Unusual presentation of more common disease/injury

Fish bone migration: an unusual cause of liver abscess

Ibrahim Masoodi,¹ Khalid Alsayari,¹ Khalid Al Mohaimeed,² Shameem Ahmad,¹ Abdulla Almtawa,¹ Ahmed Alomair,¹ Adel Alqutub,¹ Salman Khan¹

¹Gastroenterology and Hepatology Department, King Fahad Medical City, Riyadh, Saudi Arabia;

²Surgery Department, KFMC, Riyadh, Saudi Arabia

Correspondence to Dr Ibrahim Masoodi, ibrahimmasoodi@yahoo.co.in

Summary

Treating a pyogenic liver abscess is a therapeutic challenge when a patient presents with atypical symptoms. One of the rare causes of treatment failure of these abscesses is the unrecognised migration of a foreign body from the gastrointestinal tract. The authors describe a pyogenic liver abscess in a 45-year-old male who presented with a 10 day history of fever, and abdominal pain. A CT scan of the abdomen revealed a needle-like foreign body in the liver. At operation a 2.5 cm fish bone was extracted from the liver. Subsequently, his feverish symptoms disappeared, and he has remained well in the ensuing 3 month postoperative period. Fish bone-induced liver abscess is discussed in this brief report.

BACKGROUND

The unexpected presence of a foreign body or bodies in the liver can be an uncommon cause of recurrent liver abscess.

CASE PRESENTATION

A 45-year-old male presented with a 10 day history of high-grade fever and abdominal pain. He had had no viral prodrome, rigors or chills. His systemic examination was normal. Laboratory data revealed leukocytosis (white blood cell count of 14 700; 76% neutrophils), and the haemoglobin and platelet counts were normal. Liver function tests revealed normal bilirubin and liver enzymes but a mild elevation of alkaline phosphatase 141 IU (reference 50–136 IU). Serum amylase, lipase and renal function tests were normal. His amoebic serology was negative.

An ultrasound examination of the abdomen revealed a right lobe liver abscess, with normal intrahepatic biliary ducts, and a normal gallbladder. Other viscera were also normal. Ultrasound guided drainage of the abscess was undertaken and the aspirate was sent for culture. The patient was given broad-spectrum antibiotics intravenously for 10 days pending the culture reports, which were reported sterile a few days later. The patient's fever subsided, and he was discharged from hospital. One month later he re-presented with a 6 day history of high-grade fever and abdominal pain. The patient does not drink alcohol, does not indulge in high risk behaviour and there was no history of drug abuse. Clinical examination was again unremarkable. Laboratory data again showed a leucocytosis (16 7000 with 87.6% neutrophils). Liver function tests revealed normal bilirubin, and normal aspartate aminotransferase and alanine aminotransferase levels. However, on this occasion, serum albumin levels were reduced 31 g/l (reference 34–50 g/l), and alkaline phosphatase levels were again elevated 157 IU (reference 50–136 U/l). An x-ray of the abdomen (figure 1) revealed

no abnormality. An abdominal CT scan (figure 2) showed a peripherally enhancing irregular hypodense lesion in segment IV of the liver, measuring about 5.6×7.5×7.7 cm, consistent with a liver abscess. A hyper-dense linear object was to be seen at the inferior edge of segment IV B of the liver, passing through the liver tissue and measuring about 2.5 cm in length. The gallbladder was unremarkable. The pancreas, spleen, adrenals and both kidneys were normal. The findings were consistent with

Figure 1 X-ray abdomen, no radio opaque shadow seen.

a liver abscess consequent upon the presence of an intrahepatic foreign body. Accordingly, a laparotomy was performed. The abscess was drained and a 2.5 cm long fish bone was removed (figure 3). By way of incidental operative findings, the omentum was observed to be adhering to the gall bladder in the duodenal area and segment IV B of liver. These adhesions were removed. The gallbladder was seen to be thick-walled and cholecystectomy was performed. On repeat questioning, the patient admitted eating the fish 5 months earlier, but denied any major discomfort at the time. Upper GI endoscopy was then undertaken, which showed chronic inflammation, but a healed scar in the duodenal bulb, thus indicating the possible site of the fish bone migration (figure 4). However, no fistulous communication was seen in either the stomach or the duodenum. The gall bladder histology was suggestive of chronic cholecystitis. The patient experienced an uneventful postoperative period, and has been attending our clinic for the last 3 months without any further complaints.

