

Trichobezoar

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Abstract

Trichobezoar is a collection of hair and undigestible matter found in the stomach or small intestine. Patients are often asymptomatic for years before the condition is diagnosed, either through incidental imaging or an acute complication. Common symptoms are abdominal pain and vomiting, with serious complications, including intestinal obstruction, ulceration, peritonitis, and visceral perforation. Surgery is the key treatment modality, with laparoscopic techniques becoming the preferred method. Radiograph and US are helpful for diagnosis, but CT is the most useful imaging test. Psychiatric management is critical in these patients to prevent recurrence.

Keywords: gastrointestinal, intestine, foreign body

Case Summary

A teenage girl presented with abdominal pain and loss of appetite. On physical exam, the abdomen was soft with a palpable mass in the epigastric region.

Imaging Findings

Figure 1: Scout image from CT scan showing distended stomach (arrows) with mixed density intragastric contents conforming to the gastric lumen shape (star). Figure 2: Axial non enhanced CT of the abdomen showing intragastric mass with mixed density and attenuation diagnostic of bezoar

Diagnosis

Trichobezoar.

In children, the imaging differential diagnosis includes gastric masses, including lymphoma and neuroblastoma, and other types of bezoars, such as

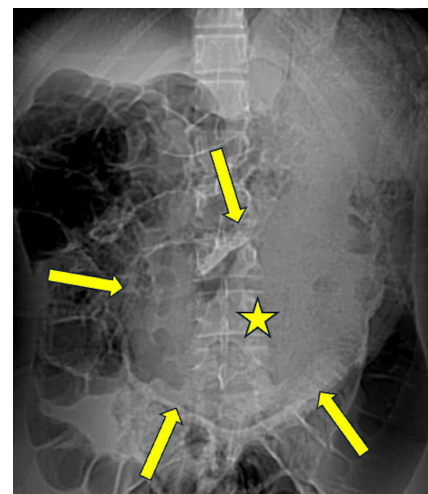
phytobezoar or pharmacobezoar and foreign bodies.

Discussion

Bezoars are compactions of foreign materials within the gastrointestinal (GI) tract.¹ A trichobezoar is characterized by a conglomeration of hair.¹ Trichobezoars can be classified based on their location—gastric, small bowel, or Rapunzel syndrome,² with gastric trichobezoar being the most common.² Rapunzel syndrome is a rare but serious complication of trichobezoar in which a long tail extends from the stomach into the small bowel.³

Trichobezoar is a rare condition, comprising only 6% of all bezoars,⁴ but it most commonly presents in young females. A case series of 17 patients reported median age of presentation at 7 years and a 1:4.7 M:F ratio.⁴ Trichophagia, a psychiatric condition characterized by the consumption of hair,⁴ Trichophagia

Figure 1. Scout image from abdominal CT scan showing distended stomach (arrows) with mixed density intragastric contents conforming to the gastric lumen shape (star).



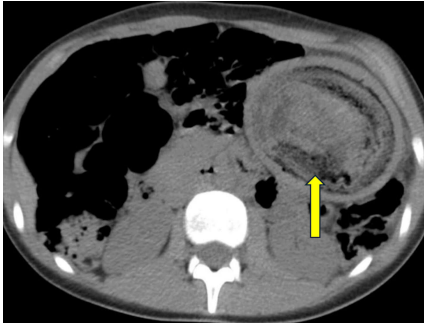
is commonly associated with trichotillomania, an impulse-control disorder in which patients compulsively pull out their own hair.⁵

Patients are usually asymptomatic for several years before the onset of GI symptoms.⁶ Common presenting symptoms include abdominal pain, vomiting, abdominal distension, hair in the feces, and a palpable epigastric mass.⁴ Serious complications include intestinal obstruction, gastric ulceration, acute peritonitis, malnutrition, and bowel perforation.^{2,4} Bowel perforation is likely

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Figure 2. Axial nonenhanced abdominal CT showing an intragastric mass with mixed density and an inner rim of gas bubbles (speckled appearance) with the attenuation diagnostic of bezoar.



a result of pressure necrosis of the gastric or small intestinal wall leading to ulceration and eventual perforation, most often involving the lesser curvature. Consequently, surgery is the recommended treatment for this condition. In the past, open surgery with gastrotomy or enterotomy was the most common technique for trichobezoar removal.⁴ Currently, laparoscopic or endoscopic methods have been described and increasingly utilized because of their minimally invasive nature.^{7,8} In severe cases with jejunal perforation, surgical options include intestinal repair or resection with anastomosis.⁹

