

## CASE REPORT

## PHYTOBEZOAR: NOT AN UNCOMMON CAUSE OF INTESTINAL OBSTRUCTION

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### ABSTRACT

We are presenting a case report of an 18 year old boy brought in emergency with acute intestinal obstruction. An exploratory Laparotomy revealed Guava pulp and seeds making a large phytobezoars as a cause of the acute small intestinal obstruction at mid ileum. Enterotomy was done to remove the bezoars and patient had smooth recovery.

**KEY WORDS:** Phytobezoar, Intestinal obstruction, Diagnosis, Management

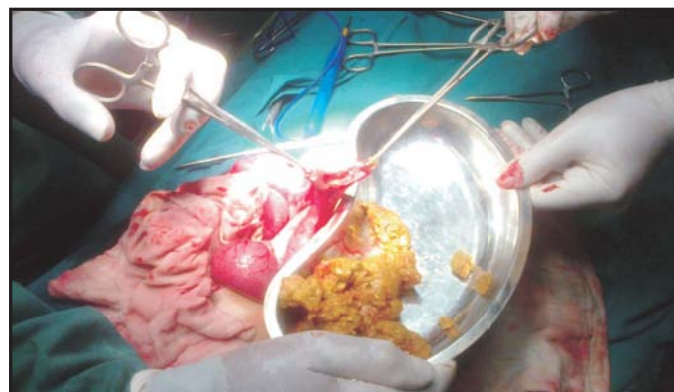
### INTRODUCTION

Bezoars were sought because they were believed to have the power of a universal antidote against any poison. It was believed that a drinking glass which contained a bezoar would neutralize any poison poured into it. The word "bezoar" comes from the Persian *pâdzahr* (پادزهر), which literally means "antidote"<sup>1</sup>. It has been the subject of fascination in medical history because of the belief that it possesses magical power. In 1575, the surgeon Ambroise Paré believed that the bezoar didn't have antidote properties. It happened that a cook at Paré's court was caught stealing fine silver cutlery. In his shame, the cook agreed to be poisoned. He then used the bezoar stone to no great avail, as he died in agony seven hours later<sup>2</sup>. Paré had proved that the Bezoar stone could not cure all poisons as was commonly believed at the time. Until eighteen century a large bezoar stone set in gold was included in the inventory of the crown jewels at the time of ascension of James I to the English throne in 1662<sup>1,3</sup>. Different types of phytobezoars have been reported in literature. Most common type is "Diospyrobezoar" occurs due to ingestion of persimmons<sup>4,5</sup> which has been identified as causing epidemics of intestinal bezoars in 90% of food boluses due to eating too much of the fruit which require surgery for removal.<sup>4-6</sup> Second most common type is due to ingestion of citrus fruit and "Trichophytobezoar" which is combination of above two<sup>5</sup>. Other types of bezoars like Pharmacobezoars from medicine, shellac bezoar in furniture workers, lactobezoars in neonates, trichobezoars in psychiatric patients or in girls also

have been reported<sup>5,7</sup>. Due to change in dietary habits and improvement in medical facilities, bezoars are now diagnosed more commonly as a cause on intestinal obstruction in our set up.

### CASE REPORT

An 18 year old boy was admitted with five days history of abdominal distension, generalized abdominal pain and vomiting. Past medical history was inconclusive. Clinical examination revealed marked central abdominal distension, tenderness with localized guarding and absent bowel sounds. Plain abdominal radiograph shows multiple air fluid levels suggestive of acute intestinal obstruction mainly involving jejunum and proximal ileum. Ultrasound abdomen revealed dilated small gut, without any peristalsis and presence of free fluid in the abdomen. Exploratory Laparotomy revealed an obstruction at mid ileum. A firm rounded mass about 6 cm long was palpable in the lumen of ileum causing complete obstruction. Enterotomy was done and it revealed a firm mass consisting of pulp and seeds of guava with some other resins which were removed. Rest of the gut, stomach and abdominal viscera's was normal. Patient had smooth post-operative recovery and discharged from hospital within a week.



**Fig I: Phytobezoar being removed through enterotomy**

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## DISCUSSION

A bezoar is found in Gastrointestinal tract and respiratory tract of humans as well as in animals. In gastrointestinal tract it is found anywhere in esophagus, stomach, intestines and respiratory tract. In the esophagus it is common in young children and in horses. In large intestine it is known as a fecolith and in trachea is called a tracheobezoar<sup>7</sup>. Bezoars are of four types and among them Phytobezoars are the most common, which are composed of vegetable matter such as celery, pumpkin, grape skin, prune and persimmons and it contains large amount of nondigestible fibers such as cellulose, hemicelluloses, lignin and fruit tannins. Trichobezoars are gastric concretion of hair fibers which usually presents in patients with history of psychiatric predisposition and in children with mental retardation. Pharmacobezoars consist of medication bezoars, which in bulk will adhere, such as cholestyramine, kayexalate resin, cavafate and antacids. Lactobezoars are milk curd secondary to infant formula, described in low birth weight neonates fed on highly concentrated formula within the first week of life<sup>8</sup>. Primary small bowel bezoars almost always present as intestinal obstruction. They usually become impacted in the narrowest portion of the small bowel, the commonest site being the terminal ileum followed by the jejunum<sup>9</sup>, as was found in our patient. Diet and pre-existing gastroduodenal pathology contribute to the formation of bezoar. More than half of cases of phytobezoars had history of previous gastric surgery and rarely reported in patients with autoimmune gastritis as reported in literature<sup>4,9-11</sup>.

