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Small Bowel Obstruction Caused by a Jejunal Phytobezoar in a 4-Year-Old Girl: A Case Report and Literature Review

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ABSTRACT

Background. A bezoar is a concretion of indigestible material that accumulates within the gastrointestinal tract. Bezoar-induced small bowel obstruction is uncommon, accounting for roughly 0.4–4% of small bowel obstructions, and is exceptional in young children. We report a pediatric case and highlight its computed tomography (CT) features.

Case presentation. A previously healthy 4-year-old girl presented with a 5-day history of diffuse abdominal pain, bilious then feculent vomiting, and cessation of stool and gas. She showed clinical signs of dehydration. Laboratory work-up was normal apart from electrolyte disturbances related to dehydration and iron-deficiency anemia. Abdominal CT revealed diffuse jejuno-ileal distension with air-fluid levels, upstream of an ill-defined, heterogeneous intraluminal jejunal mass containing entrapped air bubbles (mottled gas pattern) and calcifications, consistent with an obstructing bezoar at the transition zone. After hydro-electrolyte resuscitation and nasogastric decompression, the child underwent laparotomy with removal of the obstructing mass, which was confirmed to be a phytobezoar. The postoperative course was favorable.

Conclusion. Although rare in children, a bezoar should be considered in the differential diagnosis of small bowel obstruction. CT is the key investigation, showing an intraluminal mass with a mottled gas pattern at the transition zone, allowing a preoperative diagnosis and guiding management.

KEYWORDS :

bezoar; phytobezoar; small bowel obstruction; computed tomography; child.

MAIN ARTICLE

INTRODUCTION

A bezoar is an aggregation of indigestible material that forms and accumulates within the gastrointestinal tract, most often in the stomach. According to their composition, bezoars are classically divided into phytobezoars (plant fibers and fruit matter), trichobezoars (hair), lactobezoars (milk concretions, mainly in neonates and premature infants), and pharmacobezoars. Predisposing factors include impaired gastric motility, previous gastric surgery, high-fiber diets and inadequate mastication, as well as behavioral disorders such as trichotillomania and trichophagia in the case of trichobezoars.

Small bowel obstruction secondary to a bezoar is uncommon and represents only a small proportion of all small bowel obstructions. Small bowel bezoars usually result from the migration of a gastric bezoar; primary small bowel bezoars are rarer and are generally associated with an underlying abnormality such as a diverticulum, stricture, or tumor. An obstructive presentation is exceptional in young children, which makes the diagnosis difficult and often delayed. We report a case of small bowel obstruction due to a jejunal phytobezoar in a 4-year-old girl, emphasizing the contribution of computed tomography.

CASE PRESENTATION

A 4-year-old girl with no relevant medical or surgical history was admitted for an occlusive syndrome that had been evolving for 5 days, consisting of diffuse abdominal pain, initially bilious and then feculent vomiting, and cessation of stool and gas.

On admission, the child showed clinical signs of dehydration secondary to repeated vomiting. Abdominal examination found distension with diffuse tenderness. Laboratory investigations were normal except for electrolyte disturbances consistent with dehydration and iron-deficiency anemia.

Abdominal CT was performed. It showed diffuse jejuno-ileal distension with multiple air-fluid levels (Figure 1, A and B), indicating mechanical small bowel obstruction. At the junction between the dilated proximal loops and the collapsed distal loops, an ill-defined, heterogeneous intraluminal jejunal mass was identified; it contained fine entrapped air bubbles producing a characteristic mottled appearance, together with calcifications molding the bowel wall (Figure 1, C). These findings were typical of an obstructing bezoar located at the transition zone.

The patient was managed with intravenous hydro-electrolyte resuscitation and nasogastric decompression, which were indicated given the vomiting and clinical signs of dehydration. In the absence of resolution and given the complete obstruction, surgical treatment was undertaken by laparotomy, allowing removal of the obstructing intraluminal mass, with exploration of the remainder of the bowel to rule out synchronous locations. The mass was confirmed to be a phytobezoar.

