

Guidewire malposition outside the bile duct during endoscopic ultrasound-guided hepaticogastrostomy

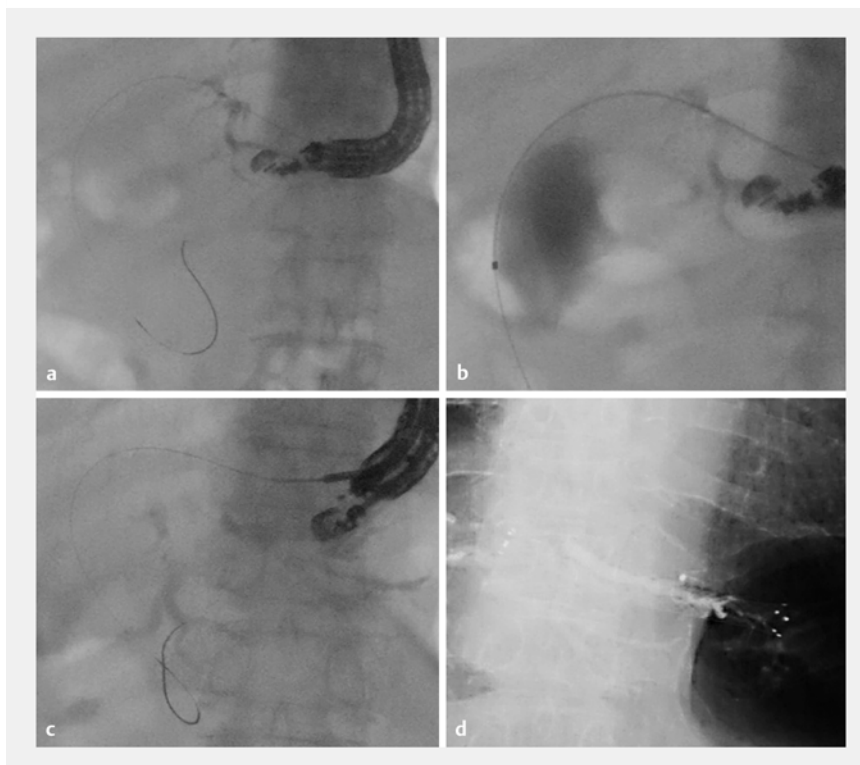


► **Fig. 1** Preprocedure coronal computed tomography showing a dilated bile duct due to pancreatic head cancer (arrow-head).

Endoscopic ultrasound-guided hepaticogastrostomy (EUS-HGS) is widely used in clinical practice for patients with a malignant biliary obstruction after failed endoscopic retrograde cholangiopancreatography (ERCP) [1, 2]. However, the rate of procedure-related adverse events associated with EUS-HGS is relatively high [1, 2]. Herein, we report a case of guidewire malposition during EUS-HGS (► **Video 1**).

An 80-year-old man with biliary obstruction due to pancreatic cancer (► **Fig. 1**) was referred to our hospital for EUS-HGS because of prior ERCP failure. During the procedure, the bile duct of segment 3 (B3) was punctured using a 19-G needle (EZ Shot 3 Plus; Olympus Medical, Tokyo, Japan), and contrast medium was injected into the bile duct. A guidewire (Visi-Glide 2 Guidewires; Olympus Medical) was advanced toward the biliary tract without resistance (► **Fig. 2 a**). After dilation of the fistula, contrast was noted outside the bile duct, suggesting guidewire malposition (► **Fig. 2 b**).

EUS-HGS on the bile duct of segment 2 (B2) was performed for salvage drainage. After the guidewire was inserted into the biliary tract (► **Fig. 2 c**) and fistula dilation was performed, a fully covered self-expandable metal stent (X-Suit NIR Biliary Metallic Stents; Olympus Medical)



► **Fig. 2** Fluoroscopic images from endoscopic ultrasound-guided hepaticogastrostomy (EUS-HGS) performed for biliary obstruction in an 80-year-old man with pancreatic head cancer. **a** In the first procedure, the bile duct of segment 3 (B3) was punctured and a guidewire was advanced toward the biliary tract. **b** Guidewire malposition was identified based on contrast extravasation outside the bile duct. **c** For salvage drainage, the bile duct of segment 2 (B2) was punctured and a guidewire was inserted into the biliary tract. **d** A self-expandable metal stent was placed during the EUS-HGS.

was inserted (► **Fig. 2 d**). Although the post-EUS-HGS computed tomography showed hematomas around the liver and spleen (► **Fig. 3**), the patient was discharged from our hospital after conservative treatment.

