

Direct per-oral cholangioscopy with electrohydraulic lithotripsy for primary severe hepatolithiasis

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A 56-year-old Filipino woman with a history of choledocholithiasis status postcholecystectomy with choledochoduodenostomy presented with cholangitis. MRCP revealed a central intrahepatic bile duct stricture with a 5-cm stone proximal to the stricture, causing marked dilatation of the left intrahepatic bile ducts and mild atrophy of the left lateral segment (Fig. 1).

During the ERCP, the ultraslim endoscope with a distal end outer diameter of 6 mm (GIF-XP190N, Olympus America Inc, Center Valley, Pa) was advanced to the choledochoduodenostomy (Fig. 2; Video 1, available online at www.VideoGIE.org). Cholangiography confirmed a mild midhepatic duct stricture with a large impacted stone (Fig. 3). A 1.9F bipolar electrohydraulic lithotripsy (EHL) probe (Autolith touch, Northgate Technologies Inc, Elgin, Ill) was introduced through the working channel of the endoscope, with the tip positioned directly at the stone (Fig. 4).



Figure 2. Endoscopic image of the surgical choledochoduodenostomy (arrow).

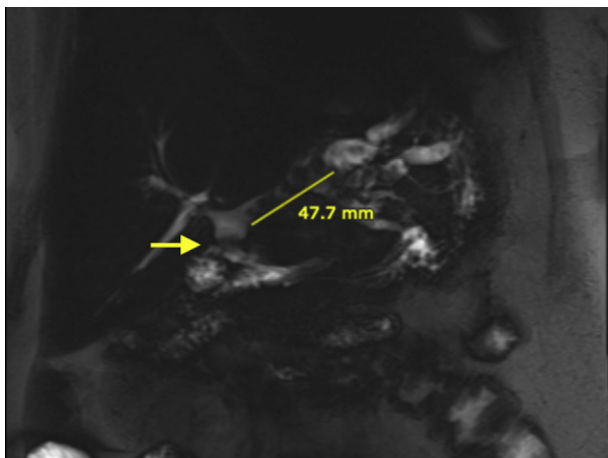


Figure 1. MRCP image revealing a mild central intrahepatic bile duct stricture with a stone approximately 5 cm proximal to the stricture, causing marked dilatation of the left intrahepatic bile ducts and mild atrophy of the left lateral segment.

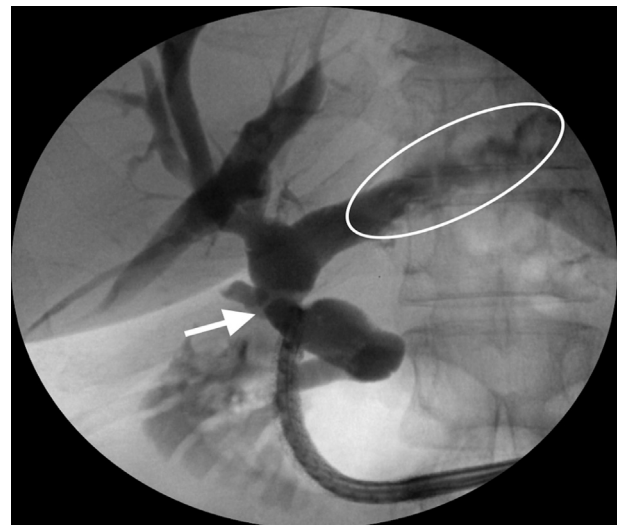


Figure 3. Cholangiogram demonstrating an isolated mild midhepatic duct stricture (arrow) with moderate upstream dilation and multiple filling defects within the left intrahepatic duct.

