Case Report

Trichobezoer: An Unusual Presentation with Congestive Heart Failure

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Abstract

Description

Trichobezoars are impactions of hair that accumulate in the gastrointestinal track and are most often located in the stomach. They are often associated with psychiatric illnesses like trichotillomania and trichophagia, which usually occurs in young and adolescent females. Gastric trichobezoars (GT) are the most common variety of bezoar found in the stomach. The most common complications that arise alongside GT include gastric erosion, ulceration or perforation of the small intestine. Gastric outlet obstruction, obstructive jaundice, pancreatitis and death have been reported, though these complications are rare. We report a 40-year-old female who presented to the hospital with dyspnea on exertion and ankle swellings. She also reported abdominal distension, a 40 pound weight loss, nausea and vomiting. Her examination was remarkable for sinus tachycardia, displaced apex beat and a split second sound. She was suspected of congestive heart failure. Upper endoscopy revealed a large trichobezoar in the antrum and the body of the stomach. She was found to be markedly anemic and in hypothyroid state. She underwent surgical removal of the GT subsequent to stabilization of heart failure. She later admitted to psychiatry a history of hair pulling and swallowing under stressful conditions.

Keywords

gastric bezoar; gastric obstruction; bezoars; gastric trichobezoar; trichotillomania; congestive heart failure; hypothyroidism

Introduction

The word trichobezoar is derived from the Greek word ”trich,” which means hair. Bezoars are collections of indigestible material that accumulate in the gastrointestinal tract and are most often located in the stomach.[1] Trichobezoars are often associated with psychiatric illnesses like trichotillomania and trichophagia, usually occurring in young and adolescent females. Gastric trichobezoars (GT) are the most common variety of bezoar found in the stomach.[2] Bezoars are classified on the basis of contents. Phytobezoars are composed of non-digestible food material such as seeds and plant fiber. Trichobezoars are composed of hair. Lactobezoars are composed of lactose, and pharmacobezoars are composed of medications.[3]

The most common complications that arise alongside GT include gastric erosion, ulceration or perforation of the small intestine. Gastric outlet obstruction, obstructive jaundice, pancreatitis and death have been reported, though these complications are rare.[4] Usually, GT are confined to the stomach, but they can migrate through the pylorus into the small and large intestine. GT are not known to be associated with systemic disorders such as hypothyroidism/anemia and cardiomyopathy.[5]

Our case presentation provides a unique association of GT with hypothyroidism and iron deficiency anemia with clinical congestive heart failure. Subsequent follow-up after removal of the bezoar as well as appropriate supplementation and management resulted in restoration of normal thyroid function, improvement of anemia and near normal functions of the heart muscle, suggestive of a metabolic component to cardiomyopathy.

Figure 1. A large mass in the left subcostal and periumbilical region.

Case Presentation

A 40-year-old woman presented to the emergency department with complaints of dyspnea on exertion as well as fatigue. She also reported abdominal pain with distension, nausea, loss of appetite and bloating. She described unintentional weight loss of 40 pounds over the past 4 months. She also reported ankle swelling. The patient had a history of depression, anxiety and hypertension.

Her physical examination showed normal vital signs and afebrile status. Her pulse was elevated, and other vital signs were stable. The cardiovascular examination revealed a systolic murmur at the apex, apical third sound and split second sound. The lungs were clear. The abdominal exam revealed mild distension, and a soft mass was palpated in the left subcostal and epigastric regions. (**Figure 1**) Bowel sounds were present and normal. The remainder of the physical examination was normal. Her medical history was significant for depression, and she had a prior history of a laparotomy in which she was informed that part of her stomach was removed. She could not confirm the nature of the surgery. She was noted to have iron deficiency anemia as well as hypothyroidism. Her troponin was elevated. The electrocardiogram picked up a left bundle branch block. An abdominal CT showed a distended stomach.

Cardiology was consulted, and she was noted to have clinical congestive heart failure with echocardiographic evidence of a dilated left ventricle with a low ejection fraction of 20%. Takatasubo cardiomyopathy was suspected. She was placed on appropriate heart failure therapy as well as thyroid and iron supplementation.

Gastroenterology was consulted. Upper endoscopy revealed a large GT that filled up the entire stomach. Surgical consultation was obtained. After clinical stabilization, she underwent a laparotomy, which removed the 2 large bezoars from the stomach. (**Figure 2**) A partial gastrectomy was noted, and the bezoar completely filled the residual stomach cavity.

