

Case Report

An Unusual Cause of Efferent Loop Obstruction

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Received: 7 August 2019 Accepted: 30 April 2020

doi: <https://doi.org/10.3329/jemc.v10i2.53538>

Abstract

Efferent loop obstruction is a very rare post-gastrectomy obstruction that can occur following Billroth-II or Roux-en-Y reconstruction. Here we report a case who underwent gastrojejunostomy for gastric outlet obstruction 30 years back and now developed efferent loop obstruction due to phytobezoar. The efferent loop obstruction was successfully resolved by laparotomy.

Key words: *Efferent loop obstruction; Phytobezoar; Gastrojejunostomy*

J Enam Med Col 2020; 10(2): 118–121

Introduction

The efferent-loop obstruction refers to obstruction of the efferent jejunal loop after gastric resection or simple gastro-enterostomy. It occurs hours or years after operation and varies greatly in symptoms and chronicity. The efferent-loop obstruction is less frequent than the afferent-loop obstruction and generally occurs as a result of internal hernia. Two forms can be distinguished: acute and chronic. In the acute form, internal hernia may be a consequence of technical problems with the anastomosis at surgery, including large intra-operative invagination at the suture line. Oedema of the anastomosis and cord formation immediately below the gastrojejunostomy are rare. The later-occurring forms of the efferent-loop obstruction may be caused by ulcerations in the region of anastomosis, scarred stenosis, old adhesions, hernias of the efferent or the afferent or both loops or by jejuno-gastric invagination.¹

Gastric bezoars are a form of concretion resulting from the accumulation of ingested materials. They are relatively rare and are found in less than 1% of patients undergoing gastroscopy.² Generally gastric phytobezoars are common in patients with dentition problems, impaired digestion, decreased gastric motility and previous gastric surgery.³ They usually

have a wide range of clinical presentations from abdominal discomfort and weight loss to small bowel obstruction.⁴

The clinical symptoms of the acute form of efferent-loop obstruction are characterised by abdominal cramps mostly localised around the umbilicus. The patients vomit large volumes of fluid which contains bile and food particles. Clinical examination reveals a tympanous abdomen, but no palpable resistance. Jejuno-gastric invagination is in most cases characterised by acute symptoms accompanied by blood vomiting. In this type of acute efferent-loop syndrome a mass is palpable in the upper abdomen in most cases and the diagnosis is verified by an upper GI series. The more chronic types show attacks of vomiting, similar to the symptoms of the afferent-loop syndrome. Admixture of food particles or large volumes of bile may be indicative of an efferent-loop syndrome. The signs and symptoms of both loop obstruction may be similar and difficult to distinguish, and surgical treatment is usually required to correct these problems.

A phytobezoar is one of the intraluminal causes of gastric outlet obstruction, especially in patients with previous gastric surgery and/or gastric motility disorders. Before the proton pump inhibitor

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era, vagotomy, pyloroplasty, gastrectomy and gastrojejunostomy were commonly performed procedures in peptic ulcer patients. One of the sequelae of gastrojejunostomy is phytobezoar formation. However, a bezoar causing gastric outlet obstruction is rare even with giant gastric bezoars. This report describes about a patient who presented with features of efferent loop syndrome who underwent gastrojejunostomy 30 years back.

Case report

A 70-year-old man presented in Department of Surgery with central abdominal pain and vomiting after meals for last six months. He had a history of gastrojejunostomy 30 years back. Initially he used to vomit few hours after food intake but for last one month he vomitted within few minutes after taking meals. The vomitus contained undigested food particles and copious amount of bile. Clinical examination revealed moderate dehydration and mild pallor. There was no palpable lump in the abdomen. He was resuscitated with intravenous fluids. Nasogastric(NG) tube was inserted and large amount of undigested food particles mixed with bile came out. Initially he was managed with conservative treatment and it was observed that daily copious amount of NG effluent was being drained suggestive of strong obstruction at the efferent loop. Barium meal radiography was done (Fig 1) which showed a persistent partial filling defect at the proximal efferent loop through which the dye passed with difficulty.

After resuscitation he was operated. After laparotomy a hard intraluminal lump with doughy feeling palpable in the jejunum of efferent loop 40 cm distal to gastrojejunostomy site (Fig 2). No other abnormality was detected. Enterotomy was done. An oval-shaped well-organised bezoar (Fig 3) was noticed which was taken out and the enterotomy wound was repaired primarily. Abdominal wound was closed keeping a drain in situ. His postoperative recovery was uneventful. Diet was resumed from 5th POD onward. Patient was discharged on 8th POD.