Multiple imaging modalities can be used to confirm the diagnosis of trichobezoar when paired with clinical findings. A gastric-shaped, partial opacification will be observed on plain radiograph.⁴ An upper GI series shows one or more, mobile gastric filling defects that mold to the gastric luminal contour and can be associated with a high-grade obstruction.⁴ Abdominal US may show a hyperechoic mass in the stomach or small bowel with posterior shadowing as a result of the air within the mass.⁹ CT is a superior diagnostic exam that can be utilized to characterize the size and location of the mass and determine if

obstruction or other complications are present.³ On CT, trichobezoar exhibits low attenuation with a “mottled gas trapping giving it a speckled” appearance similar to particulate matter.^{10,11} The mass is generally heterogeneous and contains interspersed gas.¹ In an examination with contrast, the intraluminal mass will be surrounded by the contrast.¹¹ Endoscopy is diagnostic in cases of gastric trichobezoar.⁸ In cases where the type of bezoar is unclear prior to surgery, the diagnosis can be made by gross pathology after specimen extraction.⁴

Rapunzel syndrome can be a serious complication of trichobezoar, with postoperative mortality of 8%, which is attributed to surgical complications and sepsis.^{4,12} To prevent recurrence, treatment of the underlying psychiatric disorder is advised. Patients with trichotillomania should receive behavioral therapy and pharmacologic treatment with selective serotonin reuptake inhibitors⁵ (fluoxetine, escitalopram).⁵ Unfortunately, there is weak evidence of direct benefit. It appears that behavior therapy is more effective.

Conclusion

Trichobezoar is a collection of hair and undigestible matter found in the stomach or small intestine. Patients are often asymptomatic for years before the condition is diagnosed, either through incidental imaging or an acute complication. Common symptoms are abdominal pain and vomiting, with serious complications including intestinal obstruction, ulceration, peritonitis, and visceral perforation. Surgery is the key treatment modality, with laparoscopic techniques becoming the preferred method. Radiograph and US are helpful for diagnosis, but CT is the most useful

imaging test. Psychiatric management is critical in these patients to prevent recurrence.

References

- 1) O'Sullivan MJ, McGreal G, Walsh JG, Redmond HP. Trichobezoar. *J R Soc Med.* 2001;94(2):68-70. doi:10.1177/014107680109400205
- 2) Haggui B, Hidouri S, Ksia A, et al. Management of trichobezoar: about 6 cases. *African J Paediatr Surg.* 2022;19(2):102. doi:10.4103/ajps.AJPS_110_20
- 3) García-Ramírez BE, Nuño-Guzmán CM, Zaragoza-Carrillo RE, et al. Small-bowel obstruction secondary to ileal trichobezoar in a patient with rapunzel syndrome. *Case Rep Gastroenterol.* 2018;12(3):559-565. doi:10.1159/000492810
- 4) Mirza MB, Talat N, Saleem M. Gastrointestinal trichobezoar: an experience with 17 cases. *J Pediatr Surg.* 2020;55(11):2504-2509. doi:10.1016/j.jpedsurg.2020.04.020
- 5) Sehgal VN, Srivastava G. Trichotillomania ± trichobezoar: revisited. *J Eur Acad Dermatol Venerol.* 2006;20(8):911-915. doi:10.1111/j.1468-3083.2006.01590.x
- 6) Maini A, John J. Trichobezoar requiring surgical intervention. *JAAPA.* 2018;31(9):32-34. doi:10.1097/01.JAA.0000541480.08869.34
- 7) Shami SB, Jararaa AAM, Hamade A, Ammori BJ. Laparoscopic removal of a huge gastric trichobezoar in a patient with trichotillomania. *Surg Laparosc Endosc Percutan Tech.* 2007;17(3):197-200. doi:10.1097/SLE.0b013e318058a101
- 8) Benatta MA. Endoscopic retrieval of gastric trichobezoar after fragmentation with electrocautery using polypectomy snare and argon plasma coagulation in a pediatric patient. *Gastroenterol Rep.* 2016;4(3):251-253. doi:10.1093/gastro/gov013
- 9) HanBin Z, Chunjiang Y, Yi W. Treatment of children trichobezoar a retrospective study of 11 cases. *Klin Padiatr.* 2022;234(4):215-220. doi:10.1055/a-1689-0062
- 10) Guniganti P, Bradenham CH, Raptis C, Menias CO, Mellnick VM. CT of gastric emergencies. *Radiographics.* 2015;35(7):1909-1921. doi:10.1148/RG.2015150062/ASSET/IMAGES/LARGE/RG.2015150062.FIG26.JPEG
- 11) Naran AD, Naran D, Haller JO. CT findings of small bowel trichobezoar. *Emerg Radiol.* 2002;9(2):93-95. doi:10.1007/s10140-002-0201-3
- 12) Naik S, Gupta V, Naik S, et al. Rapunzel syndrome reviewed and redefined. *Dig Surg.* 2007;24(3):157-161. doi:10.1159/000102098