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Gastroduodenal Trichobezoar in a 6-Year-Old Girl: A Case Report

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Abstract **Case Report**

Trichobezoar is an intragastric accumulation of ingested hair, usually related to trichotillomania and trichophagia, and is mostly seen in adolescent girls. We report a 6-year-old girl with a one-year history of episodic epigastric pain and vomiting, partially relieved by symptomatic treatment, and trichophagia since the age of 4 years, who was admitted for acute worsening of her symptoms. Examination revealed left temporal alopecia and a tender epigastric mass of about 7 cm, and laboratory tests showed microcytic anaemia (haemoglobin 9 g/dL). Ultrasound demonstrated a curvilinear hyperechoic band with dense posterior acoustic shadowing. Contrast-enhanced computed tomography (CT) showed a large, heterogeneous, non-enhancing intraluminal gastric mass with concentric layers and trapped air, extending to the first part of the duodenum, without complication. A 72-mm trichobezoar forming a cast of the stomach was removed through laparotomy and anterior gastrotomy, and no residual fragment was found in the small bowel. Recovery was uneventful, and the child was referred for psychiatric care; she remained asymptomatic at two months. This case shows that trichobezoar should be considered in young children with chronic epigastric symptoms, that questioning about hair eating and scalp examination are simple diagnostic clues, and that CT allows a reliable preoperative diagnosis when endoscopy is not readily available.

Keywords: Trichobezoar, trichotillomania, trichophagia, computed tomography, gastrotomy, child.

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INTRODUCTION

A bezoar is a mass of indigestible material that accumulates within the gastrointestinal tract [1]. Trichobezoars are composed of hair and are almost always associated with trichotillomania and trichophagia, often in the setting of an underlying psychiatric disorder [2,3]. Up to 90% of cases occur in females younger than 20 years [4]. Because hair resists digestion and peristalsis, it is retained in the gastric folds and slowly forms a cast of the stomach, which may become very large before causing symptoms [1,2]. When the trichobezoar extends beyond the pylorus as a tail into the small bowel, the condition is called Rapunzel syndrome [5,6].

Most patients are adolescents, but trichobezoars have also been reported in preschool and early school-age children, including in this journal [5,7,8]. We report a gastroduodenal trichobezoar in a 6-year-old girl from a low-resource setting, with emphasis on the ultrasound and CT findings that allowed a confident preoperative diagnosis without endoscopy, and on the simple clinical clues that could have shortened the diagnostic delay.

CASE PRESENTATION

A 6-year-old girl with no relevant medical or surgical history presented with a one-year history of episodic, cramping epigastric pain and vomiting of food, transiently relieved by metopimazine and phloroglucinol. She was admitted for acute worsening of pain and vomiting that no longer responded to this treatment. Her parents reported compulsive hair pulling and hair eating since the age of 4 years. The family had a low income, and limited access to care largely explained the prolonged self-medication and the one-year diagnostic delay.

On admission, she was haemodynamically stable, afebrile and in good general condition. Examination revealed a small patch of left temporal alopecia, slightly pale conjunctivae, and a firm, mobile, tender epigastric mass measuring about 7 cm, without guarding, organomegaly or peripheral

lymphadenopathy. Laboratory tests showed microcytic anaemia (haemoglobin 9 g/dL), with normal liver function tests, bilirubin and renal function; iron studies and serum albumin could not be obtained.

Abdominal ultrasound showed, in the epigastrium, a 7-cm curvilinear hyperechoic band at the anterior aspect of the gastric lumen, casting a dense, clean posterior acoustic shadow that obscured the underlying structures (Figure 1). Contrast-enhanced abdominopelvic CT in the portal venous phase demonstrated a distended stomach filled with a large, heterogeneous, non-enhancing intraluminal mass made of concentric layers of varying density ("onion-skin" pattern), with entrapped air bubbles and small calcifications, extending to the first part of the duodenum (Figure 2). There was no pneumoperitoneum, free fluid or bowel obstruction.

