

Caecal Volvulus after a dental procedure – not just constipation!

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Abstract

Caecal volvulus has been reported to be associated with various abdominal and pelvic pathologies. Its signs and symptoms are usually non-specific and maybe overlooked in favour of benign causes, such as constipation. A high degree of suspicion is required for prompt diagnosis. Herein, we report on an unusual case of caecal volvulus after a dental procedure that was managed initially as constipation.

Introduction

Volvulus is the third leading cause of large bowel obstruction after bowel malignancies and diverticulitis. Any segment of the colon can be affected by volvulus; however, sigmoid is most commonly affected (60-75%), followed by the caecum (25-40%), transverse colon (1-4%) and splenic flexure (1%).¹ Various rare associations of caecal volvulus have been made with abdominal/pelvic pathologies such as bowel cancer, acute cholecystitis, abdominoplasty, pregnancy, ventral hernia, endometriosis and uterine leiomyoma.^{1,2} Herein, we present a case of large bowel obstruction from caecal volvulus which was likely precipitated by the use of an opioid for analgesia after a dental procedure, highlighting the importance of thinking out-of-the-box and

not just zeroing in on constipation. A similar condition, known as mobile right colon/caecum syndrome, is also discussed, as caecal volvulus may represent part of its spectrum.

Case Report

A 56-year-old woman presented to the hospital with lower abdominal pain and distention over the past 2 days. She described having difficulty with opening her bowels initially, and her abdominal distention was worsening gradually. Her abdominal pain was central and colicky, with no associated symptoms. There was nausea but no vomiting. She had undergone an uncomplicated dental procedure 2 days prior and was discharged home on the same day. She had been taking Paracetamol/Codeine

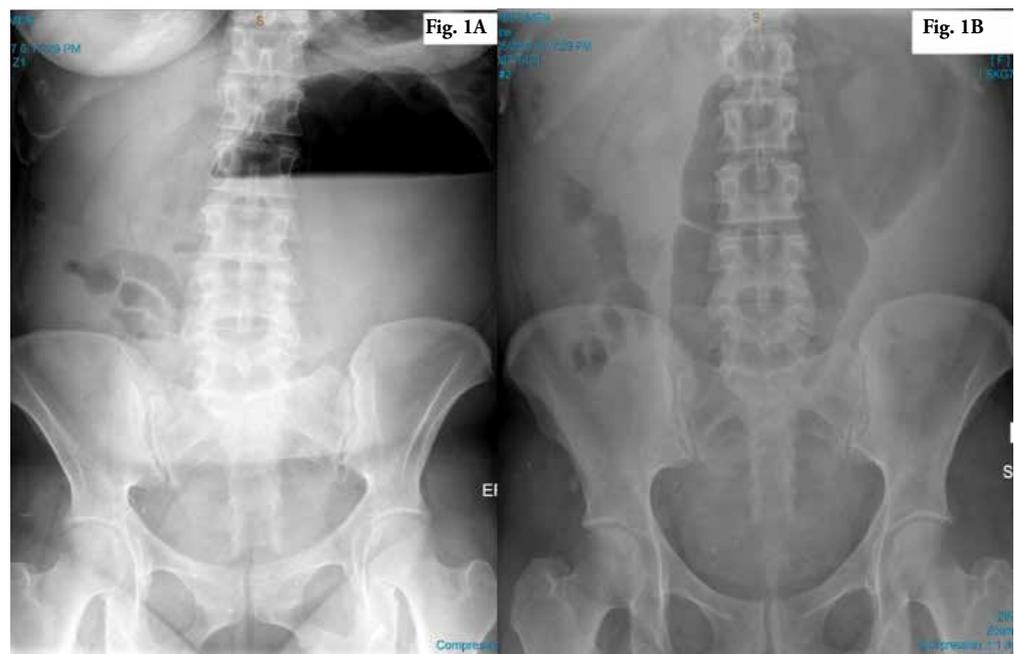


Figure 1a: Erect abdominal x-ray showing a dominant, dilated large bowel loop with air fluid level.
Figure 1b: Supine abdominal x-ray demonstrating a dilated large bowel loop from the right lower pelvis to the left upper quadrant.

