Acta Chir Belg, 2012, **112**, 160-163

Unusual Cause of Palpable Mass in Upper Abdomen - Giant Gastric Trichobezoar : Report of a Case

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Abstract. A trichobezoar is a ball of swallowed hair that accumulates in the stomach and fails to pass through the intestines. Usually a trichobezoar presents in early satiety and malnutrition. Obstructive symptoms and manifestations of gastric outlet obstruction may occur. While small gastric trichobezoars may be removed via gastroscopy, large trichobezoars require surgical removal by gastrotomy through abdominal incision. We present a case of a successful mini-laparotomy removal of a giant gastric trichobezoar in a 15-year-old girl with a history of trichophagia for a long time and marginal psychological disturbances.

Inroduction

Bezoar is a collection of a incompletely digested food or indigestible foreign material in the gastrointestinal tract, which have usually accumulated in the stomach and may cause intestinal obstruction over the time (1). Several types of bezoars have been described : phytobezoar (vegetable matter), trichobezoar (hair), disopyrobezoar (persimmons), lactobezoar (concentrated milk formulas), mixed medication bezoars and miscellaneous (1, 2). Trichobezoars are most common in pediatric age. Approximately 90% of trichobezoars are seen in female patients with long hair (2, 3). The most of the patients have a history of trichotillomania and trichophagia or other psychiatric disorders (2-4). Human hair is resistant to digestion as well as peristalsis due to its smooth surface. Therefore it accumulates between the mucosal folds of the stomach. Over a period of time, continuous ingestion of hair leads to the impaction of hair together with mucus and food, causing the formation of a trichobezoar (4). Clinical manifestations vary depending on the location of bezoar and may result in different conditions such as : abdominal pain, vomiting, nausea, anaemia, haematemesis, bowel obstruction, intussusception, gastric ulcers, perforation, gastrointestinal bleeding, acute pancreatitis, and obstructive jaundice (1-3). The ultimate goal of the treatment of bezoars is their removal and prevention of recurrence. In the literature several treatment options are proposed, including removal by conventional laparotomy, laparoscopy and endoscopy (1-5).

Case Report

A 15-year-old female, was referred to our pediatric clinic, with a six months history of abdominal pain, weight loss, anemia and palpable mass in upper abdomen. The patient was treated in primary health care as a case of gastritis. Patient had a history of trichophagia for a long time, and had a patchy alopecia. On physical examination the patient was apathic, in good condition, her temperature was 36.9 ℃, blood pressure 120/75 mmHg and pulse 84/min. The chest and heart examination were normal. Abdominal palpation revealed an oblong mobile well-defined mass occupying the epigastrium and left hypochondrium ; the mass was not tender and was firm in consistency. Biochemical results were normal except mild anemia and elevated urine amylase ; 743 U/l, normal range : < 400 U/l. Plain radiographs of the thorax and abdomen did not reveal any abnormalities. Abdominal ultrasonography revealed hyperechoic mass on the epigastric region. Upper gastrointestinal endoscopy revealed a trichobezoar occupying the whole gastric cavity. The size of the mass precluded endoscopic removal. Computed tomography revealed the presence of an intraluminal mass in the stomach that causes dilatation (Fig. 1a) with circumcised air trapping (Fig. 1b). The patient was referred to surgery, and through upper mid line incision gastrotomy was performed between two Vicryl stay sutures (Fig. 2a). A huge, foul smelling, trichobezoar was identified (Fig. 2b) and removed (Fig. 2c). Gastric wall was closed with continuous Vicryl suture. The mass weighed 1250 g and measured 8.5 × 21 cm (Fig. 2d). The patient had an uneventful postoperative course and was discharged for follow-up in the Paediatric Psychiatry Clinic.

Discussion

Trichobezoars are an infrequent form of bezoar shaped from ingested hair. By necessity, trichotillomania

