Case Report

A Modified Laparoscopic Technique for the Removal of Nonfragmentable Giant Gastric Trichobezoar

Sakthivel Harikrishnan, Senthilkumar Perumal, Kanchan Sachanandani, M Thiruvarul, C Sugumar, Jeswanth Sathyanesan, P Ravichandran

Department of Surgical Gastroenterology and Liver Transplant, Government Stanley Medical College, Chennai, Tamil Nadu, India

Abstract

Bezoars are usually defined as collections of nondigestible matter that most commonly accumulates in the stomach and can sometimes extend to the small bowel. Trichobezoars are a rare entity which is most commonly observed in young psychiatric females with trichotillomania and trichophagia. Here, we report a case of giant gastric trichobezoar and a novel technique of laparoscopic removal in a 16 year old female with trichophagia. The giant gastric trichobezoar weighing about half a kilogram was removed en masse laparoscopically by a novel technique. She had an uneventful postoperative recovery and was discharged after psychiatric counseling.

Keywords: *Giant gastric trichobezoar, novel laparoscopic technique of trichobezoar removal, minimally invasive trichobezoar surgery*

Received : 03-05-2019
Revision : 21-06-2019
Accepted : 20-07-2019
Published : 10-02-2020

Introduction

Trichobezoar is a conglomeration of swallowed hair in the gastrointestinal tract usually found in young girls with psychological disorders. Since human hair is nondigestible, it accumulates between the gastric mucosal folds, and over a period of time, continuous trichophagia leads to impaction of hair along with food and mucus forming a trichobezoar. Most commonly, it accumulates in the stomach, but it can extend to small bowel in some cases causing Rapunzel syndrome.[1] Endoscopic removal, laparotomy and removal and laparoscopic removal are available for gastric trichobezoar. Only a few cases of the minimally invasive technique for gastric trichobezoar removal are reported in the literature. Here, we report a novel laparoscopic technique for en masse removal of a nonfragmentable giant gastric trichobezoar.

Case Report

A 16-year-old female presented to us with complaint of intermittent epigastric pain for 2 months. The pain increased on food intake. She had vomiting occasionally, containing food particles. She also had progressive loss of appetite, inadequate weight gain for age and was aware of a lump in her left upper abdomen. On general physical examination, she was thin built and moderately nourished. Abdominal examination revealed a firm lump in the left hypochondrium and epigastrium measuring 15 cm × 10 cm. The mass was moving with respiration with rounded lower borders, and the upper border was not clearly made out. She was initially suspected to have a gastric gastrointestinal stromal tumor. On evaluation, her baseline blood investigation was normal. Computed tomography (CT) showed a lesion occupying the entire stomach with a whorled nonhomogeneous appearance and specks of calcification within it [Figure 1]. Endoscopy showed a large trichobezoar in the stomach [Figure 2]. In view of the large size of the trichobezoar, endoscopic fragmentation and removal was not attempted and the patient was planned for surgical removal.

Modified laparoscopic technique for trichobezoar retrieval

Under general anesthesia, the patient was placed in the French position and the surgeon and the assistant were standing on the patient's right side. Pneumoperitoneum

Address for correspondence: Dr. Senthilkumar Perumal, Department of Surgical Gastroenterology and Liver Transplant, Government Stanley Medical College, Chennai, Tamil Nadu, India.
E-mail: dr.psenthil@yahoo.com

Access this article online

Quick Response Code:

Website: www.nigerianjsurg.com

DOI: 10.4103/njs.NJS_20_19

How to cite this article: Harikrishnan S, Perumal S, Sachanandani K, Thiruvarul M, Sugumar C, Sathyanesan J, *et al.* A modified laparoscopic technique for the removal of nonfragmentable giant gastric trichobezoar. Niger J Surg 2020;26:84-7.

