

Hair-Ball (Trichobezoar) in the stomach of 33- year old female : A rare case report

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ABSTRACT

Trichobezoar constitute a rare type of Pathology. Gastric bezoars can occur in normal stomachs, as the result of ingesting of objects or foodstuff that do not traverse the pylorus. Currently, most bezoars develop as a complication of gastric operations that alter the normal function of the pylorus, or procedures that result in hypoperistalsis and low gastric acid concentrations. Trichobezoar must be suspected in a young woman presenting with a mobile and firm mass in the epigastrium. Patients may remain asymptomatic for months or years.

Most bezoars are the result of ingestion of indigestible organic matter such as hair (Trichobezoars) or vegetable and fruit matter (Phytobezoars), or a combination of both (Trichophytobezoars) but rarities such as mycotic bezoars comprising of Candida species have also been described in literature.

Cases of trichobezoars should be seen as ones who have some underlying emotional stress leading to trichophagy. Although trichophagia is not frequently related to full blown neuro-psychiatric disturbance but it is said that the trait represents a personality disorder analogous to the finger nail biting.

The onset symptoms of may be insidious, or dramatically acute. Although this entity can be diagnosed by roentgenographic examination, endoscopy contributes to a more efficient diagnosis.

Some bezoars may be managed endoscopically, but surgical treatment is indicated in those of greater volume or which become complicated. Once successful treatment is achieved, emphasis on the prevention of recurrence must be stressed. We present the case of a female with a complicated gastric trichobezoars, developing without previous history of gastric or abdominal surgery.



Case-Report

A 33-year-old female was referred to the surgical out-patients clinic with a history of intermittent epigastric pain, gradually increasing swelling epigastric region associated with belching, anorexia and vomiting of 3 years duration. The patient enjoyed good health prior to this and her past medical history was unremarkable.

Findings on physical examination included pallor, and a soft mobile, non-tender mass in the epigastric and left upper quadrant of the abdomen. The margins of the mass was regular, firm in consistency. Overlying skin was normal. There were no visible peristalsis and no succussion splash.

Investigations included an abdominal ultrasound which showed a large well-defined mass lesion with paraneurotic features, situated in the upper abdomen.

Barium meal showed gross filling defect in the stomach.

Her hematological investigations were within normal range.

MRI was not very much conclusive reported as dilated stomach.

At laparotomy, to our surprise a large trichobezoar (hair ball) extending from the Stomach into the duodenum, literally taking the shape of the casted stomach was removed through a vertical gastrotomy incision. The patient had a satisfactory post-operative convalescence and was discharged two weeks later.

Discussion

The word 'bezoar', comes either from the Arabic word "bedzehr", or the Persian word "padzhar", meaning protecting against a poison or an antidote (2,3). In ancient times the solid mass occasionally found in the stomach of a goat or an antelope was thought to have magical healing powers and even rejuvenating properties (4). Medicinal qualities and omens of good luck were also attributed to bezoars (2). In modern medicine, however, the concretion found in the stomach and intestine of humans and referred by the term bezoar is known to be associated not with such positive effects, but with significant morbidity and even mortality (5). Bezoars are masses of solidified organic or non-biological material commonly found in the stomach and small bowel. They have been known for centuries and nowadays continues to be a challenging therapeutic dilemma for surgeons and gastroenterologists alike.

The identification, therapy, and long-term management of patients with bezoars depend on accurate classification and knowledge on the pathophysiology of formation.

Four types of bezoar have been described based on their composition:

- 1) phytobezoars composed mainly of vegetable or fruit fiber,
- 2) trichobezoars, comprise mainly of hair,
- 3) lactobezoars made of milk curd, and
- 4) miscellaneous (medicational or food bolus) bezoars (5,6).

Most bezoars are the result of ingestion of indigestible organic matter such as hair (Trichobezoars), vegetable and fruit matter (Phytobezoars), or a combination of both (Trichophytobezoars) but rarely such as mycotic bezoars comprising of *Candida* species have also been described in literature. A trichobezoar consists of a large quantity of hair of varying lengths firmly matted together filling up the lumen of the stomach and as was noted in our case, may even form hair-cast of the stomach. The ingested hair always turn black irrespective of their original colour due to denaturation of proteins in highly acidic gastric juice (as can be seen on gastroscopy) and has foetid odour because of entrapment of undigested dietary fat in the hair mesh and bacterial colonization and thus posing a great threat of peritonitis after surgery.

DeBaakey and Ochsner noted that about 90% of patients with trichobezoars were female with a peak incidence in second decade. Of 131 collected cases, a palpable abdominal mass was present in (87.7%)

abdominal pain (70.2%), nausea and vomiting (64.9%), weakness and weight loss (38.1%), constipation or diarrhoea (32%) and haematemesis (6.1%).³ The laboratory investigations revealed haemoglobin of about 62% (average) and leucocyte count (average) $12.8 \times 10^9/L$.

The cause of formation of bezoars is presence of indigestible material in the lumen, gastric dysmotility (including previous surgeries like Vagotomy and Partial Gastrectomy etc) and certain other substances that encourage stickiness and concretion formation) but for trichobezoars all these would only be complementary to trichophagy which is the underlying cause. Diagnosis of trichobezoars rests on clinical evidence of long standing trichophagy, abdominal mass and radiological investigations such as plain film of abdomen showing a mass invading the gastric bubble or a free mobile mass in barium field (with less penetration of barium into the mass in case of phytobezoars as compared to trichobezoars) but obtaining a piece of matted hair through a gastroscope is pathognomonic.

