VIDEO CASE REPORT

Over-the-scope-clip treatment for perforation of the duodenum after endoscopic papillectomy

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Endoscopic papillectomy is an alternative to surgery for tumors of the ampulla of Vater. Adverse effects of the procedure, however, include pancreatitis, bleeding, and papillary stenosis, as well as occasional perforations,[1] which are sometimes challenging to treat endoscopically. A novel endoscopic closure device, the Over-the-Scope Clip (OTSC; Ovesco Endoscopy, Tübingen, Germany) System, has increased the ability of the therapeutic endoscopist to close gastrointestinal luminal defects and treat gastrointestinal bleeding.[2-4] Here, we describe a case in which a postendoscopic papillectomy perforation was successfully resolved using the OTSC.

A 58-year-old woman was referred to our hospital for treatment of an ampullary tumor with slight epigastric discomfort. Upper gastroendoscopy using a side-view endoscope showed swelling of the ampulla to 12 mm in diameter (Fig. 1). The tumor was relatively small without ulceration, and the initial forceps tumor biopsy conducted at the previous hospital did not show features of malignancy. CT showed no lesions that resembled metastases. EUS showed that the tumor had not invaded the common bile duct, main pancreatic duct, or duodenal wall (Fig. 2). Therefore, it was treated by endoscopic papillectomy.

Using a snare, we resected the ampullary tumor endoscopically with a clear margin (Fig. 3). During the placement of plastic stents, the lower part of remnant submucosa under the resection area exhibited tearing (Fig. 4) and expanded, with free air leakage into the retroperitoneal space (Fig. 5). Endoscopic clipping failed to close the perforated submucosa because of difficulty in maneuvering using the side-view endoscope; therefore, an OTSC mounted on a direct-view endoscope was used to close the region. The edges of the fistula were grasped with the twin grasper. The fistula was pulled into the cap with "scope channel suction," followed by deployment of a "bear claw" clip. The OTSC closure was performed to avoid involvement of the bile duct and pancreatic duct stents. The fistula was entirely closed, and air no longer leaked from the lumen (Fig. 6). Finally, a biliary drainage tube, which was optional[5] and allowed us to confirm no bile leakage on cholangiography a few days later, was inserted endoscopically for strict prevention of bile leakage into the retroperitoneal organs (Figs. 7 and 8).

The only adverse effect was mild acute pancreatitis, which resolved within 2 weeks. Pathology analysis of the resected specimen revealed moderately differentiated tubular adenocarcinoma with complete resection and tumor invasion in lymphatic vessels. Thereafter, the patient underwent pancreatoduodenectomy as an additional treatment, and the specimen surgically resected revealed no residual tumor in the resected organs except metastasis in 2 lymph nodes adjacent to duodenal papilla.

Endoscopic papillectomy is curative in around 70% to 80% of cases.[1,6] On EUS examination, our case did not exhibit extensive intraductal involvement or invasion of the duodenal submucosa or lymph nodes. In addition, adenocarcinoma was unconfirmed on previous punch biopsy. As in our case, endoscopic papillectomy may be a useful diagnostic tool before surgery owing to the high false-negative rate of

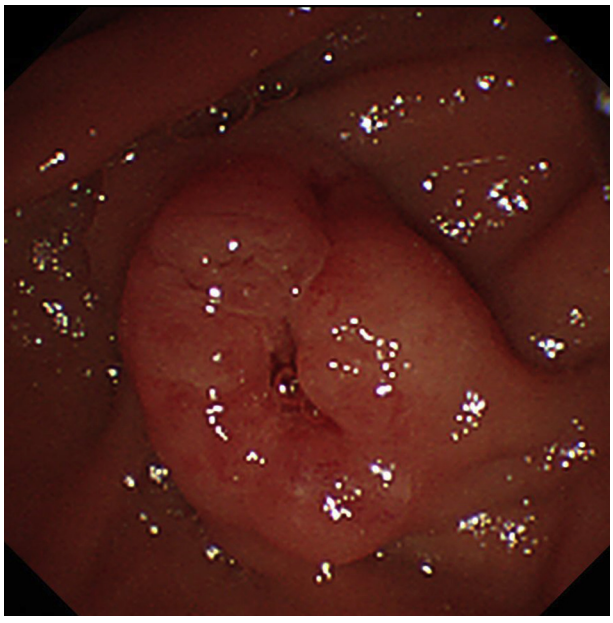

Figure 1. Endoscopic images of an ampullary tumor. White-light image shows swelling of the ampulla to 12 mm in diameter, with recession in the center of the tumor.

