



Clinics in diagnostic imaging (104)

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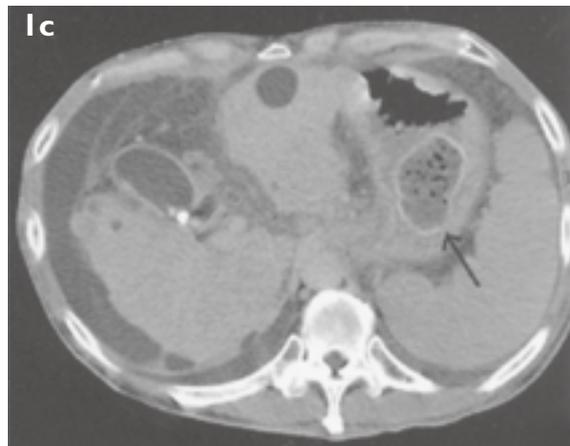
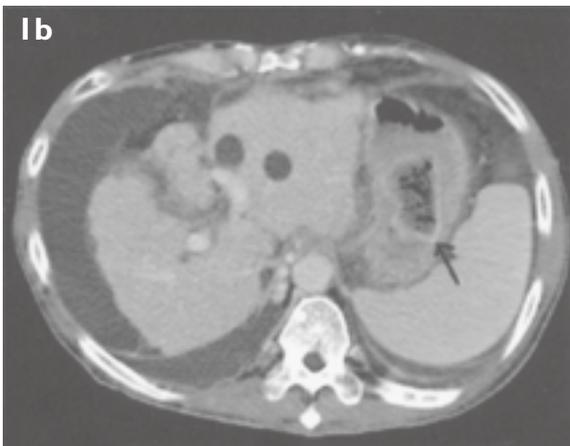
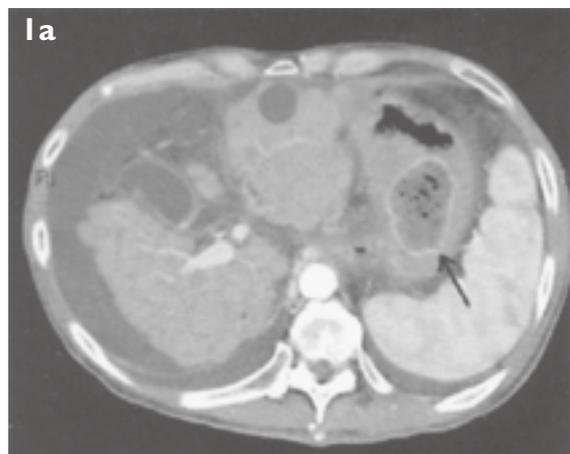


Fig. 1 Enhanced axial CT images of the upper abdomen taken during (a) arterial, (b) portal venous, and (c) delayed phases.

CASE PRESENTATION

A 56-year-old man with decompensated cryptogenic cirrhosis was evaluated for liver transplantation.

Triphasic computed tomography (CT) was performed as part of the work-up. What does CT of the upper abdomen (Fig. 1) show? What is the diagnosis?

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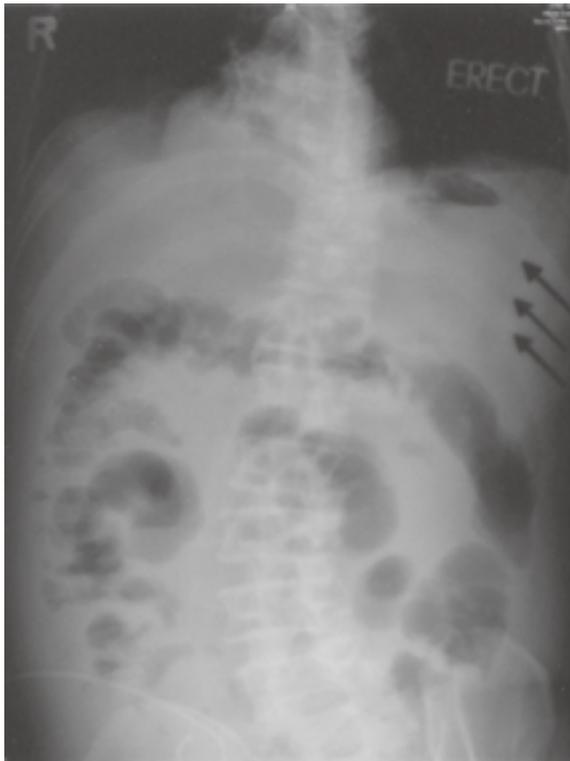


Fig. 2 Abdominal radiograph shows an air-filled level in the stomach, with a subtle rim of intermediate low density around a well-defined bezoar (arrows).

