Endoscopic clipping to prevent papillary obstruction when closing a duodenal perforation with an over-the-scope clip

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The over-the-scope clip (OTSC; Ovesco Endoscopy GmbH, Tuebingen, Germany) is a novel and remarkable device for the treatment of GI tract perforations and fistulas, and it may help reduce the need for surgical interventions, with their associated morbidity and mortality.[1-3] However, the use of the OTSC system poses a potential risk for acute cholangitis or acute pancreatitis owing to papillary obstruction from the involvement of the duodenal papilla if a perforation or fistula lesion develops in its proximity.[4]

At our center, we have previously experienced a case of acute cholangitis resulting from OTSC involvement of the duodenal papilla (Fig. 1). We herein report a case of successful prevention of papillary obstruction and stent involvement related to OTSC using prior endoclipping as a stopper and a landmark at the papillary side of the duodenal perforation.

An 86-year-old man with a history of Billroth-I gastrectomy was admitted to our hospital for acute cholangitis owing to hilar cholangiocarcinoma progression. We performed ERCP using CO_2 insufflation. The ERCP was complicated by GI perforation. Billroth-I reconstruction

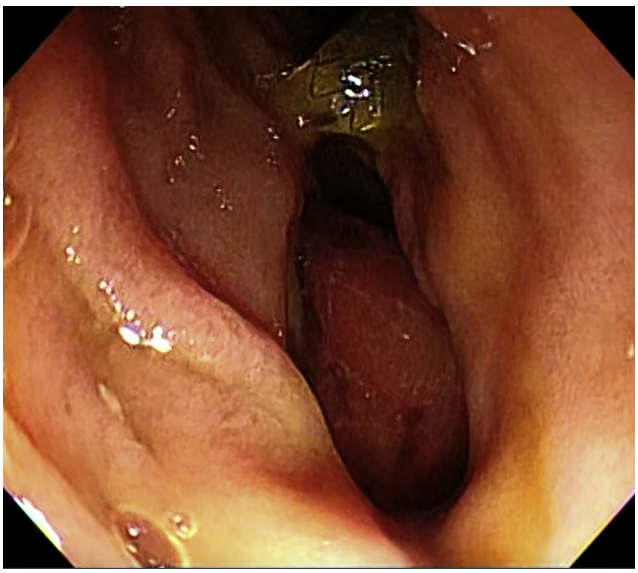

Figure 2. A duodenal perforation occurred near the duodenal papilla. The defect size was large at 20 mm in diameter.

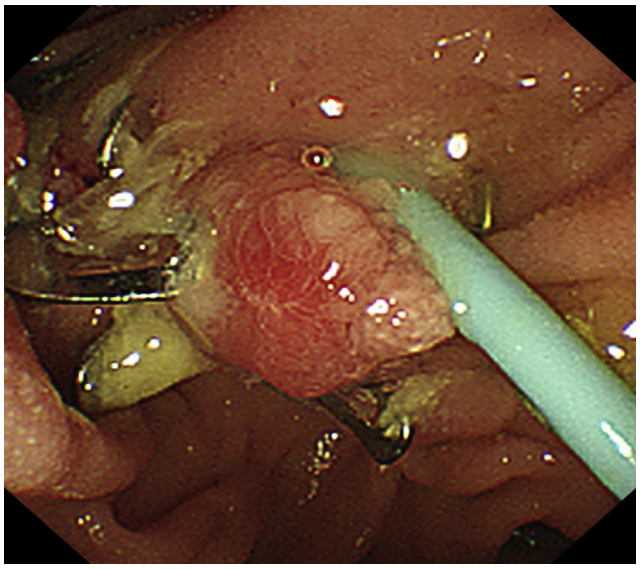

Figure 1. We have previously experienced a case of acute cholangitis resulting from over-the-scope-clip involvement of the duodenal papilla at our center.

Figure 3. There was a risk of involving the duodenal papilla or biliary stents with the over-the-scope clip because the defect was near it.

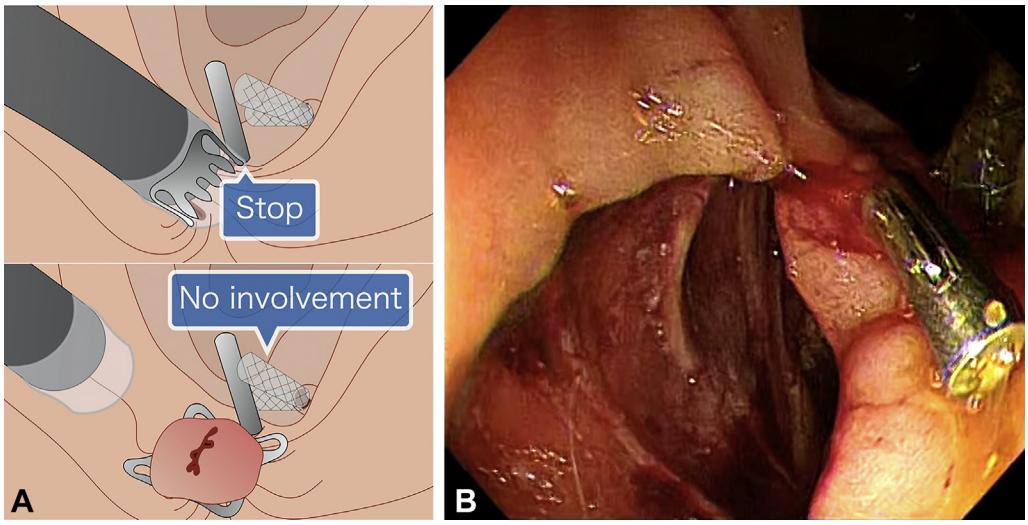

Figure 4. A and B, We placed a standard endoclip as a landmark and stopper at the papillary side of the defect before closing it using the over-the-scope-clip system.

