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Gastric ulceration and perforation secondary to large trichobezoar – A case report describing the role of magnetic resonance imaging in diagnosis

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ABSTRACT

INTRODUCTION: Trichotillomania and trichotillophagia can result in huge intraluminal coagulations of hair. Rarely, these can present with gastric perforation. This work has been reported in line with the SCARE criteria (Agha et al., 2016) [1].

PRESENTATION OF CASE: We report the case of a 15 year old girl who attended the emergency department with abdominal pain and vomiting. Ultrasound abdomen and pelvis identified free fluid within the pelvis concerning for inflammatory bowel disease. A subsequent magnetic resonance enterography (MRE) demonstrated a giant gastric trichobezoar which resulted in gastric perforation necessitating laparotomy and gastrotomy. The patient recovered well from the surgery and was reviewed by the psychiatry service prior to discharge.

DISCUSSION: Trichobezoar is a challenging diagnosis and as clinician, we must always include it in our differential diagnosis. The clinical presentation, signs and symptoms depend on the size of the trichobezoar and the presence of complications. Management is almost always surgical.

CONCLUSION: This case illustrates the infrequent perforation risk of gastric bezoars and the important role of magnetic resonance imaging in diagnosis, particularly in a population who must not be exposed to excessive radiation.

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1. Introduction

A bezoar is a mass of foreign and intrinsic material found in the gastrointestinal tract, most commonly in the stomach. Bezoars can be classified in six types: phytobezoars (indigestible plant material), trichobezoars (hairball), lithobezoars (small stones), pharmacobezoar (mostly tablets or semiliquid masses of drugs), plasticobezoars (plastic) and lactobezoars (inspissated milk) [2]. A rare manifestation of trichobezoar is Rapunzel syndrome which occurs when the bezoar extends into the small intestine.

We report a case of a very large trichobezoar occupying most of the stomach complicated with gastric perforation and summarise the literature regarding trichobezoar aetiology, diagnostic challenges and management. This work has been reported in line with the SCARE criteria (Agha et al., 2016) [1].

2. Case report

A 15 year old girl presented to hospital with generalised abdominal pain and vomiting for 24 h. Both she and her parents reported a two month history of intermittent vague abdominal pains. Her appetite was good, bowels opened regularly and no recent weight loss. Past medical history included dyslexia and dyspraxia aged 11. No family history of inflammatory bowel disease. Her last menstrual period was 12 days prior to presentation. On examination, she was tender in left iliac fossa. No rigidity, guarding or rebound was demonstrated.

Observations included heart rate 83 bpm, blood pressure 105/60 mmHg, respiratory rate 20 bpm, temperature 37.2C, weight 51 kg, height 1.63 m, and BMI 19.2. Laboratory investigations showed Haemoglobin 9.8 g/dL, white cell count 13.3, platelets 557, C-Reactive Protein (CRP) 136 and urea and electrolytes were within normal limits. She was admitted under the care of the paediatricians for observation and an ultrasound abdomen and pelvis.

Ultrasound abdomen and pelvis revealed significant amounts of free fluid in the pelvis, anterior to the uterus and in the right iliac fossa. A thickened oedematous loop of bowel was seen in abdomen. With these appearances, the possibility of inflammatory bowel disease was raised and the radiologist advised an MRE.

