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Gastrointestinal Bezoar - Case Reports and Literature Review

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Gastrointestinal bezoars are conglomerates of fiber or undigested material in the astrointestinal tract. Phytobezoar or plant bezoar is comparable to fruits and vegetables in its composition (composed of cellulose, lignin, and hemicellulose)[1]. These could be found in the stomach, small intestine, cecum, or esophagus.

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Bezoars have constituted a relatively common clinical reality ever since the introduction of truncal vagotomy associated with drainage or gastric resection in the treatment of gastroduodenal peptic ulcer[2].

In this study, we present our experience with gastrointestinal phytobezoar and the clinical presentation, diagnosis and management of five cases are described. Comparison is made with some of the published studies.

THE CASES

Case 1

A 53-year-old male who had a truncal vagotomy and gastrojejunostomy in 1974 for chronic duodenal ulcer and deformed pylorus, presented to the surgical clinic in 1995 with a history of epigastric pain. Gastroscopy showed an anastomotic ulcer with globular food bolus in the stomach. He was treated with H2-blockers for three months and his symptoms subsided, but he failed to attend the follow-up. Two years later, in 1997, the patient presented to the Accident and Emergency (A&E) Department with acute intestinal obstruction and had an emergency laparotomy. A big bezoar obstructing the distal jejunum was removed through an entrotomy incision. He had an uneventful post-operative recovery.

Case 2

A 42-year-old fisherman had truncal vagotomy and pyloroplasty in 1984, for an intractable duodenal ulcer. Four years later, he presented to A&E with signs and symptoms of small bowel obstruction. As the patient was deteriorating, he had an emergency abdominal exploration. An impacted intraluminal mass in the proximal ileum was found for which an enterotomy was performed and a bezoar was removed. Post-operative recovery was uneventful.

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Case 3

A 36-year-old male who underwent vagotomy and pyloroplasty in India in 1984 for peptic ulcer disease was doing well until 1997. The patient was admitted through the A&E with a history of abdominal pain and vomiting of two days duration with epigastric fullness on clinical examination. Gastroscopic examination showed a wide pyloric orifice with gastroesophageal reflux. Plain radiographs of the abdomen revealed dilated jejunal loops with air fluid level. A Barium follow-through study showed persistent hold up of the contrast at the level of distal jejunum. The patient continued to have the same complaint after the radiographic study and later he deteriorated clinically, so exploration of the abdomen was mandatory. Laparotomy showed an obstructing intraluminal mass at the level of distal jejunum. Enterotomy was performed and a 5-cm diameter bezoar was removed. Post-operative recovery was uneventful.

Case 4

A 51-year-old male with a history of gastric surgery for peptic ulcer disease twelve years ago, open cholecystectomy 8 years back and ERCP with common bile duct stone extraction two years ago, presented to the A&E with epigastric pain, repeated vomiting and constipation of six days duration. Physical examination revealed a soft abdomen with hyperdynamic bowel sounds and an empty rectum. The erect abdominal film showed dilated small bowel (Figure 1). However, gastroscopy was performed and it showed a big gastric bezoar. Gastrotomy with extraction of a bezoar about 10 cm in diameter was performed. Patient had an uneventful post-operative recovery

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Figure 1. Case 4. Erect Abdomial film showing dilated small bowel loops & Air/Fluid levels (the air noticed in the biliary tree is due to sphincterotomy)

Case 5

A 73-year-old edentulous male patient with cardiac pacemaker, a known case of peptic ulcer disease, was subjected to truncal vagotomy and pyloroplasty for peptic ulcer disease 18 years ago. The patient presented to A&E with crampy abdominal pain, distension, and constipation. On physical examination the patient was dehydrated with distended abdomen and a sausage-shaped lump which could be felt in the right iliac fossa. Abdominal radiograph showed dilated small bowel with fluid levels (Figure 2). A trial of conservative management showed no improvement and

surgical intervention was indicated. Laparotomy revealed an intra-luminal mass impacted in the small bowel lumen about 60 cm from the terminal ileum with proximal bowel dilatation. An enterotomy was performed and a 5 - 6 cm diameter bezoar was extracted and two bezoars measuring 2 - 3 cm were found in the dilated proximal ileum which were milked down and removed through the entrotomy wound. He was well post operatively.

Figure 2. Case 5. Dilated Small bowel with Air fluid level.

DISCUSSION

Dragstedt first introduced truncal vagotomy into clinical practice in 1943[3]. Soon, the procedure became the surgical treatment of choice for peptic ulcer disease. The 1970s and 1980s saw the advent of the H2-blocker and protein pump inhibitors era which made the meaning of ' the operation that decreased acid secretion` less important.

