descending colon (white arrow). Marked proximal large bowel dilatation is also visualised (asterisk).

the most likely aetiology according to the report was adhesions.

DIFFERENTIAL DIAGNOSIS

Differentials for her presentation include acute gynaecological pathologies including ovarian torsion, a ruptured ovarian cyst, mittelschmerz and endometriosis.

Gastrointestinal conditions such as colitis could also be a differential diagnosis.

TREATMENT

After resuscitation with intravenous fluids and broad-spectrum antibiotics, the patient was taken to the theatre where she underwent an on-table flexible sigmoidoscopy. This revealed mildly inflamed sigmoid colon mucosa but no ulceration, perforation or malignant lesions were identified. A large faecal bolus in the sigmoid colon prevented further advancement of the sigmoidoscope, and therefore an emergency laparotomy was required. This demonstrated LBO secondary to a sigmoid faecal bolus. No intra-abdominal adhesions were present. The proximal large bowel was hugely distended (see [figure 1](#)) requiring a decompressive transverse colotomy through which 3 L of faeces were evacuated. No stercoral perforation or bowel ischaemia was present. The obstructing faecal bolus was manually milked out of the sigmoid colon and once disimpacted, the transverse colotomy was closed primarily.

OUTCOME AND FOLLOW-UP

After her surgery, the patient made a slow recovery being treated with a course of intravenous antibiotics and enemas. She was discharged after 1 week once her bowels had opened. Over the subsequent month however, the patient experienced two readmissions presenting with worsening abdominal pain, distention and purulent discharge from the laparotomy wound. A CT scan was performed which showed no intra-abdominal collections but dilated small bowel loops with a transition point in the right upper quadrant of uncertain clinical significance.

The patient was managed conservatively for constipation with enemas and was discharged with oral antibiotics after 2 days for a wound infection. She then presented again 1 week later with similar symptoms and was managed conservatively for small bowel obstruction (SBO) and was discharged 3 days later.

Six weeks after her operation, the patient had made a full recovery with no further episodes of SBO. However, the patient is experiencing ongoing problems with an erratic bowel habit and weight loss for which she is under regular dietitian review. A follow-up colonoscopy performed showed no anatomical abnormalities, and biopsies were inconclusive for Hirschsprung's disease.

DISCUSSION

LBO is a life-threatening surgical emergency with a high mortality and morbidity, requiring accurate and prompt diagnosis to achieve optimal outcomes. Accounting for 4% of all acute surgical admissions, LBO is more common with increasing age, with a peak incidence in the seventh decade of life.¹ In contrast, we present a rare case of LBO caused by a faecal bolus necessitating surgical intervention in a previously healthy 27-year-old woman. To date, very few reports exist in the published literature describing similar cases. LBO secondary to faecal impaction has been previously described in the literature but this tends to affect elderly and debilitated patients due to poor hydration and reduced mobility.^{2,3}

Faecal impaction can develop into a tumour-like mass known as a faecoloma which can deform the bowel wall and surrounding structures mimicking malignancy. It can then lead to life-threatening complications including bowel obstruction, stercoral perforation and ureteric obstruction.^{4,5}

Segall⁶ reported a case of a 44-year-old man who presented with LBO secondary to a sigmoid faecoloma but in contrast to our case, disimpaction was achieved by mineral oil enema administration. Reports^{7,8} have also described sigmoid faecolomas being disimpacted using endoscopic injections of Coca-Cola. On the other hand, Obstruksiyonu⁹ reported a case of LBO from a sigmoid faecoloma in a 45-year-old man not amenable to conservative or endoscopic management. An emergency laparotomy and transverse colostomy were necessary to remove an impacted rectosigmoid faecolith which was similar to our case.

The underlying aetiology for LBO in our patient is not clear considering her young age and general health. One hypothesis is that the patient suffered from a functional colonic condition such as adult-onset Hirschsprung's disease as suggested by the CT scan. This is a congenital malformation characterised by absence of ganglions within the submucosal and myenteric nerve plexi of the large bowel.¹⁰ This condition leads to symptoms of constipation, abdominal pain and vomiting. While Hirschsprung's disease rarely presents beyond 5 years of age, there are accounts in the literature of Hirschsprung's disease presenting as LBO in early adulthood. For example, Miyamoto and colleagues¹¹ described a case of Hirschsprung's disease in a 23-year-old man who presented with subacute LBO caused by a sigmoid faecaloma. He underwent a transverse colostomy and a delayed left hemicolectomy after conservative management had failed. However, the follow-up colonoscopy and biopsies for our patient proved to be inconclusive for Hirschsprung's disease.

It is also possible that the previous endometriosis affecting her upper rectum had altered the function of the bowel, predisposing her to severe constipation and LBO. Supporting this theory, Alexandrino and colleagues¹² described a 30-year-old woman who presented with acute LBO secondary to transmural endometriosis causing stricturing disease of the rectosigmoid junction. An anterior resection with primary anastomosis and covering loop ileostomy was performed. Although no gross evidence of endometriosis was visualised during our patient's

laparotomy, this diagnosis cannot be excluded without a surgical specimen for histology.

The atypical clinical presentation combined with the previous history of ovarian pathology resulted in confirmation bias, leading to failed heuristics and misdiagnosis. Consequently, the patient was admitted under the O&G team, and an inferior investigation modality was arranged.¹³ Consequently, the urgency of the case was overlooked and in addition a senior review was delayed which compounded the situation. It was not until the patient acutely deteriorated the next morning that the diagnosis was established, by which point emergency surgery was required. Had this been confirmed at an earlier stage, an operation might have been avoided sparing the patient significant morbidity and risk of complications.

This case, therefore, emphasises the value of early cross-sectional imaging to facilitate prompt diagnosis and treatment.

Learning points

- Sigmoid faecal boli are an uncommon cause of large bowel obstruction (LBO) which can usually be managed conservatively but may rarely require surgical intervention if not promptly treated.
- Early cross-sectional imaging where there is diagnostic uncertainty is of paramount importance to avoid delays in diagnosis and instigate early appropriate treatment.
- It is important to investigate patients presenting with LBO secondary to a faecal bolus with a colonoscopy to rule out underlying conditions that may predispose to this condition such as adult-onset Hirschsprung's disease.

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