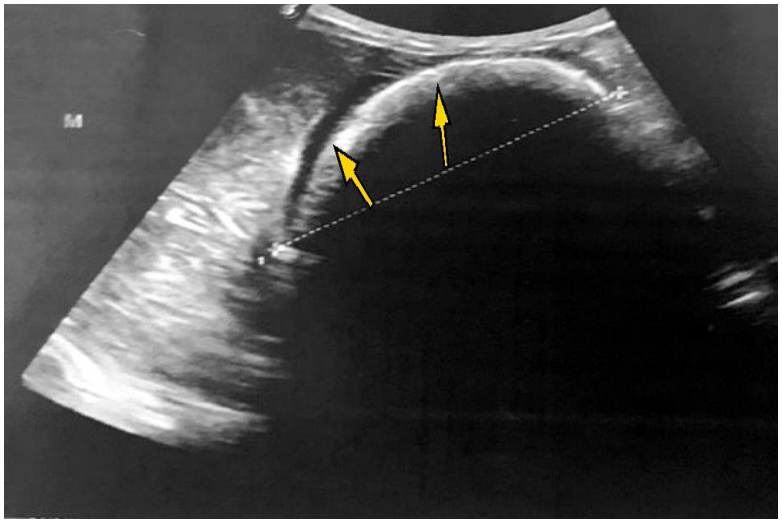


Figure 1: Transverse ultrasound image of the epigastrium showing a curvilinear hyperechoic band at the anterior aspect of the gastric lumen (arrows; calipers, 7 cm) with a dense, clean posterior acoustic shadow obscuring the underlying structures, suggestive of a gastric bezoar

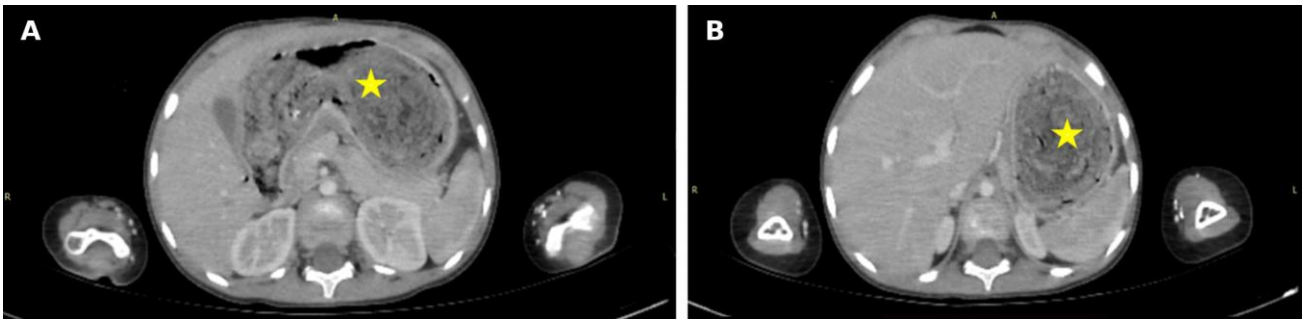


Figure 2: Axial contrast-enhanced CT images in the portal venous phase (A, B) showing a large, heterogeneous, non-enhancing intraluminal gastric mass (star) with concentric layers and entrapped air bubbles, filling and distending the stomach

The differential diagnosis of an epigastric mass in a child included gastrointestinal duplication, gastric lymphoma, gastrointestinal stromal tumour and phytobezoar. The combination of long-standing trichophagia, alopecia and the characteristic CT appearance established the preoperative diagnosis of gastroduodenal trichobezoar. Upper endoscopy was not performed, as CT was considered sufficient to indicate surgery.

After rehydration and antibiotic prophylaxis with a single intravenous dose of cefazolin (30 mg/kg), the patient underwent surgery on the day after admission, under general anaesthesia, through an upper midline laparotomy (Figure 3). An anterior longitudinal gastrotomy allowed en bloc extraction of a blackish trichobezoar forming a cast of the stomach, measuring 72 mm in its long axis, with a tail extending into the duodenum (Figure 4). Systematic examination of the small bowel found no residual fragment. The gastrotomy was closed and the peritoneal cavity was irrigated, and a drain was placed. The diagnosis was confirmed by the operative findings and the macroscopic appearance of the specimen, which was not sent for histopathology.

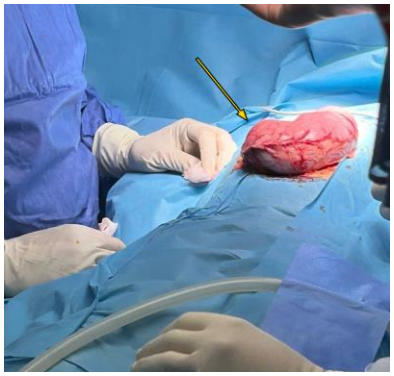


Figure 3 : Intraoperative view after upper midline laparotomy showing the exteriorised, distended stomach containing the trichobezoar (arrow), before anterior gastrotomy



Figure 4: Surgical specimen: blackish trichobezoar forming a cast of the stomach (72 mm in long axis), with a tail corresponding to its duodenal extension

Bowel function and oral feeding resumed after 48 hours, without wound complication, fistula or sepsis, and the patient was discharged on postoperative day 3 (total hospital stay, 4 days). She was referred to a child psychiatrist for trichotillomania with trichophagia and was managed with cognitive-behavioural therapy, parental guidance and family psychosocial support. At two months, she was free of symptoms, with no clinical recurrence, and her parents reported regular attendance at psychiatric consultations. The parents, initially very anxious about the diagnosis and the need for surgery, were satisfied with the outcome.

