Caecal bascule as an ultra-rare cause of intestinal obstruction: a case report

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Case presentation

A 60-year-old man was admitted as an emergency to North District Hospital in March 2024 with a 1-day history of progressive abdominal distension. He also reported colicky central abdominal pain without radiation, vomiting of clear fluid, and no bowel movements for 2 days. He was a chronic smoker and social drinker but past medical history was unremarkable, except for bilateral renal stones treated with extracorporeal shock wave lithotripsy in 1998 and 2003.

His vital signs on admission were temperature 36.6°C, heart rate 104 bpm, blood pressure 157/99 mm Hg, and respiratory rate of 16. Physical examination revealed a mildly distended abdomen without peritoneal signs. Laboratory tests were abnormal with a white blood cell count of $21.0\times10^3/\mu L$ and lactate of 4.9 mmol/L. Abdominal X-ray showed prominent bowel loops in the central abdomen. Computed tomography revealed a distended gallbladder, oedematous gallbladder wall thickening and pericholecystic inflammatory fat stranding without gallstones; the caecum and a segment of terminal ileum were prominently dilated, measuring up to 8.4 cm and 2.8 cm, respectively, with a gradual transition zone identified between the caecum and ascending colon (Fig 1). Initial radiology suggested acute cholecystitis and faecal impaction. However, after further clarification and in the absence of any mesenteric rotation or twisting, a diagnosis of caecal volvulus (bascule type) could not be made.

Antibiotics were started immediately. Emergency surgery for cholecystectomy and evaluation of the caecum was offered. Laparoscopy revealed a grossly distended caecum with congestion of part of the caecal wall, which appeared to fold anteromedially, creating a closed-loop obstruction (Fig 2). The gallbladder was inflamed. Laparoscopy proceeded to open surgery, and a right hemicolectomy with primary ileo-colic anastomosis and cholecystectomy were performed. A 3-cm gallstone was found inside the gallbladder.

Pathological examination of the right hemicolectomy specimen revealed marked thinning of the intestinal wall (1 mm thick) with features consistent with volvulus. The overlying mucosa appeared dusky. Microscopically, there were features of early-stage ischaemia with sloughing of the overlying epithelium, submucosal oedema, and purulent fibrinous exudate over the serosal surface. Gallbladder pathology confirmed acute gangrenous cholecystitis.

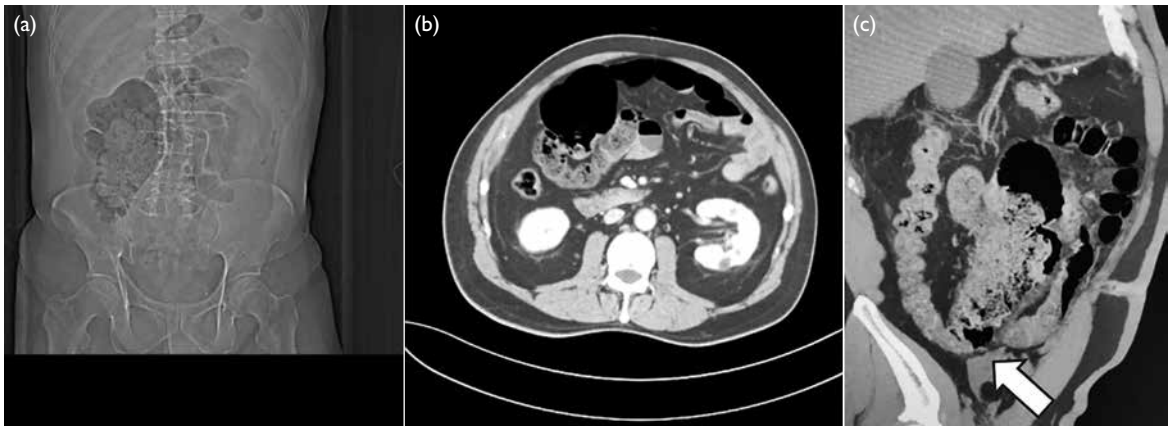

FIG 1. Cross-sectional imaging of the abdomen. (a) Scout film. (b) Axial computed tomography. (c) Oblique sagittal computed tomography, with the folding point shown (arrow)