was created by Veress needle and 10-mm supraumbilical camera port was inserted. Other ports were inserted under vision, two 5 mm ports in the right and left midclavicular line and another 5-mm port in the left hypochondrium. Anterior gastrotomy (approximately 10 cm) was done using hook diathermy, the trichobezoar was exposed and gently retrieved out of the stomach in toto [Figure 3]. Since the trichobezoar was large and dense and fragmentation would cause peritoneal contamination, it was decided to remove the trichobezoar in toto by a Pfannenstiel incision. A 4-cm Pfannenstiel incision was made through which a wound protector was applied and stretched to enlarge the incision [Figure 4]. The intra-abdominal end of the wound protector was kept close to the retrieved trichobezoar and was removed in toto through the wound protector using a sponge holding forceps, without peritoneal spillage and contamination [Figure 5]. After the extraction, the gastrotomy was closed by intracorporeal suturing in two layers using 2-0 vicryl and 2-0 silk. The peritoneal lavage was given. All the port sites and the Pfannenstiel incision were closed in layers, leaving a drain in the subhepatic space [Figure 6]. The trichobezoar weighed approximately half a kilogram [Figure 7]. The patient was started on orals from the 5th postoperative day and discharged after psychiatric counseling.

Discussion

A bezoar is an aggregation of indigestible ingested particles accumulated over a period of time. The first case was reported in 1779 and the most commonly encountered bezoar is trichobezoar. It is seen mostly in young females with underlying psychiatric problems. The ingested hair particles accumulate over a period of time to form a hard mass of trichobezoar. They are usually black, glistening and foul-smelling. They are usually present in the stomach and sometimes they manifest with features of gastric outlet obstruction. Sometimes, they detach and extend into the small bowel where they can present with complications such as obstruction, perforation, bleeding, pancreatitis, appendicitis and intussusception.[2] CT is the imaging of choice for characterizing the size, location, and configuration of the trichobezoar. It appears as a nonhomogenous, nonenhancing mass with a mottled appearance within the lumen of the stomach.[3]

Endoscopic removal, if effective, would be an attractive alternative for trichobezoar removal. However, usually endoscopic attempts are unsuccessful in view of the large size of the trichobezoar and the difficulty in fragmentation.[4] Furthermore, endoscopic fragmentation may cause migration of the fragmented part and repeated endoscopic maneuvers might be needed to remove the fragmented segments, which might cause pressure ulceration, esophagitis and esophageal perforation.[5]

Laparotomy for trichobezoar removal is the most commonly described technique in literature and has the

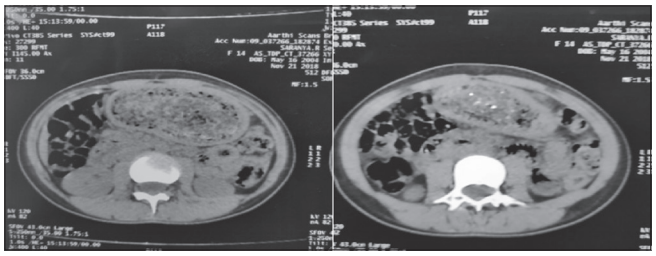

Figure 1: Plain computed tomography picture showing intragastric mass with a whorled appearance and specks of calcification within the mass

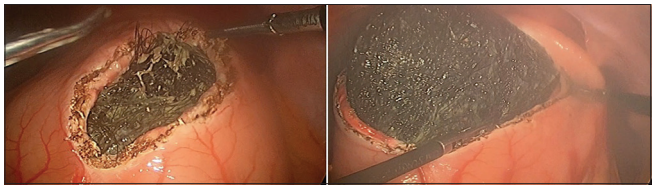

Figure 3: Anterior gastrotomy and trichobezoar removal from the stomach

Figure 2: Endoscopy showing gastric trichobezoar

Figure 4: A 4-cm Pfannensteil incision made and wound protector applied for trichobezoar removal without peritoneal contamination

Figure 5: Removal of giant gastric trichobezoar through Pfannensteil incision

Figure 6: Final image after port closure

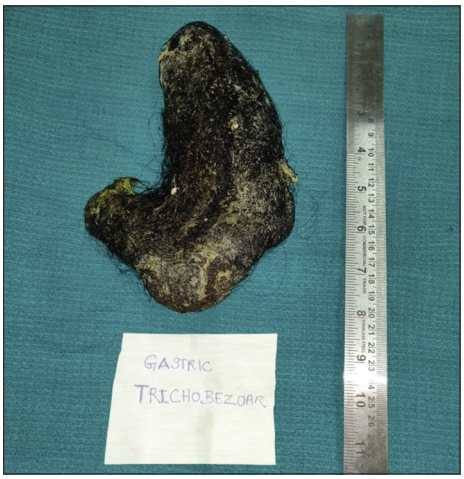

Figure 7: Specimen picture of giant gastric trichobezoar weighing 520 g

advantage of removing large and hard trichobezoars, which are nonfragmentable. More than 100 cases of trichobezoar removal by laparotomy have been reported. Gorter *et al*. advocate laparotomy as the treatment of choice for the removal of trichobezoar due to the following advantages such as low complexity, less complication rate and the ability to screen the entire gastrointestinal tract for satellite lesions.[6]