The postoperative course was favorable. After resumption of bowel transit, oral feeding was gradually reintroduced according to the surgeon's instructions, with adequate hydration and monitoring of the wound and bowel transit. At discharge, the family received dietary and behavioral advice, and iron-deficiency anemia was investigated and managed. Follow-up was arranged with the pediatric surgeon and then the pediatrician, with referral to pediatric gastroenterology should recurrence or a digestive abnormality be suspected.



Figure 1. Abdominal CT (axial views). (A, B) Diffuse jejuno-ileal distension with air-fluid levels, indicating mechanical small bowel obstruction. (C) Ill-defined, heterogeneous intraluminal jejunal mass with a mottled gas pattern and calcifications molding the bowel wall, located at the transition zone: the characteristic appearance of an obstructing bezoar.

DISCUSSION

Bezoars are a rare cause of small bowel obstruction, estimated at 0.4–4% of all small bowel obstructions. They are more frequent in adults, particularly in the presence of previous gastric surgery, gastroparesis, a high-fiber diet, or inadequate mastication. In children, bezoar-induced obstruction is considerably rarer; trichobezoars predominate and are usually associated with trichotillomania and trichophagia, affecting mainly girls, whereas phytobezoars are less common at this age. Regardless of the type, migration or fragmentation of a gastric bezoar into the small bowel can cause mechanical obstruction, and delayed diagnosis exposes the patient to ischemia and perforation.

Topographically, the proximal small bowel — and the jejunum in particular — is a frequent site of impaction, which is consistent with the jejunal location observed in our case; the relatively narrow lumen and the peristalsis favor entrapment of the material. The clinical presentation is nonspecific, comprising abdominal pain, vomiting, distension, and cessation of stool and gas, as in our patient. Imaging therefore plays a decisive role in reaching a preoperative diagnosis.

CT is the investigation of choice. It confirms mechanical obstruction by demonstrating an abrupt caliber change between dilated proximal loops and collapsed distal loops, and it identifies the cause. A small bowel bezoar appears as an ovoid or rounded intraluminal mass with well-defined margins and a heterogeneous internal structure, containing air bubbles that produce the typical mottled gas pattern, usually located at the transition zone. Calcifications, as in our observation, may be present. CT also allows a search for synchronous gastric or small bowel locations, which, if overlooked, expose the patient to recurrence.

The main imaging differential diagnosis is the small-bowel feces sign, seen in tight, long-standing obstruction. Several features favor a bezoar over feculent material: a well-defined mass mottled with gas bubbles, surrounded by an encapsulating wall, located precisely at the transition point, and possibly associated with a gastric lesion of similar appearance; conversely, an amorphous, elongated collection without a proper wall and not centered on the transition zone favors small-bowel feces. Ultrasonography can provide an additional argument by showing an arc-like structure with strong posterior acoustic shadowing.

Management depends on the patient, the type of bezoar, and the severity of the obstruction. In the absence of complications, conservative treatment may be attempted; in cases of complete obstruction, failure of medical management, or signs of bowel compromise, surgery is required, consisting of milking the bezoar toward the cecum when feasible, or enterotomy with direct removal, together with systematic exploration of the remaining bowel for fragments. In our patient, laparotomy allowed removal of the obstructing phytobezoar with a favorable outcome. Prevention of recurrence relies on correction of predisposing factors: for a phytobezoar, dietary measures without complete fiber suppression, well-cut and well-chewed food, and temporary avoidance of highly fibrous fruits, skins, seeds, and whole nuts; for trichophagia, behavioral surveillance and psychiatric or psychological follow-up. Investigation and correction of the associated iron-deficiency anemia are also warranted.

CONCLUSION

Small bowel obstruction due to a bezoar, although rare in children, should be considered in any occlusive syndrome, particularly in the presence of predisposing factors such as trichophagia. CT has a central role: it confirms the obstruction, identifies its cause by demonstrating an intraluminal mass with a mottled gas pattern at the transition zone, distinguishes it from feculent material, and screens for synchronous locations. This preoperative diagnosis enables prompt and appropriate management, which is essential for a favorable outcome.

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