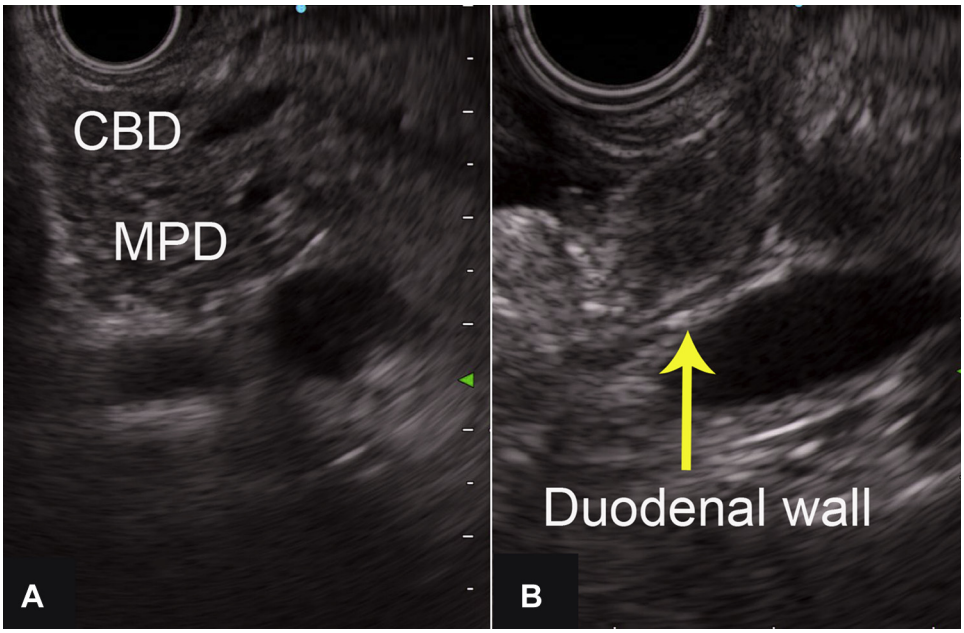

Figure 2. Endoscopic ultrasound image of an ampullary tumor showing no invasion into the common bile duct or main pancreatic duct **(A)** or duodenal wall **(B**, *yellow arrow***)**.

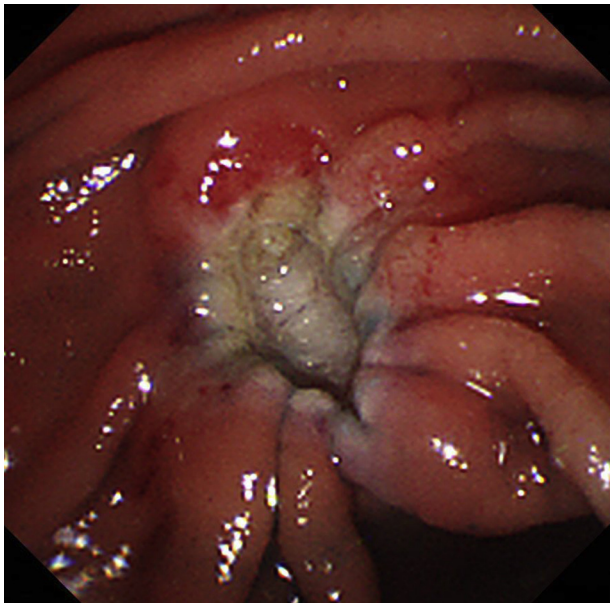

Figure 3. Image of the ulcer with a clear margin at the ampullary region after endoscopic papillectomy.

