

Hepatobiliary fascioliasis: a case with unusual radiological features

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ABSTRACT

We report a case of hepatobiliary fascioliasis presenting with unusual radiological findings that have not been reported previously. Imaging studies revealed hepatic cystic pouches communicating with intrahepatic bile ducts. Snail-like, oval shaped and conglomerated echogenic particles with no acoustic shadowing, suggesting *F. hepatica*, were detected in these cystic pouches. In addition, secondary sclerosing cholangitis developed after fascioliasis.

Key words: • fascioliasis • ultrasonography • computed tomography

Fascioliasis is an infectious disease of the hepatobiliary system caused by the trematode *Fasciola hepatica*. The parasite is common in sheep, goat and cattle. Humans are accidental hosts in the life cycle of the *F. hepatica*. The disease is endemic in some parts of South America, Eastern Europe, Northern Africa and Eastern Asia (1–3).

Human fascioliasis mainly involves the hepatobiliary system. It has two different phases: hepatic, or acute, and biliary, or chronic. The hepatic phase of the disease occurs when immature parasites pass into the liver through its capsule. The parasites migrate through the liver parenchyma to the biliary system. Biliary phase of the disease occurs in the presence of parasites in the biliary system (2, 4).

Typical radiological findings of hepatobiliary fascioliasis have been reported previously (5–7). Herein, we present a case of hepatobiliary fascioliasis with unique imaging findings that have not been reported before.

Case report

A 32-year-old woman was referred for abdominal US with an 11-month history of unexplained right upper quadrant pain. She had also been suffering from anorexia, nausea, weight loss, intermittent fever, and itching. Her initial laboratory tests showed a high erythrocyte sedimentation rate (29 mm/h), and elevated AST (109 U/L), ALT (141 U/L), ALP (711 U/L) and GGT (373 U/L) levels. Mild eosinophilia (6%) was also present.

Abdominal ultrasonography (US) showed cystic pouches in the left lobe of the liver. Within these pouches were conglomerated and curvilinear echogenic particles without acoustic shadowing (Fig. 1). Communications between mildly dilated bile ducts and cystic pouches were suspected on US. US examination of the gallbladder revealed a leaf-like echogenic structure without acoustic shadowing. Contrast-enhanced computed tomography (CT) revealed non-enhancing hypodense lesions with cystic density in the left liver lobe (Fig. 2). US and CT findings were interpreted as hepatobiliary fascioliasis. Then, a serological test (ES-ELISA) was performed, and *F. hepatica* was found to be positive. The patient was treated with a single dose of triclabendazole 10 mg/kg.

The patient was readmitted to the hospital 3 weeks after the treatment, due to abdominal pain and fever. Her laboratory findings revealed markedly elevated hepatic enzymes (ALT, 217 U/L; ALP, 1034 U/L; GGT, 362 U/L). On US examination, multiple pouches in the left liver lobe with prominent posterior acoustic enhancement were observed. Within these pouches, conglomerated, oval shaped (Fig. 3), and snail-like (Fig. 4) echogenic particles, likely representing *F. hepatica*, were also observed. Endoscopic retrograde cholangiopancreatography (ERCP) was tried without success. Due to persistent abdominal pain and fever, a choledochoduodenostomy was performed. Later, clinical findings mildly improved. ERCP examination was performed with success in another attempt and revealed

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Figure 1. A 32-year-old woman with right upper quadrant pain. Transverse sonogram of the left lobe of the liver reveals conglomerated (arrow) and curvilinear (arrowheads) echogenic particles without acoustic shadowing in the parenchymal pouches.

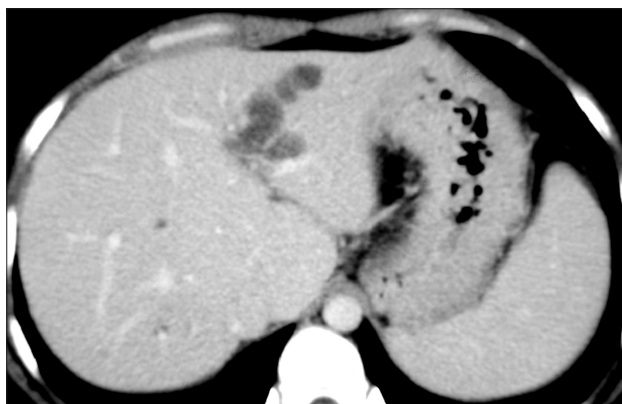


Figure 2. Contrast-enhanced transverse CT image at portal venous phase demonstrates hypodense non-enhancing lesions in the left lobe of the liver.

