

## Cholecystoduodenal drainage and gallstone removal in a patient with cholecystitis and unresectable cholangiocarcinoma

Cholecystitis is a complication that can develop in patients with malignant biliary strictures [1,2]. We describe the endoscopic ultrasound (EUS)-guided placement of a novel metal stent to create a cholecystoduodenostomy in a nonoperable candidate with cholecystitis.

An 81-year-old woman with metastatic unresectable cholangiocarcinoma developed cholecystitis secondary to malignant involvement of the cystic duct. Following external percutaneous cholecystostomy drain insertion, the patient continuously drained ascites from around the percutaneous drainage tube. Given her advanced disease, creation of a cholecystoduodenostomy was proposed.

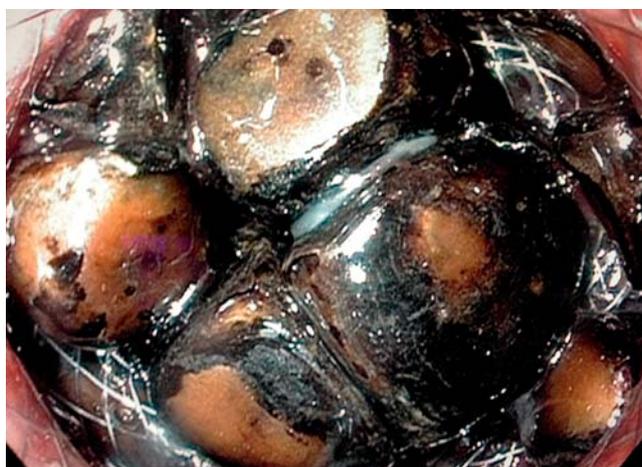
A linear array curvilinear EUS scope (Olympus Medical, Tokyo, Japan) was placed in the duodenal bulb (▶ **Video 1**). Under color Doppler imaging, gallbladder access was accomplished with direct puncture using a 19-gauge needle (Echo-Tip, Cook Medical, Winston-Salem, North Carolina, USA). A 0.035-inch guide wire was placed through the needle into the gallbladder body and the tract was dilated with a 4-mm Hurricane balloon dilator (Boston Scientific, Natick, Massachusetts, USA). The distal end of a 10-mm × 15-mm Axios stent (Xlumena Inc., Mountain View, California, USA) was deployed under endosonographic guidance into the gallbladder body, while the proximal end was released in the duodenum (▶ **Fig. 1**). Removal of stones was accomplished with aspiration and lavage of the gallbladder using a GIF-H180 diagnostic endoscope (Olympus Medical, Tokyo, Japan) (▶ **Fig. 2**). The stent remained in place for palliation with no adverse events.

### Video 1

Using ultrasonography and color Doppler, a 19-gauge needle was used to puncture the gallbladder from the duodenum. Balloon dilation was effected, followed by deployment of the Axios stent, which was then dilated to permit access for stone removal with a Roth net.



**Fig. 1** Fluoroscopic image showing the stent deployed between the gallbladder and the duodenum.



**Fig. 2** Endoscopic view of the gallbladder filled with stones.

Prior to human studies, the Axios stent was tested in a swine model. Animals were kept alive up to 8 weeks and stents remained in place without migration [3]. Recently, a retrospective human study by Itoi et al. reported the successful use of this novel stent in four patients with cholecystitis [4].

In conclusion, the placement of this novel metal stent allowed resolution of the cholecystitis. Minimally invasive intervention using this novel stent might become the preferred approach for drainage in this patient population.

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