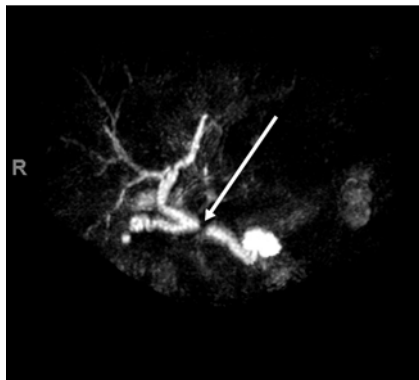


## Needle knife recanalization of a complete post-transplant bile duct stricture

Benign biliary strictures are established complications after liver transplantation, commonly occurring at the duct-to-duct anastomosis [1]. Severe anastomotic strictures may not be amendable to the gold standard endoscopic therapy. A 65-year-old-man with a history of alcoholic cirrhosis who had undergone liver transplantation 1 year previously was referred for endoscopic retrograde cholan-



► **Fig. 1** Magnetic resonance cholangiopancreatography (MRCP) image showing a severe, short localized stricture.

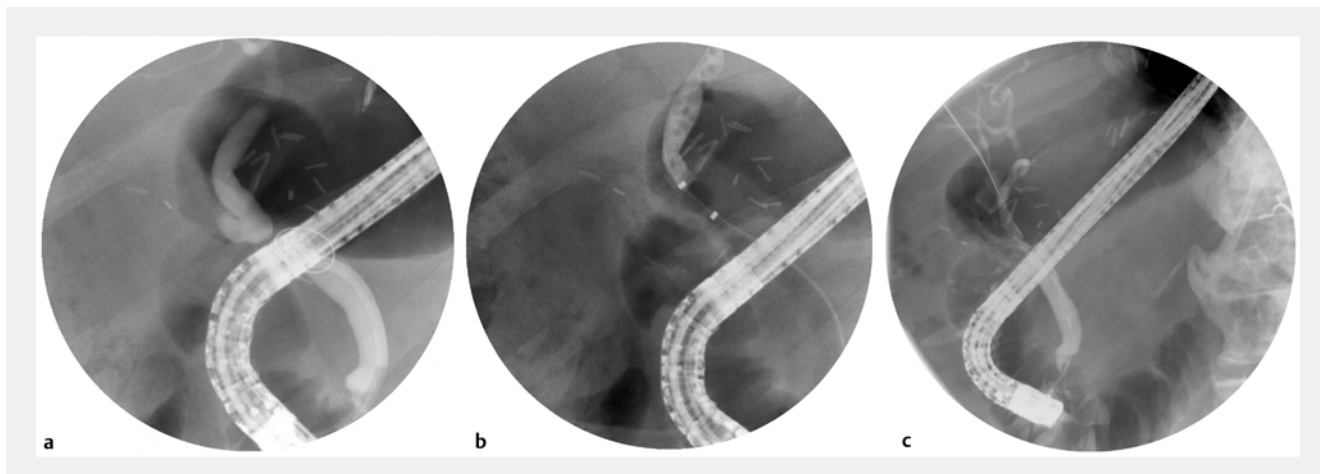
giography (ERCP) after outpatient laboratory evaluation revealed signs of cholestasis and magnetic resonance cholangiopancreatography (MRCP) revealed a complete anastomotic stricture (► **Fig. 1**). ERCP was performed and confirmed these findings; in addition, difficulty was encountered while attempting to traverse the stricture with a 0.025-inch guidewire (► **Fig. 2a**). Cholangioscopy was performed, but manipulation with cholangioscopic biopsy forceps was unsuccessful. The guidewire was downsized to a 0.018-inch wire and the stricture was traversed; however, attempts to dilate the anatomic stricture with various dilating catheters were unsuccessful. A needle knife was then loaded over the guidewire, electrocautery was applied, and the stricture was recanalized successfully (► **Video 1**). After this maneuver, there was no evidence of contrast extravasation, which would have suggested bile duct injury (► **Fig. 2b**). A follow-up ERCP 4 weeks later revealed improvement in the anastomotic stricture and a 0.035-inch guidewire was easily passed beyond

the stricture (► **Fig. 2sc**). This allowed for routine biliary balloon dilation to 6 mm and placement of a 12-cm 11.5-Fr stent. Bile duct recanalization has previously been achieved using a combined percutaneous and endoscopic approach [2]. Gupta et al. used a specific needle knife for puncture that allowed a wire to pass through the needle and stricture [3]. Recently, a standard needle knife has been used to cut and puncture these strictures [4]. In our case, cholangioscopic guidance was first used to pass a wire, which allowed for a controlled cut using the loaded needle knife. This technique may be used as a minimally invasive alternative to surgical repair in short anastomotic strictures.

Endoscopy\_UCTN\_Code\_TTT\_1AR\_2AG

### Competing interests

The authors declare that they have no conflict of interest.



► **Fig. 2** Cholangiogram images showing: **a** a wire coiling at the level of the stricture prior to the needle knife procedure; **b** no evidence of contrast extravasation after needle knife electrocautery of the complete anastomotic stricture; **c** the appearance at follow-up 4 weeks after the procedure.



**Video 1** Needle knife recanalization of a complete bile duct stricture following liver transplantation.

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*Endoscopy* 2022; 54: E28–E29

**DOI** 10.1055/a-1353-4734

**ISSN** 0013-726X

**published online** 19.2.2021

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