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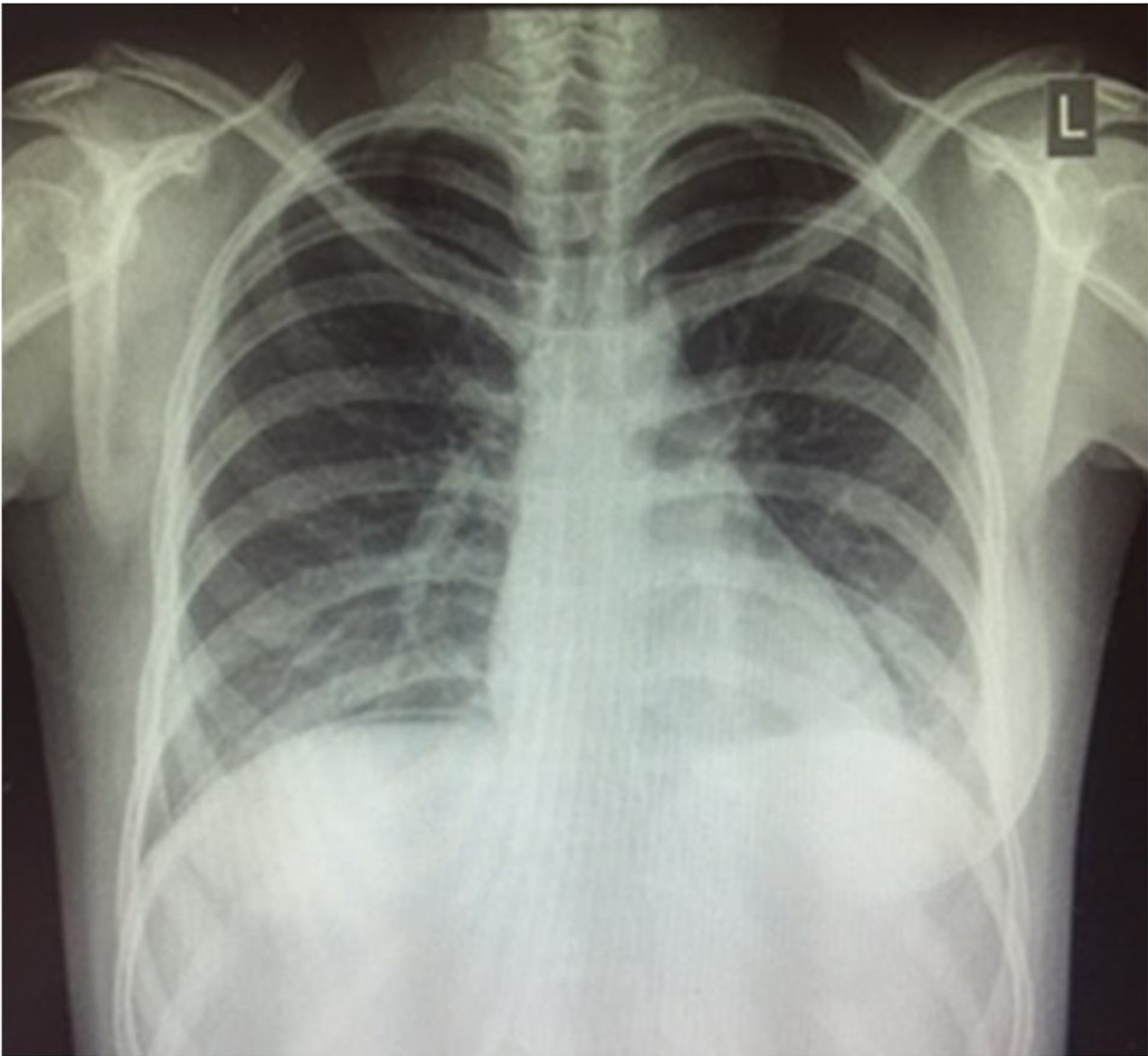


Fig. 1. Erect chest x-ray demonstrating subdiaphragmatic free air.

By this time, the pain was now more in left upper quadrant, sharp in nature and she was tachycardic 140 bpm. Repeat bloods revealed CRP > 320 and an erect chest x-ray showed sub diaphragmatic air (Fig. 1).

MR enterography (Fig. 2) uncovered a small volume of free sub-phrenic air on the right. The stomach was distended and there was a large filling defect in the stomach (~20 cm craniocaudal). Appearances suggested a bezoar. There was abnormal air fluid directly anterior to the stomach, and abnormal inflammation and fluid tracking down the left side of the abdomen and left pericolic gutter.

An urgent surgical opinion was sought and the patient was optimized for emergent surgery.