IMAGE INTERPRETATION

Triphasic CT (Fig. 1) showed a well-defined intraluminal mass in the stomach with a persistent high density rim, seen on all three phases, around it (arrows). The mass had a heterogeneous appearance, with areas of air interspersed between areas of fluid density. This is characteristic of a bezoar. In addition, the liver was contracted with two liver cysts, and had a nodular outline, compatible with cirrhosis. There was also ascites and splenomegaly, suggestive of portal hypertension.

DIAGNOSIS

Gastric trichobezoar (or hairball).

CLINICAL COURSE

His abdominal radiograph (Fig. 2) done one day after CT showed a subtle rim of intermediate low density around a well-defined bezoar. Gastroscopy performed three days later showed a large, greenish-yellowish foreign body occupying most of the gastric fundus and body (Fig. 3a). The trichobezoar was sliced and broken up by cold snare endoscopically (Fig. 3b). Upon direct questioning, the patient admitted having been swallowing his hair as he was very stressed at work. A psychiatric consult was made but no major psychiatric illness was detected. Repeat gastroscopy done four weeks later showed disappearance of the trichobezoar.



Fig. 3 Gastroscopic images (a & b) done three days later showed a bezoar occupying most of the gastric fundus and body. The bezoar was sliced and broken up by cold snare endoscopically.

DISCUSSION

The most commonly encountered bezoar in the stomach is a trichobezoar (hairball). This is mostly seen in young females, and is often associated with psychiatric problems. It has been postulated that swallowed hair strands are trapped in the mucosal folds of the stomach and becomes enmeshed over a period of time⁽¹⁾. Common presenting symptoms include nausea, vomiting and epigastric pain. Rarely, trichobezoars may present with gastric outlet or intestinal obstruction, bleeding, or perforation⁽²⁾.

CT of the abdomen typically shows a heterogeneous mass in the gastric lumen. If an oral contrast agent is given prior to CT, the surface of the gastric trichobezoar will be coated with the contrast agent, giving the typical appearance of rim enhancement

in all the phases of a multiphasic CT. Minute air pockets in the centre of trichobezoar may also give a typical mottled appearance on CT⁽³⁾.

Many endoscopic techniques have been described for breaking up the trichobezoar. These include use of instruments such as normal biopsy forceps, polypectomy snares, and foreign body forceps⁽⁴⁾. Other techniques include endoscopic injection with enzymes such as papain or cellulase, water-jet spray, lithotripter, and most recently, Coca Cola infusion^(5,6). Rarely, when endoscopic removal fails, open surgical or laparoscopic gastrotomy may be required for removing the lesion⁽⁷⁾. In our case, the trichobezoar was broken up endoscopically by a polypectomy snare into smaller fragments, allowing it to be passed out spontaneously through the intestinal tract. Complete removal was also confirmed by repeat gastroscopy done four weeks later.

ABSTRACT

A 56-year-old man underwent triphasic computed tomography (CT) of the abdomen as part of his work-up for liver transplantation. A mottled, rounded lesion with a dense rim was noted in the gastric lumen, which remained unchanged in

appearance in the arterial, portal venous, and delayed phases of the CT. Gastroscopy performed three days later confirmed the presence of trichobezoar. The foreign body was broken down into smaller pieces by an endoscopic snare and was passed out spontaneously. The clinical presentation, radiological findings, and management of trichobezoars are discussed.

Keywords: computed tomography, gastroscopy, hairball, stomach lesion, trichobezoar

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REFERENCES

1. Gayer G, Jonas T, Apter S, et al. Bezoars in the stomach and small bowel-CT appearance. *Clin Radiol* 1999; 54:228-32.
2. Lamerton AJ. Trichobezoar: two case reports – a new physical sign. *Am J Gastroenterol* 1984; 79:354-6.
3. Ripolles T, Garcia-Aguayo J, Martinez MJ, et al. Gastrointestinal bezoars: sonographic and CT characteristics. *Am J Roentgenol* 2001; 177:65-9.
4. McKechnie JC. Gastroscopic removal of a phytobezoar. *Gastroenterology* 1972; 62:1047-51.
5. Gold MH Jr, Patteson TE 3rd, Green GI. Cellulase bezoar injection: a new endoscopic technique. *Gastrointest Endosc* 1976; 22:200-2.
6. Kato H, Nakamura M, Orito E, et al. The first report of successful nasogastric Coca-Cola lavage treatment for bitter persimmon phytobezoars in Japan. *Am J Gastroenterol* 2003; 98:1662-3.
7. Yao CC, Wong HH, Chen CC, et al. Laparoscopic removal of large gastric phytobezoars. *Surg Laparosc Endosc Percutan Tech* 2000; 10:243-5.