The complications of bezoar formation can be classified into two categories; mechanical and traumatic. The mechanical complications are obstruction and ileus. Obstruction of gastric outlet or intestinal obstruction is caused by either small broken off pieces or through long string like extensions of the main mass going in certain cases up to ileo-caecal valve or even transverse colon giving it the legendary name of 'Rapunzel Syndrome'.² The usual site of obstruction being terminal ileum. Other reported mechanical complications apart from intestinal obstruction and gastric outlet obstruction is cholestasis due to intra-diverticular bezoar diagnosed and treated by duodenoscopy.⁵ Traumatic complications include ulceration, haemorrhage, perforation and peritonitis but remaining rare as compared to the mechanical complications.

Cases of trichobezoars should be seen as ones who have some underlying emotional stress leading to trichophagy. Although trichophagia is not frequently related to full blown neuro-psychiatric disturbance but it is said that the trait represents a personality disorder analogous to the finger nail biting.³ On counseling our patient in the 2nd post operative day, it was revealed that she was eating her own hairs for last few years in the faith that it will boost her strength.

Phytobezoars are the most common type of bezoars. They consist of vegetable material and indigestible cellulose fiber (7). Persimmons seed and other fruit products are frequent reported factors in their formation. Most develop in adults patients with impaired digestion and previous gastric surgery causing dysmotility disorders such as post-gastrectomy cases for peptic ulcer disease. Ailments other than gastric surgery that has been noted to cause impaired gastric emptying includes: diabetic gastroparesis, myotonic dystrophy, and autovagotomy secondary to tumor invasion (8). When associated with gastric surgery the stomach exhibits a diminished ability to digest, produce acid, pepsin activity, and mechanically reduce food (9).

The classically described bezoar, usually involving psychologically disturbed individuals is the trichobezoar or "hair-ball" bezoar. The trichobezoar is a concretion of hair found in the alimentary tract of animals, especially ruminants, and occasionally in man. Over the centuries these bezoars have been associated with children and emotionally disturbed adult females who ingest hair (trichophagia), carpet, rope, string, etc. The classic pediatric case is that of a partially bald child with a mass in the stomach (3). Hair strand become retained and attached in the folds of the gastric mucosa because the friction surface is insufficient for propulsion by peristalsis (10).

Trichobezoar are seen almost exclusively in female children, 6-10 years old, with bizarre appetite (trichophagia) and emotional disturbances (1). They may produce multiple clinical manifestations such as: large firm movable epigastric mass, fullness, bloating, regurgitation, nausea, vomiting, epigastric pain, hematemesis, and tiredness (2). Originally the mass develops in the stomach and can move to the small bowel by fragmentation of a portion, extension or total translocation (3). Many patients complain of early

satiety, and weight loss. Other children will reduce intake and develop failure to thrive. If untreated, chronic obstruction may result in death from malnutrition or other complication such as ulceration, hemorrhage or perforation. Symptoms are intermittent and absent for many years. Rapunzel syndrome is ascribed to those gastric bezoars that have a tail-like extension of twisted hair reaching the ileocecal valve (2).

Lactobezoars have been noted during the last two decades, corresponding to the period of improved neonatal salvage. These bezoars are described in low birth weight neonates fed a highly concentrated formula. Milk products like casein congeal forming the lactobezoar (11).

There is a miscellaneous group of bezoars consisting of medications glues, antacids, and food bolus. Food bolus that are incompletely chewed contain nuts and fiber or are trapped in narrow gastric segments (12).

Bezoars are diagnosed in most cases by conventional radiological examination, i.e. plain abdominal films, upper gastrointestinal series, ultrasonography, or computerized abdominal tomography (13). When an upper gastrointestinal series is performed with the use of barium, an intragastric mass with a honey-comb like surface around which the contrast medium flows may readily be observed, as seen in our experience. Gastric endoscopy is one of the most sensitive means to diagnosed bezoars, will confirm the diagnosis and determine their nature. Also, is utilized to obtain biopsy specimen to confirm their composition (2,14).

Bezoars can be managed by various means, depending on their underlying nature and location. Prior to 1959 the prevailing therapy for gastric or intestinal bezoars was surgical excision. This carried a high morbidity and mortality. Emergency laparotomy may still be necessary if the bezoar is associated with acute intestinal obstruction. Currently, non-surgical techniques of management of gastric bezoars may include: dissolution, suction, lavage, mechanical endoscopic fragmentation using pulsating jet of water, and fragmentation with extracorporeal shock wave lithotripsy (ESWL) (15,16,17). With ESWL the shock wave needed is half than required by urolithiasis cases (17). Intragastric administration of enzymes (papase, pancrelipase, and cellulase) or drugs (metoclopramide, tagamet, bicarbonate, acetylcysteine) has also been reported in the literature (18,19). If those methods fail, gastrotomy and manual removal is the only means of relieving the patient. Large bezoars will generally need surgery for removal (20).

Besides dissolution or removal, treatment should focus on prevention of recurrence, since elimination of the mass will not alter the conditions contributing to bezoar formation. Psychiatry follow-up may be necessary to reduce the frequency of recurrence.

In summary, the accepted therapies for patients with gastric bezoars include: 1- observation, 2- medical dissolution, 3- fragmentation, and 4- laparotomy with gastrostomy. The treatment modality will depend on the type of bezoar involved. Treatment should not only focus on resolution of the established mass, but also prevention of recurrence, since the underlying condition contributing to bezoar formation will not be altered by elimination of the mass.

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NOTE: recently there was an article on a newspaper about a small trichobezoar of stomach operated by a civilian surgeon claiming it to be the first surgery of its kind in the country. However our case was operated much earlier and the bezoar size was much bigger. Therefore this case should be considered as the first performed case. However, not first published case.