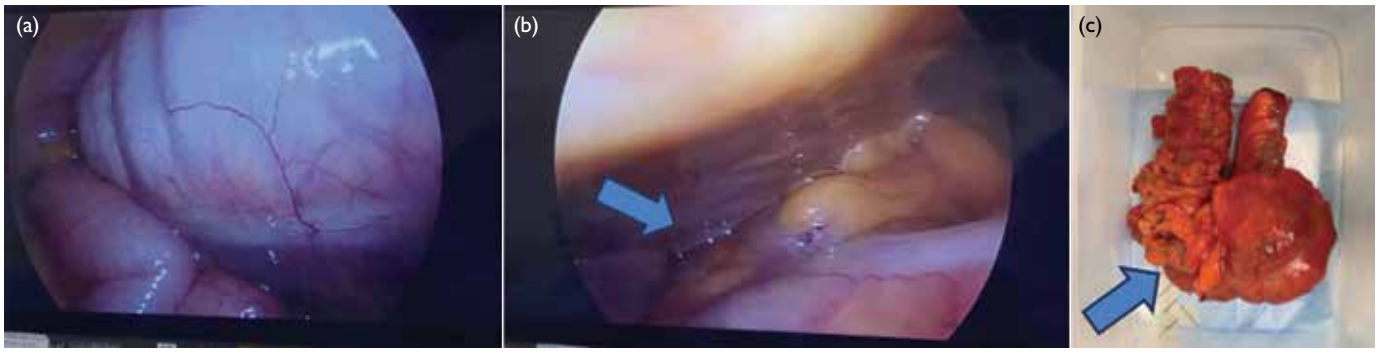

FIG 2. Laparoscopic images of distended caecum and resected specimen. (a) Distended caecum. (b) Folding point (arrow). (c) Resected specimen (arrow)

Discussion

Caecal volvulus accounts for 1% of intestinal obstruction cases, with an incidence of 2.8 to 7.1 per million people per year.[1] It is classified according to geometry: the caecal bascule is the rarest form, designated as type III caecal volvulus, accounting for 20% of all caecal volvuli.[1] A systematic review in 2018 reported only 26 cases in the literature, with a median age of 55 years and a male-to-female ratio of 14:12.[2] It involves anterior-superior folding of the caecum without axial twisting, leading to obstruction of the ascending colon.[1] If the ileocaecal valve is competent, bowel dilatation is confined to the caecum, forming a closed-loop obstruction. In the absence of torsion, diagnosis via cross-sectional imaging is more challenging. Delayed diagnosis and treatment may result in bowel ischaemia, gangrene, and perforation.

The caecum is normally a secondary retroperitoneal and immobile structure. However, it can become mobile due to congenital or acquired factors, predisposing it to volvulus. Common risk factors include previous abdominal surgery, high fibre intake, chronic constipation, and distal bowel obstruction.

Clinically, caecal volvulus presents similarly to small bowel obstruction. Cardinal symptoms include nausea, vomiting (30%), abdominal pain (61%), and abdominal distension (84%).[2] Caecal bascule may manifest with milder symptoms and reduced risk of ischaemia, as there is less mesenteric torsion and the caecum may return to its anatomical position.

Although computed tomography is the initial diagnostic tool of choice, with a reported sensitivity of 61%, some cases are diagnosed only during exploratory laparotomy.[2] The classic 'whirl sign', seen in types I and II caecal volvulus, is absent in caecal bascule. Instead, the distended caecum folds anteriorly without torsion and typically located in the central abdomen.[3] The transition zone lies between the ascending colon and caecum.

In our patient, diagnosis of caecal bascule was difficult, likely due to the rarity of the condition. With hindsight, the appendiceal orifice lay medial and superior to the terminal ileum, offering indirect evidence of anterior-superior folding to the caecum. A grossly distended caecum in isolation should raise suspicion of caecal volvulus. Examining the relative positions of the appendix and terminal ileum may provide diagnostic clues.

Prompt surgical intervention is often recommended due to the high risk of perforation. Non-operative management has a success rate as low as 3.8%, and endoscopic treatment success is reported at up to 30%, much lower than 70% to 95% in sigmoid volvulus.[3] Surgical options depend on bowel viability and intraoperative stability. Right hemicolectomy with primary ileo-colic anastomosis is the treatment of choice with the lowest recurrence risk. Alternatives such as ileocecal resection with colopexy of the right colon remnant[2] and derotation with caecopexy or caecostomy have been reported.[2,3]

Acute cholecystitis is rarely associated with caecal volvulus, with the first report in 2013.[4] It was believed that the right colon adhered to the inflamed gallbladder formed part of an inflammatory phlegmon, acting as a pivot for caecal rotation. However, this phenomenon was not observed intraoperatively in our case.

To the best of our knowledge, this is the second reported case of caecal bascule in Hong Kong.[5] This case highlights the diagnostic challenge for this rare condition. A high index of clinical suspicion is needed for timely diagnosis. Greater awareness among healthcare professionals may help prevent serious outcomes from this potentially life-threatening presentation.

Author contributions

Concept or design: Both authors.
Acquisition of data: Both authors.
Analysis or interpretation of data: HW Ip.

Drafting of the manuscript: Both authors.
Critical revision of the manuscript for important intellectual content: HW Ip.

Both authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

Conflicts of interest

Both authors have disclosed no conflicts of interest.

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Ethics approval

The patient was treated in accordance with the Declaration of Helsinki. Written consent was obtained from the patient for all treatments and procedures, and publication of the case report, including the accompanying clinical images.

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