Phytobezoars keep on growing by the continuing ingestion of food rich in cellulose and other indigestible materials, matted together by protein, mucus and pectin. Affected patients may remain asymptomatic for many years and develop symptoms insidiously. They are usually discovered as an incidental finding in the patient with non-specific symptoms except for an occasional abdominal mass or halitiosis<sup>9</sup>. Predisposing factors include the ingestion of high-fiber diet, inadequate mastication, previous gastric surgery producing hypo or anacidity and loss of antral pump mechanism, post surgical adhesions, ano-rectal malformations and Meckel's diverticulum<sup>8,12,13</sup>. Gastric bezoars may present as epigastric pain, loss of appetite, weight loss, episode of distension and vomiting. Intestinal bezoars present with intermittent abdominal pain and intestinal obstruction<sup>13</sup>.

Phytobezoars have rarely been associated with other gastrointestinal complications such as peritonitis,

perforation, steatorrhea, intussusception, appendicitis and constipation<sup>4,7</sup>. In contrary to trichobezoar, no psychiatric association with the phytobezoar is found in the patients<sup>14</sup>. Most of the patients with phytobezoars are men between the ages of 40 and 50 years. Phytobezoars are not uncommon in childhood it has also been reported in very young age in two children of twenty seven month age and six year age by Ameh and his colleagues<sup>12</sup>. Phytobezoars are usually single but multiple phytobezoars are reported in stomach in 17% and intestine in 4% of patients<sup>5,15</sup>.

Abdominal radiograph, ultrasound or Computer tomography scan may be helpful in the diagnosis. Plain radiograph typically shows a classic obstructive pattern. Occasionally we may be able to see the outline of bezoar, which is difficult to differentiate from abscess or feces within the colon. Ultrasound has been used to detect bezoar. In a retrospective study done by Ripolles *et al.*<sup>16</sup>, ultrasound was able to detect phytobezoar in 88% of patients with small bowel obstruction. Bezoar appears as a hyperechoic arc like surface with acoustic shadowing on ultrasound, however this feature may make it difficult to differentiate it from gallstone which also has similar ultrasound characteristics<sup>11,16</sup>.

CT scan is rapidly becoming the first line examination for the evaluation of small bowel obstruction because it can exclude other causes of acute abdomen, differentiate between simple obstruction and strangulation, detect signs of concomitant intestinal ischemia and can accurately define the cause, degree and level of obstruction. The presence of round, non-homogenous mottled mass on CT is suspicion of bezoar as the cause of intestinal obstruction found in 11% of the cases. Phytobezoar can appear as a soft tissue mass without gas making diagnosis difficult as it can resemble an intraluminal tumour or intussusception. They also described the presence of target sign or fecal ball sign ovoid or round intraluminal mass with mottled gas pattern outlined by fluid or oral contrast material in the dilated small bowel at the site of obstruction, and abruptly collapsed lumen beyond the lesion<sup>8,17</sup>. The presence of this sign on CT indicates that the phytobezoar obstructing the bowel may have difficulty passing through the small bowel lumen. An encapsulating wall caused by a gel like membrane covering the bezoar may also be seen on CT<sup>18</sup>.

Gold standard of diagnosis of gastric phytobezoars is upper gastrointestinal endoscopy as it provides direct visualization of the phytobezoars and lowers to sample it for analysis. According to Andrus *et al*, endoscopy can definitively diagnose phytobezoar where it appears as a dark brown, green, black mass

of amorphous material in gastric fundus, antrum or remnant stomach. They found that barium swallow identified only 25% of bezoars found endoscopically. Treatment therapy for bezoars is tailored to the composition of the concretion and to the underlying physiological process. Available treatment methods for phytobezoars include chemical dissolution, endoscopy and surgery. Gastric phytobezoars can be treated conservatively by cellulose enzymatic digestion or by endoscopic removal<sup>19</sup>. Chemical dissolution should be considered when phytobezoars are producing mild symptoms or when Endoscopic extraction of large phytobezoars is not possible. Many agent for chemical dissolution have been tried with spectacular results but most trials are uncontrolled and anecdotal. Cellulose, Papain, Acetylcysteine or Metoclopramide has been used successfully as dissolution agent. A potential complication of successful chemical therapy is that dissolved phytobezoars may cause small bowel obstruction. Also agent such as papain can lead to adverse effects like gastric ulcer and esophageal perforation<sup>6,8</sup>. Endoscopic removal involves mechanical fragmenting the phytobezoars with a water jet, direct suction thru a large channel endoscope, forceps and snares and then cleaning the fragments with the endoscope<sup>19</sup>. Surgical removal should be considered in patients who fail medical therapy or who have complications such as obstruction or significant bleeding. Sometimes it may be possible to knead the bolus into the caecum and if not successful then phytobezoar is removed by an enterotomy<sup>13</sup>. It is mandatory to explore the whole gastrointestinal tract in order to avoid synchronous bezoar and recurrence of intestinal obstruction due to retained bezoar<sup>15</sup>. Laparoscopic assisted management of phytobezoars is also reported in literature by Shridhar and his colleagues<sup>20</sup>. Recurrence is common unless the underlying predisposing condition is corrected and can be prevented in predisposed patients who had a gastric surgery by dietary management, more water consumption, appropriate alteration of the diet (e.g. avoid persimmons and stringy vegetables), proper mastication and adequate dentition. Treating the underlying motility problem may be of great help as a preventive measure in some patients. In difficult recurrent cases, periodic endoscopy with repeated mechanical disruption is warranted<sup>4,14</sup>.

### CONCLUSION

Phytobezoars are not uncommon and must be investigated as a cause on acute intestinal obstruction in young children's especially with high

index of suspicion.

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