

Protein Shakes: An Unusual Cause of Gastric Phytobezoar

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Case Report

A 35-year-old healthy man presented with gradually progressive abdominal pain and distention, nausea, vomiting, early satiety, and 4.5-kg weight gain over 3-4 months. His routine blood work, thyroid panel, ultrasound, and abdominal/pelvic CT were unremarkable. Esophagogastroduodenoscopy (EGD) revealed a large gastric phytobezoar extending from gastric fundus to antrum (Figure 1). The patient disclosed his passion for exercising, including an intense gym regimen and a high intake of protein shakes (3-4 per day) over the previous 6 months. While he expressed interest in surgical removal of the bezoar, he was counseled to try conservative measures. He was started on papain, 1-2 tsp in 250 mL water by mouth 3 times per day, pineapple juice/cola to assist in dissolving bezoar, and metoclopramide to assist with gastric emptying. Repeat EGD 1 month later revealed significant decrease in the size of gastric phytobezoar, allowing endoscopic removal of the residual small phytobezoar (Figure 2). His symptoms resolved, and he now avoids overuse of protein shakes.

Phytobezoars consist of components of indigestible plant and animal matter. They are usually asymptomatic, but can present with nausea, vomiting, abdominal pain, or, in severe cases, upper GI bleeding, gastric outlet obstruction, or perforation.^{1,2} Common predisposing conditions include gastroparesis, hypothyroidism, psychiatric illness, other motility disorders, and altered gastric anatomy due to gastric surgeries or stomach ulcers.¹ Diagnostic techniques include abdominal films or CT to verify a filling defect and exclude perforation, barium studies to show contrast material coating the bezoar, and EGD to visualize the bezoar for diagnosis and therapy.¹ Goals of treatment include removal of the bezoar (surgically, endoscopically, or by dissolution therapy) and preventing recurrence.¹ We hypothesized that protein shakes were decreasing our patient's gastric emptying for long peri-



Figure 1. EGD revealed a large gastric phytobezoar extending from gastric fundus to antrum.

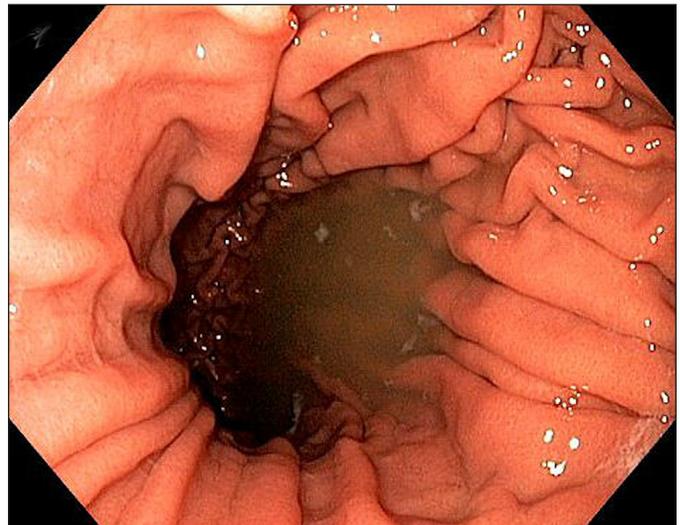


Figure 2. Repeat EGD 1 month later revealed significant decrease in the size of gastric phytobezoar, allowing endoscopic removal of the residual small phytobezoar.

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ods of time and precipitating bezoar formation. Protein takes longer to digest than carbohydrates, and this effect is more pronounced with casein powder, which digests very slowly.² Dietary reference intake (DRI) recommends that the maximum amount of protein for most adults be around 0.8 g/kg body weight, which can be easily achieved with a balanced diet.³ No data exists on the safe amount of these protein supplements, and we call for further research on this subject.

Disclosures

Author contributions: JS Klair and M. Girotra performed the literature review and wrote the manuscript. JA Dranoff and F. Aduli revised and approved the manuscript. F. Aduli is the article guarantor.

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Informed consent was obtained for this case report.

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