Case Report

DOI: http://dx.doi.org/10.18203/2349-2902.isj20171644

Phytobezoar: a rare late complication following laparoscopic sleeve gastrectomy surgery

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Received: 22 February 2017 **Accepted:** 29 March 2017

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ABSTRACT

Case reports of bezoar after bariatric surgery are available to date only following Roux-en-Y gastric bypass (RYGB) and laparoscopic adjustable gastric banding (LAGB), but not following laparoscopic sleeve gastrectomy (LSG). Presented here is the first case reports of phytobezoars occurrence post LSG. Two case reports are presented. The mechanisms involved and the therapeutic implications are discussed. Case 1: A 41-year-old woman with a body mass index (BMI) of 45 kg/m² underwent LSG surgery. Seven months postoperatively she developed significant vomiting and an upper GI gastrografin swallow study revealed a gastric bezoar, confirmed by an esophagogastroduodenoscopy (EGD). The bezoar was broken up and removed with the endoscope. Case 2: A 34-year-old woman with initial BMI of 42.7 kg/m² was readmitted 5 years post LSG due to reflux accompanied with epigastric pain, vomiting, dysphagia and constipation. An upper GI gastrografin swallow study revealed esophageal dilatation. EGD showed a gastric phytobezoar 3x4cm size, removed by the endoscope. The lack of reports on bezoar occurrence after LSG may be related to the higher rates of stricture reported for LRYGB procedure comparing to LSG. In addition, LSG is a relatively new bariatric procedure, and the interval between surgery and detection of bezoars may be many years later. Thus, even being a rare late complication, bezoars should be suspected in LSG patients presenting with obstructive symptoms during the late post-surgery period. We recommend prompt endoscopic intervention to relieve the obstruction before parts of the bezoar migrate to the small bowel, necessitating operative intervention

Keywords: Bariatric Surgery, Bezoars, Complications, Laparoscopic sleeve gastrectomy, Phytobezoars

INTRODUCTION

Laparoscopic sleeve gastrectomy (LSG) is a bariatric procedure first described in 2003, suggested to be technically less demanding than Laparoscopic Roux-en-Y Gastric Bypass (LRYGB). Common postoperative complications include staple line leak, bleeding and stricture. Bezoars are collections of undigested foreign material that accumulates in the gastrointestinal tract and phytobezoars being the most common type of bezoars

formed from plant fibers. The majority of patients who suffer from bezoars have history of abdominal surgery.³ Patients who have undergone bariatric surgery are prone to bezoar formation due to altered gastric motility, loss of pyloric function, hypoacidity and the relatively restricting gastro-enterostomy performed in some of the procedures together with a small gastric pouch. Specific case reports of bezoar complications are available to date only following LRYGB and LAGB operations, but not following LSG.⁴ We present the first 2 cases, to the

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authors' knowledge, of phytobezoars occurrence post LSG.

CASE REPORT

Two case reports are presented. The mechanisms involved and the therapeutic implications are discussed.

Case 1

A 41-year-old woman with a body mass index (BMI) of 45 kg/m² and medical history of cholelithiasis and 3 caesarean sections underwent LSG surgery. Her immediate recovery was normal, but 7 months postoperatively, she developed significant nausea and vomiting of one week duration. Upon admission to the hospital, the patient underwent an upper GI gastrografin swallow study which revealed a gastric bezoar (Figure 1). patient was hydrated and underwent an esophagogastroduodenoscopy (EGD) which confirmed the presence of a large bezoar at the gastric sleeve with a proximal dilatation of the esophagus. The distal stomach was normal and the bezoar was broken up and removed easily with the endoscope. Upon follow-up questioning, the patient reported of consuming large number of legumes and in particular beans prior to the event. The patient had normal dentition. After EGD, the patient was instructed to consume clear liquids for 1 day and was later able to resume a liquid diet without vomiting and easily progressed to a regular diet.



