Endoscopic ultrasound-guided antegrade dilation of a stenosed hepaticojejunostomy

Fig. 1 Magnetic resonance cholangiopancreatography (MRCP) in a 43-year-old woman with cholangitis showing mild dilatation of the intrahepatic biliary radicles and stenosis of the hepaticojejunostomy that had been created for a previous bile duct injury.

Fig. 3 Image taken during an endoscopic ultrasound (EUS)-guided cholangiogram showing stenosis of the hepaticojejunostomy (arrow).

Endoscopic dilation of a strictured hepaticojejunostomy can be performed through an access or afferent loop using a balloon enteroscope or a pediatric colonoscope; however, these can be cumbersome procedures. Alternatively, a percutaneous approach may be utilized, but is associated

Fig. 2 Endoscopic ultrasound (EUS) views showing: **a** minimal dilatation of a peripheral bile duct (arrow); **b** the peripheral bile duct being punctured by an EUS needle (arrow).

Fig. 4 Images taken during balloon dilation of the stenosis showing: **a** the waist at the start of the procedure; **b** disappearance of the waist after dilation for 3 minutes.

with significant morbidity because of the requirement for external drainage catheters. Recently, endoscopic ultrasound (EUS)-guided biliary drainage (EUS-BD) or therapy has been successfully used when retrograde access has failed [1–3]. Here we describe a case involving a stenosed hepaticojejunostomy that was treated by EUS-guided antegrade balloon dilation. To the best of our knowledge, this is only the second such case reported in the literature [4].

A 43-year-old woman presented with repeated episodes of cholangitis over an 18-month period secondary to stenosis of a hepaticojejunostomy that had been created for a previous bile duct injury (Fig. 1). The papilla was inaccessible endoscopically using a double balloon enteroscope because of a long afferent loop and adhesions. The patient was unwilling to undergo percutaneous transhepatic biliary drainage (PTBD).

EUS-guided left duct puncture was therefore performed via a transgastric approach using a therapeutic linear-array echo endoscope (EG530UT; Fujifilm Corporation, Tokyo, Japan). The peripheral intrahepatic left duct, with a diameter of 3.5 mm, was identified (Fig. 2a) and was punctured using a 19-gauge needle (Echo-tip Ultra; Cook Endoscopy, Winston-Salem, North Carolina, USA; Fig. 2b). EUS-guided cholangiography showed mild dilatation of the intrahepatic biliary radicles with a focal anastomotic stricture (Fig. 3). A 0.032-inch, 260-cm hydrophilic guide wire (Terumo Corporation, Tokyo, Japan) was passed through the needle and across the stricture. The tract was dilated over the wire using an ultra-tapered 6-Fr catheter (Cook Endoscopy). The guide wire was then exchanged for a stiffer 0.035-inch wire (Visiglide; Olympus Corporation, Tokyo, Japan).

Video 1

The technique for endoscopic ultrasound (EUS)-guided antegrade dilation of a stenosed hepaticojejunostomy, including the following steps: (i) puncture of the peripheral left hepatic duct using a 19-gauge EUS needle; (ii) taking of a cholangiogram through the needle to demonstrate the stenosis within the hepaticojejunostomy; (iii) negotiation of the guide wire through the stricture; (iv) exchanging of the wire through the catheter; (v) balloon dilation of the stenosis; and (vi) further injection of contrast to show free drainage through the dilated hepaticojejunostomy.

Fig. 5 After the procedure had been completed, a further injection of contrast showed free drainage through the hepaticojejunostomy.

EUS-guided antegrade stenting was deferred in view of the potential difficulty of removal or exchange of the stent at a later date. Instead the stricture was dilated over the wire using an 8-mm balloon dilator (Hurricane; Boston Scientific, Natick, Massachusetts, USA; [Fig. 4a](#)). Dilation was performed for 3 minutes until the

waist disappeared ([Fig. 4b](#)). A repeat injection of contrast drained off easily through the anastomosis ([Fig. 5](#); [Video 1](#)). No procedural complications were encountered. The patient remained symptom free at the end of 1 month following this single-stage procedure.

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Competing interests: None

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