

# Giant Gastric Trichobezoar In A Female Teenager

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## Abstract

Trichobezoar is a rare pathology in which swallowed hairs accumulate in the stomach. Large amounts can thus accumulate over the years forming a hair ball. The usual presentation is with early satiety and malnutrition. The diagnosis may be suspected in young females with abdominal pain, epigastric mass and malnutrition, who have a history of trichophagia. A small trichobezoar can be treated using non-surgical methods, but large bezoars usually require open surgery. In this report, we present one case of a successful laparotomy removal of a giant (500g) gastric trichobezoar in a 17-year-old girl with a 1-year history of trichotillophagia. Physical examination revealed diffuse abdominal pain and an epigastric mass. Psychodynamic aspects, clinical manifestations, diagnosis and therapeutic strategies are discussed.

## INTRODUCTION

Trichobezoars are concretions of swallowed hair in the digestive tract. In 1935, Debaquey and Oscher<sup>1</sup> described that this condition is more common in women, especially adolescent girls (90%). Trichobezoars are associated with trichophagia (compulsive eating of hair) as a result of pica – an eating disorder manifested by an appetite for nonnutritive substances and often associated with mental alteration – and coexistent psychiatric disturbances<sup>2</sup>. The insidious development of the trichophytobezoar accounts for the delayed presentation and large size at the time of diagnosis<sup>3,4</sup>. In this report, we describe a 17-year-old girl with trichobezoar of the stomach. Psychodynamic aspects, clinical manifestations, diagnosis and therapeutic strategies are discussed.

## CASE REPORT

A 17-year-old woman consulted the digestive service for abdominal pain, sense of fullness, nausea and weight loss for 6 months. She had no family, school or social strains apparent. She was an excellent student and led a normal, healthy lifestyle. However, she had developed a habit of playing with and swallowing her hair.

On physical examination, the patient did not appear cachectic but was generally thin. Her blood pressure was 110/60 mmHg, pulse 85/min, and temperature 37°C. The chest and heart examination were normal. Her scalp showed

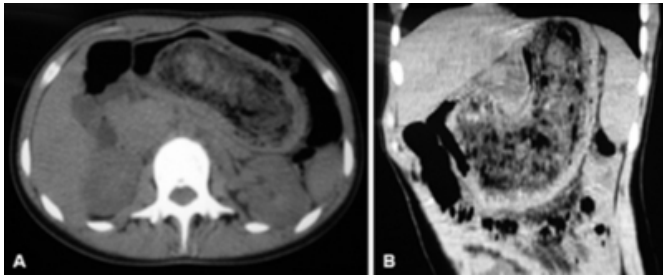
no signs of alopecia. Abdominal examination revealed a well defined, smooth and firm mass, of 10 x 12cm, occupying the epigastrium and almost both hypochondria. The mass was resonant to percussion and moved freely with breathing. Her white blood cell count was 5100/μL, Hb 11.9g/dL, Hct 35%, platelet count 320000/μL, Na 137mEq/L, K 2.8mEq/L, serum proteins 6.8g/dL, serum albumin 2.5g/dL. Her random blood sugar, renal values, liver function tests, and serum amylase were within the normal range. Plain radiographs of the thorax did not reveal any abnormalities.

Abdominal ultrasound showed an epigastric hyperechoic mass, with a prominent posterior acoustic shadow of 8cm in diameter. Computed tomography (CT) showed a mass with very well defined outline, filling the stomach. There were air pockets and the mass showed no contrast enhancement (Fig 1). Upper endoscopy disclosed the nature of the mass as a large hair ball occupying the whole stomach. In the smaller curvature she had an ulcerous niche covered with fibrin. The size of the mass precluded endoscopic removal (Fig. 2). Thus, the patient was referred to our service of general surgery. The patient underwent laparotomy. An upper midline incision was performed. A giant trichobezoar was removed through an anterior gastrotomy. The mass weighed 500g and measured 15 x 10cm (Fig. 3). The gastrotomy was closed in two layers and the abdomen was closed with drainage. After surgical intervention, the patient convalesced well, and her hospital stay was uneventful. A psychiatric evaluation diagnosed her having an adjustment disorder. She

was discharged for psychiatric follow-up. As part of the treatment, the patient received a short haircut that minimized the opportunity to play with and swallow her hair. She also received a course of psychotherapeutic treatment to avoid recurrence. The patient was followed up at 6 months and has not exhibited any evidence of mental or physical difficulties; she has also gained 6kg.

