



Biliary ascariasis: mimicker of biliary stent

Malay Sharma, MD, DM, Piyush Somani, MD, DM, Rajendra Prasad, MD, DM, Saurabh Jindal, MD, DM, Amit Pathak, DMRD

A 50-year-old-man presented because of yellowish discoloration of the eyes, right upper-quadrant pain, and high-grade fever for 3 days. He had a history of common bile duct (CBD) stones and gallstones. He had undergone multiple ERCP procedures and biliary sphincterotomy with removal of stones and plastic biliary stent placement 1 year previously. Laboratory examination showed the following: white blood cell count of 20,000/mm³ with 88% neutrophils, aspartate transaminase 230 U/L (reference 0-32 U/L), alanine transaminase 380 U/L (reference 0-32 U/L), alkaline phosphatase 470 U/L (reference 0-120 U/L), and bilirubin 5 mg/dL (reference 0-2 mg/dL). A clinical diagnosis of acute cholangitis was established. Abdominal US showed dilation of intrahepatic biliary radicles, hepatomegaly, and dilated CBD (11 mm) with a linear echogenic structure (Figs. 1 and 2; Video 1, available online at www.VideoGIE.org). A possibility of cholangitis resulting from stent occlusion was considered. ERCP was planned for removal of the stent and clearance of the CBD. On ERCP, the papilla was patulous, with no stent in situ. The possibility of a migrated CBD stent was considered. A cholangiogram revealed dilated CBD with a linear echogenic filling structure inside the CBD, suggestive of *Ascaris lumbricoides* rather than a stent (Figs. 3 and 4). The CBD was cannulated with a stone extraction balloon (Fig. 5). A balloon sweep was performed, and a live creamy-white worm was removed from the papilla (Fig. 6). The worm was grasped with rat-tooth forceps (Fig. 7) and identified as *A lumbricoides*. The patient underwent therapy with albendazole and passed multiple roundworms in his stool. Repeated US after 2 weeks showed the CBD to be normal. To conclude, we present a case of cholangitis due to biliary ascariasis mimicking biliary stent on US. Biliary ascariasis should be considered in a patient presenting with acute cholangitis in endemic regions.

A lumbricoides is the most common helminthic infection in the world. Although the duodenum and proximal jejunum are the normal habitats of an adult worm, occasionally these worms migrate to the CBD, the pancreatic duct (PD), or the gallbladder, leading to adverse events like biliary colic, cholecystitis, acute cholangitis, and pancreatitis. Biliary ascariasis is a common cause of pancreatobiliary disease in an endemic region. Migration of a worm to the CBD is more common than to the PD,

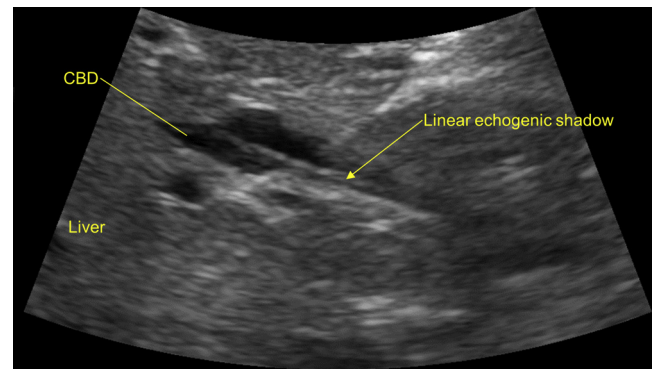


Figure 1. US view of the abdomen showing dilated common bile duct and linear echogenic structure within it.

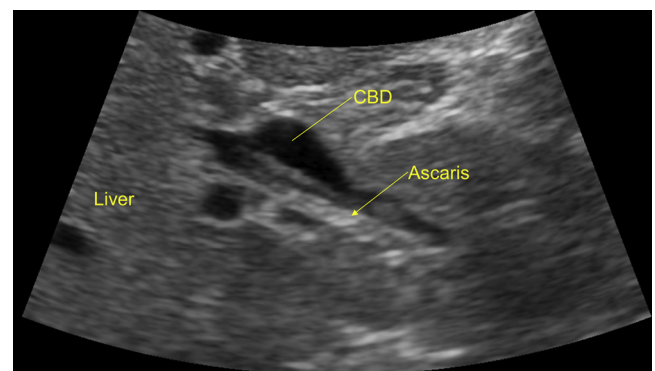


Figure 2. US view of abdomen showing *Ascaris lumbricoides* mimicking stent within dilated common bile duct.

