

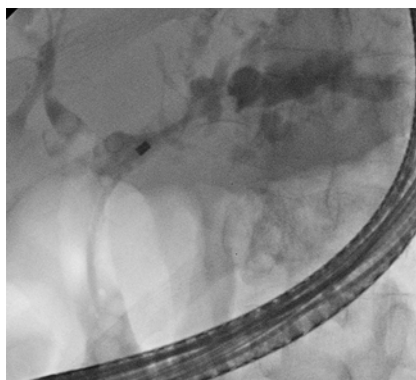
Endoscopic transpapillary biopsy using a self-assembled device: the tunnel technique

Endoscopic transpapillary biopsy under fluoroscopic control is a well-established method for tissue sampling in the case of biliary stenosis during endoscopic retrograde cholangiopancreatography (ERCP). Nevertheless, some adverse events and technical challenges, especially in proximal strictures, have been reported [1]. Cholangioscopy-guided biopsy remains an expensive, niche technique with small-sized forceps, making histological analysis difficult [2]. Finding a safe, cost-effective technique for histology remains a challenge. Herein we report a new technique for transpapillary biopsy using a biliary dilation catheter.

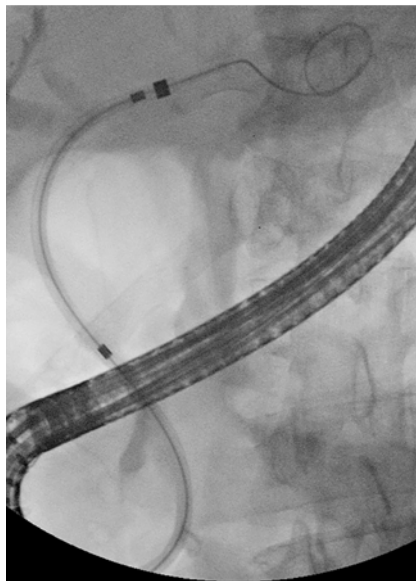
A 77-year-old patient was referred to our center in September 2019 for cholangitis. The patient underwent a computed tomography (CT) scan and magnetic resonance imaging (MRI), revealing stenosis of the left intrahepatic duct. ERCP confirmed the left biliary stenosis (► Fig. 1), but results from brushing the stenosis were inconclusive. Three days later, a second attempt at ERCP was performed. To obtain adequate tissue specimens for histopathological analysis, the tunnel technique was applied.

An 11.5-Fr biliary dilation catheter was used as the tunnel for the biopsy forceps after cutting the tapered tip, leaving the dilator's radiopaque marker as a reference point. Biliary cannulation was obtained, and the 11.5-Fr tapered catheter was advanced over a guidewire and a 6-Fr catheter, in the left biliary duct, close to the stricture (► Fig. 2). Following removal of both the guidewire and 6-Fr inner catheter, the 7-Fr biopsy forceps with 7-mm-wide cups were inserted inside the 11.5-Fr catheter (► Fig. 3). Multiple biopsies were easily performed on the stricture (► Fig. 4). No adverse events were recorded. Histology was positive for cholangiocarcinoma and hepatic resection was scheduled.

The tunnel technique for transpapillary biopsies appears to be a non-expensive,



► Fig. 1 Cholangiogram showing a left intrahepatic biliary stenosis.



► Fig. 2 Fluoroscopic image of an 11.5-Fr biliary dilation catheter advanced, after cutting the tapered tip, over a 6-Fr catheter and a 0.035-inch guidewire



► Fig. 3 The tunnel technique: fluoroscopic image of 7-Fr biopsy forceps advanced inside an 11.5-Fr biliary dilation catheter after cutting the tapered tip.

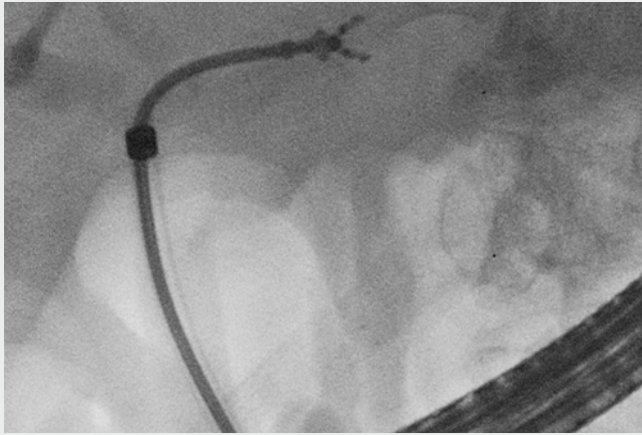


► Fig. 4 Biopsy specimen for histopathological analysis obtained with 7-Fr biopsy forceps with 7-mm-wide cups.

safe method, associated with a low risk of biliary injuries likely as a result of advancing the forceps inside a protective tunnel. By using standard forceps, adequate tissue sampling might be obtained

during fluoroscopy-assisted biopsies. Further studies are needed to validate this method for biliary stenoses.

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Video 1 Application of the tunnel technique for endoscopic transpapillary biopsy of a stenosis in the left intrahepatic duct.

Bibliography

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Competing interests

Andrea Tringali was a consultant for Boston Scientific Corp.
Ivo Boškoski is a consultant for Apollo Endosurgery.
Guido Costamagna has received grant/research support from Olympus Japan, is a member of advisory committees or review panels for Cook, Inc., Boston Scientific Corp., and Taewoong Medical, Inc., and has been a speaker and teacher for Boston Scientific, Corp., and Given Imaging.

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