Under general anaesthetic, the Hasson technique for access was utilized at the umbilicus with an 10 mm port. Two further working ports, a 5 and 10 mm, were placed in the right lower quadrant and right hypochondrium, under direct vision, pneumoperitoneum to 14 mmHg.

Severe omental adhesions to abdominal wall, pelvic pus and fibrous material over stomach with thickened oedematous gastric wall were identified intraoperatively. Adhesions were divided and

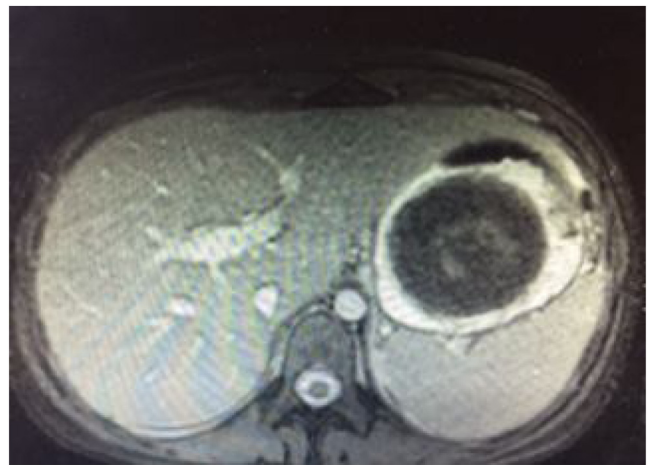


Fig. 2. MRE scan of the abdomen preoperatively identifying a giant trichobezoar within the stomach.

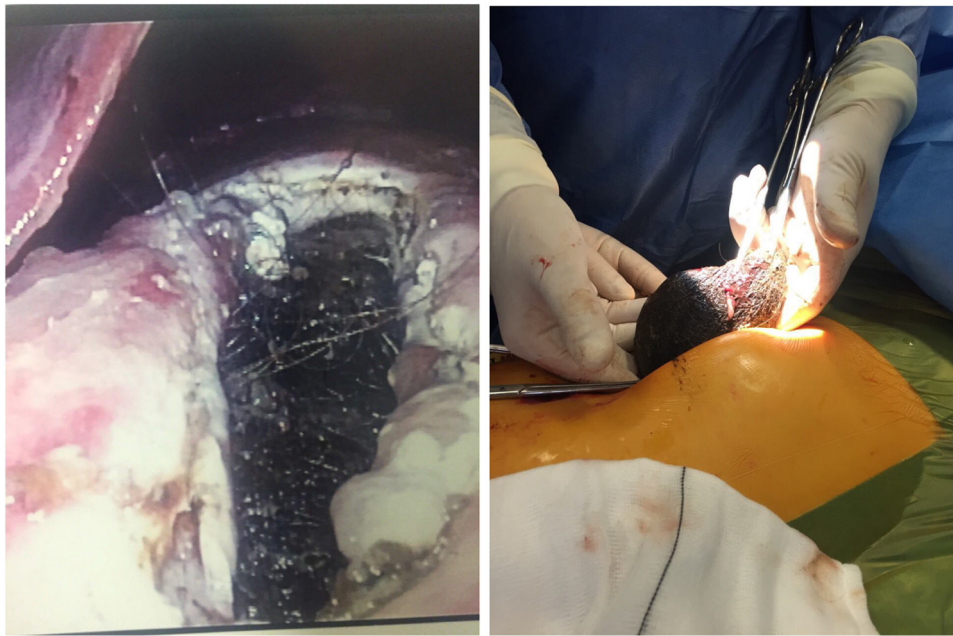


Fig. 3. The trichobezoar has been extracted through the gastrotomy.

