Electrohydraulic lithotripsy of large bile duct stones under direct cholangioscopy with a double-balloon endoscope

The use of a short double-balloon endoscope facilitates the endoscopic removal of bile duct stones in patients with surgically altered anatomy [1, 2]. However, the narrow and long working channel of the double-balloon endoscope occasionally makes the procedure difficult and time-consuming. Herein, we present the case of a patient with a history of hepaticojejunostomy in whom large bile duct stones were successfully fragmented and removed under direct visualization with a short double-balloon endoscope and electrohydraulic lithotripsy (EHL).

An 82-year-old woman with a history of hepaticojejunostomy and Roux-en-Y reconstruction for congenital biliary dilation was admitted with cholangitis due to intrahepatic bile duct stones. Endoscopic retrograde cholangiopancreatography (ERCP) was carried out with a short double-balloon endoscope (EC-450BI5, 2.8-mm-wide and 152-cm-long working channel; Fujifilm Corp., Tokyo, Japan), and biliary access was readily obtained with a usual ERCP cannula and a 0.025-in guidewire. Cholangiography delineated an 18-mm filling defect in the right hepatic duct (Fig. 1, Fig. 2a).

After attempts to extract the bile duct stones with a retrieval balloon and basket catheters had failed, EHL was performed with the AUTOLITH System and a 1.9-Fr, 250-cm-long probe (Northgate Technologies, Elgin, Illinois, USA). The distal end of the double-balloon endoscope was inserted into the bile duct, and water irrigation for EHL was achieved by pushing the balloon against the anastomosis and flushing saline through the channel. Large stones were successfully fragmented with EHL, followed by complete removal with a balloon catheter (Fig. 2b, Video 1). No procedure-related complications were observed.

This is the first report of successful stone fragmentation with EHL under direct visualization with a short double-balloon enteroscope. The effectiveness of EHL combined with a single-balloon enteroscope has been reported [3], and given the potential superiority of a double-balloon enteroscope over a single-balloon enteroscope in terms of endoscope insertion [4], EHL with a double-balloon enteroscope can further increase the technical success rate of stone removal in patients with surgically altered anatomy.

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References