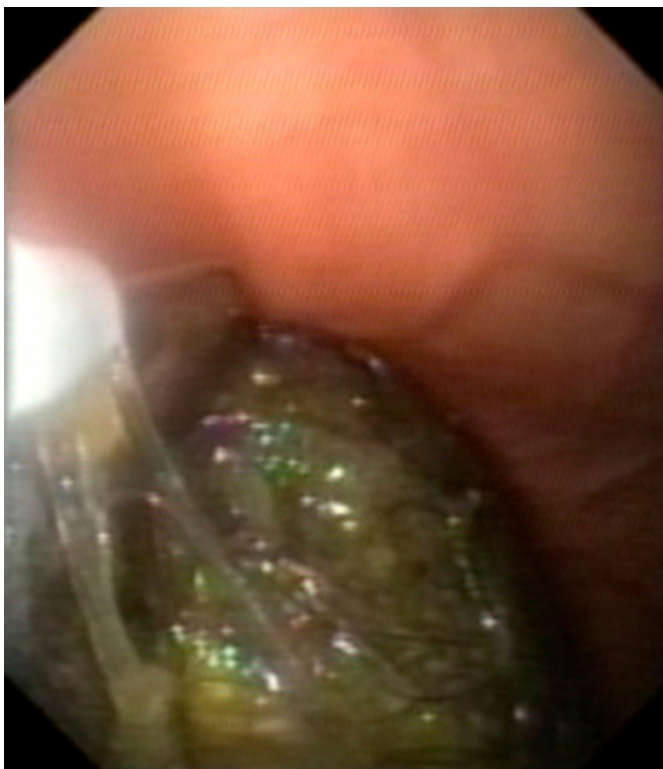
**Figure 1**

Fig. 1: Axial (A) and sagittal (B) abdominal CT scan revealed a large heterogeneous mass in the stomach



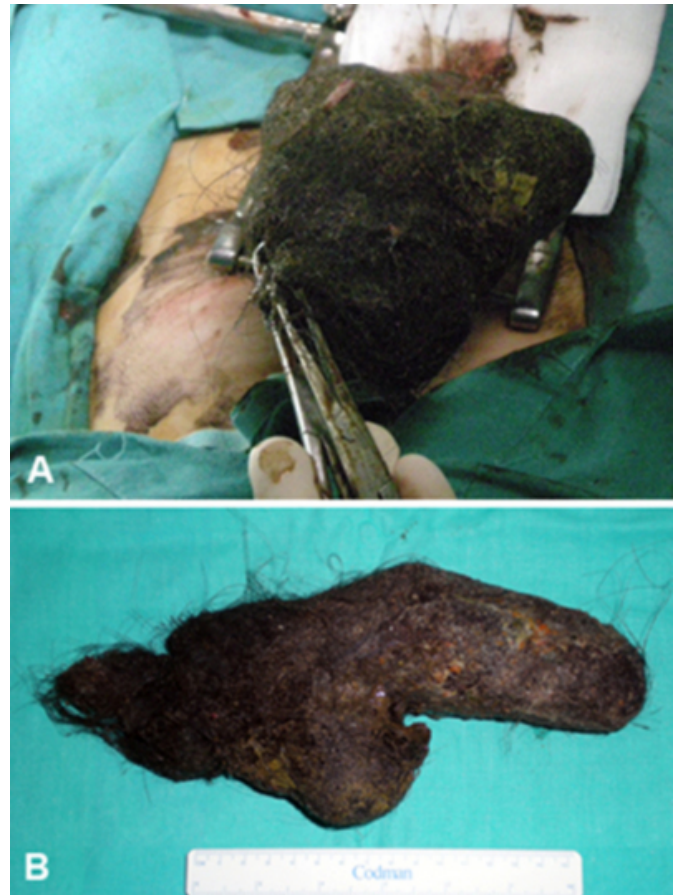
**Figure 2**

Fig. 2: Upper endoscopy showed a large hair ball occupying the whole stomach and an ulcer in the body of the stomach



