



Images in Hospital Medicine

Seedy Business: A Pumpkin Seed Bezoar

Emily E Cantor, MD¹, Hector W Filizola, MD²

¹ Department of Medicine, VA Greater Los Angeles Healthcare System,

² Department of Internal Medicine, University of California, Los Angeles

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Abstract

A bezoar is a rare accumulation of indigestible material found in the gastrointestinal tract that may lead to bowel obstruction. Seed bezoars, a distinct subtype of phytobezoar, are rare in the United States. While there is limited guidance on the management of pumpkin seed bezoars, this case reviews considerations around conservative management and helps increase awareness about the increased risk of seed bezoars when large amounts of whole seeds are consumed. The following case highlights the diagnostic and management considerations for an infrequent cause of constipation in healthy adults, a rectal pumpkin seed bezoar.

A 56-year-old healthy man presented to the hospital on four separate visits over one week for severe constipation. Before his initial presentation, he reported daily bowel movements without a history of constipation and no concurrent medication use. Ten days prior to presentation he ate a 14-ounce bag of unshelled whole pumpkin seeds and since consumption was unable to have a bowel movement or pass gas. On the prior visits to the ED, he was discharged home with laxatives and enemas. Despite the continued use of multiple laxatives, enemas, and manually disimpaction at home, he did not have a bowel movement. Occasionally he would remove a small amount of seed shards and debris. He continued to experience significant constipation, abdominal discomfort, distention, and rectal pain. He denied nausea, vomiting, fever, chills, chest pain, or shortness of breath. His physical exam was notable for a soft but distended abdomen, with mild discomfort to palpation. CT abdomen and pelvis with IV contrast revealed a moderate to large amount of stool throughout the colon, the rectum was distended and measured 7 cm in diameter, with diffuse wall thickening in the rectum which had become more prominent in comparison to a CT done 7 days earlier ([Figure 1](#)). Based on the dietary history, presentation and imaging, a seed bezoar with rectal impaction was suspected.

Upon admission to the general medicine ward, a manual stool disimpaction was attempted after receiving an enema which was unsuccessful. The rectal vault was empty with a firm stoolball palpated (sharp seed shards), also known as a positive “colonic crunch sign”. The gastroenterology team was consulted and recommended enemas every two hours with a polyethylene glycol bowel prep for colonoscopy. On hospital day 2, the patient started to have clear liquid bowel movements with clusters of seeds and shells. A colonoscopy was performed

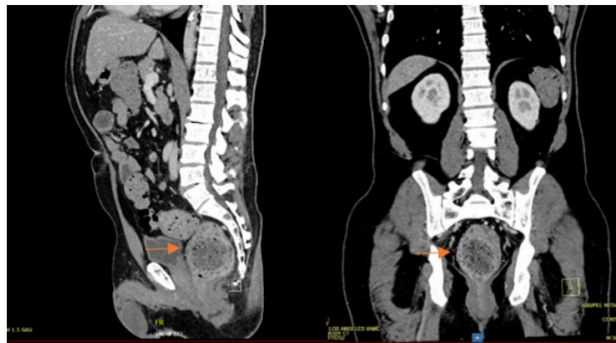


Figure 1. CT abdomen and pelvis with intravenous contrast (sagittal and coronal planes shown). Arrows indicate large amount of stool in the rectosigmoid colon with rectal distention up to 7 cm and mild rectal wall thickening.

to evaluate for a predisposition to rectal impaction, including evaluation for a mass or structural cause for impaction. No concerning mass or lesions were found in the rectosigmoid region, and the bezoar had notably fully passed. Multiple circumferential rectal ulcers were seen near the anal canal, likely from the pumpkin seed impaction ([Figure 2](#)). The patient was discharged in stable condition and was recommended to continue daily polyethylene glycol to ensure smooth and regular bowel movements until routine follow up.

