

## A novel endoscopic lithotripsy technique for a huge common bile duct stone: endoscopic snare lithotripsy

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Recently, large common bile duct (CBD) stones have been treated with endoscopic papillary large balloon dilation (EPLBD) [1,2] or electronic hydraulic lithotripsy (EHL) [3,4]; however, difficult-to-treat cases remain [5]. Here, we report a case in which a novel lithotripsy method using a snare was successfully used to treat a large stone occupying the entire CBD lumen.

An 85-year-old man with recurrent biliary obstruction secondary to obstructive cholangitis caused by a large CBD stone was referred to our hospital for stone removal.

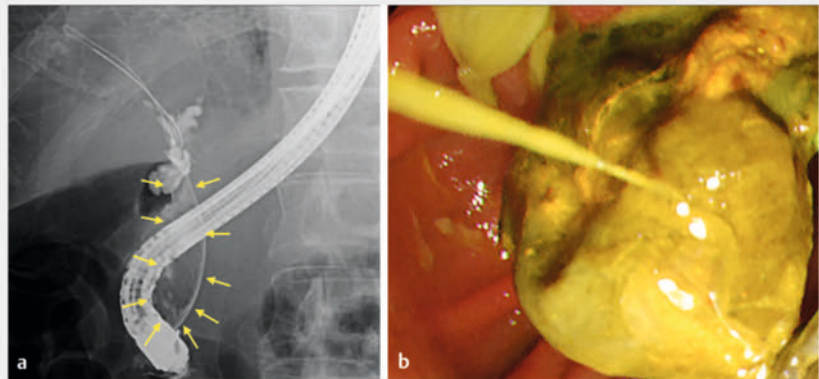
Cholangiography confirmed the presence of a stone occupying the CBD lumen, and the end of the stone was delivered from the duodenal papilla (► Fig. 1). Since neither EPLBD nor EHL could be performed, we attempted to grasp the delivered part with grasping forceps, but the stone just broke up gradually, and the procedure was unsuccessful (► Fig. 2).

However, it was possible to grasp the stone without breaking it up using a snare (Snare Master Plus, 15 mm; Olympus, Tokyo, Japan) and to perform electronic stone cutting with snaring (► Fig. 3).

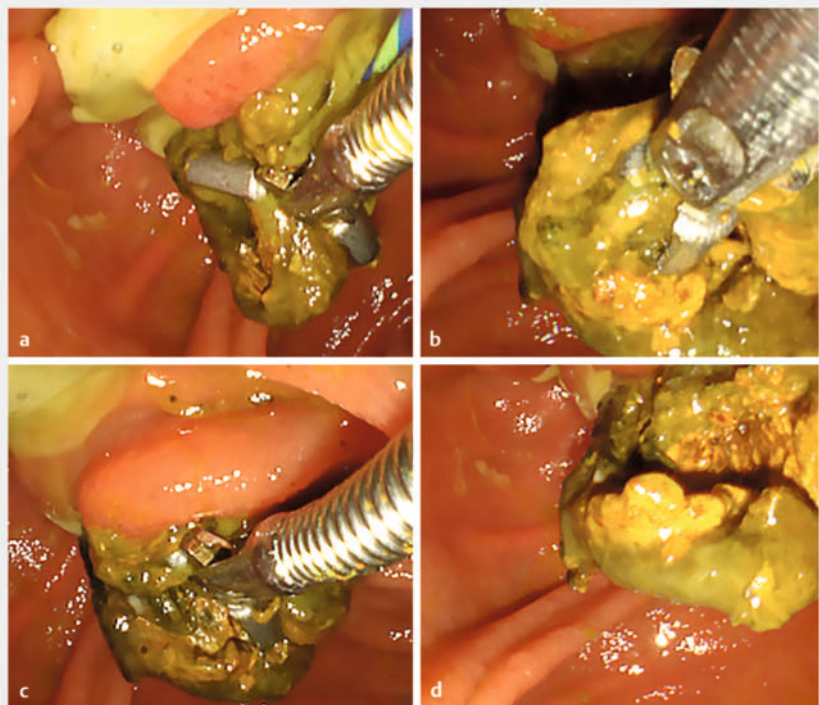
We attempted to remove the stone by repeatedly pulling it out to a length at which it could not be pulled out any further, cutting it with the snare, leaving the part near the papilla that was being grasped, grasping it again, pulling it out, and repeating the cutting (► Fig. 4). By repeating this process several times, we completely removed the large stone (► Fig. 5, ► Video 1).

This novel endoscopic snare lithotripsy may be a valuable option for removing difficult-to-treat large stones.

