

## Duodenal metal stent deployment using a novel, cholangioscope-guided, guidewire insertion technique

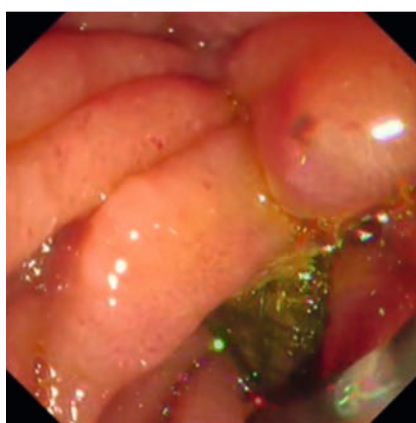
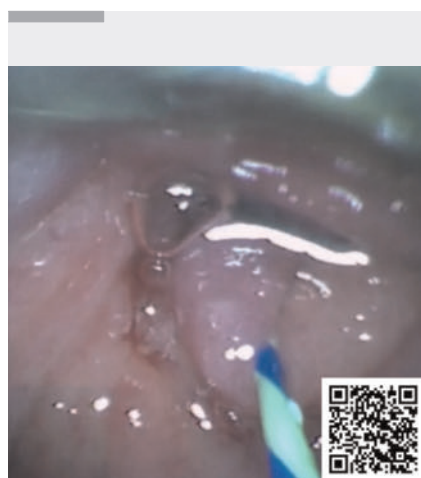


Malignant gastric outlet obstruction (GOO) occurs with advanced or metastatic malignancies located in the duodenum and is present in up to 19% of patients with unresectable malignant tumors [1]. Duodenal obstruction can be traditionally treated by gastrojejunostomy, but endoscopic duodenal stenting has been suggested as a less invasive treatment [2]. More recently, endoscopic ultrasound-guided gastroenterostomy using lumen-apposing metal stents has been reported [3,4]. However, as this technique may need to be performed by experts or in high-volume centers, endoscopic duodenal stenting is still an important procedure. During duodenal stenting, guidewire passage through the stricture to the anal side is needed, but this technique is sometimes challenging. Recently, a novel cholangioscope (eyeMAX; Micro-Tech Co., Ltd., Nanjing, China), which offers improved visibility, has become available. This report describes guidewire deployment

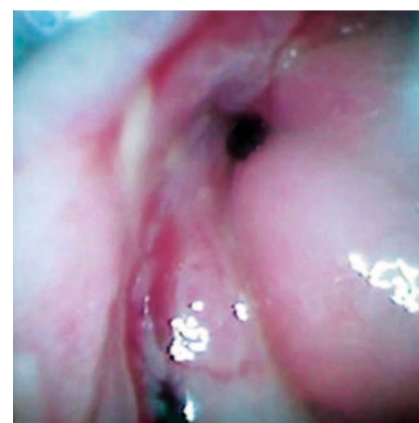
using this novel cholangioscope for guidance in duodenal stent deployment in a case of duodenal obstruction.

A 58-year-old man was admitted to our hospital with GOO caused by cancer of the head of the pancreas. This patient had previously undergone biliary drainage using a covered self-expandable metal stent (SEMS). Duodenal stenting was attempted. First, the duodenoscope was advanced into the ampulla of Vater. However, because of the SEMS, the duodenal obstruction site could not be observed endoscopically. Therefore, an en-

doscopic retrograde cholangiopancreatography catheter was inserted (► Fig. 1), and guidewire insertion through the obstruction site was attempted; however, guidewire insertion failed (► Fig. 2). A novel cholangioscope was then inserted, and the obstruction site could be observed clearly (► Fig. 3). Guidewire insertion was performed successfully under direct visualization (► Fig. 4). After duodenography, duodenal metal stent deployment was performed successfully without any adverse events (► Fig. 5, ► Video 1).



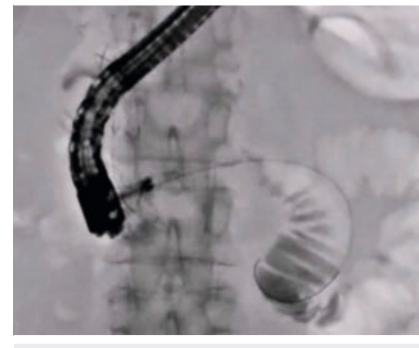
► **Fig. 1** An endoscopic retrograde cholangiopancreatography catheter was inserted because the duodenal obstruction site could not be seen owing to the presence of the biliary stent.



► **Fig. 3** The duodenal obstruction site could be seen clearly with the novel cholangioscope.

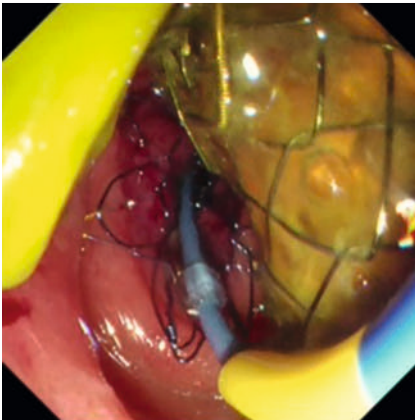


► **Fig. 2** Guidewire insertion failed under fluoroscopic guidance.



► **Fig. 4** Guidewire insertion was performed successfully.

► **Video 1** Guidewire insertion through the duodenal obstruction site was attempted but failed. A novel cholangioscope was inserted, and the obstruction site was observed. Guidewire insertion and duodenal stenting were performed successfully.



► **Fig. 5** Duodenal stenting was performed successfully.

In conclusion, a novel cholangioscope may be useful not only for biliary disease, but also for guidewire insertion under direct visualization, thanks to improved visibility.

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### Conflict of Interest

The authors declare that they have no conflict of interest.

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