Success of stent-in-stent deployment after intraductal radiofrequency ablation for hepatic hilar obstruction

Unresectable malignant hepatic hilar biliary obstruction (MHBO) is often treated by deploying several uncovered self-expandable metal stents (UCSEMS) [1–4]. Bilateral UCSEMS can be deployed using either side-by-side or stent-in-stent (SIS) procedures. However, SIS might not be as widely appropriate for MHBO because the procedure is technically complex. Furthermore, the risk of complications such as focal cholangitis can increase if bilateral SIS deployment fails after contrast medium is injected. However, a recent meta-analysis found that intraductal radiofrequency ablation (RFA) for malignant biliary obstruction might be associated with improved stent patency [5]. Here, we describe bile duct dilation using intraductal RFA to improve the technical success of subsequent UCSEMS deployment using SIS (▶Video 1).

Computed tomography and endoscopic ultrasound-guided fine-needle aspiration indicated bile duct carcinoma with liver metastasis in a 77-year-old woman with obstructive jaundice. We therefore attempted biliary drainage. The bile duct was cannulated under endoscopic retrograde cholangiopancreatography and contrast medium was injected for cholangiography, which showed hepatic hilar obstruction (▶Fig. 1). A cholangioscope inserted before intraductal RFA to prevent bile duct perforation revealed a tumor in the bile duct (▶Fig. 2a). Intraductal RFA (Habib EndoHPB; Boston Scientific, Marlborough, Massachusetts, USA) was then attempted using an RFA generator (VIO 200D; Erbe Elektromedizin GmbH, Tübingen, Germany), supplying electrical energy at 350 kHz (effect 8) and 7 W for 90 seconds. The effects of RFA were assessed by repeat cholangioscopy of the bile duct, which showed that the tumor had disappeared (▶Fig. 2b). Because the bile duct was now dilated (▶Fig. 3a), a UCSEMS (ZEOSTENT V: Zeon Medical Inc., Tokyo, Japan) was easily deployed using the SIS technique without adverse events (▶Fig. 3b).
Although a prospective randomized trial is needed, intraductal RFA might be useful for dilating the bile duct before deploying stents to treat MHBO.

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Competing interests

None

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Fig. 3 Cholangiography views. a The dilated bile duct after radiofrequency ablation. b Deployment of multiple uncovered self-expandable metal stents was easily achieved using the stent-in-stent technique.