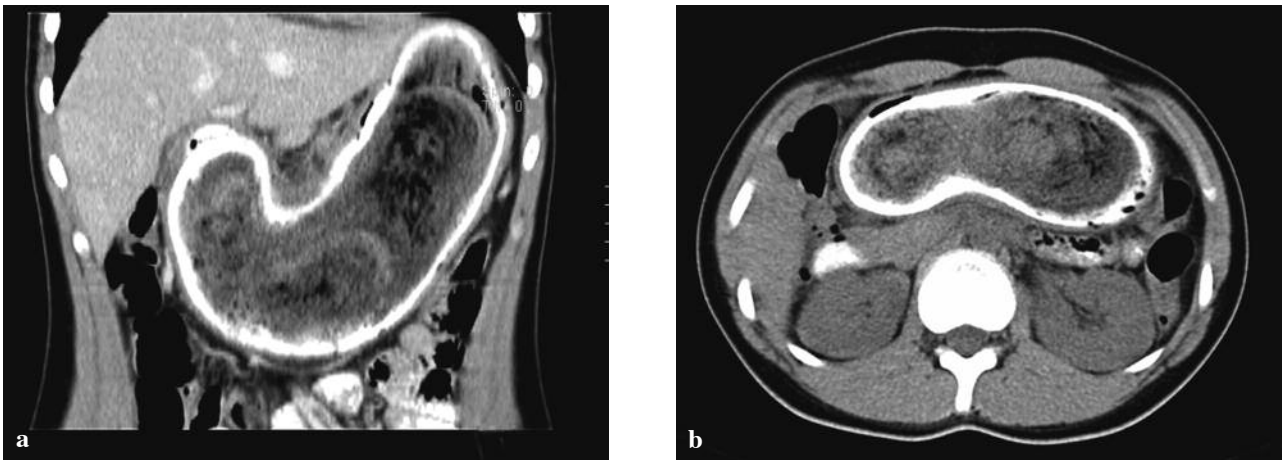

Fig. 1.
Abdominal Computed tomography revealed the presence of an intraluminal mass in the stomach (a) that causes dilatation with circumcised air trapping (b).

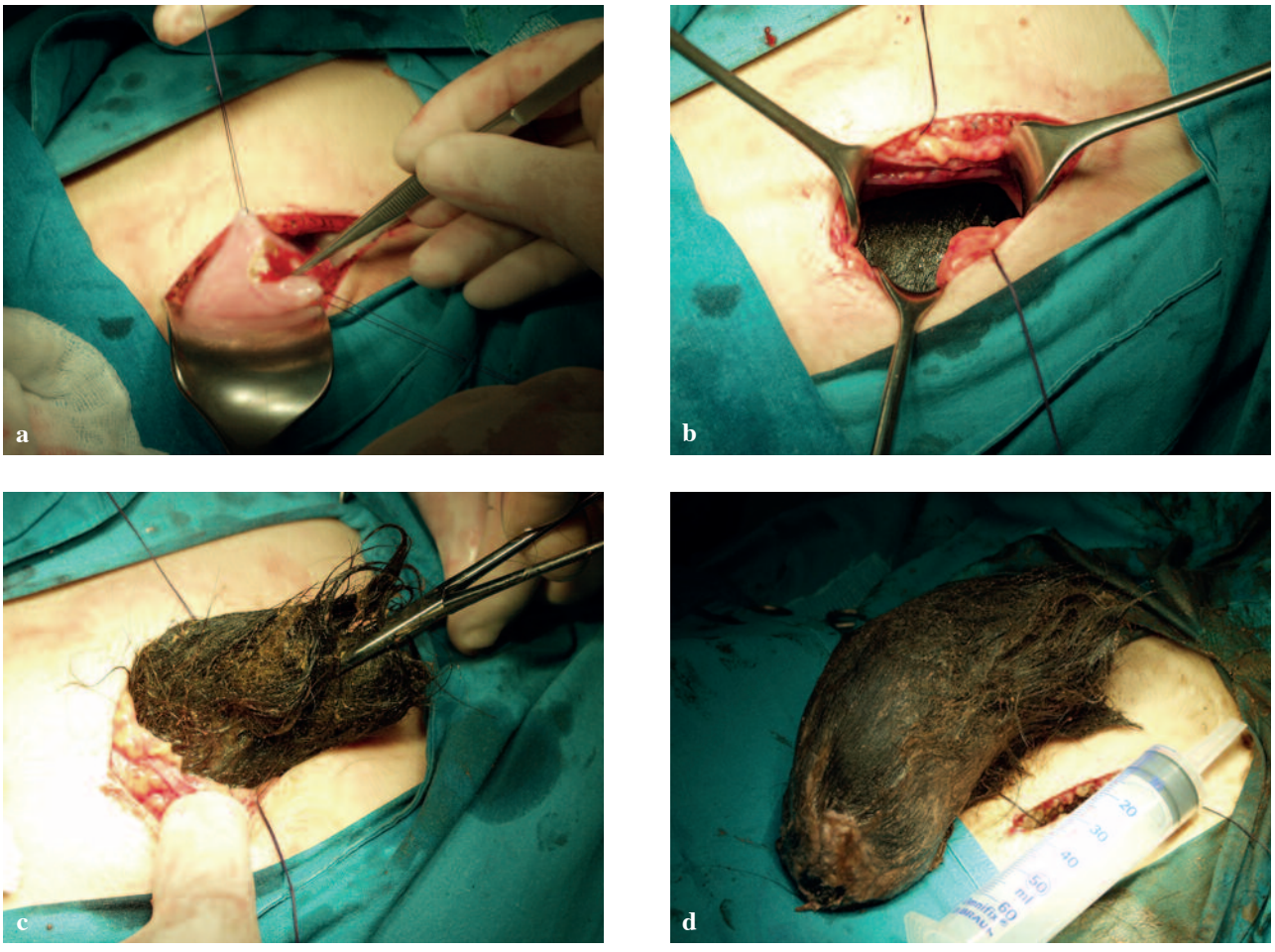

Fig. 2.
Trichobezoar extraction from the stomach following gastrotomy. (a) Gastrotomy ; (b) Trichobezoar identification ; (c) Trichobezoar removal ; (d) Removed specimen.

