A Pediatric Case of Human Biliary Fascioliasis
Parasitological and Radiological Diagnosis

Maysa Ahmad Eraky, MD,* Rabab Fawzy Selem, MD,* Nagla Fawzy Selem, MD,† and Doaa Refaey Soliman, MD‡

Abstract: An 11-year-old girl presented with severe right upper hypochondrial pain, fever, and severe pallor. Parasitological stool examination using Kato-Katz technique revealed a large number of huge operculated yellowish brown eggs. Abdominal ultrasonography revealed dilatation of the common bile duct associated with a moving shadow. Endoscopic retrograde cholangiopancreatography was performed wherein CBD was selectively cannulated, and the cholangiogram revealed irregular filling defects in CBD. Sphincterotomy was performed, and multiple worms were extracted using basket and balloon catheter (Fig. 2). After CBD clearance, 7F stint was placed for free bile drainage. The child required repeated doses (10 mg/kg) of triclabendazole for Fasciola infection treatment. Few weeks after worm extraction, the child regained her activity and concentration. Child is under follow-up without any complaints. A follow-up abdominal ultrasonography and stool microscopy did not show abnormalities.

DISCUSSION

Fascioliasis is an important zoonotic disease caused by 2 trematode liver fluke species: F. hepatica and Fasciola gigantica infecting several mammalian species including cattle, goats, sheep, and humans. The prevalence of F. gigantica often overlaps with that of F. hepatica, and the 2 species are so closely related to each other, in terms of genetics, behavior, and morphological and anatomical structures that it is greatly difficult to distinguish them. In humans, liver fluke classification cannot be achieved by clinical, pathological, coprological, or immunological methods. The differential diagnosis between F. hepatica and F. gigantica infection is very important because of their different transmission and epidemiological characteristics. Therefore, sophisticated molecular techniques are required to correctly identify and diagnose the infection.

School-aged children are disproportionately affected by fascioliasis in endemic areas. The flukes get into the small bile ducts inside the liver and the gallbladder where they live for 20 to 30 years. The flukes cause chronic inflammation of the bile duct causing scarring (fibrosis) of the bile ducts and bile duct dilatation. Chronic inflammation and bleeding into the biliary tree could cause anemia. Anemia and iron deficiency can cause devastating long-term developmental impairment in children. Weight loss has also been described with fascioliasis, but the extent of this problem and association with malnutrition are unknown. Our case was fortunately primarily diagnosed parasitologically through detection of Fasciola eggs in stool using repeated Kato-Katz technique, which detected heavy infection (egg load >250 eggs/g feces). Radiological examinations are very useful in the diagnosis of many parasitic infections especially those affecting the liver. Ultrasound allows diagnosis of schistosomiasis-induced periportal fibrosis and bladder abnormalities. Liver abscesses can be differentiated from other focal lesions such as cysts or neoplasms. For amoebic abscesses, invasive
procedures are usually not required. In doubtful cases, ultrasound-guided puncture can give adequate material for microscopy and culture. Helminths (eg, ascaris), flukes, and filariae can be seen directly with ultrasound. Filaria-induced damage also includes hypoechoic splenic foci and ultrasonographic abnormalities due to tropical hypeeosinophilia.\textsuperscript{17} In case of fascioliasis, movement of the parasite in the gallbladder and liver lesions formed by the organism could be detected by ultrasonography. Diagnostic ultrasonography findings of fascioliasis include heterogeneity of the liver by multiple, scattered, poorly defined hypoechoic lesions, periporal lymph node enlargement, dilatation of the CBDs or intrahepatic biliary channels, and thickening of the gallbladder and echogenic, nonshadowing multiple particles in the gallbladder or in the CBDs. Radiological investigation confirmed our laboratory diagnosis. Ultrasonographic images of our patient were compatible with fascioliasis, showing homogenous echopattern associated with extrahepatic biliary obstruction, dilated CBD down to a small echogenic mobile structure (representing the worm). Tri A short sphincterotomy is often adequate to achieve removal of these soft parasites.\textsuperscript{18} Treatment of this condition can be divided into pharmacologic and nonpharmacologic therapy. Triclabendazole is the drug of choice in fascioliasis as it is highly effective against both mature and immature flukes. Triclabendazole is a safe and efficacious drug when administered to a pediatric population living in a fascioliasis endemic area. In terms of efficacy, a single administration of triclabendazole was effective in reducing considerably the number of infected individuals, the mean intensity of infection, and the proportion of high-intensity infections and in keeping these indicators at low levels for a few months after treatment.\textsuperscript{19} Artemether has been demonstrated in vitro to be equally effective.\textsuperscript{20} Artesunate is also useful in human fascioliasis; however, it is slightly less potent than triclabendazole and artemether.\textsuperscript{21} Nonpharmacologic therapy involves the use of ERCP with sphincterotomy and removal of the parasites from the biliary tree.\textsuperscript{22,23}

In conclusion, parasitic involvement of liver and biliary tree is an important differential diagnosis in patients with jaundice. Fascioliasis is an important public health problem and should be considered in children with mentioned nonspecific symptoms and eosinophilia and should be a differential diagnosis when bile duct dilatation is encountered on the ultrasound images, particularly at endemic regions. Health education is needed for the population at risk in rural areas to raise their awareness about the issue importance, magnitude, complications, mode of infection, and preventive and control measures especially about raw vegetable consumption and how their food habits can augment or minimize this health problem. Ultrasonography is an important diagnostic and therapeutic tool and can help in the diagnosis and noninvasive management of several liver parasites.

**REFERENCES**


