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

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. 1a) with multiple filling defects representing CBD stones of 10–20 mm in diameter (Fig. 1b).

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

![Endoscopic views showing:](image1)

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

![Cholangioscopic views showing:](image2)

**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.
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 (Figure 2a). Electrohydraulic lithotripsy (EHL) was used to fragment the impacted stones (Figure 2b). After multiple attempts, a good fragmentation of the stones was achieved (Figure 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 (Figure 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.

Competing interests: None

References

Bibliography
DOI http://dx.doi.org/10.1055/s-0042-119039
Endoscopy 2016; 48: E357–E358
© Georg Thieme Verlag KG
Stuttgart · New York
ISSN 0013-726X

Corresponding author
Khalil Aloreidi, MD
University of South Dakota – Sanford School of Medicine
1400 West 22nd Street
Sioux Falls
SD 57105
USA
khalil.aloreidi@usd.edu

Khalil Aloreidi1, Bhavesh Patel2, Muslim Atiq2
1 University of South Dakota School of Medicine, Department of Internal Medicine, Sioux Falls, South Dakota, USA
2 Sanford USD Medical Center, Gastroenterology, Sioux Falls, South Dakota, USA

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.

Cases and Techniques Library (CTL)