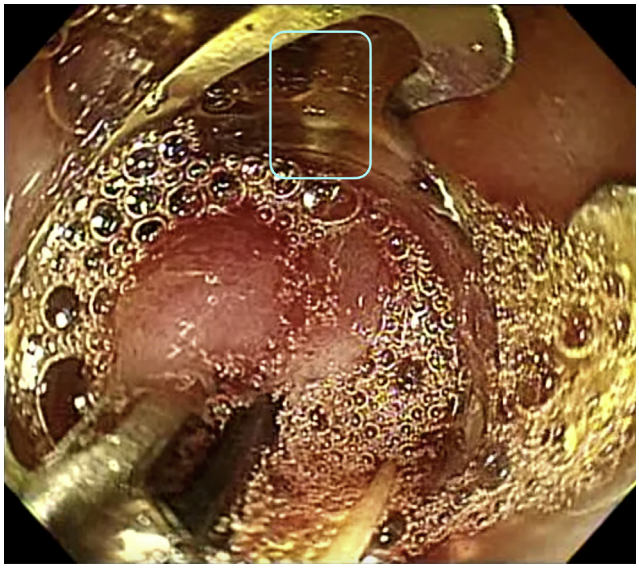

Figure 5. We were able to confirm the endoclip positioning right behind the clear hood and use it as a landmark and a stopper to prevent excessive retraction.

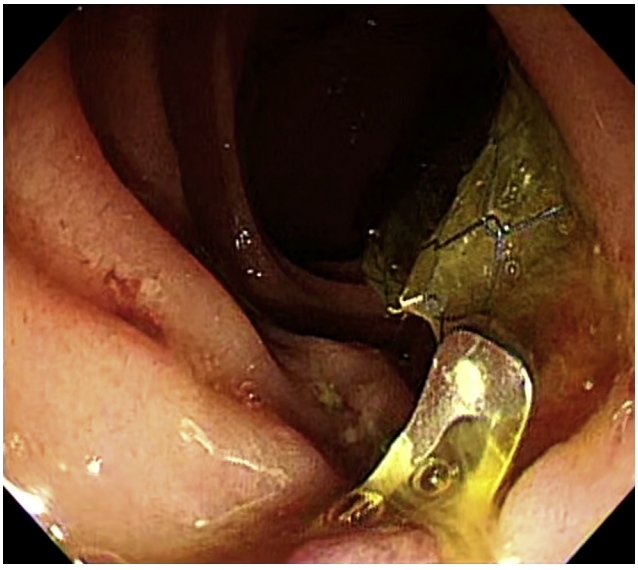

Figure 6. We succeeded in closing the perforation using the over-the-scope clip while preventing papillary and stent obstruction.

resulted in narrowing and bending of the duodenal lumen, and it was difficult to maintain a safe distance from the papilla during the procedure.

We attempted to rearrange the endoscope position to resolve the catheter bending and to push the catheter linearly from below, but this resulted in a large duodenal perforation near the papilla. We considered it best to close the defect using the OTSC because the defect size was large, 20 mm in diameter (Fig. 2).[5] There was a risk of involving the duodenal papilla or biliary stents with the OTSC because the defect was near it (Fig. 3). Thus, we placed a standard endoclip as a landmark and stopper at the papillary side of the defect before closing it using the OTSC system (Fig. 4A and B).

We grasped and retracted both perforation edges using a Twin Grasper (Ovesco Endoscopy GmbH). We were able to confirm the endoclip position right behind the clear hood and use it as a landmark and a stopper to prevent excessive retraction (Fig. 5). We succeeded in closing the perforation using the OTSC while preventing papillary and stent obstruction (Fig. 6).

After closure of the perforation with the OTSC, we inserted a nasogastric tube to reduce intestinal pressure and instructed the patient to fast. We also administered antibiotics for the acute cholangitis and the duodenal perforation. There was no leakage, abscess formation around

Figure 7. There was no leakage, abscess formation around the perforation lesion, or dislocation of the over-the-scope clip.

the perforation lesion, or dislocation of the OTSC (Fig. 7). Three days after the OTSC placement, we could inject contrast agent without leakage (Fig. 8). Taking these results into account, we allowed the patient to start a liquid enteral diet. The patient's diet was then gradually advanced to a normal diet. He was discharged from our hospital without any adverse events.

This case suggests that it is possible to treat large duodenal perforations using OTSCs without the need for invasive surgical intervention. Furthermore, placing a standard endoclip at the papillary side of a duodenal perforation is a simple and effective technique for prevention of papillary obstruction when using OTSCs (Video 1, available online at www.giejournal.org).

DISCLOSURE

All other authors disclosed no financial relationships.

Abbreviation: OTSC, over-the-scope-clip.

Figure 8. Three days after the over-the-scope-clip placement, we could inject a contrast agent without leakage.

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