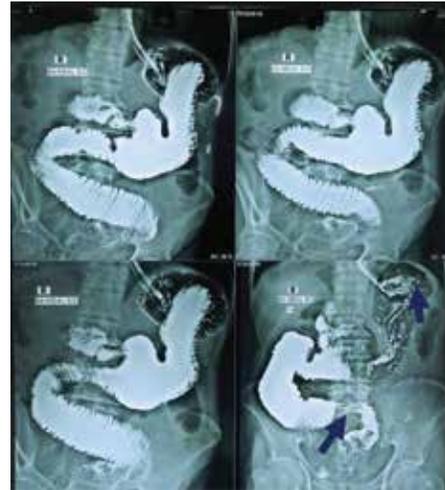


Fig 1. Barium Meal X ray of stomach and loop showing distal collapsed bowel



Fig 2. Hard lump (arrow) in the efferent duodenum (arrow marks site of obstruction)



Fig 3. After enterotomy the bezoar was taken out

Discussion

Afferent or efferent loop syndrome is a purely mechanical problem characterised by the obstruction of gastric emptying at or near the site of a gastrojejunostomy.⁵ Efferent loop obstruction is a rare post-gastrectomy obstruction while afferent loop syndrome is more common.⁶ The major cause of syndrome is an intestinal hernia. The more minor causes include an adhesive band and kinking because of scarring or poor reconstruction during gastric surgery.^{7,8} In some cases, intussusception causes efferent loop syndrome.⁹ Rarely we experience efferent loop obstruction with mucosal prolapse-like stenosis of efferent loop due to adhesion or bowel edema.

The commonest type of bezoar is a phytobezoar which is composed of vegetable material.¹⁰ In our case, the bezoar was made up of completely meshed particles. He had loss of tooth and inadequate mastication could be the cause of this bezoar formation. The pathogenesis of bezoar formation is usually intricate. It involves many factors such as improper mastication, dentition problems, alterations in the production of acid, pepsin and mucus, previous gastric surgery and impairments in gastric motility.^{11,12} Robles et al¹³ pointed out that 20% of patients have mastication and dentition problems, 70–94% have had previous gastric surgery and 40% have a history of excessive dietary fiber intake. Most adults with phytobezoars are men between the age of 40 and 50 years. However, trichobezoars usually occur in young women with psychiatric problems.¹⁴

Patients with gastric bezoars may remain asymptomatic for many years. Common symptoms usually include abdominal pain, nausea, vomiting, early satiety, anorexia and weight loss. Leung et al¹⁵ reported a case of bezoar-induced gastric outlet obstruction in a patient who had previous gastrojejunostomy for peptic ulcer disease. They found a stricture at the anastomotic site. In another study, a large bezoar was found to occlude the afferent loop of the gastrojejunostomy. This patient also had afferent loop syndrome which was diagnosed by ultrasound and computed tomography (CT) scan of abdomen. In our case the patient vomited old food

indicating a gastric outlet obstruction. However the presence of bile meant that the afferent loop of the gastrojejunostomy was still patent.

The treatment of efferent loop obstruction varies depending on the cause of the obstruction. Complete loop obstruction due to a mechanical cause requires surgical intervention. Surgical interventions are numerous. If the syndrome is caused by an anastomotic ulcer or edema and adhesion, conservative treatment is indicated. Conservative treatments include nasogastric drainage, keeping non per os, prescribing H₂ receptor antagonist or proton pump inhibitors and total parenteral nutrition. Surgical removal should be considered in patients who do not improve with conservative therapy, have associated peptic ulcer bleeding, have large bezoars which hinder endoscopic removal or have complications such as obstruction with underlying mechanical problems as seen in study done by Leung et al.¹⁵ Many studies have shown successful dissolution of gastric bezoars using agents such as coca-cola, acetylcystine, cellulose, meat tenderizer and hydrogen peroxide.¹⁶⁻¹⁹ Endoscopic management includes lithotripsy with Nd:YAG laser-ignited mini-explosive procedure.^{20,21} However, surgical management is the best technique for bigger ones. Laparoscopic procedure with Alexis wound retractor was effectively used in the management of bezoars.^{22,23} Holmium:YAG (Ho:YAG) laser lithotripsy for giant bezoar and a laparoscopic technique with endobag in the stomach to prevent bezoar spillage have shown promising results.²¹

Conclusion

Efferent loop obstruction following gastrectomy can be diagnosed by meticulous history taking, physical examination and radiologic modalities. Phytobezoars are a rare cause of gastric outlet obstruction, especially in patients with previous gastrojejunostomy. Currently gastroscopy is the best method for detecting and managing gastric bezoars by endoscopic removal. Some cases require surgical removal, especially those associated with complications. The most important points in the management of a bezoar are identification of the causative factor and prevention of recurrence by counseling.

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