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

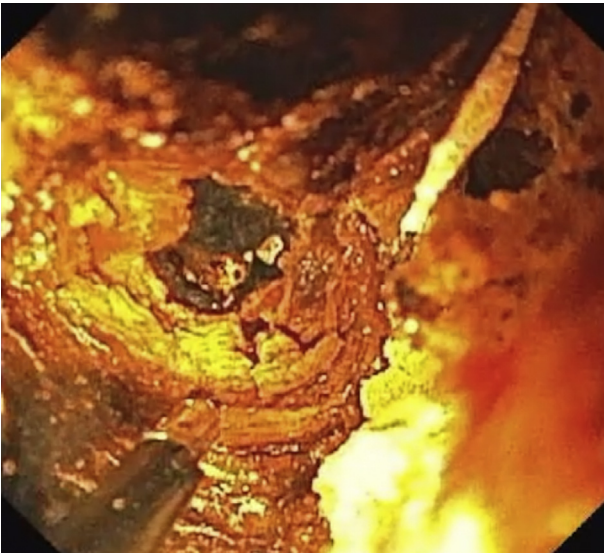


Figure 4. Endoscopic image of electrohydraulic lithotripsy catheter tip targeting a large stone in the left intrahepatic duct.



Figure 6. Endoscopic image demonstrating complete clearance of secondary branches of the left intrahepatic ducts after 1 session of electrohydraulic lithotripsy.

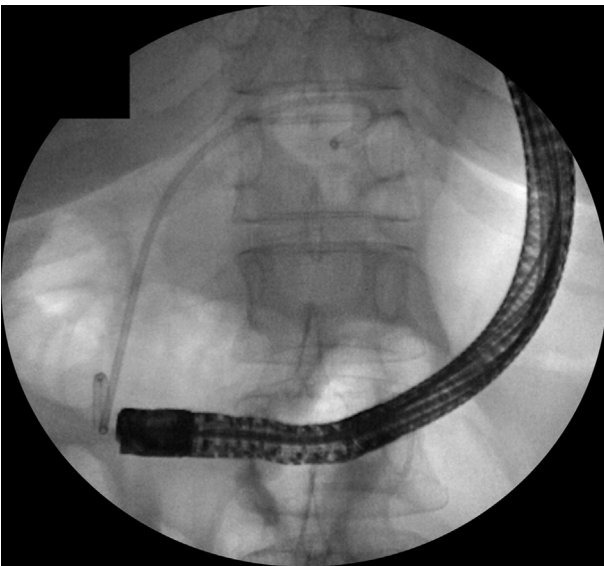


Figure 5. Fluoroscopic image showing a double-pigtail stent in place in the left intrahepatic duct.

Continuous saline solution irrigation into the bile duct was used to generate a fluid medium and magnify the EHL power. The ultraslim endoscope was advanced to the left main intrahepatic duct under fluoroscopic and endoscopic guidance. A giant stone that occupied that entire the left main duct was successfully fragmented.

ERCP was then performed with a duodenoscope (TJF-Q180V endoscope, Olympus America Inc), and partial

clearance of the stones was achieved with an extraction balloon (Extractor Pro XL retrieval balloon, Boston Scientific, Natick, Mass) and basket (Trapezoid RX wire-guided retrieval basket). A 7F × 12 cm double-pigtail plastic stent (Zimmon, Cook Medical, Bloomington, Ind) was placed into the left intrahepatic duct to allow for continued drainage, fragmentation, and passage of the stone (Fig. 5).

The patient returned for repeated ERCP 3 months later. Injection of contrast medium and cholangioscopy confirmed only a small residual stone in the left main hepatic duct and complete clearance of secondary branches of the left intrahepatic ducts (Fig. 6). At a 2-month follow-up visit there had been no further episode of cholangitis.

The incidence of primary hepatolithiasis, also known as Oriental cholangiohepatitis, is increasing in Western countries. Treatment of primary hepatolithiasis remains challenging, and segmental hepatectomy is considered a definitive treatment.¹ Direct per-oral cholangioscopy provides excellent visualization of the intrahepatic ducts and has been used to assist in the removal of biliary stones.²⁻⁴

DISCLOSURE

Dr Khasbab is a consultant for Boston Scientific. All other authors disclosed no financial relationships relevant to this publication.

Abbreviation: EHL, electrohydraulic lithotripsy.

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