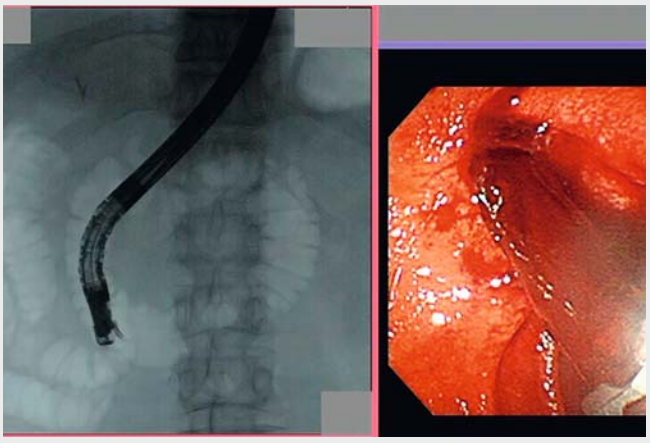
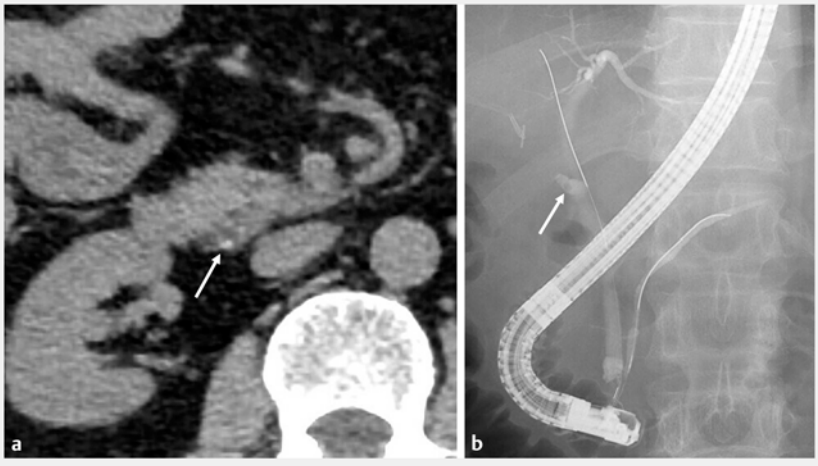
Obstructive jaundice with a biliary clot post-endoscopic sphincterotomy treated with clipping and endoscopic biliary stenting

A 62-year-old man was admitted with epigastralgia. He had a history of laparoscopic cholecystectomy for cholecystolithiasis. He had no coagulopathy and was not taking anticoagulants. Abdominal computed tomography (CT) showed a common bile duct (CBD) stone (▶ **Fig. 1 a**). Endoscopic retrograde cholangiography (ERC) and intraductal ultrasonography (IDUS) also showed a 2.8-mm CBD stone (▶ **Fig. 1 b,** ▶ **Fig. 2 a, b**). Endoscopic sphincterotomy (EST) was performed (▶ **Fig. 2 c**) and the CBD stone was removed using a wire basket (▶ **Fig. 2 d**).

