S Afr J Surg. 2025;63:88-90. Online first
https://doi.org/10.36303/SAJS.01406

S Afr J Surg
ISSN 038-2361

CASE REPORT

Trichobezoar – a rare cause of gastric perforation

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Summary
This report describes a rare case of a gastric trichobezoar complicated by gastric perforation in a 14-year-old female. The patient presented with severe abdominal pain and vomiting. Computer tomography (CT) scan showed a pneumoperitoneum with a large trichobezoar in the stomach and free intra-abdominal fluid. The patient underwent an emergency laparotomy, where a perforation on the lesser curve of the stomach was detected and a large trichobezoar that was occupying the entire stomach was removed. Histology confirmed a benign gastric ulcer most likely resulting from pressure necrosis due to the bezoar.
Keywords: gastric perforation, trichobezoar, bezoar

Case report

A 14-year-old female was admitted with a one-day history of severe abdominal pain and vomiting. The patient had a history of major depressive disorder. She had had a laparotomy four years prior for bowel obstruction after ingesting magnets in a parasuicidal attempt. On further questioning, the patient reported ingesting hair for some time prior to her presentation.

On initial examination, her temperature was 37° C, pulse rate was 91 beats per minute, her blood pressure was 105/56 mmHg and she was saturating at 99% on room air with a respiratory rate of 16 breaths per minute. The patient was acutely unwell with a globally tender abdomen but no peritonism. Renal function tests were normal, and septic markers were not elevated. Chest x-rays did not reveal obvious free air under the diaphragm and the abdominal X-ray showed no signs of bowel obstruction. An abdominal computer tomography (CT) scan (Figure 1) revealed a 13.5 x 6 cm gastric bezoar, extending from the gastric fundus to the first part of the duodenum, with a subtle pneumoperitoneum and free fluid in the abdomen.

The CT findings prompted the decision for an emergency laparotomy. Intraoperatively, 600 ml of purulent fluid was found as well as a massive gastric trichobezoar with a 3 mm perforation along the lesser curve of the stomach. Gastrotomy was made anteriorly over the body of the stomach extending from the perforation to facilitate removal of the bezoar (Figure 2). The gastrotomy was repaired in two layers with a vicryl 2.0 suture and the gastric ulcer at

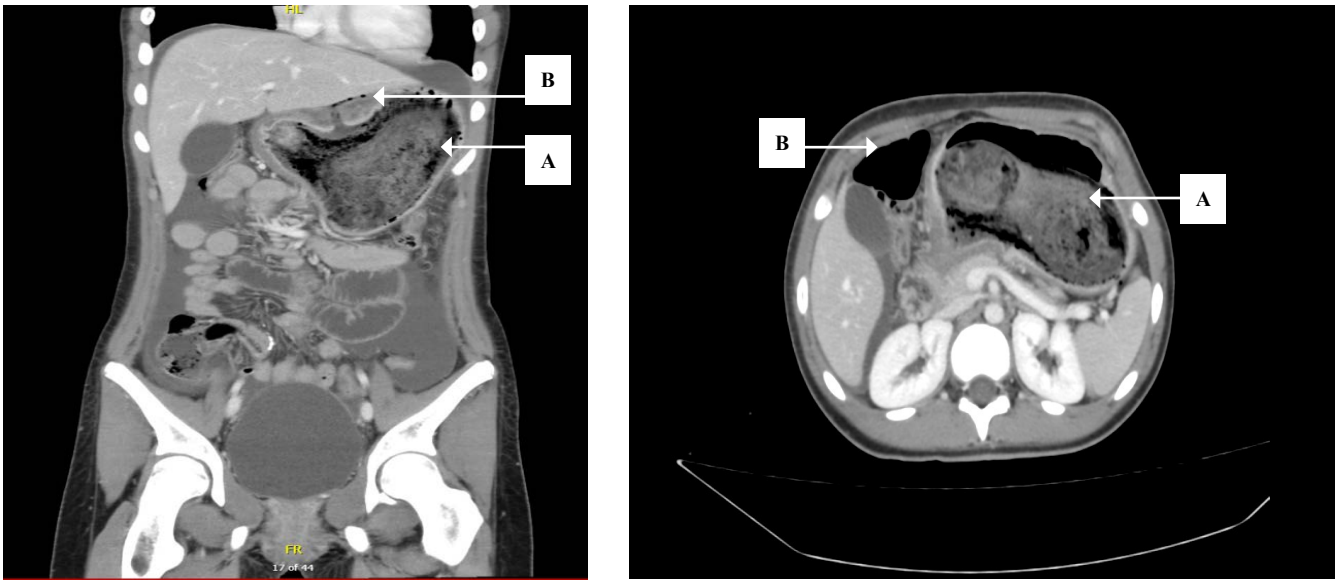

Figure 1: Computed tomography imaging – coronal (left) and transverse (right) sections showing the gastric bezoar (labelled as A) with pneumoperitoneum adjacent to the gastric wall (labelled as B)

Figure 2: Gastric trichobezoar retrieved through gastrotomy

the sight of perforation was biopsied. A nasogastric tube was placed for postoperative gastric decompression. Histology of the gastric ulcer showed benign gastric ulcer with no evidence of Helicobacter pylori.

