



Use of a novel single-use disposable duodenoscope for ERCP: selected clips from a real-world case series

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Background and Aims: Single-use/disposable duodenoscopes represent one strategy to decrease the risk of patient infection related to ERCP. A preliminary case series was performed to demonstrate the feasibility and performance of a new single-use duodenoscope in a real-world clinical setting.

Methods: A single expert endoscopist performed ERCP for standard indications using a single-use duodenoscope.

Results: Videos of several key steps of ERCP obtained from 4 patients are shown to demonstrate that these steps can successfully be performed using the new single-use device. Clip 1 shows a patient with a large pancreatic duct stone in whom the image quality and maneuverability are demonstrated. Clip 2 shows a patient with choledocholithiasis and demonstrates bile duct cannulation, cholangiography, and sphincterotomy. Clip 3 shows a patient with acute cholecystitis and choledocholithiasis who underwent bile duct cannulation, sphincterotomy, and balloon sweeps. Clip 4 shows a patient with a history of liver transplant and refractory biliary anastomotic stricture who presented with abnormal liver tests and fever and underwent removal of a metal stent and placement of plastic stents.

Conclusions: A single-use duodenoscope can successfully accomplish fundamental steps of ERCP. This device can potentially eliminate the risk of patient-to-patient infections linked to contaminated instruments. Larger studies are required to assess device performance. (VideoGIE 2020;5:693-6.)

CASE SERIES

The implementation of single-use disposable duodenoscopes is one strategy proposed to decrease the risk of patient infection related to contaminated endoscopes during ERCP.¹ A preliminary case series was performed to demonstrate the feasibility and performance of a new single-use duodenoscope.² Videos of several key steps of ERCP obtained from 4 patients in this study are shown here to demonstrate that these steps can successfully be performed using the new device in a real-world setting (Video 1, available online at www.VideoGIE.org). All procedures were performed by a single expert endoscopist at our institution on patients who presented for ERCP for standard indications and who passed inclusion/exclusion criteria for the original study.

Clip 1 shows a 67-year-old woman with a history of abdominal pain attributed to a large pancreatic duct stone who presented for removal. This patient served as a run-in for the device to demonstrate image quality and maneuverability of the endoscope as it passed into the ERCP position (Figs. 1-3).

Clip 2 shows a 72-year-old woman with abdominal pain and a common bile duct stone on abdominal ultrasound

who presented for ERCP for stone removal. The clip demonstrated successful bile duct cannulation, cholangiography, and sphincterotomy with the disposable duodenoscope after which balloon sweeps resulted in successful stone removal and duct clearance (Fig. 4).

Clip 3 shows a 64-year-old man with acute cholecystitis and choledocholithiasis who underwent bile duct cannulation of a native papilla, discovery of multiple small filling defects, sphincterotomy, and balloon sweeps with removal of purulent material and debris. These maneuvers demonstrate endoscope torque and elevator motion. The patient had plastic stents placed to maintain drainage (Fig. 5).

Clip 4 shows a 52-year-old man with a history of liver transplant that was complicated by a refractory biliary anastomotic stricture presenting with elevated liver tests and fever. The patient last underwent ERCP 3 months earlier with the discovery of a bile duct stone proximal to stricture, treated with cholangioscopy, electrohydraulic lithotripsy, and fully covered metal stent placement to promote debris drainage and to dilate the stricture. In the present case, the stent was noted to have migrated distal to the stricture and was occluded with debris. It was removed with a snare through the working channel of the disposable



Figure 1. Single-use disposable duodenoscope.

