Basket-assisted method for removal of floating pancreatic stones by electronic hydraulic lithotripsy through peroral pancreatoscopy

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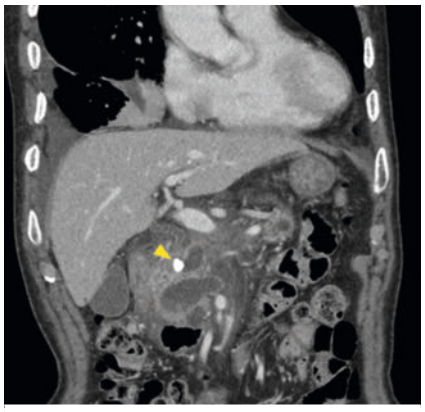
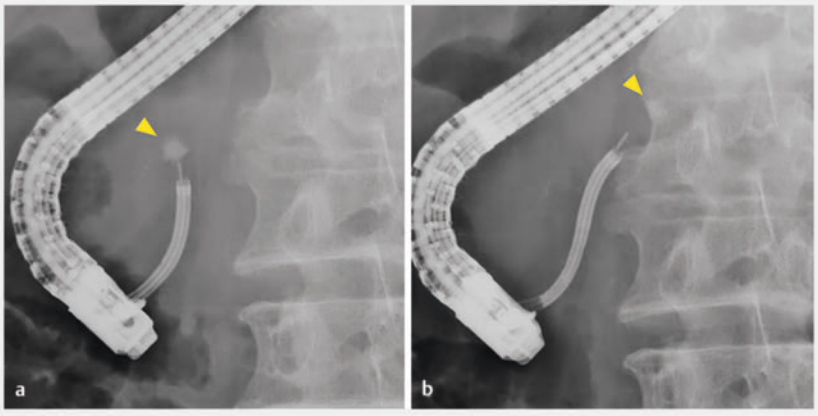
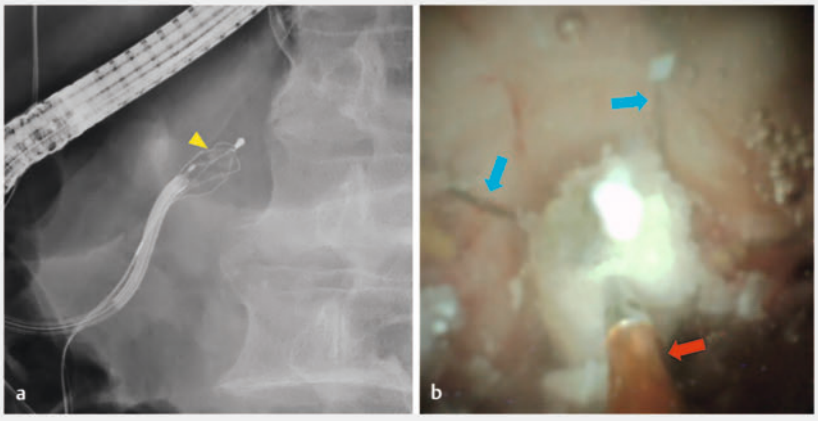


▶ **Fig. 1** Contrast-enhanced computed tomography revealed a pancreatic fistula caused by a stone within the pancreatic head (yellow arrowhead).



▶ **Fig. 2** Fluoroscopic pancreatogram obtained during electronic hydraulic lithotripsy through peroral pancreatoscopy. **a, b** When electronic hydraulic shock was applied, the intact pancreatic stone (yellow arrowhead) floated in the direction of the pancreatic tail without fragmentation.



▶ **Fig. 3** **a** The pancreatic stone (yellow arrowhead) was held in place by a basket catheter and successfully fragmented by electronic hydraulic lithotripsy. **b** The view through the pancreatoscope showed the electronic hydraulic lithotripsy probe (red arrow) targeted on the pancreatic stone, which was grasped by the wire of the basket catheter (blue arrow).

Management of pancreatic stones associated with chronic pancreatitis is challenging and requires a multidisciplinary approach. The usefulness of electronic hydraulic lithotripsy (EHL) through peroral pancreatoscopy (POPS) was recently described in several reports [1, 2, 3, 4]. However, the electronic hydraulic shock applied during EHL may cause the stones to float into the dilated main pancreatic duct before fragmentation is achieved. Then the stone may be pushed deeply into the pancreatic tail, resulting in its incarceration there or the development of obstructive pancreatic ductitis. We present a case in which a basket catheter was used to hold the pancreatic stone in a stable position, allowing the successful performance of EHL through POPS.

An 85-year-old man with chronic pancreatitis developed pleural effusion and abdominal accumulation of pancreatic fluid originating from a pancreatic fistula secondary to a stone within the pancreatic head (▶ **Fig. 1**). Using a transpapillary approach, we placed a plastic stent beyond the stone. After improvement of the pancreatic fistula, we attempted to crush the stone by EHL with POPS. However, this procedure was insufficient because of the hardness of the stone, and the applied electrohydraulic shock caused the intact stone to float in the direction of the pancreatic tail (▶ **Fig. 2**). A basket catheter was inserted to grasp the stone, and disassembled. Then the scope was removed, leaving the basket within the pancreatic duct. We reinserted the duodenoscope and pancreatoscope, followed by resumption of EHL to crush the stone as it was held in a stable position by the basket (▶ **Fig. 3** and ▶ **Video 1**). After complete fragmentation, the basket catheter was removed, and the stone fragments were successfully swept up

VIDEO

▶ **Video** A basket catheter contributed to successful stone fragmentation by electronic hydraulic lithotripsy through peroral pancreatoscopy. The basket prevented the stone from floating into the main pancreatic duct when electronic hydraulic shock was applied.

with a microbasket through the pancreatoscope.

This technique may be a useful option for management of floating pancreatic stones during the performance of EHL through POPS.

Conflict of Interest

The authors declare that they have no conflict of interest.

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