Ultrasound Diagnosis of Biliary Ascariasis

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Abstract

Two patients with right upper quadrant pain underwent real time ultrasound examination and biliary ascariasis was diagnosed. One case was confirmed by endoscopic retrograde cholangiopancreatography with removal of the parasites, and the other by intravenous cholangiography. Patients with ascariasis in the bile duct occasionally presenting with atypical right upper quadrant abdominal pain can be diagnosed accurately by real time ultrasound, which shows the movement of the worms.

Biliary ascariasis is common in Thailand. This condition may be indicated by right upper quadrant abdominal pain or dyspepsia and jaundice.

The diagnosis of biliary ascariasis has been difficult in the past because of unfamiliarity by the physician and the unexpected symptom of dyspepsia. Now, high frequency ultrasound of the biliary system can detect ascaris in the biliary tree accurately. However, there are only a few reports about the ultrasonic detection of biliary ascariasis[1-4]. All of these reports concerned ascaris in the gallbladder and common bile duct. None of these reports mentioned ascaris in the liver.

CASE REPORT

This report describes 2 patients with intrahepatic and extrahepatic bile duct ascariasis, which can be diagnosed by ultrasound of the hepatobiliary system.

Case 1

A Thai female patient, 74 years old, was admitted having had symptoms of right upper quadrant abdominal pain and tenderness for 3 days. She was referred to the X-ray unit to undergo high frequency ultrasound of the abdomen due to abnormal liver function test results; total bilirubin 2.4 mg/dl (normal value is 0-1 mg/dl), alkaline phosphatase 52 I.U. (normal value is 9-35 I.U.)

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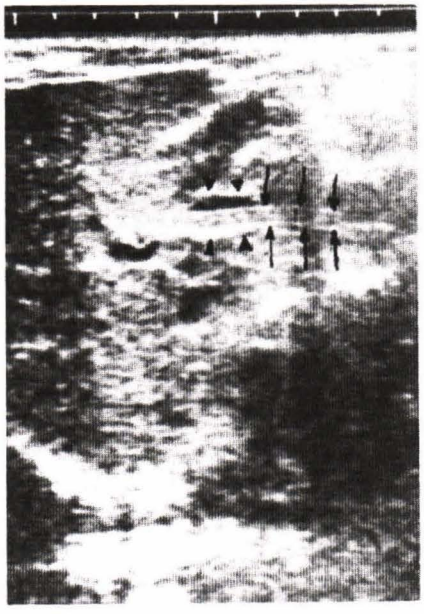

Fig. 1. A dilated common bile duct with an echoic elongated substance in it, movable (Arrow showed ascaris Arrow head showed common bile duct)

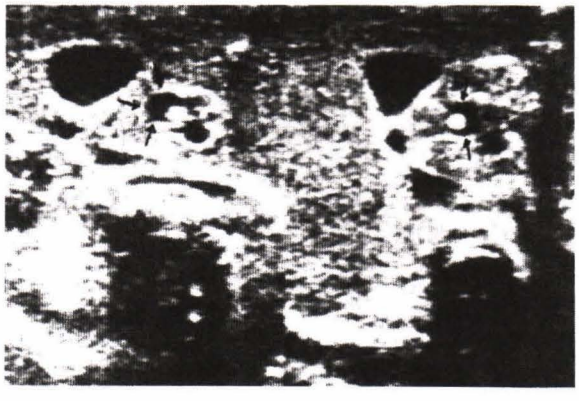

Fig. 2. Biliary ascariasis in cross section, it appeared as a circle (Arrow showed CBD)

Ultrasound findings: A dilated common bile duct (21 mm) was seen with an echoic elongated substance moving inside (Fig. 1). It appeared as one round spot when viewed in cross section (Fig. 2). It was concluded that there was at least one ascaris in the bile duct.

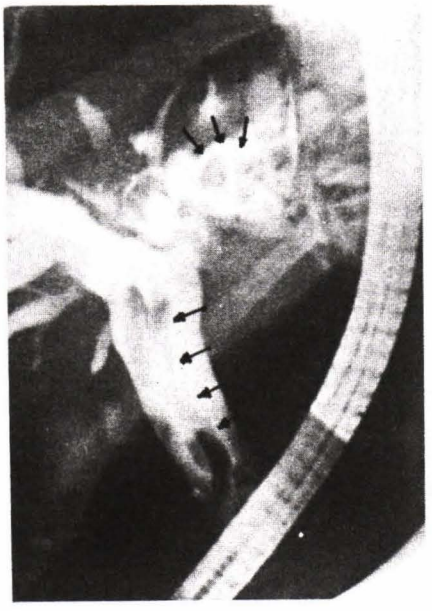

Fig. 3. There were numerous ascarises in the dilated intrahepatic and common bile duct by ERCP (Arrow showed ascaris)

Endoscopic retrograde cholangiopancreatography was performed on this patient the next day. Numerous ascarises were found in the dilated intrahepatic and common bile duct (Fig. 3). Endoscopic removal of the parasite was performed.

Case 2

A Thai boy, 8 years old was admitted to our hospital with right upper quadrant abdominal pain that had persisted for 4 days. One day before the ultrasound was done, he had a fever with nausea/vomiting and severe tenderness in the right upper quadrant.

Ultrasound findings: A dilated common bile duct (10 mm) with an active, elongated hyperechoic object 5 mm in diameter (Fig. 4). There was a similar appearance with tapering end in the intrahepatic bile duct that was suspected to be the tail of the ascaris (Fig. 5).