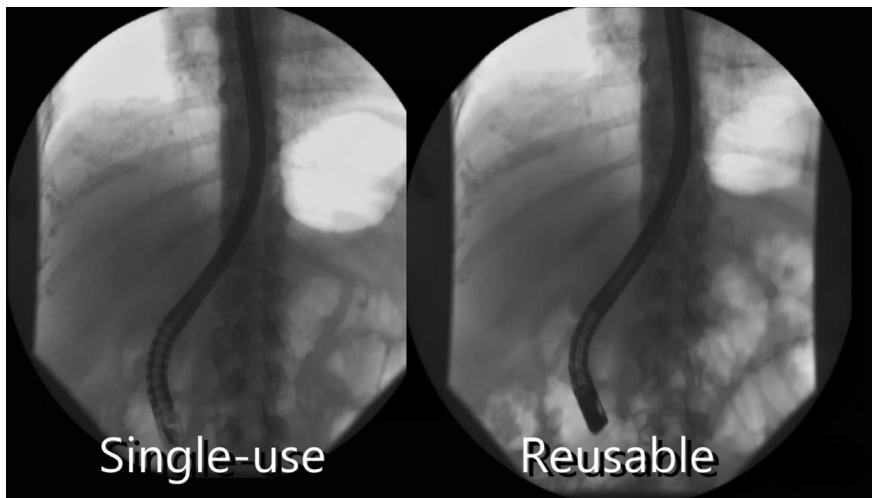


Figure 2. Single-use and reusable duodenoscopes in short ERCP position, for comparison.

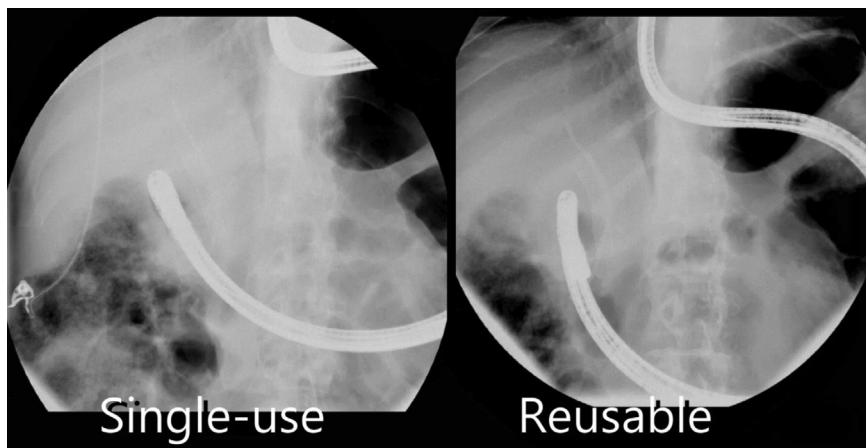


Figure 3. Single-use and reusable duodenoscopes in long ERCP position, for comparison.

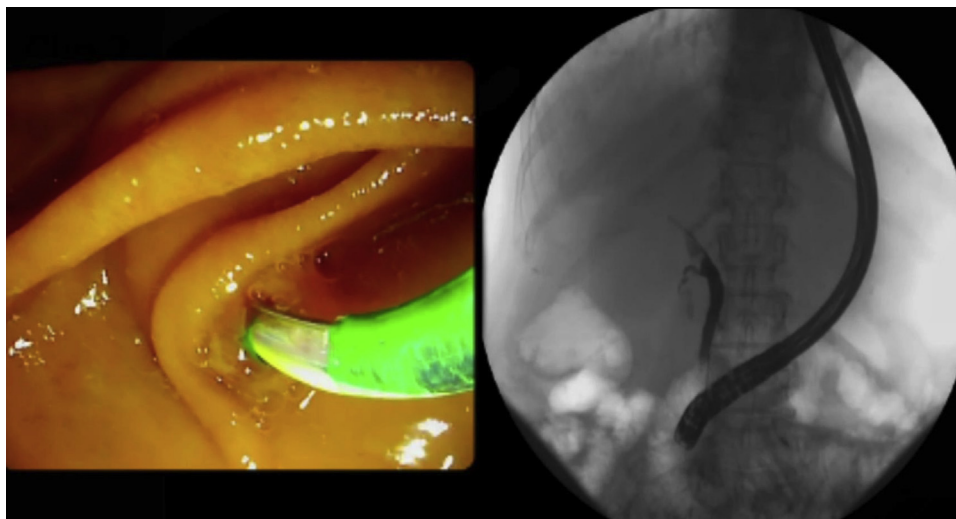


Figure 4. Biliary cannulation with the single-use duodenoscope.