Figure 1: Bezoar at mid sleeve

Case 2

A 34-year-old woman with initial BMI of 42.7 kg/m² and medical history of hypothyroidism, epilepsy and primary hypercoagulable state, was admitted for elective LSG surgery in 2011. Due to hypercoagulable state and hyperhomocyteinemia the patient was treated with enoxaparin and folic acid. Twelve days post-surgery the

patient was readmitted due to abdominal pain, constipation and dysphagia. She was hydrated and computed tomography (CT) did not reveal any pathological finding which could explain her complaints. After resolution of her symptoms she was discharged home in good condition. The patient further did well with no signs of any complication, until 5 years later when she arrived at the emergency department with complaints of reflux which worsened for the last 3 days accompanied with epigastric pain, nausea, vomiting, dysphagia and constipation. An upper GI gastrografin swallow study revealed esophagus dilatation with a significant narrowing at the esophagogastric passage. An EGD showed a narrow area proximal to the antrum with a gastric phytobezoar 3x4cm size, removed by the endoscope (Figure 2). Upon follow-up questioning, the patient reported on normal dentition, but generally poor eating habits including rapid meals consumption without chewing the food in a relaxed manner. She reported on excessive intake of carrots and yellow peppers without chewing them enough, practically prior to the onset of the recent acute vomiting. After the bezoar removal, the patient was able to consume liquid diet and eventually resume solid food. Further upper GI study and endoscopy were normal except for severe reflux. Due to severe symptoms of gastro esophageal reflux disease (GERD (with a very high De-Meester score, we decided to convert the sleeve to LRYGB. The operative and postoperative course was uneventful including the ability to consume regular diet without vomiting or heartburns.



Figure 2: Endoscopic removal of a phytobezoar from mid sleeve.

DISCUSSION

Bezoars are formed by aggregation of undigested materials such as cellulose in the gastrointestinal lumen. Phytobezoars are formed from plant based foods that are rich in fiber. Some fruits like persimmon and orange pith have the most known potential to cause phytobezoars.⁵ The most recognized risk factor for phytobezoar is a

previous gastrectomy, but other common factors include poor mastication, excessive consumption of foods with high fiber content and delayed gastric emptying.³ Our patients had normal dentition, but both of them reported on consumption of rich fiber foods prior to the event of obstruction by the bezoar. Symptoms of obstruction by bezoars include abdominal pain, vomiting, nausea, dysphagia, weight loss and constipation, which were presented in both of the current cases.³

Bezoars treatment options are based on the site of the obstruction: Bezoars in the stomach can be removed endoscopically, while bezoars in the small bowel usually require surgical exploration.⁶ In the current case reports, the bezoar was located at the gastric sleeve, which enabled its endoscopic breakdown and removal. For the last 2 decades, LRYGB has been considered as the treatment of choice for morbid obesity, yet the dramatically increasing prevalence of obesity has led to the development of alternative treatment strategies including LSG.1 Current evidence suggests that LSG is safe with low rates of post-operative complications and good weight loss in the short to mid-term follow-up.² Specific case reports of bezoar complications are available to date only following LRYGB and LAGB operations, but not following LSG.4 To the best of our knowledge, this is the first case reports of a phytobezoar complicating LSG surgery. The lack of reports of bezoar occurrence after LSG may have several reasons; anastomotic stricture seems to play a key role in bezoar formation post gastrointestinal surgeries.⁷ Stricture causing obstruction is considered as a late post-operative complications with higher rates reported for LRYGB procedure comparing to LSG surgery.8 The absence of pyloric control for gastric emptying due to the gastrojejunostomy performed in LRYGB surgery may partly explain the higher occurrence of bezoars in these patients. Anatomic complications following LRYGB, even if appropriately treated, may predispose patients to develop bezoars.4 In addition, LSG is a relatively new bariatric procedure, while bezoar is a rare late post-operative complication and the interval between surgery and bezoars detection may be many years.^{1,3}

Thus, even being a rare late complication, bezoars should be suspected in LSG patients presenting with obstructive symptoms during the late period post-surgery. A high index of suspicion should be maintained when evaluating these patients with special attention to food content prior to the obstructing event. Eating habits effect the formation of a bezoar and diet modifications according to the nutritional counselling given after a gastric surgery is the best known prevention method against a bezoar formation. Guidelines include proper chewing of food, plenty of liquids, keep oral hygiene and avoidance of excessive consumption of high fiber food. We recommend prompt endoscopic intervention to relief the

obstruction before parts of the bezoar may migrate to the small bowel, necessitating operative intervention.

ACKNOWLEDGEMENTS

Authors would like to thank Ronit Ungar, MPAS for assistance in manuscript preparation.

Funding: No funding sources Conflict of interest: None declared Ethical approval: Not required

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Cite this article as: Ben-Porat T, Elazary R, Goldenshluger A, Sherf-Dagan S, Grinbaum R, Beglaibter N. Phytobezoar: a rare late complication following laparoscopic sleeve gastrectomy surgery. Int Surg J 2017;4:1803-5.