Simple transmural antegrade biopsy method for indeterminate biliary stricture using endoscopic sheath

Kei Yane, Kotaro Morita, Tetsuya Sumiyoshi, Mai Aoki, Masahiro Yoshida, Hideyuki Ihara, Hitoshi Kondo.

Affiliations below.

DOI: 10.1055/a-1793-9454

Please cite this article as: Yane K, Morita K, Sumiyoshi T et al. Simple transmural antegrade biopsy method for indeterminate biliary stricture using endoscopic sheath. Endoscopy International Open 2022. doi: 10.1055/a-1793-9454

Conflict of Interest: The authors declare that they have no conflict of interest.

Abstract: N/A

Corresponding Author: Kei Yane, Tonan Hospital, Department of Gastroenterology, Sapporo, Japan, k.yane3@gmail.com, yanekei@vesta.dti.ne.jp

Affiliations:
Kei Yane, Tonan Hospital, Department of Gastroenterology, Sapporo, Japan
Kotaro Morita, Tonan Hospital, Department of Gastroenterology, Sapporo, Japan
Tetsuya Sumiyoshi, Tonan Hospital, Gastroenterology, Sapporo, Japan
[...]
Hitoshi Kondo, Tonan Hospital, Department of Gastroenterology, Sapporo, Japan
Simple transmural antegrade biopsy method for indeterminate biliary stricture using endoscopic sheath

Kei Yane¹, Kotaro Morita¹, Tetsuya Sumiyoshi¹, Mai Aoki¹, Masahiro Yoshida¹, Hideyuki Ihara¹, Hitoshi Kondo¹

Affiliation:
¹ Department of Gastroenterology, Tonan Hospital, Sapporo, Hokkaido, Japan

Short title: Biopsy method for indeterminate biliary stricture using endoscopic sheath

Corresponding author:
Kei Yane, MD
Department of Gastroenterology, Tonan Hospital
3-8 Kita-4 Nishi-7, Chuo-ku
Sapporo 060-0004, Japan
Tel: +81-11-231-2121
Fax: +81-11-231-5000
Email: k.yane3@gmail.com

Submitted: 14 December 2021 Accepted after revision: 19 January 2022

Competing interests: None

Keywords: strictures; pancreatobiliary (ERCP/PTCD), diagnostic ERC; pancreatobiliary (ERCP/PTCD), tissue diagnosis; pancreatobiliary (ERCP/PTCD)
Histological examination is necessary to determine the treatment strategy for indeterminate bile duct stricture. In cases of surgically altered anatomy, balloon enteroscopy-assisted endoscopic retrograde cholangiopancreatography (ERCP) is useful. However, its success rate is limited in cases with malignant stricture [1]. Although transmural antegrade biopsy has been reported, it requires a special biopsy forceps and a mature hepaticogastrostomy fistula [2]. Recently, the usefulness of an endoscopic sheath has been reported for selective biliary biopsy (Fig. 1) [3,4]. Herein, we describe a successful simple and one-step transmural antegrade biopsy method for indeterminate biliary stricture using this endoscopic sheath.

A 70-year-old man who underwent gastric jejunal bypass for benign duodenal stricture due to a duodenal ulcer scar was admitted for obstructive jaundice. Although computed tomography showed bile duct and pancreatic duct dilation, no obvious tumor could be identified (Fig. 2). Simultaneous endoscopic ultrasound (EUS)-guided transmural bile duct biopsy with biliary stenting was attempted. After puncturing the intrahepatic bile duct using a 22-gauge FNA needle, the distal bile duct stricture was confirmed. Following guidewire placement using a double-lumen catheter (Uneven Double Lumen Cannula; Piolax Medical Devices, Kanagawa, Japan), an endoscopic sheath (Endosheather; Piolax Medical Devices) was inserted and advanced directly above the stricture (Fig. 3). A biopsy forceps (Radial Jaw 4 Pediatric; Boston Scientific, Natick, Massachusetts, United States) was inserted, and five biopsies were performed (Fig. 4, Video 1). All five biopsies were performed within 5 minutes after the Endosheather insertion. Finally, a 7F, 14-cm plastic stent (Through and Pass, TYPE-IT, Gadelius Medical Co. Ltd., Tokyo, Japan) was placed (Fig. 5). Histological examination revealed adenocarcinoma. After malignancy confirmation, we placed metal stents via a hepaticogastrostomy fistula (Fig. 6). This method is promising because it is simple, and it is easy to perform multiple biopsies during EUS-guided hepaticogastrostomy with little concern for bile leakage.
After puncturing the intrahepatic bile duct using a 22-gauge FNA needle, a distal bile duct stricture was confirmed.

The endoscopic sheath was inserted and advanced directly above the stricture.

The biopsy forceps was inserted, and five biopsies were performed.

All five biopsies were performed within 5 minutes after the endoscopic sheath insertion.

Finally, a 7F, 14-cm plastic stent was placed.

References
**Figure and video legends**

**Fig. 1** The biopsy forceps (Radial Jaw 4 Pediatric; Boston Scientific, Natick, Massachusetts, United States; inner diameter 1.8 mm) inserted into an endoscopic sheath (Endosheather; Piolax Medical Devices; outer diameter 7.2F (2.4 mm); inner diameter 2.06 mm).

**Fig. 2** Computed tomography showed bile duct and pancreatic duct dilation. However, no obvious tumor could be identified (yellow circle).

**Fig. 3** The endoscopic sheath was inserted into the bile duct and advanced directly above the stricture (yellow arrows).

**Fig. 4** The biopsy forceps (Radial Jaw 4 Pediatric; Boston Scientific, Natick, Massachusetts, United States) was inserted, and five biopsies were performed.

**Fig. 5** A 7F 14-cm plastic stent was placed.

**Fig. 6** Following diagnosis, we performed antegrade stent placement across the papilla and hepaticogastrostomy stent placement via a hepaticogastrostomy fistula (yellow arrows).

**Video 1** Transmural antegrade biopsy was performed using an endoscopic sheath.