Postoperatively, a psychiatric consult was obtained, and the patient shared a history of chewing her hair when she was anxious and stressed. She was placed on antidepressants and was uneventfully discharged from the hospital. At her 3 and 6 month follow-up, she had no symptoms of shortness of breath. Her weight was stable, and a repeat echocardiogram showed near normalization of her heart functions. Her thyroid functions were normal, and her anemia had improved.

The cause of her cardiomyopathy is likely idiopathic, complicated by metabolic abnormalities of hypothyroidism and iron deficiency anemia, with significant improvement after appropriate heart failure therapy and supplementation.

Figure 2. Trichobezoer surgical specimens after removal.

Discussion

Bezoars of various contents and forms have had a strong presence throughout medical history. The term bezoar comes from the Arabic "badzehr," meaning counterpoison or antidote.[6] Bezoars' first uses date back to the Middle Ages. Bezoars from the gastrointestinal tract of sacrificed animals were used as an antidote for poison. In 1575, however, French surgeon Ambroise Paré debunked the myth of the bezoar's magical properties, and its use was abandoned.[7]

Trichobezoer usually form and consolidate in the stomach. If the bezoar extends from the stomach into the intestine, it is referred to as Rapunzel's syndrome, which was first described in 1968 by Vaughan Jr.[8] Rapunzel's syndrome increases the risk of severe complications such as gastric erosion, ulceration and even perforation of the stomach or intestine. Other complications reported include obstructive jaundice, protein-losing enteropathy, iron deficiency anemia, pancreatitis and even death.[8]

Evolution of GT is not fully understood. Hair strands, due to their slippery surface, escape peristaltic propulsion and are retained in the folds of gastric mucosa. The hairball then lays dormant and continues to grow in size and weight due to the incessant ingestion of hair. Ultimately, the GT attains the shape of the stomach, usually as a single mass.[9] The most common symptoms are epigastric pain (70%), epigastric mass (70%), nausea as well as vomiting (64%) and hematemesis (61%). Weight loss, diarrhea and constipation are also associated.[10] Noted hypothyroidism is likely an unrelated condition but likely contributes to cardiac dysfunction.

Persons at higher risk of developing bezoars have had gastric surgery, decreased stomach size, reduced stomach acid production, diabetes, end-stage kidney disease or have received mechanical ventilation.[11] Psychiatric illness also increases the risk. Risk factors in the elderly include lack of teeth, poorly fitting dentures, not chewing food completely and hypochlorhydria.[12] Lactobezoars in children typically occur as a result of dehydration, prematurity, consumption of high-calorie formula and addition of thickening agents to formula.[7]

The diagnosis of a bezoar involves reviewing patient history, screening for risk factors, noting the patient's diet and medications, and imaging studies such as CT scans and endoscopy. The goal of treatment is removal of the bezoar through invasive or noninvasive therapies. Small bezoars may pass through the digestive tract on their own or with the use of medication. However, larger bezoars, such as trichobezoars, require surgical removal.[9] In some cases, small bezoars are removed through endoscopy. Trichobezoars usually require operative removal since strands of hair can develop a wire-like consistency, causing pressure necrosis and subsequent perforation.[13]

The recurrence rate of a gastric bezoar is around 14%. However, the risk of recurrent trichobezoars may be higher due to underlying psychiatric illnesses. Future recurrences can be prevented by modification of risk factors. Trichobezoars can be avoided among young children by removing the child's access to fuzzy or fiber-filled materials. In adults, psychiatric treatment may be needed.

Our case provides a unique presentation of GT with clinical congestive heart failure with cardiomyopathy, hypothyroidism and anemia. Gastrectomy may have contributed to iron deficiency anemia and poor nutrition, and stress likely contributed to her hypothyroid status. Her cardiomyopathy is likely dilated in nature with idiopathic etiology but anemia and hypothyroid status contributed to further deterioration of cardiomyopathy and development of congestive heart failure. Takatosubo cardiomyopathy was considered. However, other associations such as chest pain, myocardial injury and characteristic echocardiographic findings of Takatosubo were not identified with our case. Six months after the removal of the gastric bezoar, the cardiac ejection fraction was 45–50%. Thyroid functions were normal and anemia had improved. Her psychiatric condition had also improved, likely contributing to her recovery in cardiac function and heart failure symptoms.

Her long-term management includes use of antidepressants and ongoing psychotherapy.

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Author Contributions

Madeeha Malik was involved in patient observation and write up of the case report. Fatima Javed was involved in research and write up of the discussion part of the paper. Sam Helou assisted in the write up and review.

Conflicts of Interest

The authors declare they have no conflicts of interest.

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