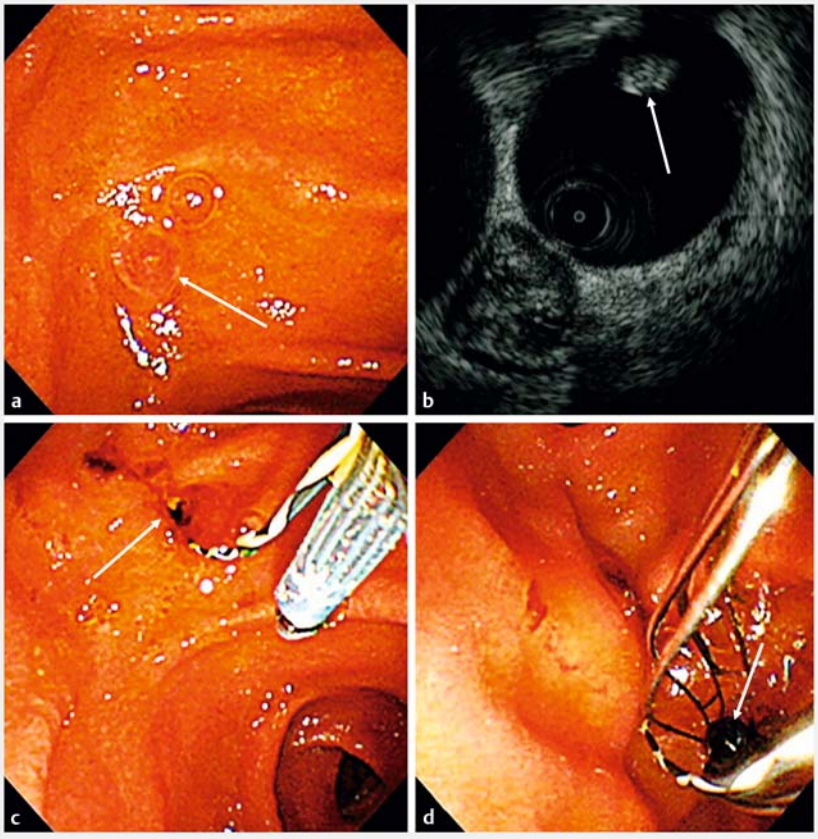
The patient complained of epigastralgia again after 4 days. Laboratory investigations demonstrated elevated cholestatic parameters: total bilirubin 2.8 mg/dL (normal range 0.4 – 1.5 mg/dL), aspartate aminotransferase 176 U/L (13 – 30 U/L), alanine aminotransferase 146 U/L (10 – 42 U/L), alkaline phosphatase 233 U/L (38 – 113 U/L), and gamma-glutamyl transpeptidase 695 U/L (9 – 32 U/L); hemoglobin was within the normal limit. CT showed a diffuse high-density structure in the CBD, with the bile duct mildly dilated (▶ **Fig. 3 a**). ERC revealed post-EST bleeding and a biliary clot in the CBD (▶ **Fig. 3 b,** ▶ **Fig. 4 a**). The clot was removed using a grasping forceps and wire basket (▶ **Fig. 3 c**, ▶ **Fig. 4 b**), and an endoscopic biliary stent (EBS) was inserted into the CBD for biliary drainage. Clipping was applied to stop the bleeding (▶ **Fig. 3 d**, ▶ **Fig. 4 c, d,** ▶ **Video 1**). The patient progressed well after the procedures. The EBS was removed 8 days postoperatively and the patient was discharged 10 days postoperatively.



Video 1 The biliary clot, caused by delayed bleeding after endoscopic sphincterotomy, was removed using a grasping forceps and wire basket, and clips were applied to stop the bleeding.



▶ **Fig. 1** Common bile duct stone (arrow). **a** Abdominal computed tomography. **b** Endoscopic retrograde cholangiography.



▶ **Fig. 2** Removal of the common bile duct (CBD) stone. Endoscopic views (**a**, **c**, **d**) and intraductal ultrasonography (IDUS) view (**b**). **a** The ampulla of Vater was intact (arrow). **b** IDUS showed a CBD stone, approximately 2.8 mm in size (arrow). **c** Immediately after endoscopic sphincterotomy (arrow). **d** The CBD stone was removed using a wire basket (arrow).

The incidence of post-EST delayed hemorrhage is 1.62 % [1], and biliary obstruction with a biliary clot caused by post-EST bleeding is extremely rare [2 – 5]. Endoscopic hemostasis is currently the first treatment choice for post-ERC bleeding, with balloon dilation and biliary stent placement used for treatment [2 – 5]. To the best of our knowledge, this is the first English case report of obstructive jaundice with a biliary clot caused by post-EST bleeding, treated with clipping and an EBS, which may be an effective endoscopic technique for treating such cases.

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Competing interests

The authors declare that they have no conflict of interest.

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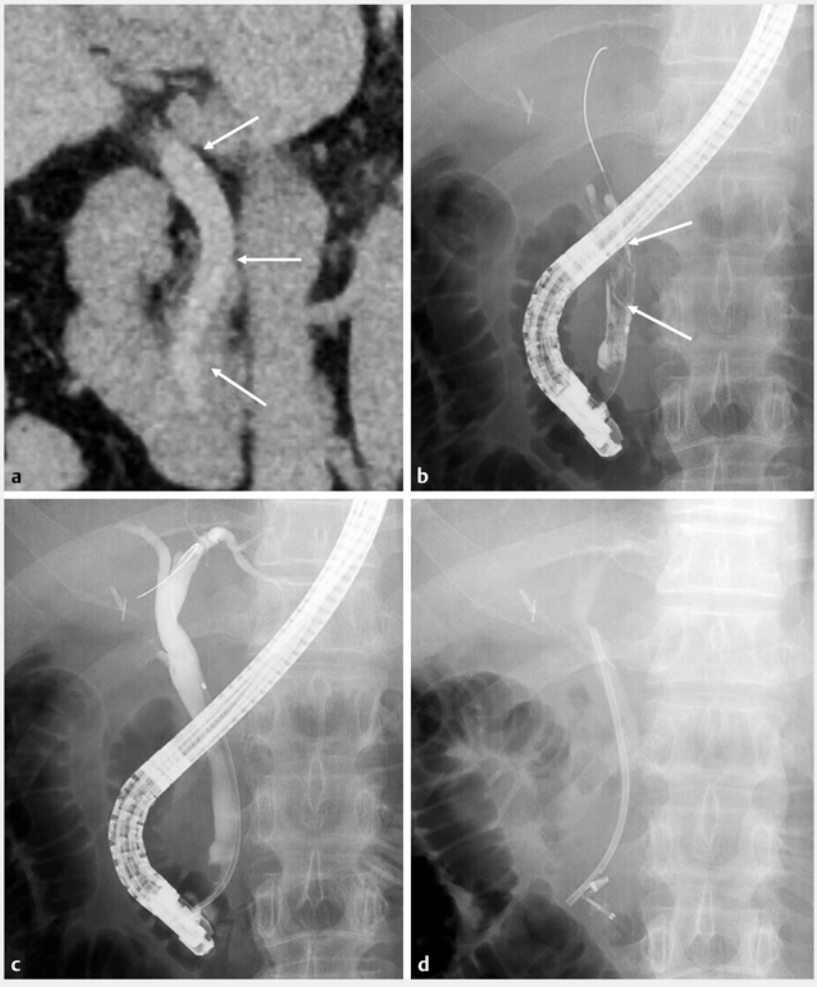

