

# Fish bone-induced hepatic abscess: medical treatment

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## ABSTRACT

**We report a case of a 59-year-old man admitted for acute myocardial infarction. He subsequently spiked a high-grade fever on the second day after percutaneous coronary intervention. Computed tomography imaging of the abdomen revealed a hepatic abscess secondary to gastrointestinal perforation by a fish bone. Medical therapy with antibiotics was preferred over surgical drainage of the hepatic abscess in view of the fact that the patient was on dual antiplatelet agents. The hepatic abscess was completely resolved with conservative antimicrobial therapy. Antimicrobial therapy appears to be a viable option in selected patients with hepatic abscess secondary to fish bone perforation, especially if they have contraindications to surgery.**

**Keywords:** acute myocardial infarction, fish bone, gastrointestinal perforation, hepatic abscess

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## INTRODUCTION

Hepatic abscess secondary to gastrointestinal perforation by a fish bone is relatively rare.<sup>(1,2)</sup> This condition presents a diagnostic challenge as most patients have nonspecific presentations, and often cannot recall swallowing a foreign body.<sup>(1,3,4)</sup> We report a rare case of a 59-year-old man who was admitted for acute myocardial infarction. The patient was subsequently found to have a segment 4B hepatic abscess measuring 5.0 cm × 3.0 cm × 4.1 cm, secondary to gastrointestinal perforation by a fish bone. He was successfully treated with antimicrobial therapy. Follow-up computed tomography (CT) imaging showed complete resolution of the hepatic abscess.

## CASE REPORT

A 59-year-old Chinese man presented in June 2007 to our emergency department. He had experienced a single syncopal episode lasting for a few minutes while washing dishes at work. He was afebrile at the time of presentation, and did not experience any chest discomfort or diaphoresis. Electrocardiogram (ECG) revealed ST segment elevation in precordial leads V1–V4. A diagnosis



**Fig. 1** Abdominal CT image shows a linear fish bone (arrow) in the anterior wall of the pylorus, and extending into the mesenteric fat laterally.

of acute anterior myocardial infarction was made, and the patient successfully underwent emergency percutaneous coronary intervention (PCI) bare metal stenting (BMS) to the ostial left anterior descending segment. The procedure was uneventful, and the patient was started on dual antiplatelet agents comprising of clopidogrel and aspirin.

On the second day after PCI was performed, the patient spiked a fever ( $T_{max}$  39.1°C). On examination, his abdomen was soft and non-tender. Laboratory investigations revealed a raised C-reactive protein (CRP) level (332 mg/dl), a haemoglobin level of 13.9, leucocytosis with granulocytosis at 14,000/mm<sup>3</sup> and 80%, respectively, elevated alanine transaminase (ALT) of 47 UI/L, aspartate transaminase (AST) of 50 UI/L and gamma glutamyl transferase (GGT) of 83 UI/L. Blood cultures were negative. Plain radiograph of the chest showed a 2.4 cm × 1.0 cm radiopacity in the right paravertebral region at the level of the 11th rib. CT imaging of the abdomen showed a unilinear hyperdense foreign body in the lateral wall of the pylorus (Fig. 1) and a multiloculated hypodense lesion measuring 5.0 cm × 3.0 cm × 4.1 cm in segment 4B (Fig. 2) of the liver. The impression was that of an impacted fish bone perforating the pyloric atrium with injury to the hepatic margin, thus causing a hepatic abscess in segment 4B.

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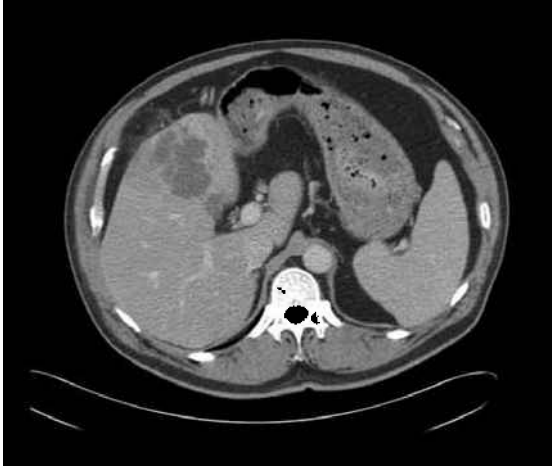
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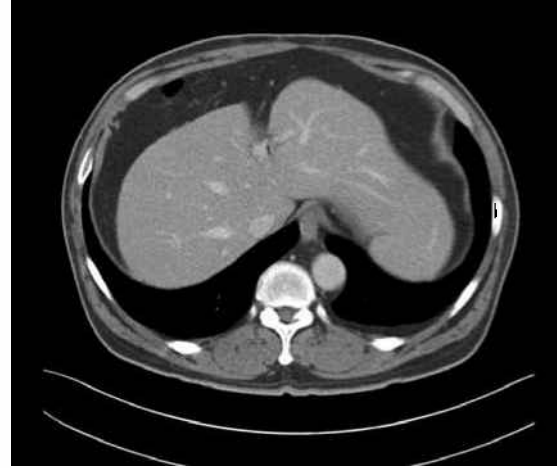
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**Fig. 2** Abdominal CT image shows a multiloculated, irregular hepatic abscess.



