

Bezoar in Pediatrics: Case Series and Literature Review

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Abstract

Introduction: Bezoars are accumulations of indigestible material within the gastrointestinal tract, which, although rare, can lead to significant intestinal obstruction, especially in pediatric patients. This condition often necessitates not only surgical intervention to remove the obstruction but also a multidisciplinary approach to address underlying psychological issues due to the high recurrence risk associated with compulsive disorders. This study presents a series of cases involving children under 14 years old who experienced intestinal obstruction from bezoars and were treated at a tertiary care public hospital, complemented by a literature review to enhance understanding of this condition.

Case Series: This descriptive case series study reviews three pediatric patients who underwent surgical treatment for intestinal obstruction caused by bezoars over the past two years.

Results: The study identified three patients, all under 14 years of age, who required surgical intervention for bezoar-related intestinal obstruction. Among them, two were male and one was female. Two patients had trichobezoars (66.7%), located one in the stomach and one in the jejunum, while the remaining patient had a phytobezoar (33.3%) in the jejunum. Surgical treatment involved conventional laparotomy with exploration and two-layer enterorrhaphy in all cases.

Discussion: Bezoars are categorized into four types: phytobezoars (plant material), pharmacobezoars (medications), lactobezoars (milk products), and trichobezoars (hair). Trichobezoars are most common in the studied cases, contrasting with existing literature that suggests a higher frequency of other types. Bezoars typically present with gastric symptoms but may also cause small intestine obstruction in about 10% of cases. The management of bezoars usually requires endoscopic or surgical removal, with psychological follow-up recommended due to high recurrence rates. The study emphasizes the importance of thorough surgical exploration for concurrent bezoars and integrating psychological care into treatment plans.

Conclusion: Bezoars, although rare, are a serious concern in the pediatric population due to their potential to cause significant gastrointestinal obstruction. Effective management requires not only the surgical removal of the bezoar but also consideration of psychological factors to prevent recurrence. This case series highlights the need for a comprehensive approach, including psychological support and detailed surgical exploration, to optimize patient outcomes.

Keywords: Bezoars; Children; Gastrointestinal tract

Introduction

A bezoar represents an accumulation of non-digestible material in the gastrointestinal tract, most commonly in the stomach. Despite its rarity, it is crucial to consider bezoars in the differential diagnosis of acute abdominal conditions with intestinal obstruction in pediatrics. The first documented case of a bezoar was reported by Baudamant in 1779, describing a patient with trichotillomania who ingested hair repetitively.

Bezoars are classified into four main categories:

- **Phytobezoars:** Composed of plant material, such as fruits, vegetables, and seeds.
- **Pharmacobezoars:** Formed from medications, including antacids, antibiotics, and iron supplements.
- **Lactobezoars:** Comprised of milk and dairy products.
- **Trichobezoars:** Made up of ingested hair.

Clinically, bezoars often present insidiously with symptoms such as abdominal pain, vomiting, and anorexia. Severe complications may include intestinal perforation, complete obstruction, and potentially death.

Managing bezoars involves not only removing the obstruction but also addressing any underlying psychological issues that may contribute to recurrent bezoar formation. The recurrence rate is approximately 20%, highlighting the need for an integrated approach in treatment.

This presentation aims to analyze three clinical cases of intestinal obstruction due to bezoars in patients under 14 years old treated at a tertiary care public hospital and contextualize these findings through a review of relevant literature to enhance understanding and management of this condition in pediatric patients. [1-9]

Case Series

Case 1

A 12-year-old female presented with a clinical picture of 6 days' duration, characterized by abdominal pain localized to the epigastrium, worsened over the last 24 hours, and fever. Physical examination revealed a tense and diffusely tender abdomen. Abdominal X-ray in the standing position showed air-fluid levels. Exploratory laparoscopy identified an endoluminal mass in the jejunum, leading to conversion to open surgery with enterotomy and trichobezoar extraction, followed by enterorrhaphy. The patient had a favorable clinical course, was discharged, and received psychological follow-up for one year.