DIFFERENTIAL DIAGNOSIS

- ▶ Amoebic liver abscess
- ▶ Pyogenic liver abscess

TREATMENT

The patient was first given antibiotics; then surgery was carried out, and the fish bone was removed.

OUTCOME AND FOLLOW-UP

The patient improved after the removal of the fish bone and is presently on follow-up.

DISCUSSION

We have described a recurrent liver abscess in a healthy person, following the migration of a fish bone from the duodenum to the liver. The patient admitted eating fish 5 months prior to the current presentation; however, he denied having any severe symptoms at the time that he ate the fish. However, the patient's liver abscess recurred, despite percutaneous drainage and antibiotics. Because of the presence of the fish bone in the liver, he was operated on. His feverish symptoms disappeared after surgical drainage of the liver abscess, and the removal of the fish bone. Usually most small fish bones which have been eaten pass without any obstruction through the gut in a week or so or patient comes to medical attention once migration of the fish bone causes liver abscess¹ as in the index case. When obstruction does occur, the oesophagus is often implicated and local injury can be found. More rarely; mediastinal abscesses have been reported.² The extremely unlikely event of foreign body migration and liver abscess development is very difficult to establish unequivocally. The results of routine laboratory studies are often non-specific, and unless the foreign body involved is radio-opaque it will not be identified on plain radiography.²⁻³ Lue *et al*⁴ conducted a study on the capability of plain radiography to detect fish bones in human soft tissues. They observed that x-ray had a sensitivity of 39% and specificity of 72% to detect a fish bone. However, when compared with an x-ray, a CT

Figure 2 CT scan abdomen showing foreign body in the left lobe of liver.

Figure 3 Fish bone removed after lapotomy.

Figure 4 Upper gastrointestinal endoscopy of the index case.

scan shows itself to be a better means of discovery, due to its high resolution and accuracy in the diagnosis of the presence of a foreign body.^{5–7} Endoscopy may be helpful when performed early, and before migration of the foreign body has taken place. In addition, it could detect non-specific gastric /duodenal inflammation, which is the tell tale sign of migration from gut lumen to viscera, as in the index case. In a recent review by Sofia *et al*⁸ fish bone migration was the commonest type of foreign body to give rise to the development of liver abscesses. Other foreign bodies described as causing liver abscesses are chicken bones and toothpicks.^{8–10} In most cases, fish bone migration occurs through the stomach and the duodenum. The migration of a fish bone to the liver in the index case had possibly occurred through the duodenum, as adhesions near the duodenum were observed during the operation. Preoperatively CT evidence of a thickened gastrointestinal wall contiguous to the abscess, and the presence of adhesions seen during surgery are all clues to the possible migration of a foreign body as a cause of the liver abscess. Invariably, liver abscesses develop in the left lobe of the liver. Usually, oropharyngeal microflora from the initial aspirates of a liver abscess are grown in a culture; however, in this case, the culture from the aspirates of the liver abscess was sterile. Laparotomy is usually required, as has been reported in most of the cases described in the literature. However, Horii *et al*¹¹ described percutaneous removal of fish bone from the tract under fluoroscopic and ultrasound guidance by endoscopic biopsy forceps. Patients have a good prognosis, once the fish bone has been removed, and the liver abscess resolves. However, a fatal liver abscess due to fish bone migration has been reported by Theodoropoulou *et al*¹². The authors reported high-grade fever in a 46-year-old male with no co-morbidities, who succumbed to septicaemia within 46 h of hospital admission. It was only after an autopsy that a fish bone was discovered in the liver. Their report indicates just how vigilant a clinician must be in each particular case.

