

Dilation Assisted Stone Extraction (DASE)



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Figure 1

Patient History

A 53-year-old woman underwent cholecystectomy 3 years ago for symptomatic cholelithiasis. During the past year she has had intermittent episodes of right upper quadrant pain. She presented to her local hospital with a severe episode of right upper quadrant pain radiating to the back with associated jaundice. Laboratory tests revealed a total bilirubin of 7.3, alkaline phosphatase 420 (normal <125); AST/ALT 125/142 (normal <41/45). Abdominal ultrasound showed a dilated biliary tree and suggested a stone in the distal bile duct. MRCP showed 2 stones in the common bile duct with a dilated biliary tree. An ERCP was done by the local gastroenterologist. The cholangiogram showed 2 bile duct stones. A sphincterotomy was done but the stones could not be removed using a stone retrieval balloon and a basket. A 10-French stent was placed. The patient was referred to our institution for reattempt at stone removal 3 weeks later.

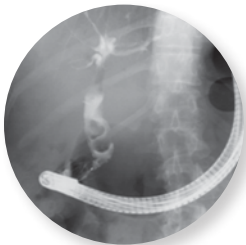


Figure 2

Procedure

Screening endoscopic views of the papilla showed the biliary stent in place. Following stent removal, a patent sphincterotomy was identified (**Figure 1**). The cholangiogram showed a dilated biliary tree with two stones measuring a maximum of 14 mm. The terminal 15 mm of bile duct was narrowed (**Figure 2**), preventing stone removal with a stone retrieval balloon or basket. Therefore, a decision was made to proceed with Wireguided hydrostatic balloon Dilation Assisted Stone Extraction (DASE). A CRE Wireguided balloon was advanced under endoscopic and fluoroscopic guidance and positioned across the papillary orifice. Incremental dilation was performed using a 12-13.5-15 mm CRE balloon. The balloon was maintained inflated until the waistline disappeared (**Figures 3 & 4**). Following deflation of the balloon, the biliary orifice was now gaping (**Figure 5**). Following dilation, extraction of the stones was easily performed using a standard stone retrieval basket (**Figure 6**). A final cholangiogram showed no residual stones and no evidence of perforation.



Figure 3

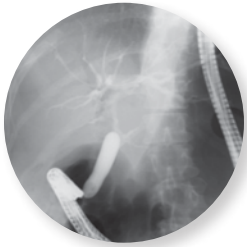


Figure 4



Figure 5

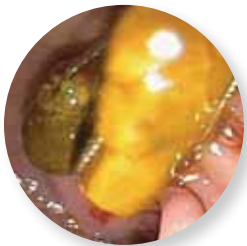


Figure 6

Post Procedure

The patient was observed in our outpatient recovery unit for four hours. She had no post-procedure pain and was discharged. Telephone follow-up was done 7 days later. The patient was totally asymptomatic.

Discussion

There are a variety of options of therapy that can be considered for the management of large bile duct stones that cannot be removed with standard stone retrieval balloons and baskets following endoscopic sphincterotomy. Traditionally, mechanical lithotripsy has been the most widely utilized technique to manage these stones. However, this technique requires stone capture. Thus, impacted stones and stones located in the intrahepatic ducts may be impossible to remove using mechanical lithotripsy. Moreover, very hard stones may be resistant to stone fragmentation. "DASE has clearly altered our approach to the management of large bile duct stones and is being adopted by many endoscopic centers throughout the world."

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