



## **An unusual cause of gastrointestinal obstruction: bezoar**

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Bezoars are conglomerates of undigested material in the stomach that appear as a late complication of gastric surgery and have become increasingly recognised as a cause of intestinal obstruction. The pathogenesis of bezoar after gastric surgery is not clear and hypotheses are speculative. Most reported cases come from Mediterranean countries where persimmons, oranges and vegetables are commonly ingested.<sup>1</sup> Gastric bezoars have also been reported in patients with diabetes mellitus, with no antecedent gastric surgery, who have neuropathy or myotonic dystrophy.<sup>2</sup> In some countries where persimmon ingestion is common, intestinal obstruction due to phytobezoar formation has been reported in epidemic numbers.<sup>3</sup> The current report describes acute intestinal obstruction due to phytobezoar following truncal vagotomy and gastrojejunostomy operation in a 58-year-old woman.

### **Case report**

A 58-year-old female underwent a truncal vagotomy and gastrojejunostomy operation seven years ago for a duodenal ulcer refractory to medical treatment. She had been well until four weeks before presentation, when epigastric discomfort, abdominal pain and vomiting occurred. On gastroscopic examination, a foreign body causing obstruction had been detected. The patient underwent operation due to continuous vomiting despite intravenous fluid administration and cessation of oral feeding.

**Figure 1. Two synchronous bezoars removed through gastrotomy and enterotomy. The larger one was removed from the stomach and the small one from the distal loop of the jejunum.**



Exploration of the upper gastrointestinal tract revealed a mobile, hard mass causing complete obstruction in the jejunum and one additional hard body located in the stomach. Gastrotomy and enterotomy were performed and two masses were removed from the lumen weighing about 92 g and 48 g (Figure 1). They had a rough, greenish-black outer surface. When cut open, the interior of the masses was yellowish brown and had a citrus-like smell. The histopathologic examination of the masses showed multiple, enlarged, partially-digested vegetable fibres.

On questioning after surgery, the patient recounted the ingestion of oranges and tangerines often in her daily life as she works as a greengrocer. The post-operative period was uneventful and the patient was discharged on Day 12 post-operatively.

## Discussion

Bezoar is a rare complication of gastric procedures and constitutes another manifestation of post-gastrectomy syndrome. The incidence of post-gastrectomy bezoar formation is not known, although it has ranged between 5% and 12% in one report.<sup>4</sup> It is generally accepted that orange pith and/or pulp constitute the most common cause of bezoar formation in patients with previous gastric surgery (50–90%).<sup>4</sup> The mechanism is probably through alteration in gastric emptying. After gastric resection with intact vagus, the majority of bezoars are found in the small intestine with increased particle size of food. However, when vagotomy is performed, the bezoar is most frequently located in the stomach.<sup>5</sup> In cases without previous ulcer surgery, the most common cause is persimmon (73–90%).<sup>5</sup> Any kind of indigestible material (eg, potato skin) also has the chance to form a compact mass. Other precipitating factors are incomplete mastication because of rapid deglutition, poor dentition, edentulism, and dehydration.

Clinical manifestations depend on the location of the bezoars. Gastric bezoars cause mostly non-specific symptoms (eg, epigastric pain, dyspepsia, occasional vomiting, and postprandial fullness). The most common clinical manifestations of an intestinal bezoar are complete or partial mechanical intestinal obstruction. In these patients, temporary relief with recurrence is named intestinal 'lucid interval' by some authors.<sup>6</sup> Once the obstruction occurs, surgery is the only way to solve the problem. Frequently, synchronous bezoars are found in the stomach or other areas of the gastrointestinal tract. Therefore, it is mandatory to explore the whole gastrointestinal tract in order to avoid recurrence of intestinal obstruction due to retained bezoar.

We conclude that, because of its potential to cause mortality and associated morbidity, patients with previous gastric surgery should be warned about this preventable complication and be given dietary advice. Also, doctors should be aware of this possibility in the differential diagnosis of all patients presenting with mechanical small bowel obstruction.

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