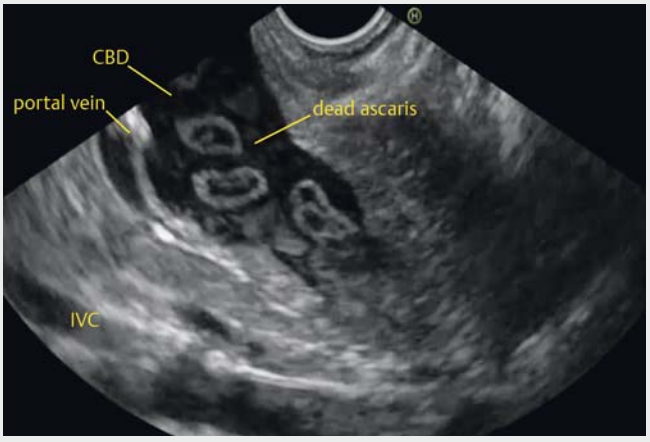
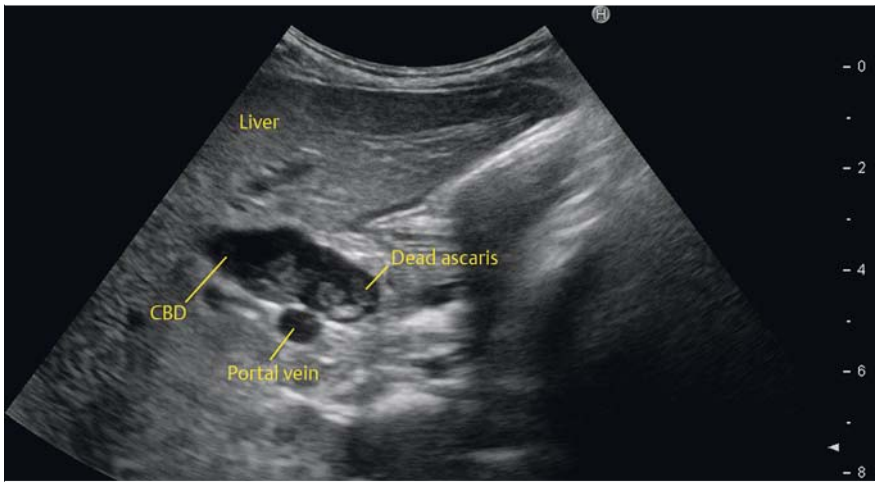
Endoscopic ultrasound appearance of dead *Ascaris lumbricoides* in the biliary tract

A 2-year-old Indian girl was referred with symptoms of biliary colic and obstructive jaundice of 3 weeks' duration. Abdominal ultrasonography revealed dilation of intrahepatic biliary radicles, a distended gallbladder, and a dilated common bile duct (CBD) of 15 mm (normal diameter up to 6 mm) containing multiple ill-defined, oval, hyperechoic shadows near the lower end (▶ **Fig. 1**). Magnetic resonance cholangiopancreatography (MRCP) showed multiple intraluminal curvilinear, hypointense areas in the lower CBD consistent with stones or worm (▶ **Fig. 2**). Linear endoscopic ultrasound (EUS) was performed for evaluation of the CBD filling defects visualized on abdominal ultrasound and MRCP. Linear EUS from the stomach and duodenal bulb revealed a dilated CBD with multiple hyperechoic structures without acoustic shadowing. EUS showed curvilinear, disc-shaped short-segment echogenic structures, 2–6 mm in size, with a central anechoic core and parallel and equidistant from each other; this was suggestive of recently broken down soft parallel fragments of roundworms (▶ **Fig. 3**, ▶ **Video 1**). The central anechoic core represented the digestive tract of *Ascaris lumbricoides*. Cholangiography revealed a dilated CBD with tapering at the lower end showing multiple filling defects (▶ **Fig. 4**). After multiple balloon sweeps on endoscopic retrograde cholangiopancreatography (ERCP), creamy white structures and yellow-colored material were removed that were suggestive of recently fragmented roundworm (▶ **Fig. 5**, ▶ **Video 1**). The patient's clinical condition improved significantly after ERCP, and repeat abdominal ultrasound after 1 week demonstrated decreased size of the CBD. The patient underwent deworming with albendazole, with the passage of multiple roundworms in stools further confirming the diagnosis of obstructive jaundice due to *Ascaris*.



Video 1 Appearance at linear endoscopic ultrasonography (EUS) of dead Ascarislumbricoides causing obstructive jaundice in a 2-year-old girl, and removal of thefragmented roundworm at endoscopic retrograde cholangiopancreatography (ERCP). CD, cysticduct; CBD, common bile duct; IVC, inferior vena cava.



▶ **Fig. 1** In a 2-year-old Indian girl with symptoms of biliary colic and obstructive jaundice of 3 weeks' duration, abdominal ultrasonography showed a dilated common bile duct (CBD) with multiple ill-defined, oval, hyperechoic shadows near the lower end.