Final Announcement

*Stem Cells and Tissue Engineering in Wound Healing and Burn Injuries –
the Asian Perspective*

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SINGAPORE MEDICAL COUNCIL CATEGORY 3B CME PROGRAMME

Multiple Choice Questions (Code SMJ 200507B)

	True	False
Question 1. Regarding symptoms and signs of foreign bodies in the upper gastrointestinal tract:		
(a) Some patients may not give a history of foreign body ingestion.	<input type="checkbox"/>	<input type="checkbox"/>
(b) History of foreign body ingestion with profuse salivation and shortness of breath equate a medical emergency.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Alopecia is a typical sign of gastric trichobezoars.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Endotracheal intubation may be needed due to risk of aspiration during endoscopic removal.	<input type="checkbox"/>	<input type="checkbox"/>
Question 2. Regarding management of gastric trichobezoars:		
(a) Asymptomatic gastric bezoars can be safely managed conservatively.	<input type="checkbox"/>	<input type="checkbox"/>
(b) Psychiatric consult should be made even for patients without psychiatric symptoms.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Open surgical removal is the treatment of choice for large bezoar.	<input type="checkbox"/>	<input type="checkbox"/>
(d) There is a male gender predominance.	<input type="checkbox"/>	<input type="checkbox"/>
Question 3. Regarding computed tomography (CT) scan of the upper abdomen:		
(a) CT is the ideal choice of investigation for gastric lesion.	<input type="checkbox"/>	<input type="checkbox"/>
(b) Lesions without enhancement indicate that the lesion is not attached to the gastric wall.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Use of an oral contrast agent help delineate lining of the gastric wall.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Gastric folds can sometimes be mistakenly diagnosed as gastric polyp or tumour on CT of the stomach.	<input type="checkbox"/>	<input type="checkbox"/>
Question 4. Regarding gastric trichobezoars:		
(a) It consists of entangled undigested food residues and mucus.	<input type="checkbox"/>	<input type="checkbox"/>
(b) Symptoms of gastric outlet obstruction like early satiety and post-prandial vomiting may be the presenting symptoms.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Prior gastric surgery is a predisposing cause.	<input type="checkbox"/>	<input type="checkbox"/>
(d) Detached fragments of the gastric trichobezoars may cause small intestinal bowel obstruction.	<input type="checkbox"/>	<input type="checkbox"/>
Question 5. Regarding endoscopic removal of foreign body in the upper gastrointestinal tract:		
(a) Chest and upper abdominal radiographs help locate all foreign bodies in the upper gastrointestinal tract.	<input type="checkbox"/>	<input type="checkbox"/>
(b) A coin or battery lodged at the mid-oesophagus is an emergency and removal should be done as soon as possible.	<input type="checkbox"/>	<input type="checkbox"/>
(c) Blunt foreign bodies smaller than 2 cm in the stomach can be safely managed conservatively as they have a high chance of passing out spontaneously through the anus.	<input type="checkbox"/>	<input type="checkbox"/>
(d) A meat bolus found lodged in oesophagus can always be safely pushed towards the stomach for spontaneous passage.	<input type="checkbox"/>	<input type="checkbox"/>

Doctor's particulars:

Name in full: _____

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Submission instructions:**A. Using this answer form**

1. Photocopy this answer form.
2. Indicate your responses by marking the "True" or "False" box
3. Fill in your professional particulars.
4. Either post the answer form to the SMJ at 2 College Road, Singapore 169850 OR fax to SMJ at (65) 6224 7827.

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Deadline for submission: (July 2005 SMJ 3B CME programme): 12 noon, 25 August 2005**Results:**

1. Answers will be published in the SMJ September 2005 issue.
2. The MCR numbers of successful candidates will be posted online at <http://www.sma.org.sg/cme/smj> by 20 September 2005.
3. Passing mark is 60%. No mark will be deducted for incorrect answers.
4. The SMJ editorial office will submit the list of successful candidates to the Singapore Medical Council.