

Intraductal cholangioscopy-guided electrohydraulic lithotripsy as a rescue therapy for impacted common bile duct stones within a Dormia basket

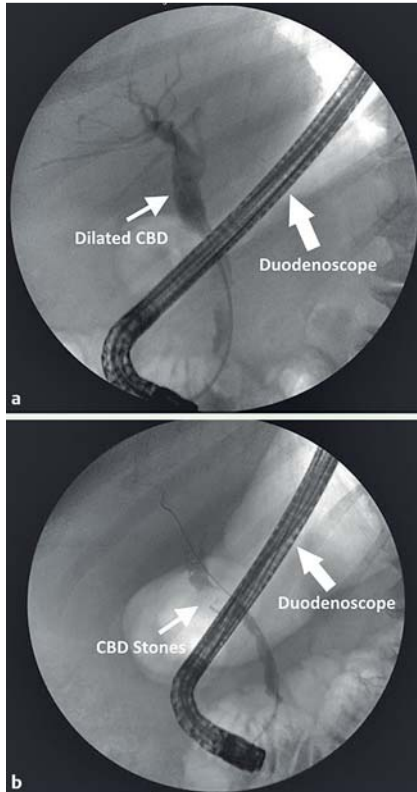


Fig. 1 Endoscopic retrograde cholangiopancreatography (ERCP) showing: **a** dilated proximal common bile duct (CBD) with normal-appearing middle and distal segments; **b** multiple filling defects representing CBD stones.

The treatment of bile duct stones has evolved from surgery to endoscopic management, which has a success rate of 90% [1]. Impaction of the lithotripsy basket during endoscopic removal of a common bile duct (CBD) stones is seen in up to 5.9% of the cases [2,3] and represents one of the most feared complications; as it usually results in open surgical intervention.

We report our experience with a 72-year-old woman who underwent laparoscopic cholecystectomy followed by an intraoperative cholangiogram, which demonstrated retained CBD stones. Subsequently, endoscopic retrograde cholangiopancreatography (ERCP) was performed and showed dilated proximal CBD measuring 12 mm in diameter (▶ **Fig. 1 a**) with multiple filling defects representing CBD stones of 10–20 mm in diameter (▶ **Fig. 1 b**).

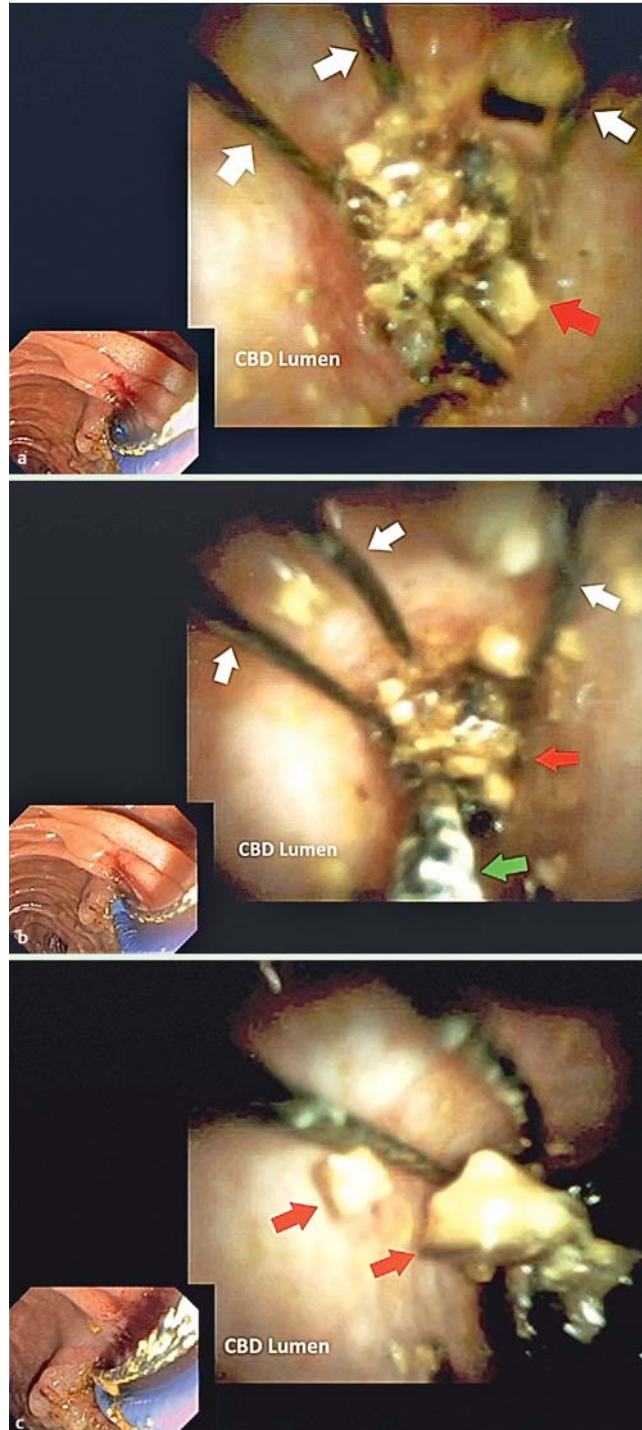
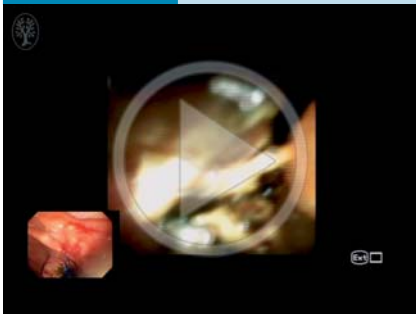