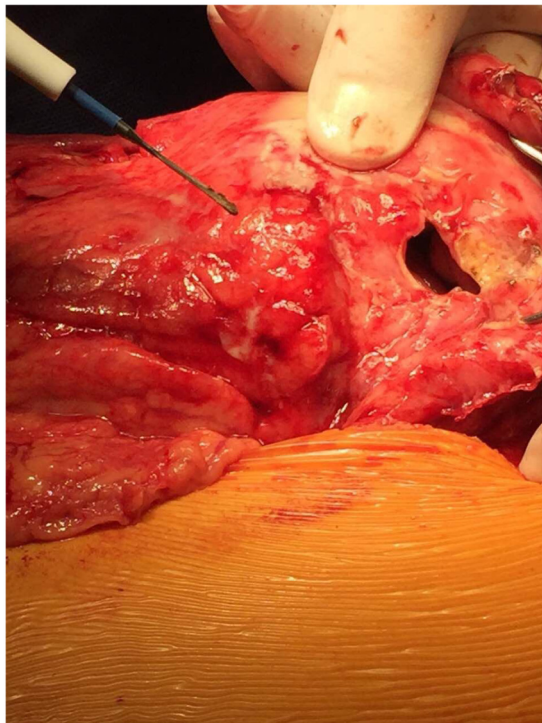


Fig. 4. Gastric ulcer.

an anterior gastrotomy performed. However, we were unable to manipulate the bezoar out of stomach laparoscopically. The surgery was converted to laparotomy and the gastrotomy opened further. A 610 g bezoar of ingested hair which had formed a cast of the entire stomach was removed (Fig. 3). The gastrotomy was closed with 3.0 PDS continuous sutures. A perforated ulcer (~2 cm) seen in lower part of greater curvature (Fig. 4) was closed with interrupted 3.0 PDS and an omentum patch placed over it.

Upon completion of the surgery, the patient was admitted to the intensive care unit. She was reviewed by dietetics and commenced on total parenteral nutrition.

Five days post operatively, a gastrograffin swallow was performed. No contrast leak was identified and contrast flowed freely into the proximal small bowel. She commenced on smooth pureed diet and subsequently a minced and moist diet. Total Parenteral Nutrition (TPN) was withdrawn. The patient was reviewed by both psychiatry and psychology as an inpatient where she disclosed a history of trichotillomania and trichotillophagia. She was discharged home well ten days post operatively and followed up in the community by the psychiatry services.

Histopathological analysis of the surgical specimen confirmed an oval shaped solid mass of hair measuring 170 × 80 × 50 mm, consistent with trichobezoar (Fig. 5).

3. Discussion

The pathologic report of bezoars in humans was largely unrecognized until 1939, when DeBaakey and Ochsner reported 311 cases [3].

Gastric perforation is a very rare presentation of trichobezoar. Trichobezoar is an uncommon condition affecting predominantly females; the incidence reported as 0.4% [4]. Given that trichobezoar is generally seen in persons with psychiatric disorders [5], it is thought that many cases are unknown. Furthermore, there is no accurate data on how many of the patients with trichophagia develop trichobezoars [2].

The clinical presentation, signs and symptoms depend on the size of the trichobezoar and the presence of complications. The most common presentations are abdominal pain (37%), nausea and vomiting (33.3%), obstruction (25.9%), and peritonitis (18.3%). Less frequently, patients have presented with weight loss (7.4%), anorexia, hematemesis, and intussusceptions (7.4%) [6].

Upper gastrointestinal endoscopy is considered to be the gold standard for the diagnosis of the trichobezoar [7]. The abdominal CT scan is the most accurate imaging test concerning the presence of trichobezoars, since it demonstrates heterogeneous, mottled intraluminal mass with low attenuation and air trapping [8]. CT carries a high dose of radiation and given this condition effects predominantly young females of reproductive age, we propose the use of magnetic resonance imaging as the preferred imaging modality [9, 10].



Fig. 5. Trichobezoar specimen.

Management options for the treatment of the bezoar include surgical removal by laparoscopy or laparotomy [11]. Laparotomy is widely considered as the treatment of choice for complicated trichobezoar due to the high success rate, the relatively low complication rate and the relatively simple nature of the operation [11]. Moreover, it must be noted that the successful removal of large trichobezoars by laparotomy combined with anterior gastrotomy is confirmed by a retrospective analysis of 34 cases published in 2005 [12].

