PAEDIATRIC GASTRO-DUODENAL FABRIC BEZOAR

Ramnik Patel, Shiva Jayakumar, Manasvi Upadhyaya, David Drake
Department of Pediatric Surgery, Evelina London Children’s Hospital
St Thomas’ Hospital, London, UK

Abstract
An unusual case of paediatric fabric bezoar in a 5-year-old girl who presented with a history of pica and nonspecific symptoms of ill health of 4 weeks duration associated with pallor and failure to thrive is presented. Initial radiological investigations revealed a gastro-duodenal bezoar and an upper gastrointestinal endoscopy showed a bezoar made of multiple layers of interwoven fabric from ingestion of cloth threads. Exploratory laparotomy, gastrotomy and removal of the large gastro-duodenal fabric bezoar followed uneventful recovery. Prolonged ill health with history of pica should alert the possibility of a bezoar. Fabric bezoar is rare. It is an interwoven large mass made of fabric threads. Conservative measures including carbonated beverages administration and endoscopic removal is not feasible. Laparoscopic removal of gastro-duodenal bezoars is difficult in comparison to intestinal bezoars as they are very large in volume and that the stomach and duodenum are relatively fixed organs.

Keywords: gastric, duodenal, bezoar, children, fabric, gastrotomy, foreign body

Introduction
A bezoar is a ball of ingested hard mass found trapped in the digestive system. It is rare in children but it has been described in neonates, infants and children in the stomach, intestine and colon [1-5]. Most cases are formed of hair (trichobezoar) or vegetative and fruit material (phytobezoar). Extensive search for literature revealed few cases of cotton bezoar reported in adults and none in the paediatric age group, predominantly with psychiatric problems [6-7]. We wish to report this unusual paediatric case treated by us recently in whom there was no psychiatric problem but had very slow gastrointestinal transit and constipation.

Case report
A 5-year-old girl presented with abdominal pain on and off for 4 weeks along with non-bilious vomiting over the last 2 days. She lost her appetite and had no bowel movements for the last 5 days. Parents reported fabric threads seen in her recent vomit. There was also a history of pica for eating fabric threads that she has access to at nursery and home. This was observed and witnessed by teachers and other students. On examination she was pale, afebrile and mildly dehydrated. Abdominal examination revealed fullness and mild tenderness in the epigastric region. Haemoglobin was 86 gm/L, WBC count 16X10^9/L, MCV 67 fl, ferritin 38 mcg/L and CRP <5mg/dl. Urine and other haematological and biochemical investigations were normal. Abdominal radiograph showed a soft tissue shadow in the region of the stomach with absence of gastric air bubble (Fig. 1). Ultrasound scan with colour Doppler showed an intragastric mass with features suggestive of a bezoar (Fig.2). Upper gastrointestinal contrast study showed distended stomach having clear fundus but with a filling defect seen in the body of stomach extending to the pylorus/duodenal area (Fig.3). A provisional diagnosis of a bezoar—either a trichobezoar or a phytobezoar was considered. In view of eating fabric threads, possibility of pure fabric bezoar was thought of. She was refusing to eat or drink anything and the size of the bezoar was quite substantial. Therefore, it was not possible to go ahead with dissolution by oral treatment. We decided to do upper gastrointestinal endoscopy with a view to retrieve it if feasible. Endoscopy confirmed the diagnosis but it was pure fabric bezoar with firmly interwoven fibres of
cloth impossible to retrieve through the endoscopic route. Being a large mass in a relatively fixed gastric area, laparoscopic retrieval would have been very difficult. She thus underwent an exploratory laparotomy, gastrotomy and removal of the large bulbous fabric bezoar in the stomach that had an extension into 1st and 2nd part of duodenum. This was achieved by a polar delivery, restricting the size of the incision on the stomach and avoiding spillage by walling off the surrounding area uneventfully (Fig. 4). Post-operative recovery was uneventful and she was eating and drinking well. However, she had faecal loading and addition of movicol once daily helped to overcome constipation. She was started on oral iron supplements to treat her iron deficiency anaemia. She was also referred for counselling address her issues with pica any psychological disturbances. At 3 months of follow up she is thriving well and is completely asymptomatic.

