



Single-use duodenoscope in the management of an elderly patient with difficult bile duct stones: laser lithotripsy using a disposable cholangioscope

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Conventional duodenoscopes are associated with significant risk of transmitting infections during ERCP because they are difficult to sterilize.¹ The single-use duodenoscope has helped in improving exogenous infection rates related to ERCP^{2,3}; however, there are limited data on their efficacy in complex therapeutic procedures. Here, we present a case of difficult bile duct stones in an elderly patient who was successfully treated by laser lithotripsy using a disposable duodenoscope and cholangioscope.

A 98-year-old man presented with symptoms of jaundice and abdominal pain of 1-week duration. Imaging showed multiple filling defects in the common bile duct with prominent dilatation of the intrahepatic biliary radicals.

Advancing age has been considered a risk factor for post-ERCP cholangitis⁴; hence, we planned to use the

novel single-use duodenoscope to limit the chances of ERCP-related infections. The Novel EXALT Model D (Boston Scientific, Marlborough, Mass, USA) was used for the procedure (Figure 1). It is lightweight and made of recyclable plastic, with a 4.2-mm working channel and a 1240-mm working length (video 1 available online at www.giejournal.org).

In the index patient, after introduction of a novel single-use duodenoscope, selective common biliary duct (CBD) cannulation was performed, and a guidewire (0.025-inch, Visiglide Guidewire, Olympus Corp, Tokyo, Japan) was passed into the common bile duct. A cholangiogram (Figure 2) was consistent with earlier imaging; biliary sphincterotomy was performed using a Clevercut3V sphincterotome (Olympus Corp). Balloon sphincteroplasty (up to 12 mm) was performed using a controlled radial expansion balloon dilator (Boston Scientific Corp). Later, a balloon sweep was performed using a stone extractor



Figure 1. Novel single-use (EXALT Model D, Boston Scientific Corp) duodenoscope.



Figure 2. Initial cholangiogram showing multiple common biliary duct calculi.



Figure 3. Image showing disposable single-operator cholangioscope (SpyScope DS, Boston Scientific Corp) attached to single-use duodenoscope.



Figure 4. Fluoroscopic image showing cholangioscope and large, visible calculi in the common biliary duct.



Figure 5. Occlusion cholangiogram showing a normal common biliary duct with no calculi.

balloon, and multiple calculi were extracted. However, 1 large stone was still seen on subsequent cholangiogram.

Cholangioscopy with targeted laser lithotripsy was planned. After introduction of the single-use, single-operator cholangioscope (SpyScope DS, Boston Scientific Corp; [Figure 3](#)), the stone was identified in the proximal common bile duct ([Figure 4](#)). A LightTrail laser fiber (Boston Scientific Corp) was used to effectively pulverize the large CBD calculi. A balloon sweep was performed to extract the well-fragmented large calculus. Clearance of the CBD was confirmed with the use of balloon occlusion cholangiogram ([Figure 5](#)). In view of cholelithiasis, a 7F, 7-cm double-pigtail plastic stent (Zimmon, Cook medical LLC, Bloomington, IN, USA) was placed. The patient was comfortable after the procedure, and his laboratory results were normal 1 week after the procedure.

The elevator section of a conventional duodenoscope is difficult to reprocess because of its complex structure, including a recessed space containing an elevator, its cable, and its channel. This leads to the formation of biofilms, leading to increased post-ERCP infections.⁵ A major concern with disposable duodenoscopes is the need to be able to effectively recycle the endoscope to avoid an environmental impact. This report, to our knowledge, demonstrates for the first time the therapeutic benefits of single-use duodenoscopes in performing complex procedures including cholangioscopy-guided laser lithotripsy. The single-use duodenoscope holds promise in reducing postprocedural infection without compromising the therapeutic capabilities of the duodenoscope.

DISCLOSURE

All authors disclosed no financial relationships.

Abbreviation: CBD, common biliary duct.

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