In conclusion, it is very difficult to diagnose foreign body migration as a cause of recurrent liver abscess, as the symptoms are non-specific. When a liver abscess does not respond to aspiration and antibiotic therapy, migration of a foreign body like a fish bone, etc. should be considered among the potential aetiological factors despite its admitted rarity.

Learning points

- ▶ Foreign body migration is an unusual cause of liver abscess, but it does happen.
- ▶ Careful history taking is always complementary in clinical management.
- ▶ A CT scan of the abdomen is a better modality to diagnose liver abscess caused by migration of foreign body than an x-ray.
- ▶ Surgery is the corner stone management in the removal of foreign body induced liver abscess.

Acknowledgements Authors thank Mr Khalid Abdullah Naseer Alomair from Almadina Kingdom of Saudi Arabia for his contribution to the preparation of this manuscript.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. Shaw PJ, Freeman JG. The antemortem diagnosis of pyogenic liver abscess due to perforation of the gut by a foreign body. *Postgrad Med J* 1983;**59**:455–6.
2. Ngan JH, Fok PJ, Lai EC, *et al*. A prospective study on fish bone ingestion. Experience of 358 patients. *Ann Surg* 1990;**211**:459–62.
3. Tsui BC, Mossey J. Occult liver abscess following clinically unsuspected ingestion of foreign bodies. *Can J Gastroenterol* 1997;**11**:445–8.
4. Lue AJ, Fang WD, Manolidis S. Use of plain radiography and computed tomography to identify fish bone foreign bodies. *Otolaryngol Head Neck Surg* 2000;**123**:435–8.
5. Cheung YC, Ng SH, Tan CF, *et al*. Hepatic inflammatory mass secondary to toothpick perforation of the stomach: triphasic CT appearances. *Clin Imaging* 2000;**24**:93–5.
6. Masunaga S, Abe M, Imura T, *et al*. Hepatic abscess secondary to a fishbone penetrating the gastric wall: CT demonstration. *Comput Med Imaging Graph* 1991;**15**:113–6.
7. Chan SC, Chen HY, Ng SH, *et al*. Hepatic abscess due to gastric perforation by ingested fish bone demonstrated by computed tomography. *J Formos Med Assoc* 1999;**98**:145–7.
8. 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.
9. Griffiths FE. Liver abscess due to foreign-body migration from the alimentary tract; a report of two cases. *Br J Surg* 1955;**42**:667–8.
10. Chiang TH, Liu KL, Lee YC, *et al*. Sonographic diagnosis of a toothpick traversing the duodenum and penetrating into the liver. *J Clin Ultrasound* 2006;**34**:237–40.
11. Horii K, Yamazaki O, Matsuyama M, *et al*. Successful treatment of a hepatic abscess that formed secondary to fish bone penetration by percutaneous trans-hepatic removal of the foreign body: report of a case. *Surg Today* 1999;**29**:922–6.
12. Theodoropoulou A, Roussomoustakaki M, Michalodimitrakis MN, *et al*. Fatal hepatic abscess caused by a fish bone. *Lancet* 2002;**359**:977.

This pdf has been created automatically from the final edited text and images.

Copyright 2012 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Masoodi I, Alsayari K, Al Mohaimeed K, Ahmad S, Almtawa A, Alomair A, Alqutub A, Khan S. Fish bone migration: an unusual cause of liver abscess. *BMJ Case Reports* 2012;10.1136/bcr.09.2011.4838, Published XXX

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow

Keep up to date with all published cases by signing up for an alert (all we need is your email address) <http://casereports.bmj.com/cgi/alerts/etoc>