Pancreaticobiliary ascariasis is a common problem in tropical countries [1]. Dead *Ascaris* is a rare but an important cause of obstructive jaundice in the developing world [2]. In conclusion, we describe an unusual appearance of recently dead *Ascaris lumbricoides* on abdominal ultrasound, MRCP, and EUS. In endemic regions, biliary ascariasis should be considered in any child presenting with obstructive jaundice [3].

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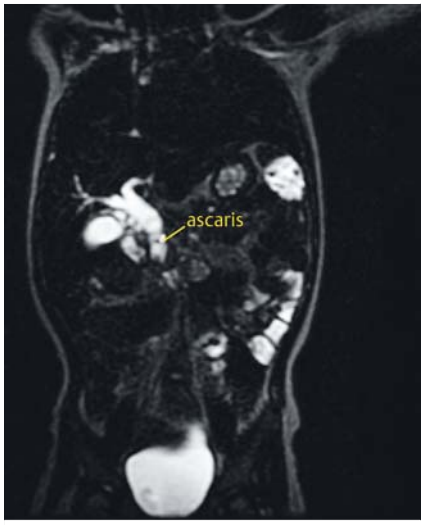
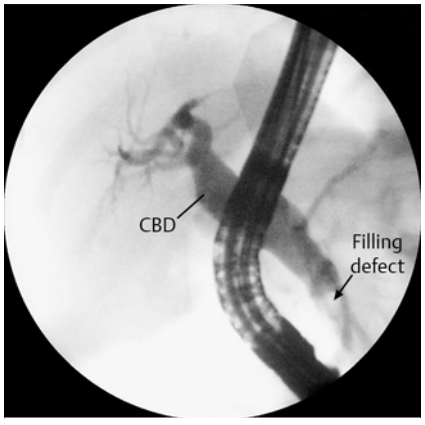
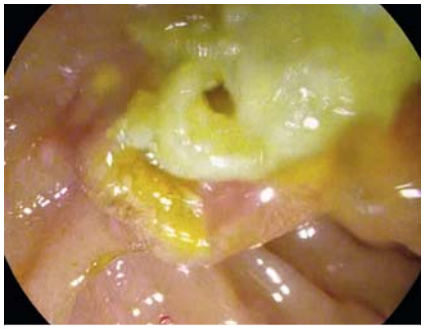


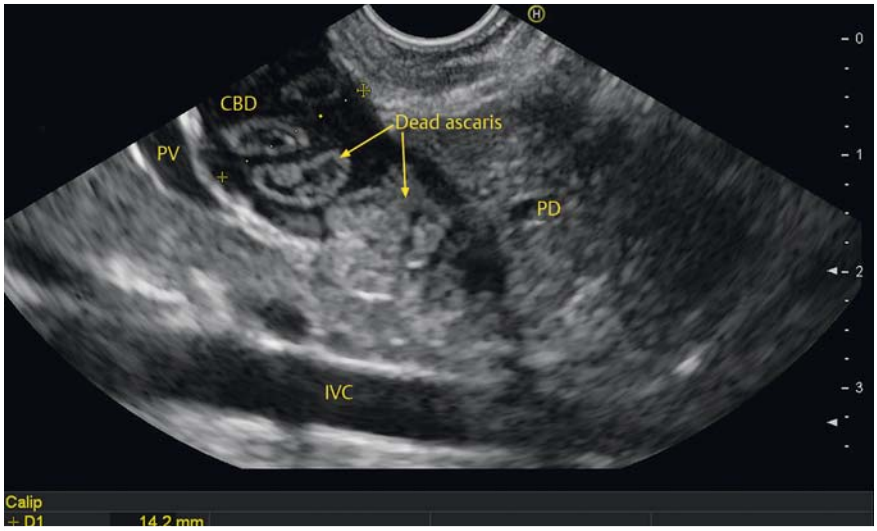
▶ **Fig. 2** Magnetic resonance cholangiopancreatography (MRCP) showed dilation of intrahepatic biliary radicles with a distended gallbladder and dilated CBD and common hepatic duct. There are multiple intraluminal curvilinear, hypointense areas in the lower CBD, consistent with stones or worm.



▶ **Fig. 4** Cholangiography revealed a dilated CBD with tapering at the lower end showing multiple filling defects.



▶ **Fig. 5** At endoscopic retrograde cholangiopancreatography (ERCP) creamy white structures and yellow-colored material, suggestive of recently fragmented roundworm, were removed from the CBD.



▶ **Fig. 3** Endoscopic ultrasound (EUS) shows multiple disc-shaped echogenic structures with/without a central anechoic core in a dilated CBD. PV, portal vein; PD, pancreatic duct; IVC, inferior vena cava.

Competing interests

All authors have no conflict of interest to disclose.

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