Discussion
The word bezoar is derived from the Persian word called pād-zahr, which means an antidote. It was commonly and erroneously believed that a drinking glass having a bezoar has the power to neutralize any poison dropped into it as a universal antidote against these poisons. The underlying mechanism of bezoar formation is usually by a habit of swallowing indigestible materials, particularly by psychologically disturbed patients, mentally retarded children or psychiatric patients. In our patient there was no psychological abnormality apart from the habit of pica. Gastro-intestinal dysmotility may be

Figure 1: Plain abdominal radiograph showing soft tissue shadow in the gastro-duodenal area with absence of stomach gas bubble.

Figure 2: Ultrasound and Colour Doppler showing intragastric mass without any vascularity.
another factor [6]. Our patient had slow bowel motility with constipation. The bezoar may be acting as mechanical irritant to increase the motility initially as a pace maker and help improve the motility. However, later on when the load of the large bezoar increases and gets colonized with bacteria; malabsorption of iron in the duodenal side and anorexia due to full stomach by the large bezoar occupying space in the stomach body leads to anorexia and poor oral intake associated with persistent chronic ill health leading to its detection eventually.

Most cases involve young females with pica, especially from Asia. Commonest forms of bezoars are trichobezoars (hair) with history of trichotillomania followed by phytobezoars (vegetable and fruit fibers), lactobezoars (milk preparations or powder), medicinal bezoars (drugs) or diospyrobezoars (persimmon fibers) in that order. Fabric or cotton bezoars are exceptional, resulting from swallowing of cloth fibres with the strings unravelled from it. The strings get coiled up due to gastric motility and together with gastric mucus and food particles form a gastric fabric or a cotton bezoar [7]. The parent gastric bezoar can form a long tail that may extend into the intestine to variable distance described as the Rapunzel syndrome [3,4]. Most cases are asymptomatic and present with non-specific symptoms of abdominal pain, distension, pallor and failure to thrive. Abdominal fullness, tenderness and a palpable mass may be evident on examination. However, as the mass expands it causes partial obstruction followed by complete obstruction, bleeding, perforation, intussusception, volvulus, gangrene, peritonitis and deaths have been reported in advanced and late cases [1-12]. Plain abdominal radiographs may show a soft tissue mass. Ultrasound scan with colour Doppler will show an intraluminal mass without any vascular flow. Upper gastrointestinal contrast study will show a filling defect with irregular borders and possible extension into the duodenum or jejuno-ileum in Rapunzel syndrome. Upper gastrointestinal endoscopy will help confirm the diagnosis and may help therapeutic removal in early cases with small bezoar. Medical management of bezoars have been described [8]. Endoscopic removal may be aided with carbonated beverages and multiple sessions may be required to completely remove the bezoar [9, 10]. Laparoscopic removal of large gastric and intestinal bezoars

![Figure 3: Upper gastro-intestinal contrast showing gastro-duodenal intraluminal filling defect.](image)
in children has also been reported successfully [5, 11]. Prognosis is usually good but sporadic cases of mortality are reported in complicated and neglected cases [12].

**Conclusion**

Prolonged ill health with history of pica should alert the possibility of a bezoar. Eating cloth fabric and vomitus containing cloth pieces or fabric should raise suspicion of fabric bezoar. Fabric bezoar is rare and being an interwoven large mass, conservative measures and endoscopic removal is not possible. Laparoscopic removal for gastro-duodenal bezoars is difficult compared to intestinal bezoars as they are very large in volume and the stomach and duodenum are relatively fixed organs as compared to intestine.

**REFERENCES**