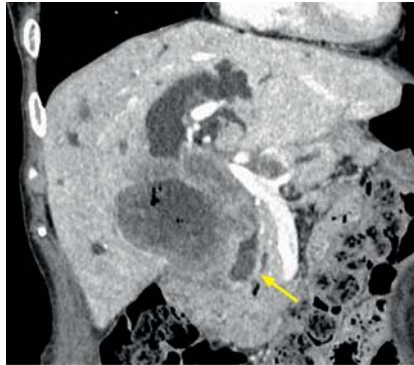


Endoscopic ultrasound-guided antegrade stenting through a hilar cholangiocarcinoma associated with a severe biliary infection

The efficacy of endoscopic ultrasound-guided (EUS) antegrade stenting has been previously reported [1,2]. We describe a rare and fatal complication of EUS antegrade stenting.

A 79-year-old woman who had undergone Roux-en-Y reconstruction following total gastrectomy was admitted with jaundice and cholangitis. Computed tomography (CT) showed a large hilar cholangiocarcinoma containing air (► **Fig. 1**). Right and left biliary ducts were displaced. Transpapillary biliary drainage using a single-balloon enteroscope failed because the ampulla was not visible owing to tumor invasion. Therefore, we conducted endoscopic ultrasound-guided antegrade stenting (► **Video 1**). The B3 branch was punctured. Although we intended to advance a guidewire into the duodenum through the common bile duct, the guidewire was advanced into the duodenum through the tumor. The first stent (Zilver 635, 10-mm, 6-Fr; Cook Medical, Bloomington, Indiana, USA) was deployed over the guidewire. Subsequently, an additional guidewire was inserted into the right hepatic duct, and the second stent (Zilver 635, 10-mm, 6-Fr) was deployed in a side-by-side configuration. Finally, a plastic stent (TYPE-IT stent; Gadelius Medical Co. Ltd., Tokyo, Japan) was also deployed from the initial stent to the jejunum (► **Fig. 2**). Although the postoperative CT revealed that the initial stent was deployed through the tumor (► **Fig. 3**), early adverse events were not observed. The symptoms were resolved. However, she presented with a severe biliary infection 1 month later. CT revealed a large amount of air in the tumor and biliary tract (► **Fig. 4**). She died 24 hours after developing sepsis. The autopsy revealed a large fistula between the tumor and duodenum. We considered that the initial stent through the tumor was associated with the biliary infection because the stent was inside the fistula.



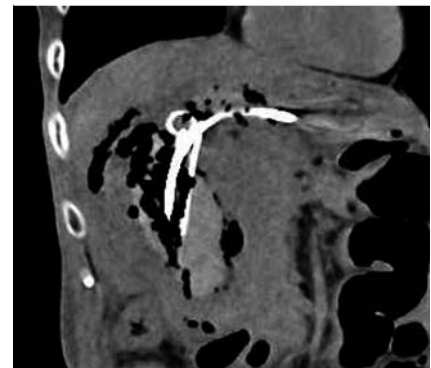
► **Fig. 1** Computed tomography showing a large hilar cholangiocarcinoma containing air. The common bile duct is indicated by the arrow.



► **Fig. 2** X-ray image after endoscopic ultrasound-guided antegrade stenting.



► **Fig. 3** Computed tomography showing a biliary stent deployed through the tumor (arrowhead). The common bile duct is indicated by the arrow.



► **Fig. 4** Computed tomography showing a large amount of air in the tumor and biliary tract.

Endoscopists need to recognize that a guidewire may be easily advanced into a tumor. When such situations are noticed, conducting a simple EUS-guided hepaticojejunostomy should be considered.

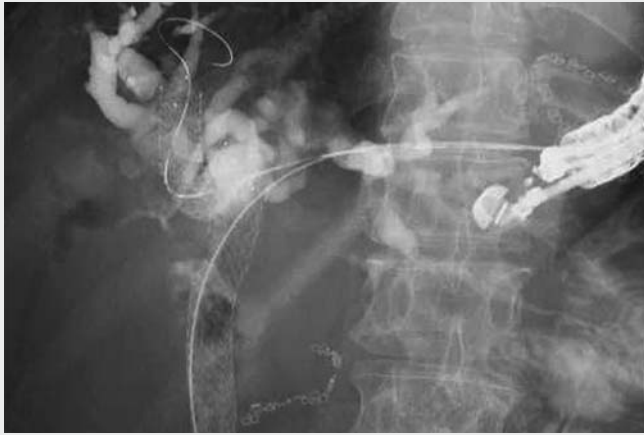
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Competing interests

The authors declare they have no conflict of interest

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Video 1 Complication of endoscopic ultrasound-guided antegrade stenting. A guidewire was advanced into the duodenum through the tumor, and a metal stent was deployed over the guidewire.

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