Two years later, the patient was readmitted with a one-week history of anorexia, abdominal pain, and bilious vomiting over the last 24 hours. Abdominal X-ray revealed air-fluid levels. A second surgical intervention was performed, finding a trichobezoar 30 cm from the Treitz angle. An enterotomy with Mikulicz-type enterorrhaphy was carried out, and the patient was discharged with continued psychological follow-up.



Figure 1-2. Abdominal x-ray of standing/trichobezoar extracted from jejunum.



Figure 3-4. Abdominal X-ray in the standing position showing a trichobezoar in the jejunum. A trichobezoar is a mass of hair that has accumulated in the stomach or intestines. It can cause a variety of symptoms, including abdominal pain, nausea, vomiting, and constipation. In some cases, surgical removal of the trichobezoar may be necessary.

Case 2

A 19-month-old male presented with a two-week history of poor appetite, vomiting, fever, diarrhea, and weakness. After multiple consultations and outpatient management, an abdominal X-ray in the supine position showed a radiopaque mass in the left upper quadrant and distended intestinal loops with wall thickening. Surgical intervention was deemed necessary due to suspected intestinal obstruction, revealing an endoluminal impaction 40 cm from the ileocecal valve (ICV). Resection of the compromised segment, phytobezoar extraction, and ileostomy with divided stumps were performed. Intestinal transit reconstruction was completed one month post-operatively.

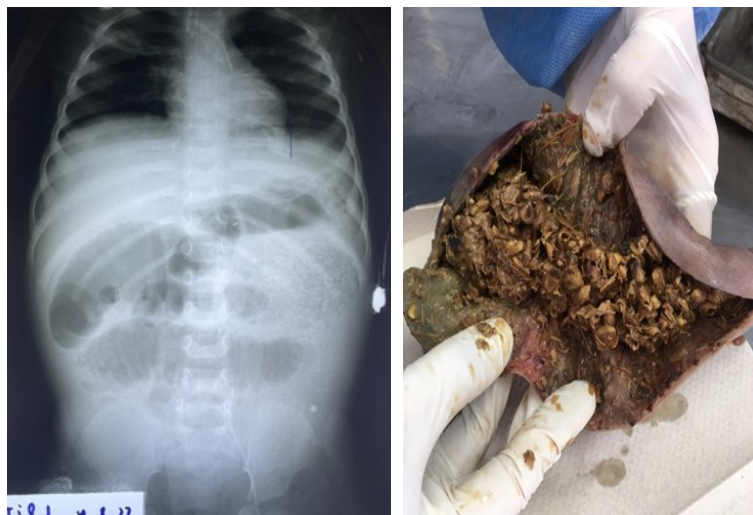


Figure 5-6. Frontal abdominal X-ray showing a phytobezoar in the intestine. A phytobezoar is a mass of plant material that has accumulated in the stomach or intestines. It can cause a variety of symptoms, including abdominal pain, nausea, vomiting, and constipation. In some cases, surgical removal of the phytobezoar may be necessary.

Case 3

A 9-year-old male presented with 24 hours of abdominal pain and bilious vomiting. The mother reported that the patient ingests his hair. Abdominal X-ray showed air-fluid levels. Contrast-enhanced abdominal and pelvic CT revealed significant gastric distention with a heterogeneous mass extending into the second portion of the duodenum. An exploratory laparotomy with anterior gastrotomy, bezoar extraction, and two-layer enterorrhaphy was performed. Post-operatively, the patient exhibited regular recovery with persistent bilious vomiting and pain at 72 hours. A repeat abdominal X-ray showed ongoing air-fluid levels, necessitating a second surgical intervention, where a trichobezoar was found 15 cm from the ICV. The patient was discharged on the seventh post-operative day with follow-up from the psychology and mental health services.