**Fig. 3** Follow-up abdominal CT image taken at 28 weeks shows complete resolution of the hepatic abscess.

The patient was reviewed by general surgeons who recommended percutaneous drainage of the hepatic abscess. The medical team, taking into consideration the patient's recent myocardial infarction, severe triple-vessel disease and recent coronary stent implantation, was highly concerned that stopping antiplatelet therapy would significantly increase the risk of another cardiac event. As such, the patient was started on intravenous ceftriaxone and oral metronidazole for three days. This later escalated to intravenous cefepime and oral metronidazole for nine days. He became afebrile after four days of intravenous antimicrobial therapy. Subsequently, the patient was discharged stable and well, and was given oral amoxicillin-clavulanate for two weeks. Follow-up CT imaging performed after one week showed an interval decrease in the size of the central hypodense aspect of the hepatic abscess. Subsequent follow-up imaging performed at eight and 28 weeks showed complete resolution of the hepatic abscess (Fig. 3), and the impacted fish bone in the pylorus remained unchanged. The patient remained asymptomatic during the 1.5 years of follow-up.

## DISCUSSION

Gastrointestinal perforation by ingested fish bone resulting in hepatic abscess is relatively uncommon. Since the first case reported by Lambert in 1898, there have been less than 20 cases of hepatic abscess secondary to fish bone perforation.<sup>(1,4,5)</sup> Foreign bodies have a propensity to lodge at the oesophageal sphincters, pyloric canal, duodenum, ileocaecal valve and anus.<sup>(3)</sup> Gastrointestinal perforations are usually caused by sharp foreign bodies such as fish bones, chicken bones, needles or toothpicks, and common sites of perforation include the pylorus and duodenum.<sup>(6)</sup> Of these, fish bones are the most common foreign bodies, and the pylorus is the most

common site of perforation, as previously reported.<sup>(1)</sup>

The classic triad of hepatic abscesses (fever, abdominal pain and jaundice) is uncommon. Most patients have vague symptoms such as anorexia, vomiting or weight loss, with leucocytosis or increased transaminases, bilirubin or alkaline phosphatase.<sup>(5)</sup> The diagnostic challenge faced by the attending physician is that patients often cannot recall swallowing a foreign body.<sup>(1,3,4)</sup> Therefore, CT imaging is the preferred technique for diagnosis, as it offers both high resolution and accuracy.<sup>(1,3,4)</sup> The prognosis depends on quick diagnosis so as to reduce both morbidity and mortality.<sup>(1)</sup> The treatment of pyogenic liver abscess remains controversial, spanning a spectrum that includes antimicrobial therapy, percutaneous drainage and open surgery.<sup>(7)</sup> A proposed treatment algorithm suggested that antimicrobial monotherapy can be attempted for patients with hepatic abscesses < 5.0 cm.<sup>(7)</sup> For patients with hepatic abscesses  $\geq$  5.0 cm, percutaneous drainage is generally recommended as the first-line treatment.<sup>(8,9)</sup> Surgical drainage can be considered in selected patients with multiloculated hepatic abscesses, concomitant biliary pathology or signs of abscess rupture.<sup>(7)</sup> While percutaneous drainage and surgical treatment of pyogenic hepatic abscesses are both effective, the former carries lower morbidity and is more cost effective.<sup>(9)</sup>

