# A Case of Biliary Ascariasis

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A 51 year old Thai immigrant was admitted with a 1 week history of right upper quadrant pain. The pain was intermittent, sharp, non-radiating, and worse after eating. She complained of nausea, decreased appetite and weight loss of 4.5 kg over 2 months. On physical examination, she was afebrile and anicteric with an unremarkable abdominal examination. Laboratory data were normal except for mildly increased alkaline phosphatase (270 IU/L). Computed tomography scan revealed a markedly dilated biliary tree with multiple filling defects consistent with stones in the intrahepatic and extrahepatic ducts [Figure 1].

Endoscopic retrograde cholangiopancreatography confirmed an irregular filling defect (black solid arrow) in the common bile duct [Figure 2]; sphincterotomy followed by biliary sweep with a balloon and basket was performed to extract stones without success. A temporary biliary stent was placed to decompress the biliary tree and prevent cholangitis. Bile fluid aspirated during the ERCP revealed *Ascaris lumbricoides* eggs [interrupted arrow, Figure 3].

The patient was taken to the operating room for a common bile duct exploration. Choledochotomy revealed a 30.5 cm long live *Ascaris lumbricoides* worm (black arrow), biliary stent (curved arrow), and multiple small pigment stones [interrupted arrow, Figures 4 & 5]. Once the duct was clear of stones on intraoperative choledoschoscopy, a side-to-side choledochoduodenostomy was performed. The patient was treated with anthelminthic (praziquental for Clonorchis and albendazole for Ascaris). The patient was discharged in a stable condition. Repeat magnetic resonance cholangiopancreatography 1 week after the surgery revealed improved biliary ductal dilation as well as persistent intrahepatic and extrahepatic filling defects, consistent with small residual stones. At the 6 month follow-up visit, she was asymptomatic, her alkaline phosphatase was 149 IU/L, but her MRCP still showed persistent filling defects consistent with small stones. She declined further endoscopic intervention.

Oriental cholangiohepatitis, a chronic disease characterized by repeated suppura-

ERCP = endoscopic retrograde cholangiopancreatography

MRCP = magnetic resonance cholangiopancreatography

**Figure 1.** *Ascaris lumbricoides* (black solid arrow), seen as a circular coiled structure, in a dilated common bile duct on CT scan

**Figure 2.** *Ascaris lumbricoides* (black solid arrow), seen as a long irregular filling defect on fluoroscopy picture during ERCP

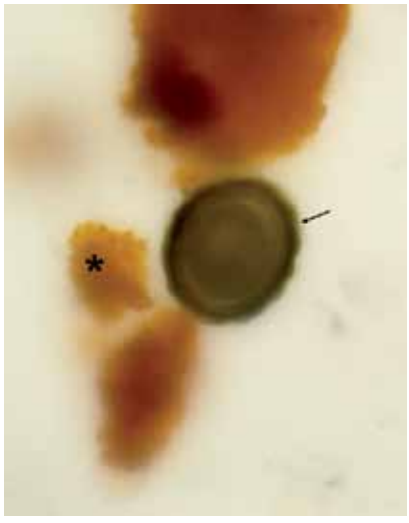

**Figure 3.** *Ascaris lumbricoides* fertile egg (arrow) adjacent to bile (asterisk). Bile duct fluid (400x).

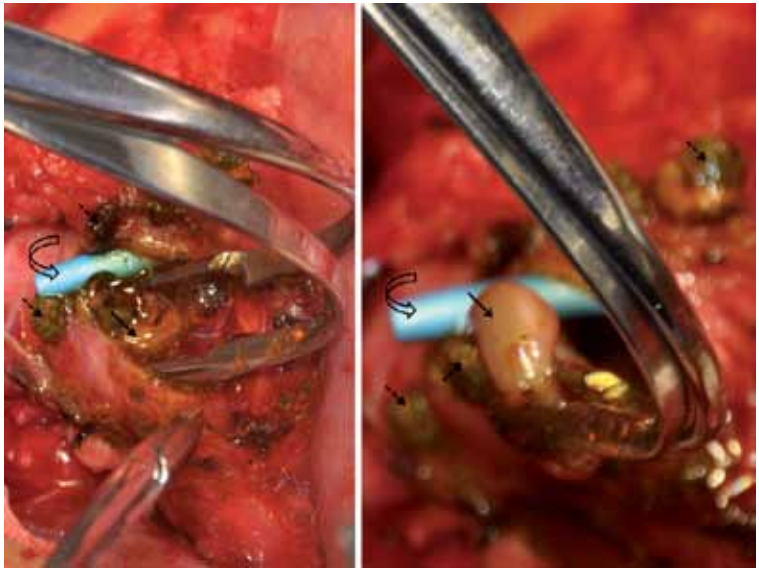

**Figure 4.** Bile duct exploration (choledochotomy): *Ascaris lumbricoides* (black solid arrow), biliary stent (curved arrow), pigment stones (interrupted arrows)

**Figure 5.** Live adult worm (*Ascaris lumbricoides*) removed from the common bile duct

tive biliary infection and recurrent stone formation, is seen in the western world almost exclusively in immigrants from endemic countries in Southeast Asia [1]. The precise etiology is unknown. However, an association with parasitic infections of the biliary tree – classically with *Clonorchis sinensis* [2] and rarely with *Ascaris lumbricoides* [3] – has been cited.

It is important to diagnose parasitic infestation of the biliary tree promptly. This requires a high clinical suspicion in immigrants from endemic areas presenting with intrahepatic stones [4]. Moreover, careful radiological interpretation [5] of large irregular intraluminal filling defects (representing intrabiliary parasites rather than stones) and aspiration of bile for culture and microscopic examination during ERCP might give useful clues for diagnosis. This will allow appropriate early treatment (i.e., anthelminthic) and the use of a multidisciplinary approach towards treating this rare chronic condition.

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