**Figure 3**

Fig. 3 Intraoperative photography showed a hair ball occupying the whole stomach



**DISCUSSION**

A trichobezoar was first reported in 1779 by Baudamant<sup>5</sup>. The word is a combination of “trich” and “bezoar”, with the former meaning hair in Greek and the latter meaning poison antidote in Arabic or Persian<sup>6</sup>. By necessity, trichotilomania (plucking of hairs) and trichophagia (swallowing of hairs) are the leading events.

Human bezoars are retained conglomerations of foreign material in the gastrointestinal tract with a reported occurrence of 0.012%<sup>7</sup>. Although the stomach is the most common location, bezoars have also been found in the duodenum, jejunum, ileum, colon, appendix and Meckel’s diverticulum<sup>7</sup>. Until the present time, around a thousand cases have been described<sup>8</sup>.

The three main types are: a) Phytobezoar. This most common bezoar comprises vegetable matter. It is usually associated with decreased acid production or gastric outlet obstruction after gastric surgery. b) Pharmacobezoar. This mass comprises retained medications and may produce

additional symptoms related to the release of active ingredients, including potentially fatal overdoses. Known culprits have included extended-release versions of nifedipine, antacid and theophylline, as well as enteric-coated Aspirin. Lactobezoars are exclusively found in infants. Prematurity and concentrated formulas are leading causes of lactobezoars<sup>9</sup>. c) Trichobezoar. Hair conglomerates form a smooth mass that peristaltic contractions do not expulse. As with our patient, trichobezoars most commonly present in the second decade of life. They account for 12% of bezoars. Up to 90% of the all trichobezoars occur in girls younger than 20 years old. Males are rarely affected<sup>10</sup>.

The cause why hair is collected in the stomach is not fully understood. DeBakey and Ochsner<sup>1</sup> suggested that hair entrapment in the gastric folds is the initiating event. Due to its indigestibility, resiliency and slippery nature, it becomes entrapped within the mucosal folds where it gets enmeshed, and acquires more hairs and thus a larger size.

Trichobezoars result from compulsive pulling out of hair (trichotilomania) and then swallowing the hair (trichophagia). Patients frequently have accompanying comorbid mood and anxiety disorders and require comprehensive psychiatric or psychologic evaluation for obsessive compulsive syndrome. Trichotilomania often requires behavioral psychotherapy and pharmacotherapy<sup>11-13</sup>. Other predisposing factors include gastric surgery (57%)<sup>14</sup>, especially bariatric surgery, truncal vagotomy and gastroenteroenterostomy, Billroth II gastrectomy, truncal vagotomy and pyloroplasty<sup>15</sup>. The mechanism behind this is not completely settled. Delayed gastric emptying in patients with vagotomy is one of the hypotheses<sup>16</sup>, although some studies have found no difference in the gastric emptying time for solids in patients with and without surgery<sup>17</sup>. The interval between gastric surgery and bezoar detection was 9-30 years<sup>8</sup>.

Clinical manifestations vary, depending on the location and size of the trichobezoar, from asymptomatic patients to acute abdomen<sup>18</sup>.