Minimally invasive techniques are possible and only a few cases have been reported on laparoscopic management of gastric trichobezoar. The advantage of laparoscopy is decreased postoperative pain, shorter hospital stay, and a cosmetic scar. However, laparoscopy has the risk of spilling the contents into the abdominal cavity. Nirasawa *et al*. were the first to report the laparoscopic removal of trichobezoar in which he used an infraumbilical camera port, two working ports on either side of the abdomen and a suprapubic-assisting port which was later converted to a suprapubic minilaparotomy, similar to our case to remove the 185 g lesion.[7] In our case, we applied a wound protector through the Pfannenstiel incision which helped in retrieving the giant gastric trichobezoar in the following ways:

1. The wound protector stretched the incision and hence a giant trichobezoar weighing half a kilogram was removed by a small Pfannenstiel incision
2. The gastric trichobezoar was removed without peritoneal contamination.

Palanivelu *et al*. reported a laparoscopic removal of gastric and ileal trichobezoar, in which he made a mini-laparotomy directly above the gastrotomy incision to remove the trichobezoar in both the sites.[2] Javed and Agarwal described a novel laparoscopic-assisted technique with gastrocuteneopexy for three patients with large gastric trichobezoar, in which he used a camera port to localize the lesion and a 4–5 cm incision was made in the abdominal wall, directly over the maximum bulge, following which the anterior wall of the stomach was fixed to the skin and the trichobezoar was retrieved. The average duration of the surgery was 45 min.[8] Only one comparative study is available between the laparoscopic and open method for bezoar-induced small bowel obstruction, which concluded that laparoscopic approach has significantly less operative time, postoperative complications and hospital stay.[9]

Conclusion

Our approach is a novel approach in laparoscopic removal of giant gastric trichobezoar. We advocate the use of a cosmetic , small pfannensteil incision and the application of a wound protector for the removal of nonfragmentable, giant gastric trichobezoar without peritoneal contamination. We conclude that laparoscopic approach is feasible for the removal of giant gastric trichobezoar.

Acknowledgement

Russel Nickson and Brinda Magdalena for substantial contribution in copy editing the article.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images, and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Vepakomma D, Alladi A. Complete laparoscopic removal of a gastric trichobezoar. J Minim Access Surg 2014;10:154-6.
2. Palanivelu C, Rangarajan M, Senthilkumar R, Madankumar MV. Trichobezoars in the stomach and ileum and their laparoscopy-assisted removal: A bizarre case. Singapore Med J 2007;48:e37-9.
3. Gayer G, Jonas T, Apter S, Zissin R, Katz M, Katz R, *et al.* Bezoars in the stomach and small bowel – CT appearance. Clin Radiol 1999;54:228-32.
4. Wang YG, Seitz U, Li ZL, Soehendra N, Qiao XA. Endoscopic management of huge bezoars. Endoscopy 1998;30:371-4.
5. Dumonceaux A, Michaud L, Bonnevalle M, Debeugny P, Gottrand F, Turck D. Trichobezoars in children and adolescents. Arch Pediatr 1998;5:996-9.
6. Gorter RR, Kneepkens CM, Mattens EC, Aronson DC, Heij HA. Management of trichobezoar: Case report and literature review. Pediatr Surg Int 2010;26:457-63.
7. Nirasawa Y, Mori T, Ito Y, Tanaka H, Seki N, Atomi Y, *et al.* Laparoscopic removal of a large gastric trichobezoar. J Pediatr Surg 1998;33:663-5.
8. Javed A, Agarwal AK. A modified minimally invasive technique for the surgical management of large trichobezoars. J Minim Access Surg 2013;9:42-4.
9. Yau KK, Siu WT, Law BK, Cheung HY, Ha JP, Li MK, *et al.* Laparoscopic approach compared with conventional open approach for bezoar-induced small-bowel obstruction. Arch Surg 2005;140:972-5.