In most reported cases, fish bone-induced hepatic abscesses were treated by drainage of abscess either by surgical or percutaneous routes, as well as using antibiotic therapy. To our knowledge, there is only one previous documented case of a hepatic abscess secondary to fish bone perforation that was successfully treated with medical therapy.<sup>(10)</sup> Surgery is considered the mainstay of treatment if there is suspicion of bowel perforation caused by foreign bodies.<sup>(18,11)</sup> In our patient, the discontinuation of antiplatelet therapy shortly

after undergoing PCI significantly increased the rate of myocardial infarction and mortality by 5–10 times, owing to early stent thrombosis secondary to rupture of the endothelial covering.<sup>(12)</sup> On the other hand, surgery or percutaneous drainage of hepatic abscess with dual antiplatelet agents on board risks trauma-induced intra-abdominal haemorrhage. Although the reported risk of life-threatening haemorrhage due to percutaneous drainage of hepatic abscess is close to zero,<sup>(13,14)</sup> blood loss can be increased by 30%–50% in patients who undergo non-cardiac surgery while on dual antiplatelet agents.<sup>(12)</sup>

Due to the lack of clear guidelines on the use of dual antiplatelet agents for patients who undergo non-cardiac surgery post early stenting, an individualised approach is recommended.<sup>(15)</sup> Endoscopic removal of the fish bone was not feasible in our case as it was impacted, and traumatic removal might inflict further damage to the multiloculated hepatic abscess that had formed. Therefore, the plan was to treat conservatively using antimicrobial therapy. Our patient responded well to medical therapy, and follow-up CT imaging showed complete resolution of the hepatic abscess, and the impacted foreign body in the pylorus remained unchanged. In selected patients, anti-microbial therapy can be considered a viable option for the treatment of hepatic abscess, especially if there are contraindications to surgery.

## REFERENCES

1. Santos SA, Alberto SC, Cruz E, et al. Hepatic abscess induced by foreign body: case report and literature review. *World J Gastroenterol* 2007; 13:1466-70.
2. Nisbet M, Thomas M. Liver abscess associated with persistent *Streptococcus anginosus* bacteremia. *Clin Infect Dis* 2005; 41:352-3.
3. Cheung YC, Ng SH, Tan CF, Ng KK, Wan YL. Hepatic inflammatory mass secondary to toothpick perforation of the stomach: triphasic CT appearances. *Clin Imaging* 2000; 24:93-5.
4. Gower ND, Mond NC, Owen D. Liver abscess after perforation of liver by a fish bone. *Br Med J* 1961; 1:475-6.
5. de la Vega M, Rivero JC, Ruiz L, Suárez S. A fish bone in the liver. *Lancet* 2001; 358:982.
6. Chintamani, Singhal V, Lubhana P, Durkhere R, Bhandari S. Liver abscess secondary to a broken needle migration--a case report. *BMC Surg* 2003; 3:8.
7. Chung YF, Tan YM, Lui HF, et al. Management of pyogenic liver abscesses - percutaneous or open drainage? *Singapore Med J* 2007; 48:1158-65.
8. Dugger K, Lebby T, Brus M, Sahgal S, Leikin JB. Hepatic abscess resulting from gastric perforation of a foreign object. *Am J Emerg Med* 1990; 8:323-5.
9. Ferraioli G, Garlaschelli A, Zanaboni D, et al. Percutaneous and surgical treatment of pyogenic liver abscesses: observation over a 21-year period in 148 patients. *Dig Liver Dis* 2008; 40:690-6.
10. Yang CY, Kao JH, Liu KL, Chen SJ. Medical treatment of fish bone-related liver abscess. *Clin Infect Dis* 2005; 41:1689-90.
11. Bee DM, Citron M, Vannix RS, et al. Delayed death from ingestion of a toothpick. *N Engl J Med* 1989; 320:673.
12. Chassot PG, Delabays A, Spahn DR. Perioperative antiplatelet therapy: the case for continuing therapy in patients at risk of myocardial infarction. *Br J Anaesth* 2007; 99:316-28.
13. Andersson R, Forsberg L, Hederstrom E, Hochbergs P, Bengmark S. Percutaneous management of pyogenic hepatic abscesses. *HPB Surg* 1990; 2:185-8.
14. Tan YM, Chung AY, Chow PK, et al. An appraisal of surgical and percutaneous drainage for pyogenic liver abscesses larger than 5 cm. *Ann Surg* 2005; 241:485-90.
15. Bigalke B, Seizer P, Geisler T, et al. Perioperative antiplatelet therapy in patients at risk for coronary stent thrombosis undergoing noncardiac surgery. *Clin Res Cardiol* 2009; 98:335-9.