▶ **Fig. 3** Imaging after endoscopic sphincterotomy (EST) and common bile duct (CBD) stone removal. **a** Reconstructed coronal image of abdominal computed tomography on day 4 after EST showed a diffuse high-density structure in the CBD with the bile duct being mildly dilated (arrows). **b** Endoscopic retrograde cholangiography revealed a diffuse filling defect in the CBD with the bile duct mildly dilated (arrows). **c** The CBD was cleaned up by removing the biliary clot using a grasping forceps and wire basket. **d** An endoscopic biliary stent was inserted into the CBD and clipping was applied for endoscopic hemostasis.

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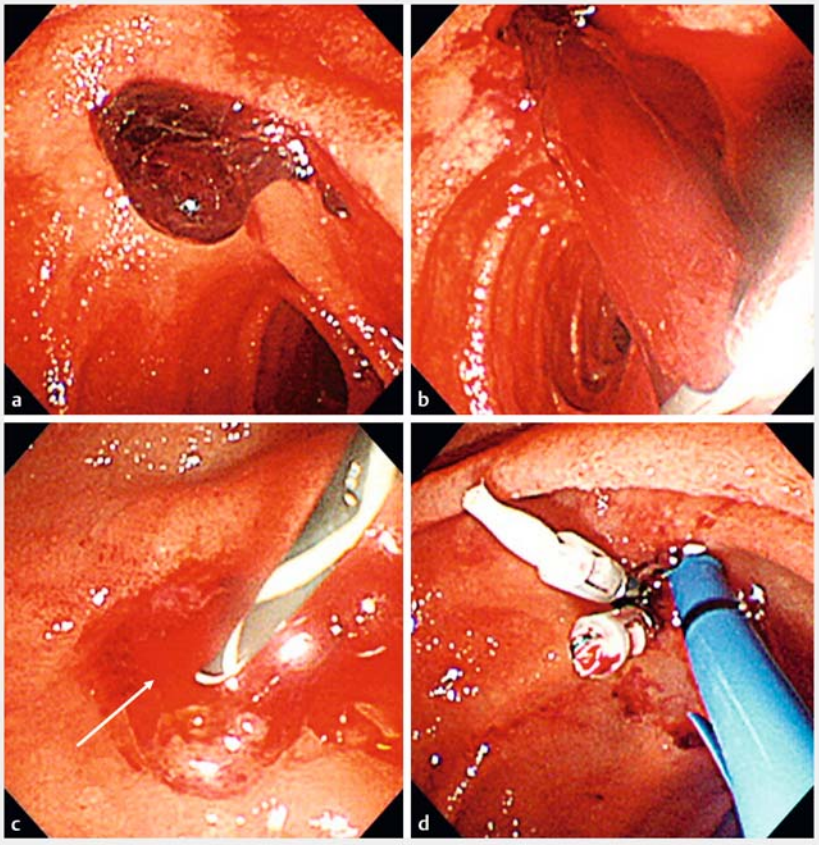

▶ **Fig. 4** Treatment of the biliary clot and delayed bleeding after endoscopic sphincterotomy (EST). Endoscopic views. **a** Post-EST delayed bleeding and the clot at the orifice of the common bile duct (CBD). **b** The biliary clot was removed using a grasping forceps. **c** The bleeding point was revealed (arrow). **d** An endoscopic biliary stent was inserted into the CBD and clipping was applied to stop the bleeding.