Traditional treatment of trichobezoar is surgical, though, attempts have been made to excise endoscopically, dissolve chemically or fragment using extracorporeal shock waves [13].

4. Conclusion

We present this unusual case to raise awareness of a rare presentation with a significant morbidity and mortality if a high index of suspicion is not maintained. This case illustrates the usefulness of magnetic resonance imaging in diagnosing gastric perforation secondary to trichobezoar successfully repaired surgically without complication. Recurrence is extremely rare. Long term psychiatric and psychological support in the community must be arranged to minimise the risk of recurrence.

Conflict of interest statement

Nil.

Sources of funding

Nil.

Ethical approval

Our institution does not require ethical approval for case reports.

Consent

Written informed consent was obtained from the patient's parent for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Hennessy – Conceived of the idea and prepared manuscript.
Ivanovski – Critically reviewed case and provided suggestions.
Ó Súilleabháin – Reviewed and edited paper and approved final.

Guarantor

Mr Ó Súilleabháin.

References

- [1] R.A. Agha, A.J. Fowler, A. Saeta, I. Barai, S. Rajmohan, D.P. Orgill, et al., The SCARE statement: consensus-based surgical case report guidelines, *Int. J. Surg.* 34 (2016) 180–186.
- [2] A. Athanasiou, A. Michalinos, D. Moris, E. Spartalis, N. Dimitroklis, V. Kaminiotis, et al., Rapunzel syndrome: a rare presentation with giant gastric ulcer, *Case Rep. Med.* 2014 (2014) 267319.
- [3] M. Debaeky, Bezoars and concretions: comprehensive review of literature with analysis of 303 collected cases and presentation of 8 additional cases, *Surgery* (1939) 132–160.
- [4] R.S. Kadian, J.F. Rose, N.S. Mann, Gastric bezoars—spontaneous resolution, *Am. J. Gastroenterol.* 70 (1) (1978) 79–82.
- [5] M.R. Phillips, S. Zaheer, G.T. Drugas, Gastric trichobezoar: case report and literature review, *Mayo Clin. Proc.* 73 (7) (1998) 653–656.
- [6] S. Naik, V. Gupta, A. Rangole, A.K. Chaudhary, P. Jain, A.K. Sharma, Rapunzel syndrome reviewed and redefined, *Dig. Surg.* 24 (3) (2007) 157–161.
- [7] C.H. Andrus, J.L. Ponsky, Bezoars: classification, pathophysiology, and treatment, *Am. J. Gastroenterol.* 83 (5) (1988) 476–478.
- [8] B. Newman, B.R. Girdany, Gastric trichobezoars—sonographic and computed tomographic appearance, *Pediatr. Radiol.* 20 (7) (1990) 526–527.
- [9] H. Almohiy, Paediatric computed tomography radiation dose: a review of the global dilemma, *World J. Radiol.* 6 (1) (2014) 1–6.
- [10] J.M. Lee, S.E. Jung, K.Y. Lee, Small-bowel obstruction caused by phytobezoar: MR imaging findings, *AJR Am. J. Roentgenol.* 179 (2) (2002) 538–539.
- [11] R.R. Gorter, C.M. Kneepkens, E.C. Mattens, D.C. Aronson, H.A. Heij, Management of trichobezoar: case report and literature review, *Pediatr. Surg. Int.* 26 (5) (2010) 457–463.
- [12] K. Erzurumlu, Z. Malazgirt, A. Bektas, A. Dervisoglu, C. Polat, G. Senyurek, et al., Gastrointestinal bezoars: a retrospective analysis of 34 cases, *World J. Gastroenterol.* 11 (12) (2005) 1813–1817.
- [13] R. Tayyem, I. Ilyas, I. Smith, I. Pickford, Rapunzel syndrome and gastric perforation, *Ann. R. Coll. Surg. Engl.* 92 (1) (2010) W27–8.

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