Fig. 2 Cholangioscopic views showing: **a** multiple stones (red arrow) impacted within the Dormia basket (white arrows indicate the basket's wires); **b** stone fragmentation under direct visualization using the electrohydraulic lithotripsy (EHL) probe (green arrow); **c** multiple stone fragments (red arrows) after EHL was performed.

Multiple attempts were made to extract these stones, including the use of mechanical lithotripsy via a Dormia basket (Trapezoid RX; Boston Scientific, Marlborough, Massachusetts, USA), but these at-

tempts were unsuccessful and resulted in impaction of the stones within the basket, such that it was not possible to close, open, or retrieve it.

Video 1



The whole procedure is demonstrated in this video from the insertion of the cholangioscope into the common bile duct (CBD) to electrohydraulic lithotripsy (EHL) being performed under direct visualization with the eventual untangling and removal of the impacted basket.



Fig. 3 Endoscopic image showing a plastic stent (green arrow) inserted into the common bile duct following stone extraction and basket retrieval.

A rescue lithotripter was not used to retrieve the basket because of concerns regarding possible wire fracture. We therefore used a novel technique by advancing a single-operator intraductal cholangioscope (SpyGlass DS; Boston Scientific) to the middle third of the CBD alongside the basket. Multiple stones were identified within the impacted basket (● Fig. 2a). Electrohydraulic lithotripsy (EHL) was used to fragment the impacted stones (● Fig. 2b). After multiple attempts, a good fragmentation of the stones was achieved (● Fig. 2c) and the basket was then untangled and retrieved (● Video 1). The bile duct was swept with a balloon and cleared from all stones fragments, with subsequent placement of plastic biliary stent (● Fig. 3). The patient did well postoperatively.

In conclusion, optimum visualization and ease of operability make intraductal cholangioscopy-guided EHL an ideal rescue therapy for impacted stones within a Dormia basket. This technique could certainly help avoid more invasive interventions, such as surgical exploration.

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Competing interests: None

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References

- 1 Neuhaus H. Endoscopic and percutaneous treatment of difficult bile duct stones. *Endoscopy* 2003; 35: S31–S34
- 2 Schneider MU, Matek W, Bauer R et al. Mechanical lithotripsy of bile duct stones in 209 patients – effect of technical advances. *Endoscopy* 1988; 20: 248–253
- 3 Sauter G, Sackmann M, Holl J et al. Dormia baskets impacted in the bile duct: release by extracorporeal shock-wave lithotripsy. *Endoscopy* 1995; 27: 384–387

Bibliography

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