Integrated cholangioscopy-assisted lithotripsy and a novel basket approach for managing complex cystic duct confluence stones

Endoscopic retrograde cholangiopancreatography (ERCP)-guided extraction is the gold standard for biliary stone management. However, cystic duct confluence (CDC) stones pose significant challenges due to their unique anatomical and stone characteristics, with a lack of consensus on the optimal therapeutic approach [1, 2]. The issue is further compounded in cystic-dilated CDC spaces, in which stones are prone to escaping the retrieval catheter. Cholangioscopy-assisted lithotripsy is a promising technique that facilitates complex stone management through direct visual stone fragmentation [3]. Featuring a helical 8-wire design with a narrower interwire space at its tip and rotational capability, the novel basket (RASEN2; KANEKA Medix, Tokyo, Japan) has shown superior stone clearance versus conventional baskets in an experimental ex vivo setting [4]. We describe an integrated approach using cholangioscopy-assisted lithotripsy and RASEN2 for CDC stone removal.

A 31-year-old man was diagnosed at a prior hospital with recurrent cholecystitis and cholangitis due to a large stone impacted at the CDC (Fig. 1). Initial attempts of ERCP-guided extraction were thwarted by the stone’s impaction and anatomical complexity, rendering mechanical lithotripsy ineffective. Temporary biliary stenting and sphincterotomy were performed. The extensive adhesions accompanied by persistent perigallbladder inflammation made surgical intervention infeasible. We performed cholangioscopy-assisted lithotripsy following patient referral to our institution (Fig. 2, Video 1).

Under cholangioscopy visualization (SpyGlass DS; Boston Scientific, Marlborough, Massachusetts, USA), a large CDC stone occupying the lumen was identified and then successfully fragmented using electrohydraulic lithotripsy. Attempts to capture the fragmented stone with conventional retrieval basket and balloon catheters failed due to the enlarged CDC. However, switching to the RASEN2 basket facilitated fragment removal by navigating the complexities of the dilated lumen, which ultimately led to complete stone clearance as confirmed by cholangioscopic and cholangiographic assessments. Post-procedure, the patient experienced no recurrences of cholecystitis or cholangitis.

The synergistic application of cholangioscopy-assisted lithotripsy and RASEN2 appears to be an effective approach for challenging CDC stones.

Conflict of Interest

The authors declare that they have no conflict of interest.

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