

Small bowel obstruction on food impaction after binge eating

E. Van Eecke, L. Crapé, I. Colle

Department of Hepatology and Gastroenterology, Department of Hepatobiliary and Pancreatic surgery, Department of Anatomical pathology, Aalst, Belgium.

Abstract

Small bowel obstruction is a relatively prevalent surgical condition, with the most common underlying cause being postoperative adhesions. However, in patients with no previous history of abdominal surgery, one needs to think more outside the box. In this case study, we have a young and athletic man who presented to the emergency department with an acute abdomen, shortly after binge eating a large amount of food. Obstruction due to food impaction, such as in our case, should always be on the differential list, especially in those without significant medical history and with binge eating pattern where uncontrolled and extreme amounts of food are eaten alternating with restrictive dieting. (*Acta gastroenterol. belg.*, 2024, 87, 427-429).

Keywords: small bowel obstruction, binge eating, acute abdomen, food impaction.

Introduction

Small bowel obstruction is a common abdominal surgical condition with a prevalence of 2-4% in the emergency department. There are two main types of aetiology: mechanical and functional (1-4).

The majority of mechanical obstructions are caused by bowel strictures (55-75%), such as in inflammatory bowel disease or after a history of abdominal surgery (3). Only a limited number of articles describing phyto bezoar-based small bowel obstruction or acute gastric dilatation due to binge eating have been published (5-8).

Functional bowel obstruction implies dysmotility due to dysfunction of the bowel wall or its innervation, e.g. paralytic ileus (3).

Prompt diagnosis is important because of the high risk of complications such as ischaemia, necrosis and perforation which occur in 30% of cases (1,3).

In most cases, nil per os, IV hydration and a nasogastric tube are the pillars of a conservative treatment plan. Alarm symptoms are acute abdomen, haemodynamic instability or lab results that may indicate organ failure, in which surgical intervention should be performed as soon as possible (1).

We report a case of a young, athletic, male patient without significant medical history who presented to the emergency department with an acute abdomen, shortly after binge eating a large amount of food.

Case history

A 38-year-old man presented to the emergency department with acute severe abdominal pain and fulminant vomiting.

His medical history was blank and he did not take any medication or drugs. He was a semi-professional cyclist. He alternated periods of fasting with binge eating with the rationale that this was good for his sportive performance and tried in that way not to gain weight.

He had atypical abdominal pain at the level of the right fossa without fever for about 3-5 weeks. He had normal stools and stable weight. A blood test and CT scan prescribed by the general practitioner that day were reassuring (Figure 1a and 1b). After the CT scan, the patient ate about 15 appetizers such as salami and pieces of cheese and shortly afterwards about 20 fish sticks of 30 grams each over a period of 5 minutes in combination with spinach.

Two hours later, he presented to the emergency department with acute onset of severe abdominal pain, distended abdomen, fulminant vomiting and absence of stool and flatus.

Clinical examination revealed a haemodynamically stable patient. Blood pressure was 133/99 mmHg, pulse up to 115/min, he was afebrile and had an oxygen saturation of 100%. The VAS score was 9/10 for abdominal pain. He was pale and uncomfortable and we noticed a distended and diffuse tender abdomen with no peristalsis. Peripheral vascularization was preserved.