Even though the management of peptic ulcer disease has become more conservative in the last decade, the late complications of those procedures performed in the past such as bezoar impaction still can be seen not uncommonly nowadays[4].

Escamilla et al, in1994 analyzed 87 cases of intestinal bezoar treated in the Department of surgery, University of Murcia, Spain. Most of the patients had had previous operative treatment (76.3 %), the most commonly used technique being bilateral truncal vagotomy plus pyloroplasty (75.8 %)[3].

In our experience, there were five patients all of whom had truncal vagotomy and drainage procedures for peptic ulcer disease. Four of them had pyloroplasty, and one had gastrojejunostomy. The time between surgery and presentation with bezoar complication ranged between 4 and 21 years with average of 13.4 years.

Three cases came with intestinal bezoar, one with gastric bezoar, and one case presented twice, first to the surgical clinic with gastric bezoar and two years later to causalty with intestinal obstruction due to bezoar.

The most important risk factor for formation of bezoar is peptic ulcer surgery, and this has been attributed to the delayed gastric emptying and decreased gastric acidity, this is thought to favor the polymerization of the conglomerations into the stomach[4,5].

Delayed gastric emptying and hypoacidity has been investigated as predisposing factors for phytobezoar and certain studies showed no difference in these factors

between two groups of patients who underwent gastric surgery for peptic ulcer disease, one of them complicated with bezoar and the other group had no bezoar[6,7].

However the occurrence of bezoar in diabetic patients with gastric neuropathy[8], support the fact that delayed gastric emptying has a role in bezoar formation. On the other hand, rapid gastric emptying of undigested food in patients having large gastric stomas has been proposed to be the cause of intestinal bezoar[4].

One of our patients with intestinal bezoar demonstrated this theory when large pyloric orifice was revealed by gastroscopic examination. Another patient with gastric bezoar had intermittent vomiting and diarrhea, which could be explained by the ball valve mechanism that can occur with gastric bezoar.

Dietary habits and condition of dentition cannot be ignored as important factors in bezoar cases. Ingestion of unripe fruits and vegetables can form phytobezoar in normal stomach[5]. Many fruits and vegetables have been claimed to the cause phytobezoar, the most important and the most frequently mentioned is persimmon[6]. Escamilla et al, in 1994 reported that excessive intake of vegetable fiber was the cause in 39.5% of his cases, and alterations in dentition and mastication in 24 %[2]. In our patients no special dietary habits were recognized, however, one patient showed poor dentition.

Clinical presentation depends on the location of the bezoar. Epigastric distress (84%) and weight loss (31%) were the most common complaints of gastric bezoar and endoscopy is the main technique for diagnosis[9]. Intestinal obstruction is the most frequent presentation of small intestinal bezoar. Diagnosis is mainly by clinical data and simple abdominal radiographs[10].

Small bowel obstruction secondary to phytobezoar can be diagnosed by CT which reveals dilated intestinal loops and an intraluminal mass with air bubble resulting in a mottled appearance[11].

In our cases, gastric bezoar was diagnosed by endoscopy and intestinal bezoar was diagnosed clinically and by simple abdominal radiographs. In one case barium follow-through was performed and showed dilated jejunal loops with persistent hold up of the contrast at the level of the distal jejunum.

Bruzzese, in1997 reported that gastric bezoar can be removed endoscopically if less than 3 cm in diameter and by fragmentation if larger in diameter, followed by extraction of any fragments over 1 cm to prevent the risk of intestinal obstruction[12]. Extracorporeal shock wave lithotripsy was applied by Bones using ultrasound to locate the bezoar and disintegration of a bezoar and spontaneous evacuation of the fragments was achieved[13].

In the cases presented, two patients came with gastric bezoar. In them gastroscopy was used only for diagnosis and endoscopic extraction was not attempted due to the large size of the bezoars.

Surgery is necessary for treating the intestinal forms, and one should always attempt to fragment the bezoar and milk it to the cecum, reserving enterotomy and extraction for cases where this is not possible[10].

The four cases with intestinal bezoar were managed by enterotomy, milking of the bezoar was tried in one case when two bezoars were discovered after enterotomy in the proximal loop.

Pneumonia and wound infection are common complications of operative treatment as reported by Lo CY[14]. All our patients had an uneventful post-operative period.

CONCLUSION

Bezoar should be suspected in any patient with past history of vagotomy and drainage procedure presenting with intestinal obstruction. Surgical intervention is the standard management of intestinal bezoar. Early diagnosis and intervention reduces morbidity and mortality. Finally, gastrointestinal phytobezoar is a preventable disease, careful dietary instructions should be given to all patients following vagotomy and drainage procedure for peptic ulcer disease.

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