

# Laparoscopic Treatment of Gastric Trichobezoar

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## ABSTRACT

Trichobezoar is a mass of swallowed hair that accumulates in the stomach and fails to pass through the intestines. They occur in young patients, typically female with mental disorders. Many approaches have been proposed for the treatment of bezoars, such as gastroscopic fragmentation, nasogastric lavage or suction, enzymatic therapy, and laparotomy. With the advent of laparoscopic surgery, it became possible to remove such lesions without large abdominal incisions, better cosmetics and reduced pain. The aim of the study is to present an 18-year-old female who had gastric trichobezoar that was successfully treated with a laparoscopic technique, using anterior gastrotomy and laparoscopic suture. The laparoscopic approach may be the treatment of choice for trichobezoar removal in the future, with potential benefits to the patients.

**Key words:** Trichobezoar; laparoscopic surgery; laparoscopy; minimally invasive surgery; gastric surgery.

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## INTRODUCTION

The Word bezoar means antidote and is derived from three words: from the Arabic “badzher”, from the Persian “padzhar” and from the Hebrew “beluzaar”. In the XII century it was believed that bezoars obtained from animals held curative properties and they were used to treat bites of snakes and intoxication<sup>1</sup>.

Nowadays, bezoars are defined as an agglomeration of foreign material in the intestinal tract, usually they are found in the stomach; however, they may extend until the small intestine or present fragmentation with multiple mass in any segment of the intestine<sup>2</sup>. Bezoars are classified in 4 categories: phytobezoars (vegetable matter); trichobezoars (hair balls); pharmacobezoars (tablets or semi-liquid masses drugs); miscellaneous material (clay, stone etc...)<sup>3</sup>.

Trichobezoars are composed by fragments of swallowed hair (trichophagia) and it is called Rapunzel Syndrome when it extends through the pylorus<sup>2</sup>. Trichobezoars represent 55% of human bezoars, it is more frequent in women (90%) and approximately 80% of the patients are less than 40 years old. Trichobezoars typically occur in female patients younger than 30 years with mental disorders.

Triggering etiologic factors such as inadequate diet, ingestion fiber or poor mastication, habits and psychological disorders; 40 % of the cases are associated with psychiatric disorder<sup>1</sup>.

Conventional gastrotomy was the treatment of choice in case of obstruction, but nowadays the laparoscopic approach is a feasible technique to treat patients with this disease.

## CASE REPORT

An 18-year-old Caucasian Brazilian female patient, a single student from Nova Iguaçu, was admitted at the emergency service of the Hospital das Clínicas de Teresópolis- HCTCO with complaints of severe epigastric pain for the last 6 months, associated with nausea and eventual vomiting. The patient reported weight loss in the last month. The patient was lucid, well-oriented, anxious, hydrated, pale +2/+4; non-cyanotic, afebrile, eupneic, absence of cervical palpable lymph nodes. The physical examination of the abdomen revealed absence of audible peristalsis, hernias; at percussion it was observed a tympanic note in the right upper and lower quadrants and dullness in the left upper and lower quadrants. Presence of painful palpation with a

homogeneous mass in the epigastrium is noticed. Bowel sounds were present on auscultation. Upper digestive endoscopy showed a trichobezoar with the shape of the stomach that extended until the antrum, although the visibility was compromised, the endoscope passed through the gastric pouch. Pylorus was mobile, centered and pervious. Laparoscopy was the treatment of choice and the patient was submitted to the surgery under general anesthesia.

## OPERATIVE TECHNIQUE

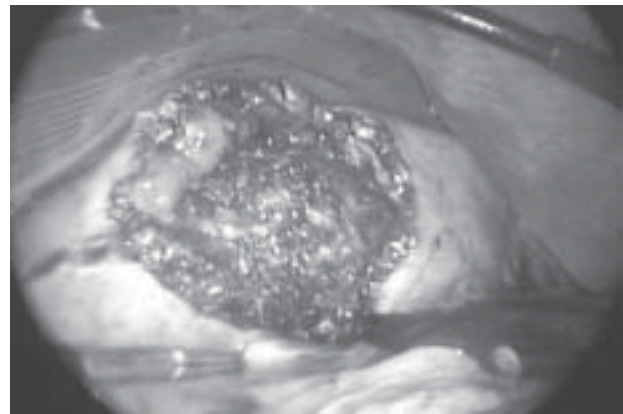
Four trocars were placed under direct vision: umbilicus (10mm), left flank (5mm), and two trocars in the right flank (10mm, 5mm). Hasson's technique was used to insert the first trocar with insufflation of CO<sub>2</sub> at 12mmHg pressure. Laparoscopic gastrotomy using hook was performed with an 8 to 10cm longitudinal incision on the gastric antrum region. As the bezoar had a hard consistency and occupied the whole gastric cavity, it was difficult to mobilize it. The trichobezoar was removed from the stomach and the highly contaminated specimen was immediately isolated in a bag. Gastrotomy was closed with a contiguous 3.0 polypropylene suture and the specimen retrieved in a plastic bag (Figure 1-4), extending umbilicus trocar incision. The patient had a good postoperative recovery. An infection on the operative wound was treated with the withdrawal of the bandage and local wound care, the patient deambulated on the 2<sup>o</sup> postoperative day and on the 3<sup>o</sup> postoperative day the patient accepted well the eating diet. On the 4<sup>o</sup> postoperative day the patient was discharged from hospital after a psychiatric evaluation. After 6 months follow-up there was no case of recurrence.