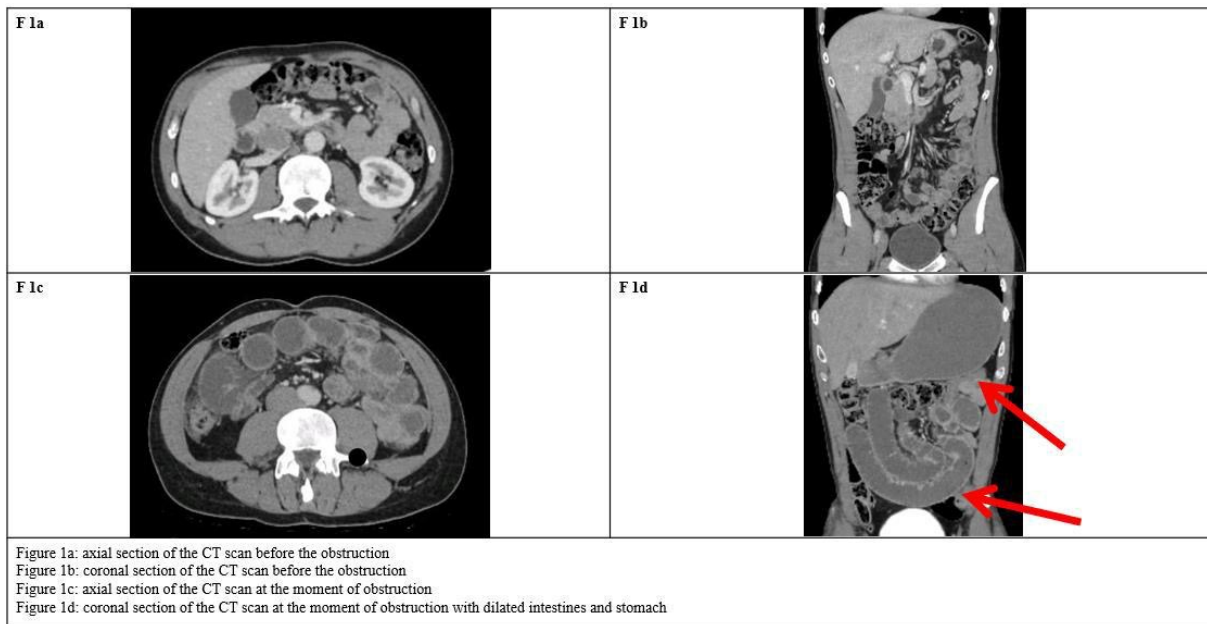
Because of this specific clinical presentation a thorough differential diagnosis is of great importance. Acute gastroenterological conditions should be considered (appendicitis, diverticulitis whether complicated or not, gastroenteritis, gastrointestinal haemorrhage, obstruction, bile colic, ischaemic colitis, cholangitis, herniation, intussusception, volvulus...). In addition, other internal systems should not be forgotten: cardiac and in particular acute coronary syndrome, pulmonary with pneumonia and pneumothorax, vascular with dissection of the aorta, renal colic...

Lab results were unremarkable with a normal peripheral blood count, normal coagulation, normal renal function and a CRP of 6.3 mg/L (upper limit of normal (ULN) 5mg/L). Liver enzymes were also normal.

Urgent CT scan showed distension of the stomach, jejunal and proximal ileal bowel with signs of small

Correspondence to: Colle Isabelle MD, PhD, Merestraat 80, 9300 Aalst, Belgium.
Email: isabelle.colle@asz.be

Submission date: 29/10/2023
Acceptance date: 17/01/2024



bowel obstruction, this compared to the CT scan taken a few hours before. No obvious underlying malignancy or adhesions. No arguments for perforation or pneumoperitoneum. No intestinal ischemia or necrosis, normal image of appendix (Figure 1c and 1d).

The patient was conservatively treated with nil per os, nasogastric tube, adequate analgesia and IV hydration. At this time, there was no indication for an urgent laparoscopic exploration. A total of 3000 cc of gastric fluid was subsequently aspirated.

During hospitalization, we saw a spontaneous recovery of transit. Abdominal pain disappeared after 48 hours.

CT enterography was performed to identify any underlying pathology and was normal.

Discussion

In our case study, the bowel obstruction was likely to have both a mechanical and a functional aetiology. Several case reports have demonstrated the risk of acute gastric dilatation even complicated with gastric rupture and delayed gastric emptying in patients with anorexia nervosa, binge/purge subtype. The definition of binge eating is a cycle of binge eating episodes, where uncontrolled and extreme amounts of food are eaten alternated with restrictive dieting. This is an eating pattern that our patient also maintained. The underlying pathophysiology is likely based on dysmotility and delayed gastric emptying due to acquired atony that is caused by the rapid ingestion of large amounts of food (6,8). In addition, reduced release of cholecystikinin and abnormalities in enteric autonomic function have been found in patients with bulimia nervosa (9). This, combined with the mechanical consequences of food overload probably led to obstruction. Some case reports have been published on small bowel obstruction caused by phytobezoar (0.4% to 4% incidence). A bezoar is an

accumulation of indigested material such as fruit and vegetable fibres (phytobezoar) which can lead to small bowel obstruction. Another risk factor is inadequate chewing (5,7). In our case, a phytobezoar is highly likely given recent history of consumption of high-fiber food such as spinach and fish sticks. The fish as part of the fish sticks is obviously not high-fiber but the crust around it consists of breadcrumbs often with polenta. The main component of these two things consists of potato and potato starch so it can be counted as high-fiber food. Further, our patient also admitted to a lack of chewing at mealtimes.