There are multiple types of bezoars, including trichobezoars (caused by consumption of hair), lactobezoars (caused by lactose and milk-containing products), pharmacobezoars (caused by medications), and phytobezoars (caused by fruits and vegetables).¹ Phytobezoars, the most common form of bezoar, are caused by the consumption of indigestible plant materials.¹

Seed bezoars, a distinct subtype of phytobezoar, are a rare occurrence in the United States (US), with over 70% of cases occurring in the Eastern Mediterranean basin and

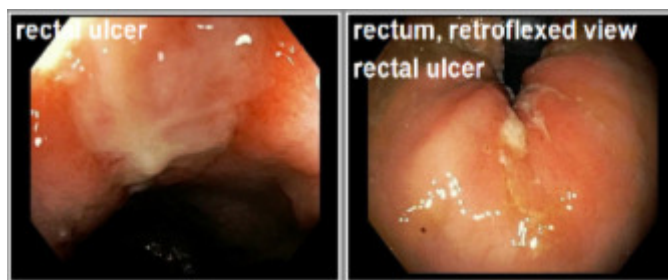


Figure 2. Colonoscopy images demonstrating circumferential rectal ulcers.

the middle east.² Seed bezoars can be caused by watermelon seeds, sunflower seeds, prickly pear seeds, banana seeds, pumpkin seeds, date seeds, and popcorn kernels among other less common causes.² While rare, the prevalence of seed bezoars is likely related to geographic location and dietary habits. A retrospective review of case reports identified 153 cases of seed bezoars in adults and children.² The geographic occurrence of seed bezoars likely reflects diets higher in fruits and vegetables and thus more ingestion of seeds. Pumpkin seeds and sunflower seeds are readily available year-round in the United States. Few case reports specifically describe pumpkin seed bezoars,²⁻⁷ with only two case reports identified in the US.^{3,4}

Bezoars can occur anywhere in the gastrointestinal tract, but they are typically found in the stomach.¹ Seed bezoars, however, are most commonly found in the rectosigmoid region.² This can be explained by the pathophysiology that leads to their formation. The outer shell on certain seeds can be resistant to acid and human digestive enzymes and are able to pass through the pylorus and ileocecal valve due to their small size. By the time the shells arrive in the colon, the complex is dehydrated and forms a firm bezoar that may be difficult to evacuate.^{2,5} Bezoars typically have predisposing factors like structural causes, psychiatric illness, or cystic fibrosis. In contrast, seed bezoars are caused by patients eating a large number of unshelled seeds (whole seeds with a husk), without predisposing risk factors.² Since the data is limited on management of seed bezoars, it is reasonable to consider predisposing factors that would increase a patient's risk of developing a bowel obstruction.

Since seed bezoars occur most frequently in the rectum, the most common complaint is constipation followed by non-specific abdominal or rectal pain. Significant rectal bleeding and perforation are rare.^{2,4} A recent dietary history is critical for diagnosis. Digital rectal exam may reveal a positive "colon crunch" sign, a palpable "crunchy" mass with sharp or irregular edges of seed debris. Abdominal imaging is helpful to visualize the bezoar and to rule out potential complications that may require surgical intervention.³ Rectal ulceration or bowel wall ulceration around the site of the seed bezoar can be seen and is likely due to pressure necrosis physiology caused by

the firm bezoar and the sharp edges of the undigested seed shells.^{2,4}

While there are few specific treatment options to dissolve certain types of phyto bezoars, there is limited guidance for the management of seed bezoars. Options include conservative management with laxatives and enemas, manual disimpaction, an exam under anesthesia, or endoscopic management. In this case, the seed bezoar resolved with conservative management with laxatives (polyethylene glycol bowel prep) and enemas before the patient's colonoscopy. In a retrospective case series, 69% of seed bezoars were successfully managed with manual disimpaction, and surgery was required in 22% of cases.² Surgical management is often required for seed bezoars that are proximal to the rectum (gastric, small, and large bowel) especially if intestinal obstruction is suspected, and in patients who fail non-surgical management or have complications including significant bleeding or perforation.^{2,8}

In conclusion, rectal seed bezoars are a very rare occurrence, especially those caused by whole pumpkin seeds, and are usually found in patients without predisposing factors. Patients and physicians must be aware of the risk for seed bezoars when large amounts of whole unshelled seeds are consumed. While there is limited data to guide management of seed bezoars, this case demonstrates successful conservative management with the use of laxatives and enemas after trialing manual disimpaction.

Author Contributions

All authors have reviewed the final manuscript prior to submission. All the authors have contributed significantly to the manuscript, per the International Committee of Medical Journal Editors criteria of authorship.

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or revising it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accu-

racy or integrity of any part of the work are appropriately investigated and resolved.

Disclosures/Conflict of Interest

The authors have no conflicts of interest to declare.

Corresponding Author

Emily E Cantor, MD
Department of Medicine,
VA Greater Los Angeles Healthcare System
Los Angeles, California
Email: Emily.cantor@va.gov



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