500mg/30mg two tablets three times a day for pain relief. The initial medical team diagnosed her with constipation and initiated treatment with Macrogol (Movicol) and a fleet enema with minimal improvement.

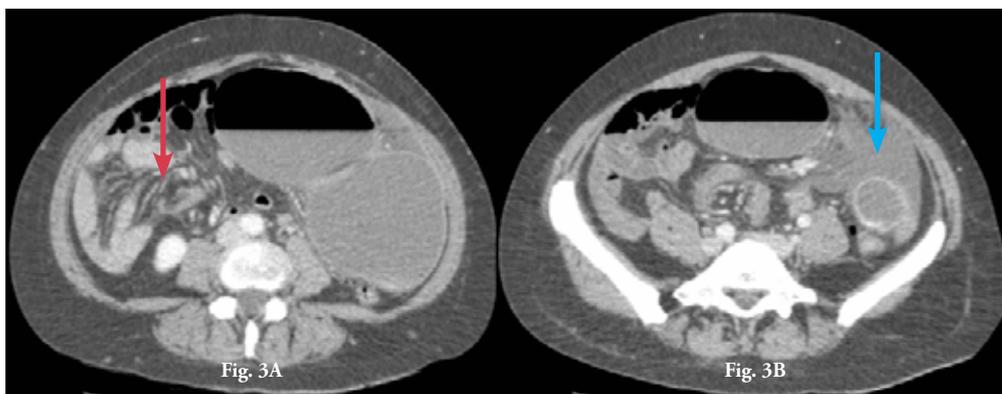
On further review of her history, it was revealed that she had been having symptoms of constipation and occasional lower abdominal cramps for the past 15 years. Her past medical history included a pyloromyotomy for pyloric stenosis and a left mastectomy with reconstruction for breast cancer 7 years ago.

The surgical team was consulted when her abdomen became more distended. On examination, her vital signs were within normal limits. Her abdomen was moderately distended but soft. There was mild tenderness around the central abdomen. The blood investigation was unremarkable, except for a mild leucocytosis of 14.6 (109/L). An abdominal x-ray (Figure 1) showed a very large, fluid-filled loop of large bowel with an air fluid level typical of a caecal volvulus. A computed tomography (CT) (Figures 2 & 3) of the abdomen/pelvis subsequently confirmed a caecal volvulus with oedematous mesentery.



Figure 2a: Coronal view of CT abdomen/pelvis demonstrating a caecal volvulus.

Figure 2b: Sagittal view of CT abdomen/pelvis showing the “whirl sign” (arrow) of the mesentery.



Figures 3a & 3b: Axial view of CT abdomen/pelvis showing the caecal volvulus with oedematous mesentery (red arrow) and free fluid (blue arrow)

A nasogastric tube was inserted and intravenous fluid was started. An emergency midline laparotomy was performed after an informed consent. Intraoperatively, there was evidence of a serosal tear of the ascending colon but no perforation, and the mesentery was noted to have features of chronic volvulus (**Figure 4**). A right hemicolectomy was performed with stapled side-to-side ileo-colic anastomosis.

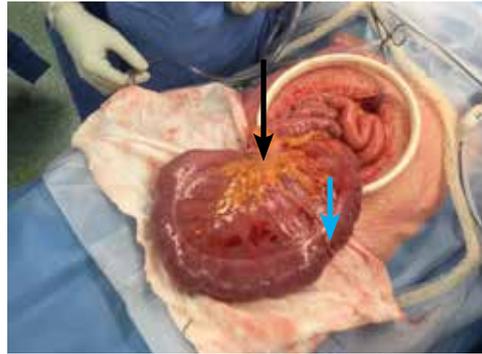


Figure 4: Intraoperative findings confirmed caecal volvulus. There was also evidence of chronicity (black arrow) and serosal tears (blue arrow).

Post-operatively, the patient recovered progressively and was discharged on day four.