As described earlier it is important to identify the underlying aetiology and complications as early as possible to initiate the correct treatment in a timely manner. Accurate clinical evaluation is essential. An important alarm symptom during examination is the absence of peripheral pulsations. The increased intra-abdominal pressure that may arise from the small bowel obstruction can lead to abdominal compartment syndrome which can result in multiple organ failure and death. It affects not only the venous but also arterial flow. The inferior vena cava is compressed against the psoas muscle and the spine. The compression is along the entire abdominal course, mostly around the renal veins which can lead to acute renal failure (10,11).

The gold standard of treatment in uncomplicated obstructions with absence of ischaemia or signs of peritonitis remains conservative management with a nasogastric tube in (intermittent) suction, nil per os, adequate analgesia and IV hydration with correction of electrolyte disturbances (1,3,4,12).

Antibiotic therapy is not a standard requirement in the treatment of bowel obstruction unless it shows features of a complicated course requiring surgery. When choosing type of antibiotics, gram-negative bacilli and anaerobes should be covered (1).

Of course, it is of utmost importance to monitor closely and be able to switch to surgical intervention in a timely manner if unfavourable evolution occurs. In literature acute gastric dilatation is treated conservatively when feasible. Surgery is required more often in cases of obstruction that are caused by a phytobezoar (7,8). Given the rarity of these cases, there are no guidelines about these specific pathology.

The majority (60-85%) of mechanical obstructions on adhesions heal with conservative management and do not require surgery (3,4,12).

Conclusion

This case report highlights the importance of an extensive anamnesis to detect aetiology and a comprehensive clinical investigation to estimate the severity of a small bowel obstruction. The most common cause of bowel obstruction is (post-operative) adhesions. Other, more exceptional causes, mainly in patients without abdominal surgical history such as those presented in our case report should be included in the differential diagnosis, especially in patients with a binge eating pattern.

References

1. Long B, Robertson J, Koyfman A. Emergency Medicine Evaluation and Management of Small Bowel Obstruction: Evidence-Based Recommendations. *J Emerg Med.* 2019;56(2):166-76.
2. Jang Y, Jung SM, Heo TG, Choi PW, Kim JI, Jung SW, et al. Determining the etiology of small bowel obstruction in patients without intraabdominal operative history: a retrospective study. *Ann Coloproctol.* 2022;38(6):423-31.
3. Detz DJ, Podrat JL, Muniz Castro JC, Lee YK, Zheng F, Purnell S, Pei KY. Small bowel obstruction. *Curr Probl Surg.* 2021;58(7):100893.
4. Dayton MT, Dempsey DT, Larson GM, Posner AR. New paradigms in the treatment of small bowel obstruction. *Curr Probl Surg.* 2012;49(11):642-717.
5. Taha Y, Salman K, Alrayyes F, Alrayyes S. An unusual case of phytobezoar-induced small bowel obstruction. *J Surg Case Rep.* 2019;2019(11):rjz296.
6. Pitre T, Mah J, Vertes J, Tugwell B. Acute gastric dilatation in a patient with severe anorexia nervosa: a case report. *J Med Case Rep.* 2021;15(1):61.
7. Akrami M, Sasani MR. Dietary Habits Affect Quality of Life: Bowel Obstruction Caused by Phytobezoar. *Iran J Public Health.* 2016;45(8):1080-2.
8. Achamrah N, Grigioni S, Coëffier M, Ainseba N, Déchelotte P. Gastric Necrosis After Binge Eating in Bulimia: Recovery From Eating Disorder After Total Gastrectomy. *Front Psychiatry.* 2020;11:741.
9. Brown C, Mehler PS. Medical complications of anorexia nervosa and their treatments: an update on some critical aspects. *Eat Weight Disord.* 2015;20(4):419-25.
10. Kim BS, Kwon JW, Kim MJ, Ahn SE, Park HC, Lee BH. Abdominal compartment syndrome caused by a bulimic attack in a bulimia nervosa patient. *J Korean Surg Soc.* 2011;81 Suppl 1(Suppl 1):S1-5.
11. Cina A, Zamparelli R, Venturino S, Gargaruti R, Semeraro V, Cavaliere F. Compression of the inferior vena cava in bowel obstruction. *Biomed Res Int.* 2013;2013:469297.
12. Baiu I, Hawn MT. Small Bowel Obstruction. *Jama.* 2018;319(20):2146.