Rupture of a pseudoaneurysm caused by endoscopic papillary large-balloon dilation

Endoscopic papillary large-balloon dilation (EPLBD) is a relatively new technology for removing large bile duct stones [1]. The efficacy and safety of EPLBD have been reported; however, severe complications occur in approximately 10% of patients [2]. Hemorrhage is one of the most common complications, and endoscopic hemostasis is effective [3]. Herein, we present a case of rupture of a pseudoaneurysm following EPLBD.

A 71-year-old woman with recurrent bile duct stones was admitted to our institution. She had a previous history of recurrent episodes of acute pancreatitis. A large stone, 28 × 10 mm in size, was seen on computed tomography (\(\text{Fig. 1}\)). Contrast-enhanced computed tomography was not performed because of the patient’s renal dysfunction. Endoscopic retrograde cholangiography revealed an oblong-shaped filling defect in the common bile duct (\(\text{Fig. 2a}\)). EPLBD with a balloon catheter (CRE Wireguided Balloon Dilator, 15–18 mm; Boston Scientific, Natick, Massachusetts, USA) was performed to remove the bile duct stone (\(\text{Fig. 2b}\)). Spurting bleeding was observed immediately after the balloon had been deflated (\(\text{Fig. 3a}\)). Neither balloon oppression nor placement of a fully covered self-expandable metallic stent with a diameter of 10 mm was effective for hemostasis (\(\text{Fig. 3b}\)). Emergency abdominal angiography was performed, and angiography of the gastroduodenal artery revealed a pseudoaneurysm of the gastroduodenal artery with extravasation into the duodenum (\(\text{Fig. 4a, Fig. 4b}\)). The placement of five coils achieved complete hemostasis (\(\text{Fig. 5}\)). The patient was discharged on postoperative day 9 without further complications.

To our knowledge, this is the first report of pseudoaneurysm rupture as a complication of EPLBD. Because this patient had a history of recurrent episodes of acute pancreatitis, a pseudoaneurysm was possible. However, we had no chance to notice the pseudoaneurysm because contrast-enhanced computed tomography was contraindicated owing to her renal dysfunction.

Care should be taken to evaluate patients undergoing EPLBD with contrast-enhanced computed tomography to detect any arterial abnormality.

**Competing interests:** None

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**Fig. 1** Coronal computed tomographic scan shows a large (28 × 10-mm) stone (arrow) in the common bile duct of a 71-year-old woman with recurrent bile duct stones and a previous history of acute pancreatitis.

**Fig. 2** Images obtained during endoscopic retrograde cholangiography. *a* An oblong-shaped defect is observed in the bile duct (arrow). *b* Endoscopic papillary large-balloon dilation is performed with a balloon that has a diameter of 18 mm.
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Fig. 3 Endoscopic images of the ampulla of Vater. a Spurting bleeding is observed after endoscopic papillary large-balloon dilation. b Continuous bleeding is observed after the insertion of a metallic stent.

Fig. 4 Angiographic images. a A pseudoaneurysm is observed (arrow). b Extravasation into the duodenum (arrowhead).

Fig. 5 Hemostasis after the placement of five coils is confirmed by celiac angiography.