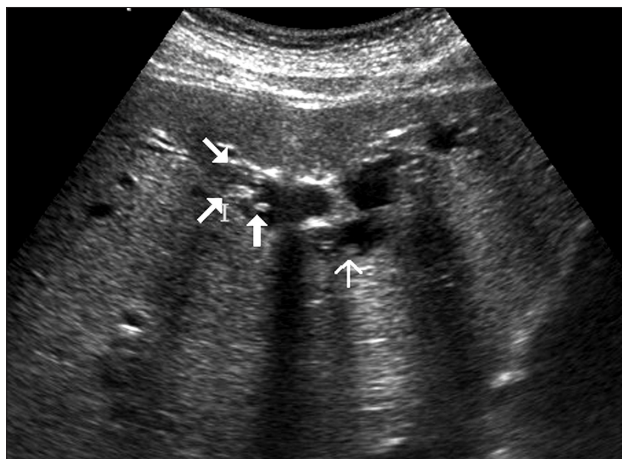


Figure 3. Three weeks after the first treatment, a transverse sonogram shows oval-shaped and conglomerated echogenic particles (arrows) within parenchymal cystic pouches with prominent posterior acoustic enhancement.

dilated and stenotic irregular bile ducts. Bile ducts of the liver had communications with parenchymal pouches (Fig. 5). The main hepatic duct was also stenotic and this segment was dilated with balloon during ERCP. ERCP, clinical

and laboratory findings were consistent with sclerosing cholangitis secondary to fascioliasis.

Follow-up US after 3 months showed that the liver lesions mildly regressed. The patient's symptoms resolved ex-

cept for a very mild intermittent abdominal pain.

Discussion

Fascioliasis is primarily a zoonotic disease. Humans are infected only occasionally by the ingestion of water and water plants contaminated with the larvae. Fascioliasis has two different phases with different signs and symptoms. Typical symptoms and signs of the hepatic phase are right upper quadrant pain, hepatomegaly, intermittent fever, urticaria and marked eosinophilia. Biliary phase of the disease usually presents with dyspepsia and intermittent right upper quadrant pain with or without cholestasis. Overlaps may occur between the phases of the disease (5–7).

The diagnosis of fascioliasis is based on clinical symptoms, stool examination, serology, and radiological examinations. Stool examination has low sensitivity, since the egg production rate of *F. hepatica* is low. Currently, serologic studies are the main diagnostic methods. The method most widely used is an ELISA that detects antibodies to the excretory-secretory antigen products from *F. hepatica* (8–10).

Radiological examinations are very helpful in the diagnosis of fascioliasis. Radiological findings of fascioliasis, mainly on sonography and CT, have been described in several reports (6, 11, 12). In the hepatic phase of the disease, parenchymal lesions are due to migration of the parasites through the liver. Previous studies showed that the parenchymal lesions correspond to microabscesses and parenchymal necrosis. The characteristic features on CT are described as multiple confluent hypodense nodules and tunnel-like branching hypodense tracts. These lesions are mainly subcapsular and do not enhance on CT (5, 13, 14). Hepatic sonographic findings have been described as small clustered hypoechoic lesions with poorly defined contours and hypoechoic nodular lesions (6, 14–16).

The biliary phase of the disease occurs in the presence of parasites in the biliary system. Sonography is the useful method in the detection of biliary lesions. The oval shaped, leaf-like, or snail-like echogenic structures with no acoustic shadowing in the gallbladder or common bile duct have been described (6–8). Mature parasites cause epithelial hyperplasia resulting in thickening of the duct walls, either



Figure 4. Three weeks after the first treatment, an oblique sonogram shows curvilinear, snail-like echogenic structure (arrow) within the parenchymal pouch.



Figure 5. ERCP shows parenchymal pouches communicating with stenotic and irregular bile ducts.

due to a direct irritating effect or an indirect effect secondary to parasitic secretion. In addition, alive or dead parasites may lead to biliary obstruction (7, 14). ERCP can also be used in the biliary phase, since it can demonstrate biliary obstruction or filling defects. It can also provide therapeutic intervention simultaneously (17, 18).

In the reported case, parenchymal lesions in the left liver lobe were observed as cystic cavities on US and as hypodense lesions with a cystic density on CT. These pouches are considered as cystic sequelae of necrotic cavities or abscesses, which were caused by migration of the parasite through the liver parenchyma. ERCP showed dilated and irregular left intrahepatic bile ducts communicating with parenchymal cystic pouches. Interestingly, US also showed conglomerated, oval shaped and snail-like echogenic particles, representing *F. hepatica*, within these cystic cavities.

We think that these cystic pouches, containing bile, act as a biliary pool for mature parasites to reside.

The present case is different from those which have been previously reported. *F. hepatica* within parenchymal lesions and intrahepatic bile ducts having communication with the parenchymal pouches is a new imaging finding. ERCP, clinical and laboratory findings were consistent with sclerosing cholangitis, secondary to fascioliasis. This was also an interesting aspect of the case.

In conclusion, fascioliasis should be considered in the differential diagnosis of patients with hepatobiliary symptoms, especially in endemic areas. Radiological findings, mainly on US and CT, are very helpful in the detection and follow-up of hepatobiliary lesions in patients with fascioliasis. However, radiologists should be aware of the fact that fascioliasis may cause various radiological features.

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