The patient with a gastric trichobezoar usually presents with vague and nonspecific symptoms, including abdominal pain (70%), nausea and vomiting (64%), digestive bleeding (61%), epigastric discomfort, early satiety, dyspepsia, weight loss (38%), diarrhea or constipation (32%) and halitosis<sup>19</sup>. A bezoar may also lead to mechanical obstruction, gastric perforation, gastrointestinal bleeding, anaemia and ulcer formation<sup>10,18,20,21</sup>. Less common manifestations and

complications include acute appendicitis, obstructive jaundice, nutritional deficiencies, and intussusception<sup>13,22</sup>. Occasionally bezoars are giant-sized, as in our case and may mimic an intraabdominal mass clinically<sup>23</sup>. Anaemia and hypoalbuminaemia associated with chronic gastritis usually go unnoticed until the case is brought to light by the onset of severe complications such as hemorrhage, obstruction or perforation. Perforation and peritonitis are largely responsible for an attendant mortality of about 30%<sup>3,24</sup>.

Trichobezoars may present as an isolated gastric mass, as an extension into the small intestine (Rapunzel Syndrome), or as an independent fragmented mass in the small intestine<sup>25-28</sup>.

Clinical suspicion should be high for trichobezoars in women with psychiatric problems presenting with abdominal pain, while diagnosis in a healthy patient requires a high index of suspicion, as it can present with nonspecific symptomatology<sup>3,24</sup>.

If suspected, trichobezoars can be diagnosed with radiological and endoscopic techniques. Radiological modalities include barium study, ultrasonography, CT scan and upper endoscopy. CT scan has a high accuracy rate, but the accuracy of US in such cases is not so high. On CT scan, a well-circumscribed lesion, composed of concentric whorls of different densities with pockets of air enmeshed within it, appears in the region of the stomach. It also helps to evaluate the rest of the bowel for multiple trichobezoars<sup>29-31</sup>.

While medical approaches are useful for the treatment of phytobezoars, trichobezoars require either endoscopic or surgical removal<sup>14,32</sup>. The endoscopic approach has been most commonly used since first being described by McKechnie in 1972<sup>33</sup>. Nevertheless, treatment failure or large bezoars require surgical treatment. Other minimally invasive modalities like extracorporeal lithotripter, endoscopic lithotripter and laser fragmentation are emerging. Endoscopic techniques have two advantages: first, they allow us to see an extension of the trichobezoar in the intestine, and second, they can be used to remove small trichobezoars<sup>34</sup>.

In the past, surgical removal by gastrotomy through great abdominal incisions was the treatment of choice. However, development of minimally invasive surgical techniques has made it possible to remove trichobezoars without large abdominal incisions<sup>35</sup>.

Laparoscopic and minilaparotomy approaches are widely

recognized minimally invasive operations, with laparoscopy being the preferred procedure because of its decreased invasiveness<sup>32</sup>.

Laparoscopic treatment of bezoar was first reported by Nirasawa and co-workers in 1998<sup>36</sup>. A few surgeons subsequently reported laparoscopic removal of bezoars through use of slightly different techniques<sup>37-39</sup>.

In cases of giant trichobezoar, the laparoscopic approach could be problematic. We believe that minilaparotomy is a better option than traditional laparotomy in such cases, especially for young girls because of the improved cosmetic results. Minilaparotomy could also be an alternative to laparoscopy in cases of moderately large trichobezoars in hospitals with moderate experience in advanced laparoscopic surgery<sup>32</sup>.

In the study by Koulas et al. including over 23 cases, the surgical morbidity rate was 28% (wound infection, incisional hernia, prolonged fever), whereas the endoscopic morbidity was 11%. Mortality was 4% and 0% for the surgical and endoscopic groups, respectively.

We did not use a minimally invasive technique in our patient because of the size of the trichobezoar and the difficulty encountered during endoscopy. An open approach provided the safest route for removal while also avoiding contamination of the peritoneal cavity and wound with undigested hair. Our patient's long-term prognosis is excellent if behavioral therapy manages to control her trichophagia.

In conclusion, physicians, surgeons and radiologists should consider trichobezoars in the differential diagnosis in young females with abdominal pain and presence of an upper abdominal mass. Plain abdominal radiography, ultrasonography, computed tomography scanner and endoscopy are very helpful for the final diagnosis. Endoscopic or surgical removal can be performed safely and effectively. To avoid recurrences, each patient should have a psychiatric evaluation and follow-up.

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