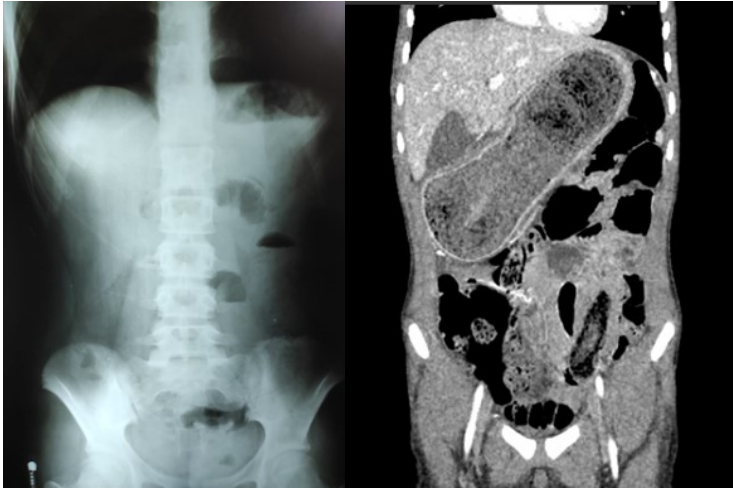


Figure 7. Contrast-enhanced abdominal CT scan showing gastric distension and endoluminal content. Gastric distension is an enlargement of the stomach that can be caused by various conditions such as intestinal obstruction, stomach ulcers, or stomach cancer. Endoluminal content refers to material present within the lumen of the stomach or intestines.



Figure 8. Ileal trichobezoar. An ileal trichobezoar is a mass of hair that has accumulated in the ileum, the final part of the small intestine. An ileal trichobezoar can cause a variety of symptoms, including abdominal pain, nausea, vomiting, and constipation. In some cases, surgical removal of the ileal trichobezoar may be necessary.

Discussion

Bezoars are intraluminal masses formed by the accumulation of indigestible materials such as food, medications, and hair within the gastrointestinal tract. They are classified into four main types based on their composition: phytobezoars (plant material), trichobezoars (hair), pharmacobezoars (medications), and lactobezoars (milk proteins). Trichobezoars are particularly common in children or young adults, with approximately 90% of cases occurring in females. In our case series, two patients had trichobezoars and one had a phytobezoar, with an average presentation age of 7.3 years, showing a higher incidence in males.

Bezoars predominantly localize in the stomach, causing symptoms such as epigastric pain, vomiting, and the presence of a palpable mass. Severe complications may include ulceration, perforation, and gastrointestinal bleeding. The Rapunzel syndrome, a rare condition where a long tail of hair extends from the stomach into the small intestine or colon, is associated with trichobezoars. Small bowel obstruction due to trichobezoars is rare, accounting for only 10% of cases. In our series, two out of three patients presented with isolated intestinal obstruction without gastric involvement.

Diagnosis of bezoars in the gastrointestinal tract utilizes various tools, including abdominal X-rays, gastrointestinal transit studies, ultrasound, and CT scans with contrast. Radiologically, bezoars appear as mottled intraluminal opacities. Barite contrast studies may show signs such as an atonic stomach, pyloric spasm, and residual contrast. CT scans typically reveal a large, heterogeneous, mottled intraluminal mass with low attenuation and potential trapped air. Endoscopy provides definitive diagnosis by directly visualizing the bezoar and facilitating therapeutic interventions.

In our experience, one patient was admitted with suspected infectious acute abdomen, while the other two had radiological and tomographic findings consistent with obstructive acute abdomen secondary to bezoars. Since bezoars resist enzymatic degradation, therapeutic management often involves surgical or endoscopic removal. Complex cases may require laparoscopic or open surgery depending on the bezoar's size, location, and associated complications.

Following bezoar removal, it is essential to address any underlying psychological issues, particularly trichotillomania or other compulsive disorders, which contribute to recurrent bezoar formation. Psychological support is crucial for preventing recurrence, which has a documented rate of up to 20%. [1-9]

Conclusion

Bezoars are a rare but potentially serious condition characterized by the formation of solid masses in the gastrointestinal tract, primarily in the stomach and small intestine. These masses can consist of various materials, including undigested food, hair, plant fibers, and other foreign objects.

Conflict of Interest

The authors declare that they have no competing interests.

Acknowledgement

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