DISCUSSION

Trichobezoar results from trichotillomania, now classified among obsessive–compulsive and related disorders, complicated by trichophagia [3,9]. Ingested hair is trapped in the gastric folds, where it accumulates, becomes denatured and blackened, and gradually forms a compact cast of the stomach [1,2]. This slow growth explains the insidious course and frequent diagnostic delay, as in our patient.

Most cases occur in girls, and the majority present between 13 and 20 years of age [4,5]. The age of our patient is therefore unusual, although not unique: trichobezoars have been reported in children as young as 3 to 5 years [5,7]. Typical features are epigastric pain, vomiting, weight loss and, in advanced cases, a palpable epigastric mass; patchy alopecia is a strong clue [2,4]. Anaemia may result from occult bleeding from mucosal ulceration or from malabsorption [4,5]. If untreated, trichobezoar may cause ulceration, perforation, obstruction, intussusception, protein-losing enteropathy, pancreatitis or obstructive jaundice [2,5,10]. Definitions of Rapunzel syndrome vary, from any extension beyond the pylorus to a tail reaching the jejunum, ileum or ileocaecal valve [5,6]; with a tail limited to the duodenum and no obstruction, our case is best described as a gastroduodenal trichobezoar.

Ultrasound is often the first examination and shows a curvilinear hyperechoic band with marked posterior acoustic shadowing, but it cannot assess the full extent of the mass [11]. CT is the most informative modality: it shows a well-defined, non-enhancing intraluminal mass with a mottled gas pattern and concentric layers, outlines the distended stomach, and depicts extension through the pylorus and complications such as obstruction or perforation [4,11]. All these features were present in our patient. Phytobezoars may look similar on CT, but the history of trichophagia and the alopecia made the distinction straightforward. This ultrasound–CT sequence is particularly valuable where endoscopy is not immediately available.

Treatment aims at complete removal. In a review of paediatric cases, endoscopic removal was successful in only 5% of attempts, whereas laparotomy was successful in all reported cases, with minor complications in 12% [2]. Endoscopic fragmentation is generally ineffective because of the density of the hair mass [1], and laparoscopy is mainly suited to small or moderate bezoars [2,10]. For large trichobezoars, laparotomy with gastrotomy remains the treatment of choice, with careful examination of the small bowel to exclude residual fragments [2,10]. Psychiatric management of the underlying disorder is essential: relapse rates of 50–67% have been reported in the absence of ongoing psychiatric support, and psychiatric follow-up of at least 12 months is recommended [4].

In our patient, the one-year delay reflected limited access to care rather than an atypical presentation. Asking about hair eating and examining the scalp in any child with chronic epigastric pain are simple, cost-free measures that could have suggested the diagnosis much earlier. This report has limitations: endoscopy was not performed, so the gastric mucosa could not be assessed; the specimen was not examined histologically; iron studies and albumin were not available; and follow-up was limited to two months, whereas recurrence may occur months or years after removal.

Conclusion

Although uncommon in young children, gastric trichobezoar should be considered in any child with chronic epigastric symptoms, alopecia or reported hair eating. Ultrasound may suggest the diagnosis, and CT confirms it and maps its extent before surgery. Large trichobezoars are best treated by laparotomy and gastrotomy, and psychiatric care of the underlying disorder is essential to prevent recurrence.

HIGHLIGHTS

- Gastric trichobezoar can occur in young children, not only in adolescent girls.
- Hair eating and patchy alopecia are simple clues in a child with chronic epigastric pain.
- CT shows a non-enhancing, layered intraluminal mass with trapped air and maps its extent.
- Large trichobezoars require laparotomy and gastrotomy, followed by psychiatric care.

Declarations

Study area and ethical considerations:

The patient was managed at the Children's Hospital of Rabat, Morocco. Written informed consent for publication of this report and the accompanying images was obtained from the patient's parents, who hold parental authority. Ethics committee approval was not required for a single anonymised case report, in accordance with institutional policy.

Conflict of interest: The authors declare no conflict of interest.

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Author contributions: GDT conceived the report and drafted the manuscript; JVFE collected the data; HN, LB and LC critically revised the manuscript. All authors approved the final version.

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