Discussion

Caecal volvulus is an axial twist of the caecum, ascending colon and terminal ileum around the mesentery pedicle leading to large bowel obstruction. Caecal volvulus is less common in the Western world and is more common in younger women (<60 years of age).² Multiple theories have been put forth for its aetiology, but it is most likely multifactorial. A few risk factors have been found to be associated with its occurrence: chronic constipation, previous surgeries, pregnancy and previous colonoscopies.¹ Opioids are known to cause constipation. With the background history of chronic constipation in the current case, the use of an opioid prolongs the colonic transit time, which may have been the precipitating factor for the colonic volvulus.³ An anatomical predisposition has been noted where there is a lack of parietal fixation of the ileocaecal region during embryological counter-clockwise caecal rotation from the left side of abdomen towards the right iliac fossa.¹ As a result of the embryological predisposition, caecal volvulus maybe part of the spectrum of conditions that includes mobile right colon. In mobile right colon, there is a failure of the right colonic mesentery to fuse to the lateral peritoneum.

Caecal volvulus is known to be a challenge to diagnose, and the majority of the cases present in an emergency setting. The initial clinical features are usually vague and requires a high degree of suspicion, as demonstrated in our case. Patients may have symptoms of constipation and abdominal distention/bloating. Occasionally, nausea and vomiting may be present and should raise suspicion of a bowel obstruction. A history of intermittent abdominal pain may reveal a degree of chronicity in which the volvulus spontaneously untwists. It may also represent mobile caecum syndrome, which has very similar symptoms. On clinical examination, findings of tachycardia and fever may indicate bowel compromise. The biochemistry examination is usually unremarkable until late progression, at which time raised inflammatory markers, electrolyte derangement from dehydration and elevated lactate levels would be observed. Plain radiography is considered to be the first-line imaging investigation, where findings of caecal dilatation and/or small bowel dilatation, a dominant air-fluid level and collapse of distal colon can be expected. Nevertheless, computed tomography (CT) of the abdomen/pelvis is usually the mainstay in imaging.⁴ It helps to exclude other intra-abdominal causes and can identify caecal volvulus correctly. Valuable information, especially unusual causes, can be obtained for pre-operative planning and involve other surgical specialities, if required. Key CT findings of caecal volvulus include the “CT coffee bean,” “bird beak” and “whirl sign” (**Figure 2b**).¹ Surgical options for caecal volvulus include single-stage primary ileo-colic resection and anastomosis or a two-staged procedure with delayed ileo-colic anastomosis following a period of temporary double-barrelled stoma. Another, less invasive option is the colonoscopic decompression of the caecum, but the recurrence rate is high.^{1,4}

Our patient may have an underlying mobile caecum syndrome that has been masquerading as chronic constipation.^{5,6} The sudden use of opioids worsened her degree of constipation and led to an acute episode of caecal volvulus. The difficulty in diagnosing mobile caecum syndrome should be acknowledged. Clinical symptoms are usually non-specific, although some patients may present with intermittent right iliac fossa pain and constipation. Further, imaging tests do not usually provide additional information except in the acute setting. In carefully selected patients, a laparoscopy may offer diagnostic and therapeutic benefits (caecopexy and appendicectomy).^{6,7}

In summary, the differential diagnosis of caecal volvulus should be considered in any young female patient that presents with abdominal distension and a history of “chronic constipation.” The use of opioid-based medication may worsen

an underlying mobile caecum syndrome and precipitate an acute episode of caecal volvulus. Swift recognition of this condition is vital to prevent morbidity and mortality.

How does this paper make a difference to general practice?

1. Caecal volvulus is a rare condition but can present with vague abdominal symptoms. Reporting this case in this journal may alert the general practitioner to be vigilant when a patient presents with constipation.
2. Use of codeine-based analgesics precipitating the worsening of constipation shall require further evaluation. In a primary care setup, an abdominal radiograph is useful for such evaluation.
3. The typical findings of caecal volvulus and its definitive management are presented here. The side effects of a codeine-based analgesic are highlighted, providing the general practitioner with additional knowledge concerning this rare condition.

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