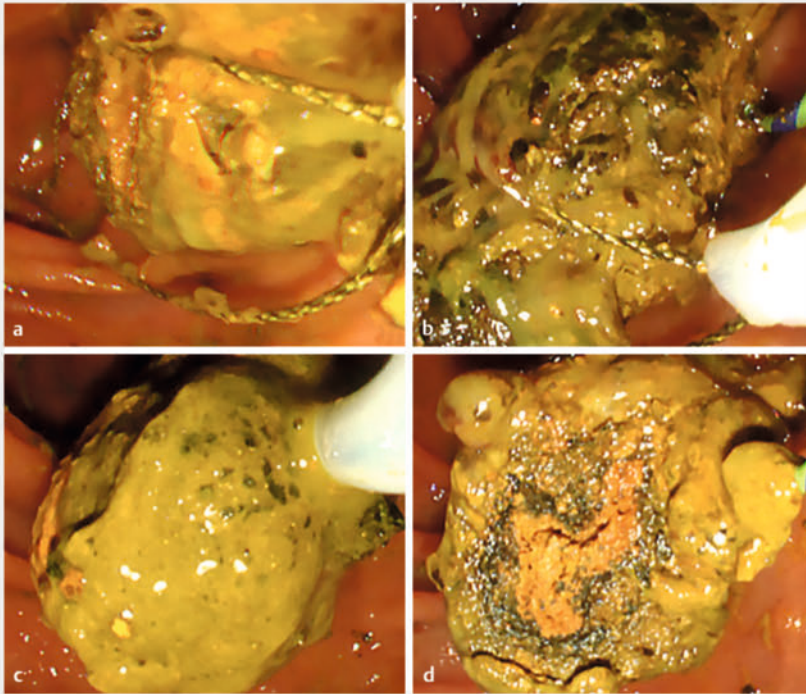
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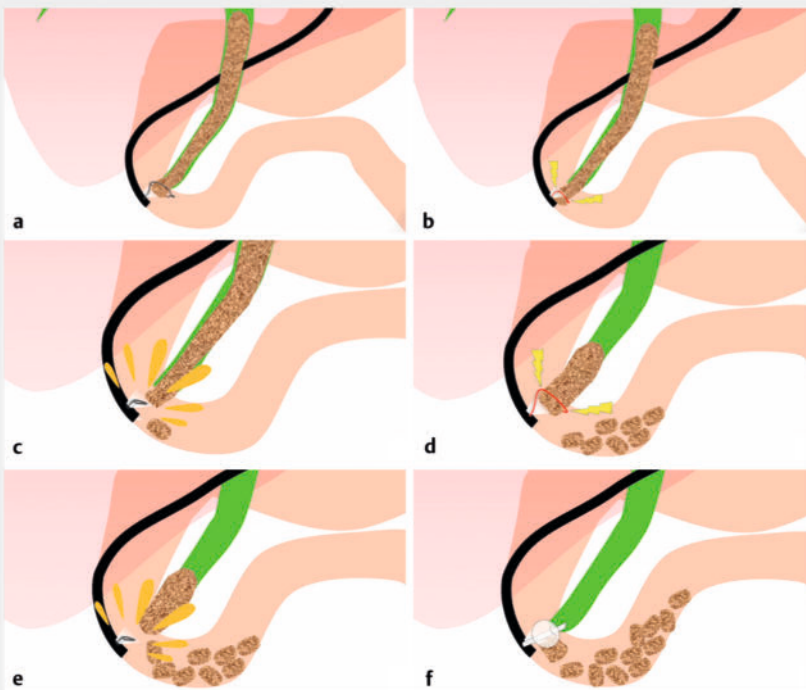
► Fig. 1 a Cholangiography confirms a stone occupying the common bile duct lumen (yellow arrow). b The end of the stone is delivered from the duodenal papilla.



► Fig. 2 We attempted to grasp the delivered part with grasping forceps, but the stone just broke gradually and the procedure was unsuccessful.



► **Fig. 3** The stone was grasped without breaking using a snare, and electronic stone cutting with snaring was possible.



► **Fig. 4** We removed the stone by repeatedly pulling it out to a length at which it could not be pulled out any further, cutting it with a snare, and leaving the part that is being grasped near the papilla.

## Conflict of Interest

The authors declare that they have no conflict of interest.

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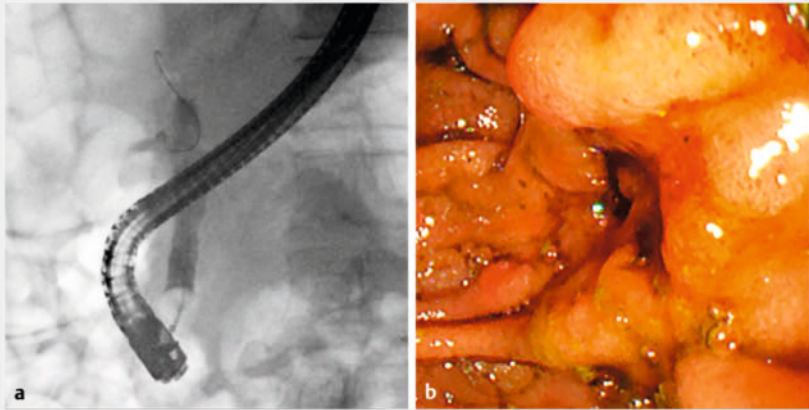
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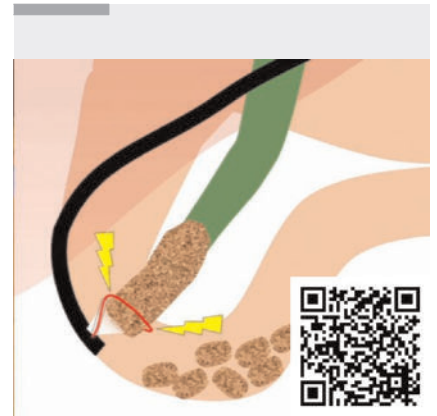
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► **Fig. 5** By repeating endoscopic snare lithotripsy several times, we completely removed the stone.



► **Video 1** This video introduces a novel endoscopic snare lithotripsy technique for treating large common bile duct stones.

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