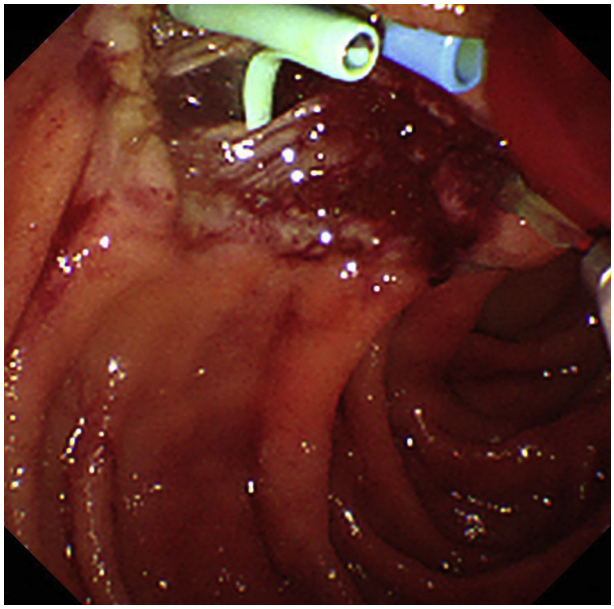

Figure 4. Image of the submucosal layer showing perforation during placement of plastic stents in the common bile duct and main pancreatic duct.

preprocedure biopsy.[7] Although perforation during the procedure is relatively rare, it occurs in 2% to 4% of cases.[1,6] Perforation after endoscopic papillectomy has not been well described, and conventional treatment involves endoscopic clip or surgical closure. The size of the fistula in our case was too large to close using multiple clips, although a couple of endoscopic clips for side-view endoscopes are currently available.[8] The OTSC proved useful for successful closure of the fistula.

In conclusion, the OTSC with full-thickness grasping capability provides great technical and clinical success. This case report showed that the OTSC can be a potential option for closure of the large perforations that may occur during endoscopic papillectomy (Video 1, available online at www.giejournal.org).

Figure 5. Fluoroscopic image of air leakage below the diaphragm, indicating perforation of the duodenum during the procedure.

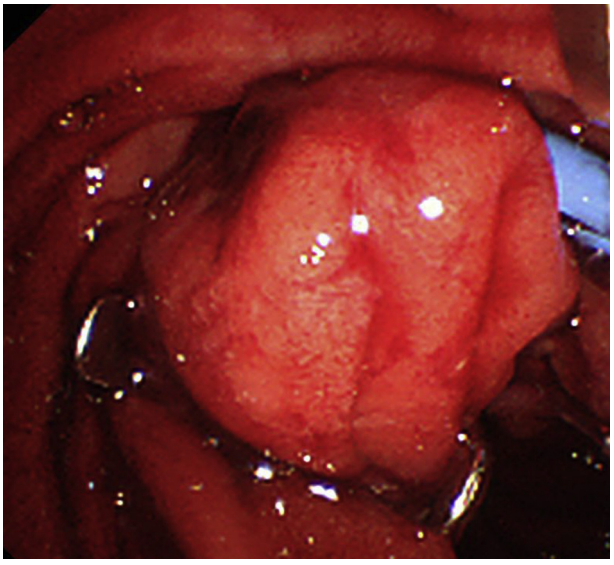

Figure 6. Image of the fistula fully closed using a "bear claw" clip.

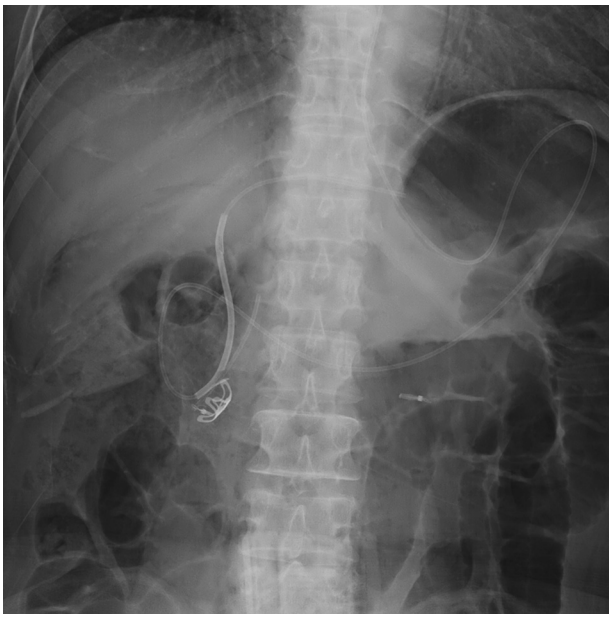

Figure 7. Fluoroscopic image obtained after endoscopic placement of a nasal biliary drainage tube; air leakage was resolved below the diaphragm.

Figure 8. CT image showing closure of the duodenum with a small amount of air leakage into the retroperitoneum.

DISCLOSURE

All authors disclosed no financial relationships.

Abbreviation: OTSC, over-the-scope clip.

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