This diagnosis was confirmed by intravenous cholangiography. The common bile duct was dilated (10 mm) with an elongated filling defect inside (Fig. 6). Numerous ascaris eggs were found in an examination of the patients stool. This patient was treated with mebendazole and improvement was seen within one week.

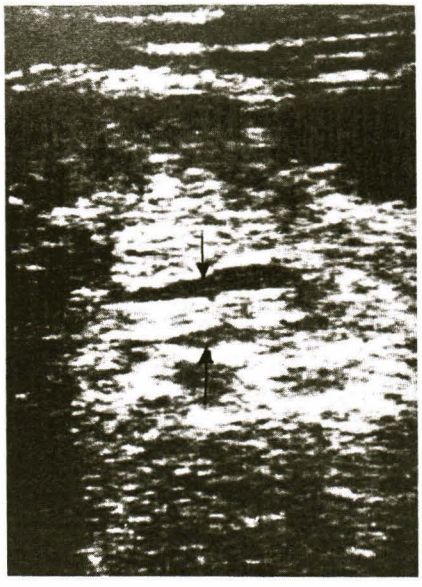

Fig. 4. Showed ascaris in dilated common bile duct (between arrows)

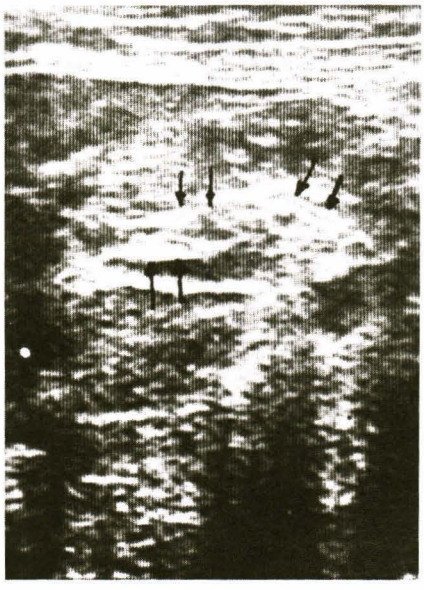

Fig. 5. There were elongated hyperechoic substance with tapering end in intrahepatic bile duct that suspected to be the tail of ascaris (Arrows)

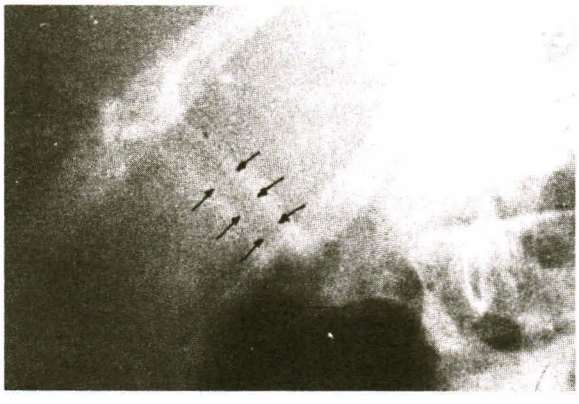

Fig. 6. Dilated bile duct with an elongated filling defect in it by IVC. (Arrow showed ascaris)

DISCUSSION

High frequency ultrasound is a good investigative technique for patients with right upper quadrant abdominal pain[5]. It can identify lesions in the hepatobiliary system as well as other intra-abdominal organs.

Biliary ascariasis is a common cause of right upper quadrant pain, but it may be undiagnosed by the physician. High frequency ultrasound is a good technique to diagnose this disease because its ability to detect movement of parasites provides accurate diagnosis.

Cremin[1] described the cross section of the common bile duct ascariasis as "a bull's eye in the triple O" (Fig. 2). However, this characteristic may not appear in all cases due to abnormal position of the gallbladder, abnormal shape of the ascaris or variable probe position.

Schulman[4] described the characteristic of multiple ascarises in the common bile duct as "Spaghetti sign". This characteristic was not easy to observe in the first patient since the bile in the common duct was replaced by the ascaris. Therefore, the echoic pattern could not be differentiated from the hepatic tissue. Only the finding of portal vein position could be used to identify this character. The echoic pattern of the ascaris in the second patient was higher than the normal liver tissue. This patient was diagnosed by the dilated common bile duct and intrahepatic duct with the characteristic shape of the ascaris, especially obvious when it moved.

The shape and movement of the ascaris is more definitive than the echoic pattern in diagnosis of this disease. High frequency ultrasound is a good initial diagnostic technique for patients with right upper quadrant abdominal pain. It can identify biliary ascariasis that might otherwise be undiagnosed by clinical evaluation. It can also be used to follow-up the clinical course of the disease after management of the ascaris.

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พยาธิไส้เดือนในระบบทางเดินน้ำดี : การวินิจฉัยโดยคลื่นเสียงความถี่สูง

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รายงานผู้ป่วย 2 ราย ซึ่งมีอาการปวดท้องบริเวณชายโครงขวา เมื่อตรวจด้วยคลื่นเสียงความถี่สูง พบพยาธิไส้เดือนในระบบทางเดินน้ำดี หนึ่งรายพิสูจน์โดย endoscopic retrograde cholangiopancreatography และพบตัวพยาธิไส้เดือน อีกรายพิสูจน์โดย intravenous cholangiography พยาธิไส้เดือนมีลักษณะเฉพาะที่ สามารถวินิจฉัยได้ง่าย และด้วยเครื่องชนิดภาพเคลื่อนไหว ซึ่งทำให้เห็นการเคลื่อนไหวของพยาธิได้ด้วย

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