



Electrohydraulic lithotripsy under double-balloon endoscope–assisted direct cholangioscopy for treatment of choledocholithiasis in a patient with Roux-en-Y gastrectomy

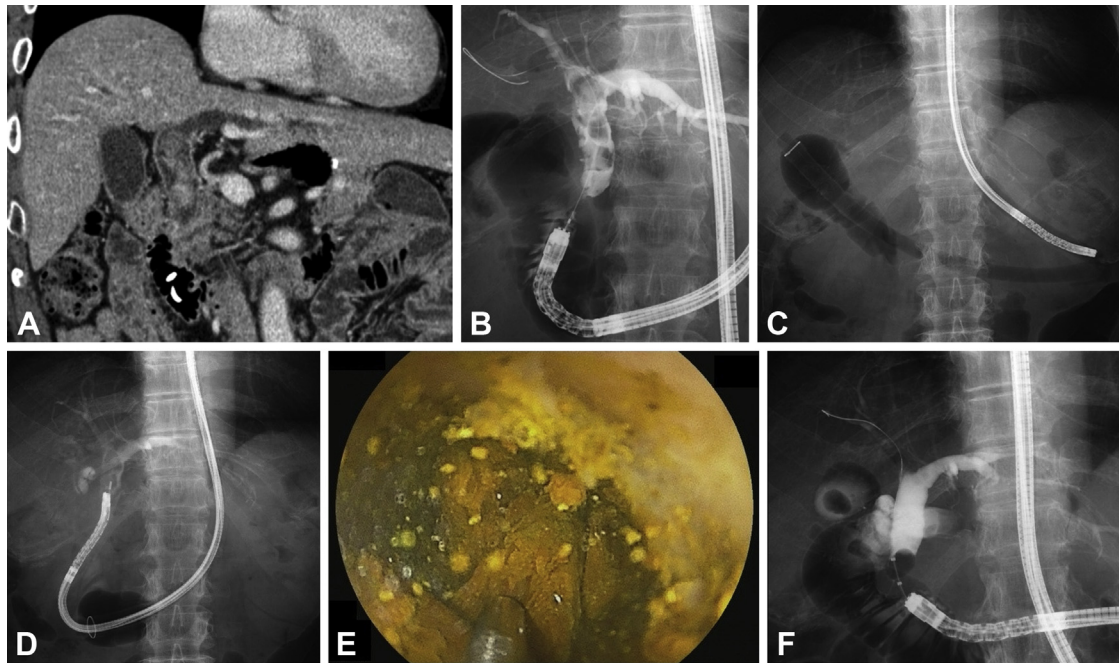


Figure 1. **A**, Coronal section of abdominal CT image showing multiple common bile duct stones. **B**, Cholangiographic view with use of a short double-balloon endoscope (DBE) showing large stones in the common bile duct. **C**, Withdrawal of DBE while the overtube is kept in situ, and insertion of an ultraslim endoscope through the overtube. **D**, Fluoroscopic image of EHL under DBE-assisted direct cholangioscopy using an ultraslim upper endoscope. **E**, Endoscopic image of stone fragmentation by electrohydraulic lithotripsy (EHL) under DBE-assisted direct cholangioscopy by use of an ultraslim upper endoscope. Large bile duct stones were successfully fragmented by EHL. **F**, Balloon-occluded cholangiogram after stone removal, suggesting no residual stones in the bile duct. *DBE*, double-balloon endoscope; *EHL*, electrohydraulic lithotripsy.

Electrohydraulic lithotripsy (EHL) has been effective for fragmentation of large bile duct stones, but it requires direct visualization of the bile duct. A double-balloon endoscope (DBE) facilitates access to the biliary system in patients with surgically altered anatomy, and the feasibility of DBE-assisted cholangioscopy with use of an ultraslim upper endoscope has been reported. Herein, we present a case in which multiple bile duct stones were successfully removed by EHL under DBE-assisted direct transpapillary cholangioscopy.

A 74-year-old man with a history of total gastrectomy and esophagojejunal Roux-en-Y reconstruction for gastric cancer was admitted with multiple common bile duct

stones (Fig. 1A). Cholangiography was carried out with a short DBE (EI-580BT; 9.4-mm diameter, 3.2-mm working channel, Fujifilm Corp, Tokyo, Japan). A cholangiogram revealed 7 stones with a maximum diameter of 25 mm (Fig. 1B). The ampulla was not wide open even after 15-second dilation with a 15-mm balloon (Giga; Century Medical, Tokyo, Japan) without sphincterotomy, and the DBE could not be advanced into the bile duct. Subsequently, we withdrew the DBE, keeping the overtube in situ, and inserted an ultraslim endoscope (EG-580NW2; 5.8-mm diameter, 2.4-mm working channel, Fujifilm Corp) (Fig. 1C). The endoscope was passed through a 10-mm-wide hole in the overtube, which was specifically

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

made for this purpose, and easily inserted into the bile duct along an ERCP catheter (MTW ERCP catheter; MTW Endoskopie, Wesel, Germany). Under direct visualization, EHL was performed with a 4.5F probe and a Lithotron EL 27 Compact (intensity B, pulse frequency (maximum) 500 mJ/50 Hz, Walz Elektronik, Hamburg, Germany), and all the stones were readily fragmented (Figs. 1D and E; Video 1, available online at www.VideoGIE.org). The DBE, which permits the use of most stone-retrieval devices, was inserted again, and fragmented stones were completely removed by use of a basket catheter (Trapezoid RX; Boston Scientific Corp, Marlborough, Mass) and a balloon catheter (Multi-3V Plus; Olympus Corp, Tokyo, Japan) (Fig. 1F).

Despite the potential effectiveness of EHL under direct cholangioscopy with use of a DBE, the technique presented here can be a treatment option for difficult stones in cases of altered anatomy with a relatively small orifice.

DISCLOSURE

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