The patient received five days of co-amoxiclav and was discharged on day five postoperatively in good health without any surgical complications. She was referred to the psychiatry service during her admission, and a mental health follow-up plan was made. The patient was followed up six weeks later and had no complaints or complications.

Discussion

A bezoar is a solid amassment of food or foreign material within the gastrointestinal tract. The overall population incidence is less than one per cent.[1] There are four types of bezoars classified according to their composition namely: phytobezoars, lactobezoars, pharmacobezoars and trichobezoars. Phytobezoars are the most common and are caused by indigestible plant matter; commonly offending foods include persimmons, grape skins and celery. Lactobezoars occur in milk-fed infants and consist of a mass of undigested milk and mucus components. Pharmacobezoars are formed by the accumulation of medications themselves, such as psyllium husk or the cellulose containing coatings of slow-release tablets. Trichobezoars are an accumulation of hair ingested by individuals that essentially form a ball in the digestive system.

Foreign bodies usually escape the stomach, but a bezoar is unable to do so because of its slippery surface which allows it to evade peristalsis.[2] Patients who are susceptible to de novo bezoar formation are those with impaired gut motility due to previous gastrointestinal surgery or underlying abnormal physiology affecting gastric acidity, motility and pyloric function.[3]

Trichobezoars are the least common type of bezoars, with only 120 cases described in literature.[4] The accumulated mass of hair and mucus in the digestive tract is most commonly found in the stomach and small intestine.[5,6] A small bezoar may be asymptomatic and incidentally discovered. Symptomatic bezoars usually present with abdominal pain (70.2%), an epigastric mass (70%), nausea and vomiting (64%) and hematemesis (61%).[7] Further clues to diagnosing trichobezoar include a history of trichophagia or clinical finding of alopecia.[6] The typical trichobezoar patient is a young female with concomitant psychiatric conditions as seen in this case.[5] Our patient was known with major depressive disorder and a prior ingestion parasuicide. An additional diagnosis of generalised anxiety disorder was made during her admission. She did not meet the diagnosis for trichotillomania, which is a type of obsessive-compulsive disorder characterised by the compulsive and repetitive urge to pull hair from various parts of the body, often as a means of relieving tension. Following hair-pulling, individuals may engage in behaviours such as ingesting hair, which can lead to the formation of bezoars.[8]

While gastroscopy is a useful tool to detect or confirm gastric bezoars, abdominal CT scan is the gold standard of diagnosis in a symptomatic patient. CT scan will demonstrate a rounded heterogenous mass with air foci and a mottled appearance in either the stomach or small bowel.[3] It is also useful because it can detect complications that may need surgical intervention such as obstruction or perforation.

Conservative treatment is suitable for small gastric bezoars. Options include chemical dissolution or endoscopic retrieval.[3,9] Chemical dissolution with Coca-Cola® or cellulose is a safe and effective option for small non-obstructing phytobezoars but is unlikely to have success in trichobezoars which are resistant to breakdown.[6] Surgical removal is the only option for refractory or complicated bezoars. Only 1% of patients with trichobezoars present with symptoms requiring surgical intervention.[4] The gold standard operative intervention is laparotomy as it offers the opportunity to examine the rest of the gastrointestinal tract for migrated residual bezoars which can be removed at the index procedure.[7] Laparoscopy is possible but may necessitate a mini laparotomy for specimen retrieval.[10] A novel approach called Laparoscopic and Cooperative Endoscopic Surgery offers the advantage of intraoperative endoscopic evaluation of the size of the bezoar prior to gastrotomy and thorough evaluation of the gastric mucosa for ulceration. Endoscopy also allows for the performance of an intraoperative air leak test after closure of the gastrotomy.[9]

Gastric perforation due to a bezoar is one of the most common complications (10.1%).[7] The distended gastric wall is vulnerable to pressure necrosis, particularly along the lesser curvature where the blood supply is inferior relative to the rest of the stomach.[2] Rare complications include intussusception (1.85%), pancreatitis (0.92%) and cholangitis (0.92%).[7]

This case highlights how a large trichobezoar can cause gastric perforation due to its pressure effect on the stomach.

Conflict of interest

The authors declare no conflict of interest.

Funding source

No funding source to be declared.

Ethical approval

The authors declare that this submission is in accordance with the principles laid down by the Responsible Research Publication Position Statements as developed at the 2nd World Conference on Research Integrity in Singapore, 2010.

Prior to commencement of the case write-up, informed consent was obtained from the legal guardian of the patient – in this case her father.

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