probably because of the smaller size of the PD. US of the abdomen is usually the initial investigation for the evaluation of such patients, allowing biliary ascariasis to be diagnosed in approximately 85% of cases. The sonographic patterns include single or multiple long, linear echogenic strips without acoustic shadowing in the CBD or PD (strip sign); a central, longitudinal, anechoic shadow within the worm (inner tube or double tube sign), spaghetti-like appearance, and a characteristic movement. CT and magnetic resonance imaging, respectively, show the “bull’s-eye” and “eye-glass” appearances of *A lumbricoides* in the CBD. ERCP is considered to be the criterion standard

Written transcript of the video audio is available online at www.VideoGIE.org.

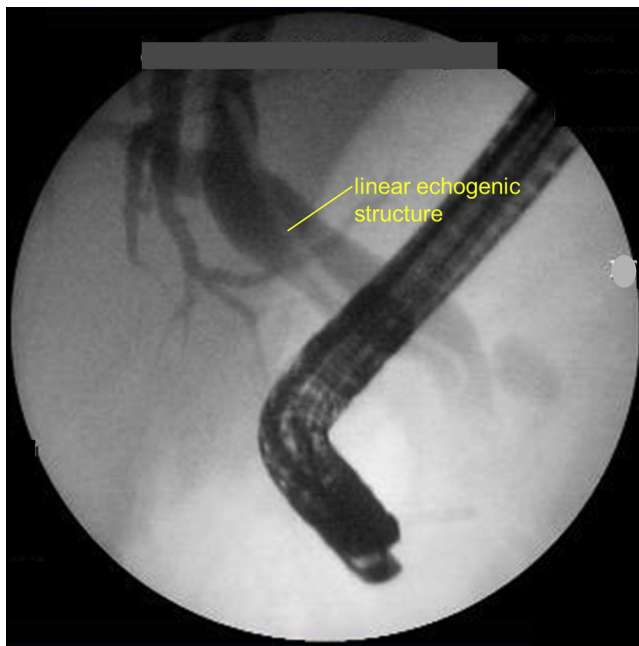


Figure 3. Cholangiogram demonstrating dilated common bile duct and linear echogenic filling structure within it, suggestive of *Ascaris lumbricoides*.

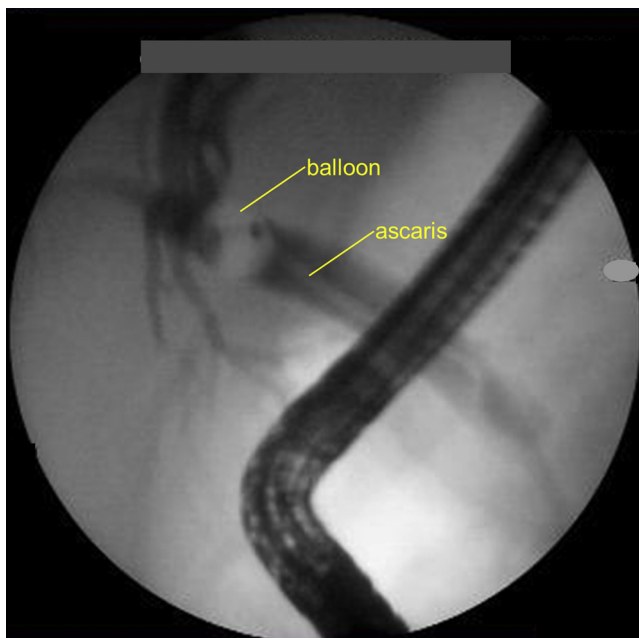


Figure 4. Cholangiogram showing removal of *Ascaris lumbricoides* from the common bile duct with balloon extraction catheter.

for the diagnosis of biliary ascariasis, but it should be reserved for therapeutic rather than diagnostic use because papillotomy can lead to reentry of the worm into the CBD.