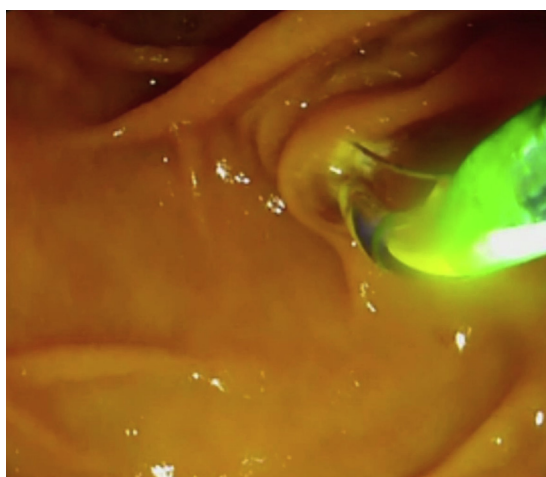


Figure 5. Biliary sphincterotomy with the single-use duodenoscope.

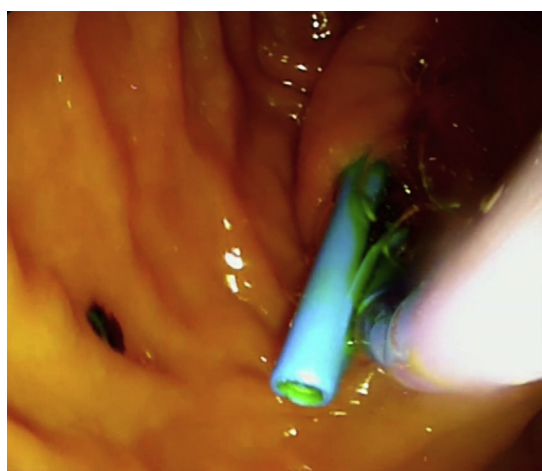


Figure 7. Plastic biliary stent placement with the single-use duodenoscope.

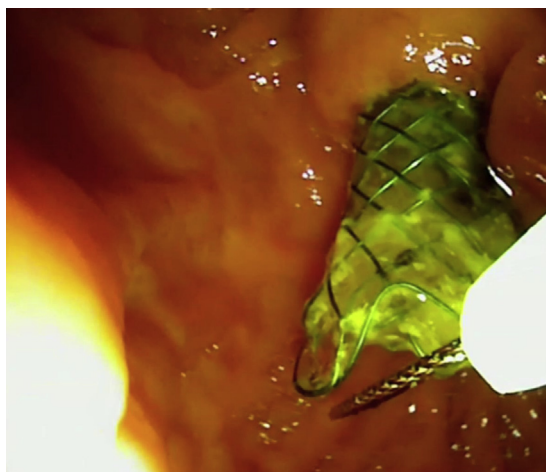


Figure 6. Metal stent removal with the single-use duodenoscope.

duodenoscope (Fig. 6). The subsequent cholangiogram demonstrated a persistent biliary anastomotic stricture that underwent balloon dilation followed by placement of 3 straight plastic biliary stents across the stricture to maintain patency (Fig. 7). These maneuvers, particularly stent placement, required elevator motion as well as pulling traction on the disposable endoscope to traverse the tight stenosis.

In conclusion, the video clips demonstrate luminal visualization, endoscope maneuverability, native papilla cannulation, sphincterotomy, stent placement, and stent removal by using a disposable duodenoscope. The successful use of this device has significant clinical implications in that single-use duodenoscopes can potentially eliminate the risk of patient-to-patient infections linked to contaminated instruments. The new device provides an alternative to other strategies (including enhanced reprocessing methods and disposable parts of reusable devices) to

reduce the risk of ERCP-related infections. Larger performance and safety studies of the new device are required.

DISCLOSURE

Dr Thaker is a consultant for Boston Scientific. Dr Muthusamy is a consultant for Boston Scientific, Medtronic, and Medivators.

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