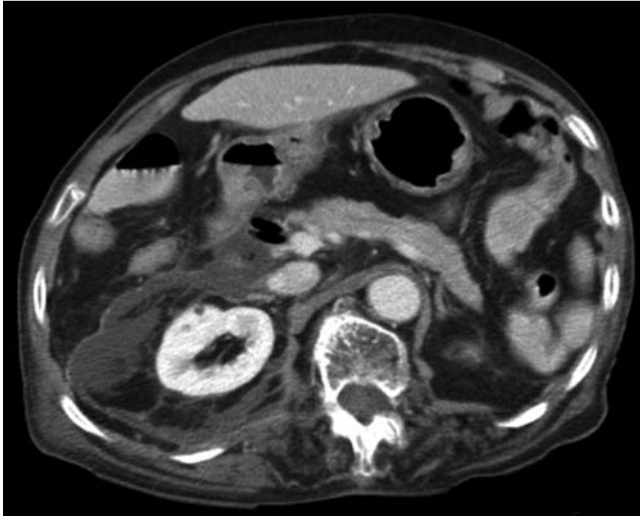


## Endoscopic sphincterotomy-related perforation in the common bile duct successfully treated by placement of a covered metal stent



**Fig. 1** Abdominal computed tomography (CT) scan showing a large, irregular fluid collection with rim enhancement in the entire right pararenal space, and free air between the second part of the duodenum and the pancreas head.

An 82-year-old woman with cholangitis and common bile duct (CBD) stones underwent endoscopic retrograde cholangiopancreatography (ERCP). An endoscopic sphincterotomy was carried out using an electrocautery unit with a standard pull sphincterotome. Multiple stones were removed using an extraction balloon, and subsequently, the patient had no pain or fever and a chest radiograph showed no free air. However, 2 days later the patient complained of abdominal pain. Computed tomography (CT) revealed retroperitoneal air and fluid (▶ **Fig. 1**).

Given her age and poor medical condition, the patient was not considered a surgical candidate. ERCP disclosed a perforation in the distal CBD near the ampulla. Multiple plastic stents were inserted (▶ **Fig. 2**) and she was treated with total parenteral nutrition, broad-spectrum antibiotics, and percutaneous catheter drainage from the right pararenal space.

The fever subsided and the patient's condition improved, but there was no decrease in the amount of percutaneous catheter drainage (> 150 mL/day). A tubo-

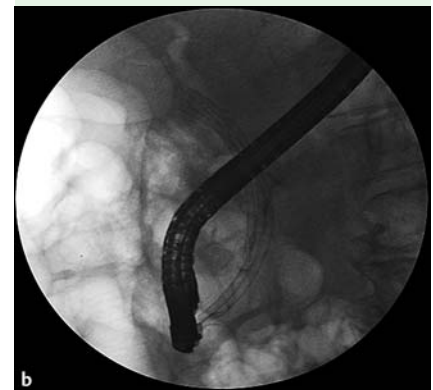
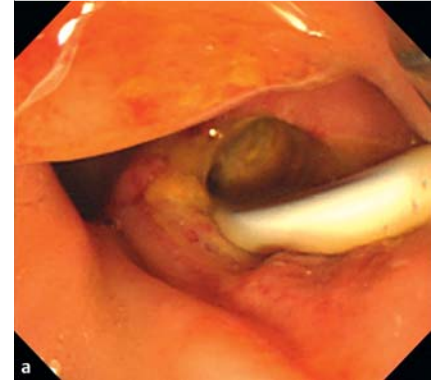
gram revealed contrast leakage from the distal CBD (▶ **Video 1**).

A 5-cm, fully covered metal stent (M.I. Tech, Seoul, Korea) was placed in the CBD after removing the previously placed stents (▶ **Fig. 3**), and subsequently, the percutaneous catheter drainage stopped. The patient improved rapidly and was discharged 16 days after insertion of the metal stent. A CT scan taken 1 month later showed only fibrosis (▶ **Fig. 4**), and the stent was removed.

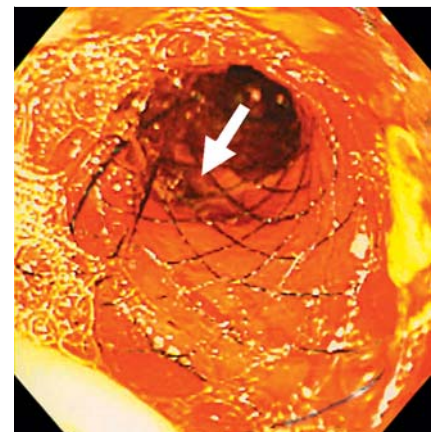
Although more than 80% of sphincterotomy-related perforations are managed without surgery, cases with retroperitoneal fluid collection and peritonitis require immediate surgical intervention [1–4]. The management of patients with potentially high postoperative mortality should be considered carefully. Biliary stenting protects by diverting bile into the duodenum instead of the peritoneum [3,4], however, it is not clear whether diversion via a small-diameter stent is adequate for large perforations [5]. Complete, close-fitting coverage of a perforation by a fully covered metal stent is more effective than placement of a small plastic stent, and may be an option for treating patients with large or intractable periampullary perforations.

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**Competing interests:** None



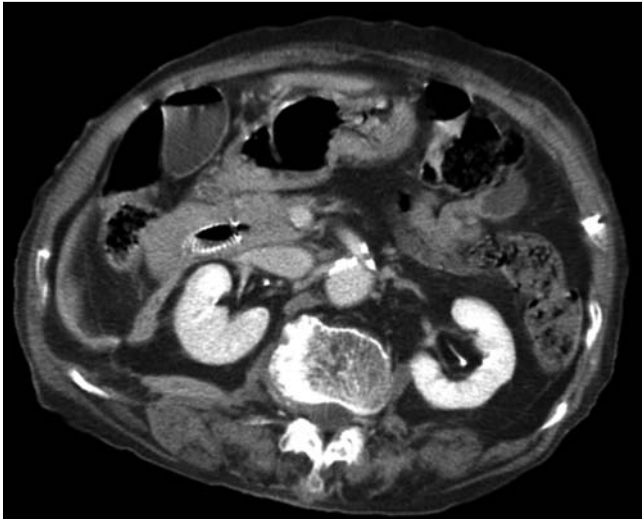
**Fig. 2** The catheter was passed through the perforation on the left side of the distal common bile duct (CBD). **b** Multiple plastic stents were inserted into the CBD.



**Fig. 3** At the third ERCP, a covered metal stent was implanted in the common bile duct to cover the perforation site (arrow).

### Video 1

Tubogram showing the contrast injected into the percutaneous catheter drain, sequentially flowing into the common bile duct and periampullary duodenum.



**Fig. 4** At 1 month, abdominal computed tomography (CT) showed a decrease in the size of the perirenal abscess, and a small cavity and fibrosis.

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