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DOI: 10.17235/reed.2024.10786/2024

Link: [PubMed \(Epub ahead of print\)](#)

Please cite this article as:

Wang Fang, Li Zhifeng, Lu Xinqing, He Hongfei, Cheng Shaoqiong, Chang Jialei, Peng Xinghua. Peroral choledochoscope for anterograde bridging of biliary drainage via T-tube. Rev Esp Enferm Dig 2024. doi: 10.17235/reed.2024.10786/2024.

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## Peroral choledochoscope for anterograde bridging of biliary drainage via T-tube

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**Keywords:** ERCP. Peroral choledochoscope. Anterograde bridging.

Dear Editor,

Postoperative biliary stricture after biliary surgery is a challenging condition. Biliary stent placement by endoscopic retrograde cholangiopancreatography (ERCP) and endoscopic ultrasound (EUS) are the effective treatment for biliary stricture [1-3]. We report a case of peroral choledochoscope (eyeMax Choledochoscope System Digital Controller; Micro Tech, Nanjing, China) was used for anterograde bridging of biliary drainage via T-tube (Figure-1 A, B).

A 55 years old male patient underwent cholecystectomy, choledocholithotomy with T-tube drainage for "gallstones and choledocholithiasis" two months ago. One week ago, we attempted to clamp the T-tube, but bile leaked around the T-tube. T-tube angiography imaging showed distal common bile duct stenosis and CT don't detect any common bile duct mass.

We prepared ERCP for biliary drainage, but the guidewire failed to enter the bile duct. We attempted to anterograde bridging under balloon guidance via T-tube, but were unsuccessful (Figure-1 C). In the second operation, we used peroral choledochoscope through the T tube to observe: the wall of the bile duct was smooth and the hyperplasia of granulation tissue could be seen at the distal

common bile duct. We used a guide wire to pass through the narrow segment under direct visualization of the peroral choledochoscope (Figure-1 D). Duodenoscopy revealed that the guidewire penetrates from the medial lateral wall of the descending part of the duodenum (Figure-1 E), we replaced the guidewire and placed a fully covered self-expandable metal stent (Figure-1 F-H). One week later, T-tube angiography showed smooth passage of contrast medium and we removed the T-tube (Figure-1 I). Three months after operation, follow-up CT scan showed no dilation of the bile duct and self-detachment of the biliary stent (Figure-1 J).

In this operation, we innovatively applied peroral choledochoscope for anterograde treatment of biliary drainage via T-tube with technical and clinical success. EUS-CDS also be an effective treatment option for this case <sup>[4,5]</sup>. Peroral choledochoscope makes the treatment of such biliary diseases more precise. With the continuous advancement of minimally invasive concepts, the treatment of biliary diseases under direct visualization is worth exploring.

#### **Conflict of interest**

Authors declare no Conflict of Interest for this article.

#### **Acknowledgements**

NO

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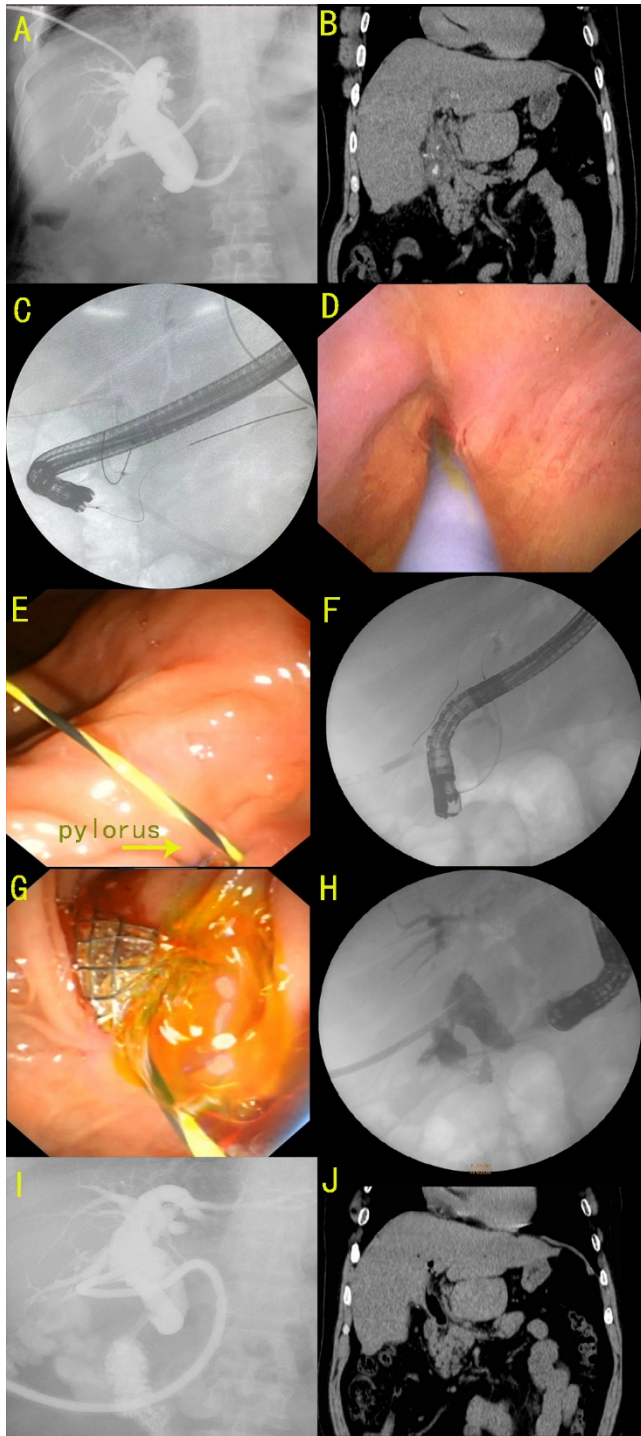


Fig. 1. A. T-tube angiography imaging showed distal common bile duct stenosis. B. CT don't detect any common bile duct mass. C. The guidewire failed to enter the bile duct. We attempted to anterograde bridging under balloon guidance via T-tube, but were unsuccessful. D. We used a guide wire to pass through the narrow segment under direct visualization of the peroral choledochoscope. E. Duodenoscopy revealed that the guidewire penetrates from the medial lateral wall of the

descending part of the duodenum. F-H. We replaced the guidewire and placed a fully covered SEMS. I. One week later, T-tube angiography showed smooth passage of contrast medium. J. Follow-up CT scan showed no dilation of the bile duct and self-detachment of the biliary stent.

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