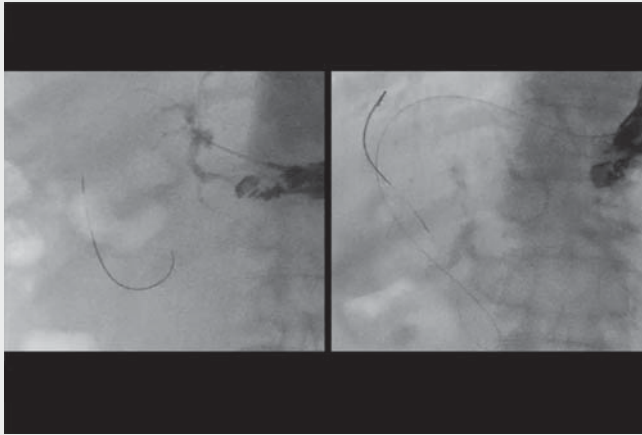
The probable cause of incorrect advancement of the guidewire was incomplete placement of the needle tip within the bile duct. As a result, although the contrast medium was injected into the bile duct, the guidewire migrated outside the bile duct (► **Fig. 4**). Fluoroscopy showed that the two guidewires had a similar shape; however, their loop widths were different (► **Fig. 5 a, b**). Recent ad-

vances have enabled EUS-HGS to be performed without fistula dilation, using a self-expandable metal stent with a small-diameter delivery system [3, 4]. It is necessary to evaluate the shape of the guidewire before stent placement during EUS-HGS without fistula dilation.

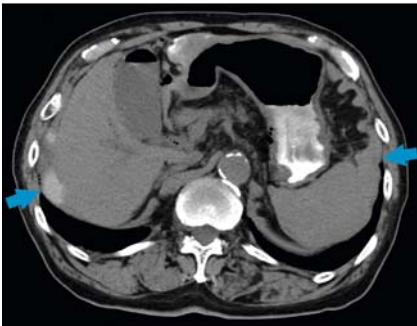
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Competing interests

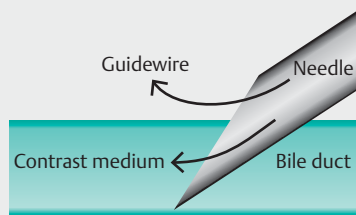
The authors declare that they have no conflict of interest.



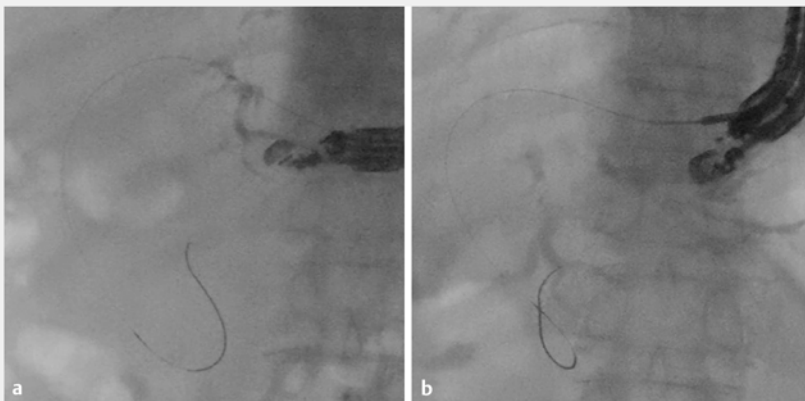
▶ **Video 1** Guidewire malposition outside the bile duct during endoscopic ultrasound-guided hepaticogastrostomy.



▶ **Fig. 3** Postprocedure axial computed tomography showing hematomas around the liver and spleen (arrowheads).



▶ **Fig. 4** Relationship between the needle and bile duct in guidewire malposition. The needle tip is not completely inside the bile duct. As a result, although the contrast medium was injected into the bile duct, the guidewire migrated outside the bile duct.



▶ **Fig. 5** Fluoroscopic images showing the shape of the guidewire. Although the two guidewires had a similar shape, their loop widths were different. **a** Guidewire malposition outside the bile duct. **b** Correct insertion of the guidewire into the common bile duct.

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