

## Electrohydraulic lithotripsy of the common bile duct stone under transnasal direct cholangioscopy

Electrohydraulic lithotripsy (EHL) has been recognized as a useful technique for the removal of choledocholithiasis, which is usually performed under the control of a peroral “mother-baby” cholangioscopic system or percutaneous transhepatic cholelithotripsy [1,2]. However, the method may be disadvantageous due to its complicated procedure. Recently, the use of an ultraslim endoscope to direct cholangioscopy [3] as well as endoscopic retrograde cholangiopancreatography [4,5] has been reported. Here, we report on a novel technique of EHL under the control of direct cholangioscopy using an ultrathin scope.

A 78-year-old woman visited our hospital complaining of epigastric colic pain. She had jaundice with elevated serum levels of bilirubin (5.9 mg/dL), alkaline phos-

phatase (1800 IU/L), and C-reactive protein (5.7 mg/dL). Computed tomography depicted a stone with a diameter of 25 mm in the dilated common bile duct (CBD). Unfortunately, we failed to remove the stone by mechanical lithotripsy under conventional transoral cholelithotripsy due to the hardness of the stone. We then performed EHL under direct cholangioscopy, using an ultrathin forward-viewing endoscope (EG530N5, Fujinon-Toshiba, Tokyo, Japan). We inserted the scope via the nasal cavity, taking into account the possibility of naso-biliary drainage [4]. We were able to break the stone into small pieces, which were then successfully removed without any complications (► Fig. 1).

To our knowledge, this is the first report of EHL performed under transnasal direct

cholangioscopy. Peroral EHL is often time-consuming and may sometimes cause dysphagia, probably due to the long-term compression of the pharynx by the scope. Transnasal EHL might be beneficial because the insertion route is likely to be less irritant than the transoral approach. Moreover, because the procedure does not require special equipment or invasive approaches, this new method can be applied widely to patients with CBD stones.

Endoscopy\_UCTN\_Code\_TTT\_1AR\_2AH

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DOI 10.1055/s-2007-995446

Endoscopy 2007; 39: E63–E63

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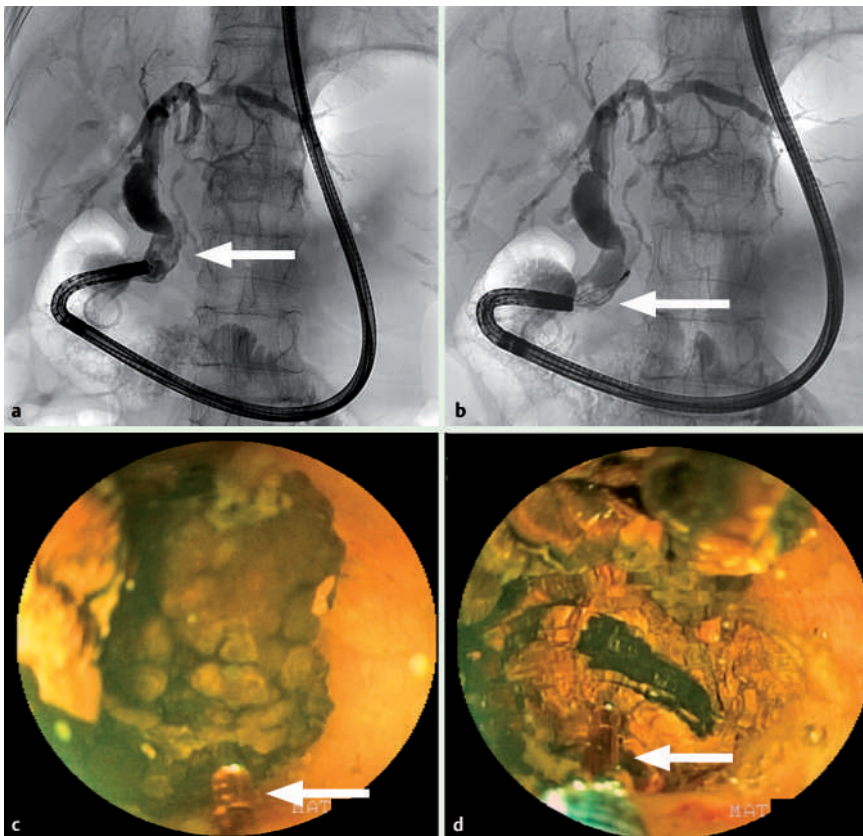
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**Fig. 1** Electrohydraulic lithotripsy (EHL) of a common bile duct (CBD) stone under transnasal direct cholangioscopy using an ultrathin scope. **a** Fluoroscopy of an ultrathin scope inserted in the CBD. An arrow indicates the CBD stone. **b** Fragmented stones were removed using a basket catheter after EHL (arrow). **c** and **d** Cholangioscopic view of the CBD stone before and after EHL, respectively. An arrow represents a bipolar electrode placed at the surface of the stone.