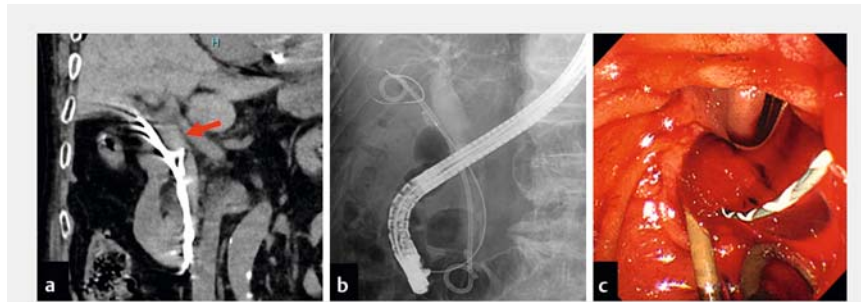


## Ruptured cystic artery pseudoaneurysm after long-term transpapillary placement of a gallbladder stent for acute cholecystitis

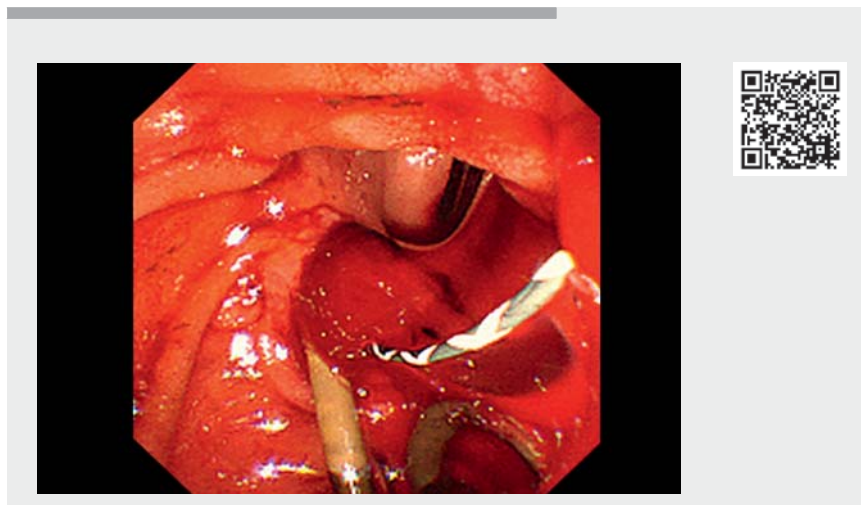
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Endoscopic transpapillary gallbladder drainage (ETGBD), including endoscopic gallbladder stenting (EGBS), has utility in the management of acute cholecystitis in patients considered to be high risk candidates for surgery [1]. A recent meta-analysis reported that the pooled rate of cholecystitis recurrence was 4.6% following ETGBD in patients with acute cholecystitis [2]. Long-term biliary drainage via EGBS is often performed to prevent the recurrence of cholecystitis in patients with contraindications to cholecystectomy.

An 88-year-old man was admitted with acute cholangitis after undergoing EGBS due to an episode of acute cholecystitis 8 months prior with placement of a 7-Fr double-pigtail stent (Through & Pass double pigtail stent; Gadelius Medical, Japan) as he was considered a high risk candidate for cholecystectomy. Scheduled stent exchanges using a similar stent had been performed at 3-month intervals after initial EGBS to prevent the recurrence of cholecystitis. Computed tomography demonstrated bleeding from the biliary tract (► **Fig. 1 a**). Hemobilia was observed during endoscopic retrograde cholangiopancreatography (ERCP) and blood clots were endoscopically removed from the bile duct. Insertion of a 0.025-inch guidewire (VisiGlide 2 with angled tip; Olympus Medical Systems, Tokyo, Japan) into the gallbladder resulted in blood flow from the ampulla of Vater (► **Fig. 1 b, c**; ► **Video 1**). The ERCP procedure was therefore abandoned and a ruptured cystic artery pseudoaneurysm immediately adjacent to the stent biliary stent was identified on contrast-enhanced computed tomography (► **Fig. 2 a, b**). Transcatheter arterial coil embolization was successfully performed to control bleeding from the ruptured cystic artery pseudoaneurysm without complications. Open cholecystectomy was performed 2 weeks after coil embolization.



► **Fig. 1** Radiologic and endoscopic findings of hemobilia. **a** Opacification of the bile duct on abdominal computed tomography indicative of hemobilia (red arrow). **b, c** Blood flow from the ampulla of Vater was observed after insertion of a 0.025-inch guidewire into the gallbladder.



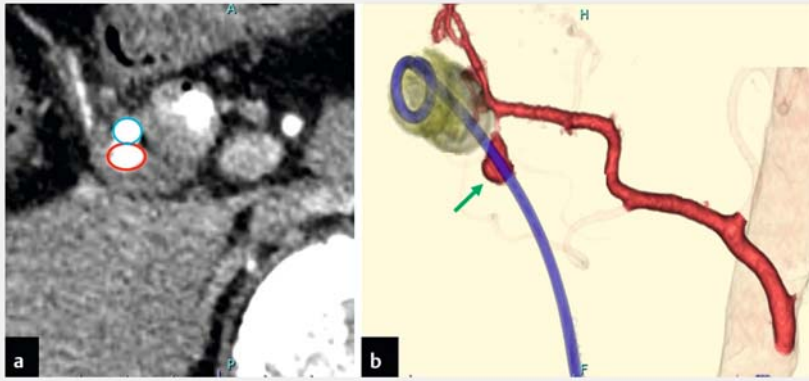
► **Video 1** Ruptured cystic artery pseudoaneurysm after long-term endoscopic transpapillary gallbladder stent placement in a patient with acute cholecystitis.

This is the first report of a ruptured cystic artery pseudoaneurysm associated with EGBS which we strongly suspect was due to long-term compression of the cystic artery leading to formation of a cystic artery pseudoaneurysm. Our findings highlight the risk of cystic artery pseudoaneurysm formation in patients with long-term transpapillary placement of a gallbladder stent, even when scheduled stent exchanges are performed.

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► **Fig. 2** Identification of a cystic artery pseudoaneurysm on computed tomography. **a** Contrast-enhanced computed tomography demonstrating a cystic artery pseudoaneurysm (delineated in red) parallel to the gallbladder stent (delineated in blue). **b** Abdominal CT angiography demonstrating a cystic artery pseudoaneurysm parallel to the gallbladder stent (green arrow).

### Competing interests

The authors declare that they have no conflict of interest.

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