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?

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

**REFERENCES**

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.  
(b) History of foreign body ingestion with profuse salivation and shortness of breath equate a medical emergency.  
(c) Alopecia is a typical sign of gastric trichobezoars.  
(d) Endotracheal intubation may be needed due to risk of aspiration during endoscopic removal.

Question 2. Regarding management of gastric trichobezoars:
(a) Asymptomatic gastric bezoars can be safely managed conservatively.  
(b) Psychiatric consult should be made even for patients without psychiatric symptoms.  
(c) Open surgical removal is the treatment of choice for large bezoars.  
(d) There is a male gender predominance.

Question 3. Regarding computed tomography (CT) scan of the upper abdomen:
(a) CT is the ideal choice of investigation for gastric lesion.  
(b) Lesions without enhancement indicate that the lesion is not attached to the gastric wall.  
(c) Use of an oral contrast agent help delineate lining of the gastric wall.  
(d) Gastric folds can sometimes be mistakenly diagnosed as gastric polyp or tumour on CT of the stomach.

Question 4. Regarding gastric trichobezoars:
(a) It consists of entangled undigested food residues and mucus.  
(b) Symptoms of gastric outlet obstruction like early satiety and post-prandial vomiting may be the presenting symptoms.  
(c) Prior gastric surgery is a predisposing cause.  
(d) Detached fragments of the gastric trichobezoars may cause small intestinal bowel obstruction.

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.  
(b) A coin or battery lodged at the mid-oesophagus is an emergency and removal should be done as soon as possible.  
(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.  
(d) A meat bolster found lodged in oesophagus can always be safely pushed towards the stomach for spontaneous passage.

Doctor’s particulars:
Name in full: ____________________________________________________________
MCR number: __________________________________ Specialty: __________________
Email address: __________________________________________________________

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.

B. Electronic submission
1. Log on at the SMJ website: URL http://www.sma.org.sg/cme/smj  
2. Either download the answer form and submit to smj.cme@sma.org.sg OR download and print out the answer form for this article and follow steps A. 2-4 (above) OR complete and submit the answer form online.

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.