The sonographic appearance of *A lumbricoides* in the CBD can mimic biliary tubes, catheters, or stents, as in the present case. Sometimes, dead ascaris worms can

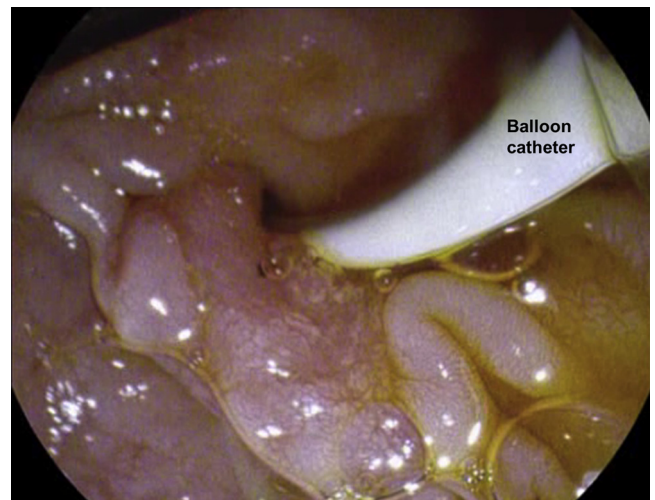


Figure 5. Endoscopic view of common bile duct being cannulated with balloon extraction catheter.

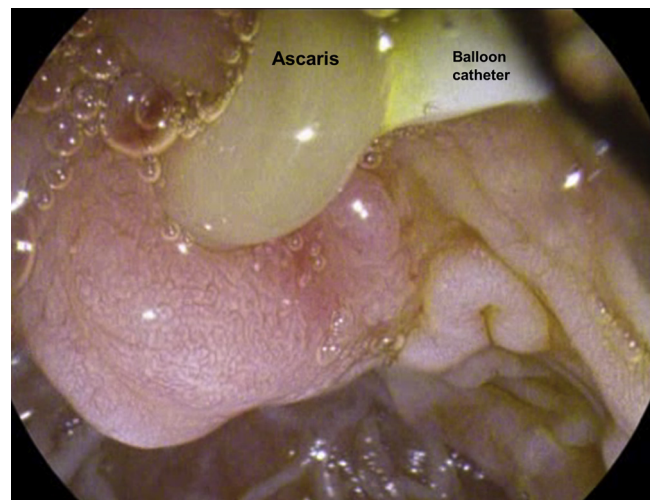


Figure 6. Endoscopic view of balloon extraction catheter with removal of creamy-white worm from the papilla.

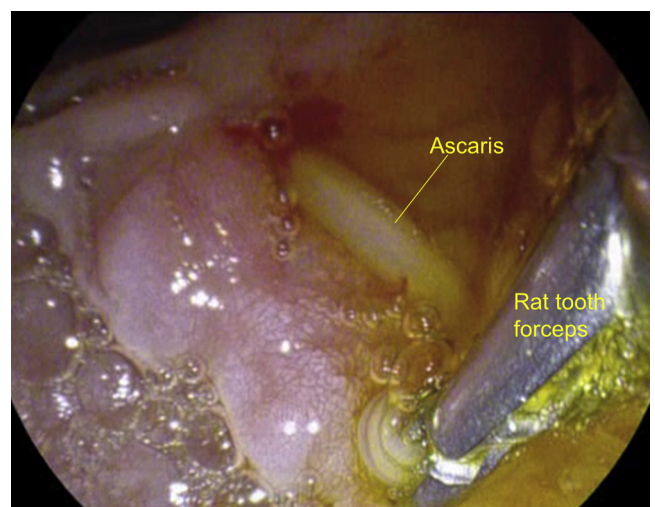


Figure 7. Worm grasped with rat-tooth forceps.

also cause biliary colic and cholangitis. Biliary ascariasis can act as a nidus for biliary stone formation.

The treatment of biliary ascariasis is conservative, leading to resolution in 70% to 80% of cases. Worms migrate out of the ducts within a few hours to 2 weeks and are paralyzed by anthelmintic drugs, followed by natural expulsion in the stool. Endoscopic intervention is required in 20% to 30% of cases. Indications include failure of conservative treatment, persistence of worms in the biliary tree for more than 4 weeks, acute cholangitis, and dead worms coexisting with stones or biliary strictures. Worms visible at the ampulla are extracted endoscopically with a Dormia basket, rat-tooth forceps, or biopsy forceps. Sphincterotomy should be avoided for worm removal because an open biliary sphincter facilitates future recurrence if worm reinfestation occurs.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviations: CBD, common bile duct; PD, pancreatic duct.

Department of Gastroenterology, Jaswant Rai Speciality Hospital, Saket, Meerut, Uttar Pradesh, India.

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