(plucking of hairs) and trichophagia (swallowing of hairs) are the leading events (1, 4). The word is a combination of "trich" and "bezoar", where the former means hair in Greek, and the later means poison antidote in Arabic or Persian (4). Trichobezoars are usually found in the stomach but may also be found in the duodenum, ileum, jejunum, colon or Meckel's diverticulum. They can be extremely large, cause a wide variety of symptoms and can be fatal. Rapunzel syndrome is an extension of the gastric trichobezoar into small intestine in the form of a long tail (4, 6). It is named after Rapunzel, the heroine of a German fairy tale by the Grimm brothers. She used to let her long golden hair tress down the tower where she was imprisoned, to allow her prince lover to climb up (4). Majority of cases of trichobezoar present late, due to the low index of suspicion by the physician. Trichobezoars are mostly presented by a palpable abdominal mass, abdominal pain, nausea and vomiting. Weakness, weight loss, constipation or diarrhoea and haematemesis are less common symptoms (1-4). The laboratory investigations revealed low haemoglobin in about 62% of cases (7). Anaemia and hypoalbuminaemia associated with chronic gastritis usually go unnoticed until the case is brought to light by the onset of severe complications (6). The complications of trichobezoars range from attacks of incomplete obstruction to complete obstruction of the stomach, with possible perforation, peritonitis, and even may be lethally (4, 7, 8, 9). On physical examination epigastric mass may be palpated. Alopecia may also be present due to trichotillomania (1). Differential diagnosis of palpable abdominal masses is extensive. Clearly, a mass especially when large may be palpable outside of the usual location of the organ (8). Epigastric masses are often caused by the same lesions as right (hepatomegaly, hepatic masses) and left (splenomegaly, splenic masses) upper quadrant lesions. Gastric or colonic masses are often epigastric. The palpable mass associated with pyloric stenosis in an infant is commonly epigastric to the right or midline. Pancreatic masses are typically close to the midline. Hydronephrotic kidney or Wilm's tumor may cause a solid palpable abdominal mass. Diagnostic modalities include ultrasound, CT scan and upper endoscopy. Ultrasound and CT imaging features are helpful in diagnosis. On the ultrasound, bright echogenic band and shadow over the left upper quadrant may exist. Plain abdominal CT usually shows a mobile intragastric mass consisting of "compressed concentric rings", with a mixed density pattern due to the presence of entrapped air and food debris (1, 4, 6). Upper endoscopy is a good diagnostic tool for visualisation of the bezoars. Endoscopic removal, if effective, would be the most attractive alternative. Endoscopical removal is usually not successful and results only in the retrieval of a small portion of the gastric trichobezoar (3). A large trichobezoar has been traditionally removed by laparotomy, which has entailed an upper abdominal incision, such as in our case (1, 4, 6). With the advent of laparoscopic surgery, it became feasible to retrieve a foreign body from the stomach without the necessity for a laparotomy. Since majority of the patients are young females, cosmesis becomes more important in this situation (3). On the other side successful laparoscopic removal, however, requires significantly longer operation time in comparison to conventional laparotomy, mostly due to the complexity of the operation. Careful examination of the entire digestive system (intestine and stomach) is necessary in order to prevent secondary intestinal obstruction due to satellites (4). With laparoscopy this procedure is far more challenging. The risk of spilling contaminated hair fragments into the abdominal cavity makes the laparoscopic approach even less attractive. In addition, due to the rarity of trichobezoars, the technique of laparoscopic removal and inspection of the entire intestine may be hard to acquire (4). Due to high success rate, the low complication rate, the low complexity, and the ability to carefully examine the entire gastrointestinal tract for satellites in a short period of time, laparotomy is still considered the treatment of choice in our center.

Conclusion

In conclusion, surgeons, physicians, and radiologists should consider trichobezoar in the differential diagnosis of gastrointestinal obstruction in young females, especially in the presence of an upper abdominal mass. Timely diagnosis and treatment are of utmost importance to avoid a possible fatal outcome. As recurrences are known, each patient should have a proper psychiatric evaluation and follow-up.

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