

MECHANICAL JAUNDICE FACIOLI OF COMMON BILE DUCT PARASITIC DISEASE

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Abstract: *Parasites residing in the biliary tree include Clonorchis sinensis, Opisthorchis viverrini, Opisthorchis felinus, and Fasciola hepatica. They are willowy, leaf-like, flat flukes dwelling in the bile ducts and gallbladder. Human ascarides, Ascaris lumbricoides, dwelling in the small intestine, inadvertently migrate into the bile ducts and cause biliary obstruction. The purpose of this article is to illustrate typical imaging findings of liver fluke infection and biliary ascariasis.*

Keywords: *biliary system, CT, infectious diseases, MRI, sonography*

Three cases of obstruction of the common bile duct by Fasciola hepatica with two of the patients presenting jaundice are reported. The authors have reviewed several publications concerning common bile duct obstruction by liver fluke, a quite rare complication of fascioliasis. Only nineteen cases of common bile duct obstruction caused by Fasciola hepatica have been reported in a review of medical publications during last ten years. Clinical presentation, methods and considerations, types of surgery are fairly uniform in all of the reported cases. Almost all of patients reviewed, had the history, symptoms and signs characteristic for cholelithiasis including recurrent colic pain in right hypochondriac area, fever or subfebrile temperature, fluctuating or stabile jaundice, and palpable painful gallbladder. The laboratory findings in all cases reviewed had shown leucocytosis, eosinophilia, high or slight elevated serum bilirubin. Echographically commonly revealed dilated intra- and extrahepatic bile ducts containing one or more hyperechogenic elements with or without casting an acoustic shadow. All patients underwent open surgery, comprised with choledochotomy and if possible extraction of the fluke. Only two postoperative cases were of necessity followed by ERCP. In all of our cases the primary pre-operative diagnosis was choledocholithiasis, with diagnose of fascioliasis established at the operation. According to the literature this uncertainty in diagnosis is common because of difficulties in differentiation of fascioliasis versus choledocholithiasis. Considerations for making the differential diagnosis--a history of origin or visiting in endemic area of infection, history of eating of aquatic vegetables, laboratory findings including eosinophilia, fasciola eggs in stool, sonography and radiological

imaging results and enzyme-linked immunosorbent assay (ELISA) which has been shown to be rapid, sensitive and quantitative. In all three cases we have observed intraoperative significant signs for liver fascioliasis to include surface scarring of the left lobe on the liver--tracks caused by subcapsular migration and location of the hepatic lesions (these findings were also seen by two authors in literature) with resemblance to Japanese letters. The most effective drug for treatment of fascioliasis according to our experience and literature reviewed is bithionol.

Parasitic diseases are prevalent in some endemic areas, but such diseases may now have more extensive geographic distribution because of increased travel. Thus, sporadic cases are encountered among immigrants in nonendemic areas. The trematodes (flukes) that commonly infect the human biliary tract include *Clonorchis sinensis*, *Opisthorchis viverrini*, *Opisthorchis felinus*, and *Fasciola hepatica*. The majority of patients are asymptomatic, with symptoms limited mostly to heavily infected persons. *Ascaris lumbricoides* residing in the small intestine may migrate into aberrant sites, mostly into the bile duct through the duodenal papilla, and cause biliary colic and obstructive jaundice. Parasitic diseases usually present with characteristic imaging findings. However, they sometimes present with nonspecific findings and may be mistaken for malignant tumors because the diseases may produce a mass. This article reviews the radiologic appearances of biliary parasitic diseases, focusing on those with relatively specific findings.

Helminthic infestation of the hepatobiliary system can result from roundworms, tapeworms and flat worms, such as flukes. These parasites differ in endemicity, clinical presentation and treatment; therefore, a thorough travel and exposure history is critical for establishing a diagnosis and management plan.¹ *Fasciola hepatica* is endemic to South America, North Africa, Asia and Europe. The organism is typically found in areas where cattle or sheep are grazing within proximity to a water source, because both these larger mammals and a specific snail host are needed for the fluke to complete its life cycle. Although fascioliasis is far more common in developing countries, this case shows that parasitic infectious disease has become a global concern because of expanded world travel and immigration. Different species of liver flukes have predilections for either the intrahepatic or extrahepatic biliary tree. *Clonorchis* and *Opisthorchis* species prefer the intrahepatic biliary tree, whereas *Fasciola hepatica* and *Fasciola gigantica* prefer the extrahepatic bile ducts. In addition, the roundworm *Ascaris* also favours the extrahepatic biliary tree following its aberrant

migration from the small intestine. The larvae of most flukes migrate retrograde up the biliary tree before settling; however, *Fasciola* species prefer to tunnel through the bowel wall and may spend up to 24 hours in the peritoneal cavity before locating the liver and penetrating the liver capsule into the parenchyma (hepatic stage).² Once the *Fasciola* species is in the liver, it tunnels through the parenchyma to the biliary ducts and matures within the biliary system (biliary stage).⁴ While the fluke is tunneling, a peripheral blood smear often shows eosinophilia, which can be a clue to the presence of a parasitic infection.

Infections caused by *Fasciola* species can be diagnosed by microscopic stool examination; however, immunologic techniques, such as enzyme-linked immunosorbent assay, play a more important role because they have 100% sensitivity and 97.8% specificity for fascioliasis. In this case, the stool analysis was negative for ova and parasites. Pathologically, liver flukes can be distinguished from one another based on their size, internal organ arrangement and integument features. Most liver fluke infections are treated with praziquantel. Praziquantel has a broad spectrum of activity and is the drug of choice for various trematodiasis, such as clonorchiasis, opisthorchiasis, paragonimiasis and intestinal fluke infections. However, fascioliasis responds poorly to praziquantel, and, thus, our initial choice of treatment was suboptimal. Triclabendazole is recommended for *Fasciola* infections. However, it is currently approved in only a few countries (e.g., Egypt and Peru)⁹ for use as a treatment for fascioliasis in humans.

Follow-up examination should ensure resolution of clinical symptoms, laboratory abnormalities (including eosinophilia, elevated liver enzyme levels and serologic titres) and radiologic findings (ultrasonographic biliary tract abnormalities).² Endoscopic clearance of the biliary tree may also be necessary in some instances, because of the risk of biliary obstruction and its related complications, such as cholangitis and pancreatitis, that result from the presence of dead flukes after drug treatment.

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