## DISCUSSION

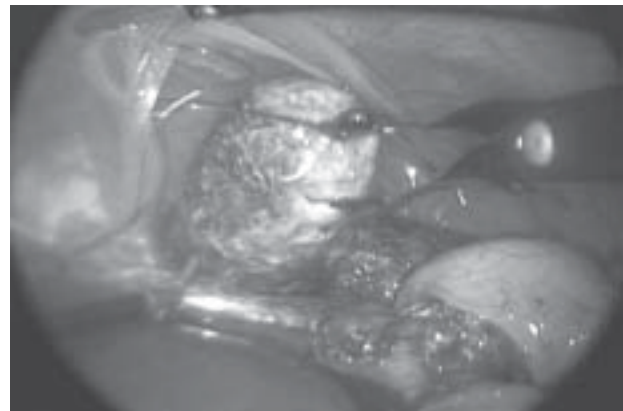
The first authentic case of human trichobezoar was described in 1779<sup>4</sup>, thus in 1995 Filipi et al<sup>5</sup> reported a per-oral removal of trichobezoars. Typical symptoms are palpable epigastric mass (that frequently assume the shape of the stomach) accompanied with pain, nausea, vomiting, and weight loss, hematemesis may occur. Presence of symptoms depends on the evolution, the elasticity of the stomach and the size of the bezoar. Complications include ulcers (with or without bleeding), perforation, intussusception and obstruction, usually in the terminal ileum; malnutrition is a frequent

accompaniment<sup>6</sup>. The analysis of these data in addition to the anamnesis can indicate the diagnosis; however, at the beginning of the consultation the majority of the patients deny trichophagy<sup>1</sup>.

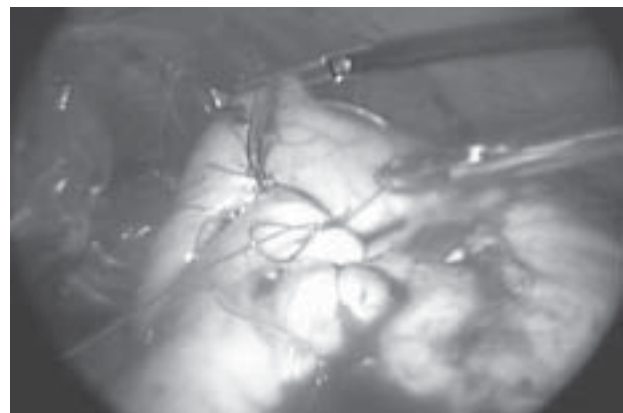
Abdominal radiograph is of limited use in patients with trichobezoar; the upper gastrointestinal



**Figure 1** - Laparoscopic image of gastrotomy on the gastric antrum and visualization of the trichobezoar.



**Figure 2** - Trichobezoar removal with immediate isolation in a bag.



**Figure 3** - Gastrotomy closure with contiguous 3.0 polypropylene suture.



**Figure 4** - Surgical specimen.

tract barium study, which is indicated to diagnosis differentiation of epigastric masses, is a highly sensitive and specific examination. Other exams with excellent specificity are: ultrasound which detects trichobezoars as mobile hyperechoic mass with acoustic shadowing; endoscopy can directly reveal a ball of hair; however it is not able to anatomically define the extension of the lesion; and computed tomography(CT) with similar diagnostic indexes to the upper gastrointestinal tract contrast exam <sup>2</sup> showing a well-defined intraluminal heterogeneous mass with interspersed gas in its interstices<sup>7</sup>, CT best describes the size, configuration and location, besides it differentiates trichobezoars from neoplasms<sup>4</sup>.

The treatment of a bezoar may be conservative for small bezoars with the use of methods such as enzymatic and prokinetic; endoscopic (more valuable for phytobezoar); electrohydraulic lithotripsy; laparotomic or laparoscopic surgery <sup>3</sup>. Some cases of spontaneous resolution of gastric bezoars have been described in the literature<sup>8</sup>.

Although there are some methods for the treatment of bezoars, in the case of trichobezoars the enzymatic dilution is not possible and endoscopic retrieval is difficult due to the extension of the mass, which is difficult to be fragmented<sup>4</sup>. The endoscopic treatment represents extra risks of gastric perforation and posterior bowel obstruction due to the advance of fragments through the digestive tract.

The supraumbilical laparotomic surgery allows through gastrotomy a direct and fast approach; however, the most frequent complication is the bacterial contamination, due to patient malnutrition it

may lead to severe peritonitis <sup>9</sup> besides it can not eliminate the immediate postoperative inconvenience of this approach, mainly the cicatricial sequelae of longitudinal abdominal incisions.

Nowadays the laparoscopic approach has been used with success in a great number of abdominal surgeries with significant shorter operative time, less postoperative complications and reduced hospital stay<sup>10</sup>. The great outcome achieved with our patient proves the feasibility and safety of the method, which is similar to the conventional approach. The initial reports about the use of this approach to remove gastrointestinal bezoars are potentially advantageous and this alternative may be suggested as the treatment of choice <sup>11,12</sup>. After surgery, patients should have an adequate neuropsychiatric follow-up in order to avoid recurrences.

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