

Double-Guidewire Technique to Achieve Deep Biliary Cannulation and Stenting in a Patient With Altered Gastrointestinal Anatomy

Lina Mariyam

¹Department of Neurology, Pakistan

*Corresponding Author:

Lina Mariyam

Department of Neurology, Pakistan

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1. Abstract

Endoscopic retrograde cholangiopancreatography (ERCP) is a well-established procedure for managing biliary tract diseases, but it becomes technically challenging in patients with surgically altered gastrointestinal anatomy. Even when biliary access is obtained, advancing instruments through strictures can be difficult due to distorted anatomy and poor alignment between the endoscope and bile duct.

We report the case of a 70-year-old man with Roux-en-Y reconstruction who developed malignant biliary obstruction due to pancreatic cancer. He previously underwent biliary stent placement but later presented with acute cholangitis caused by stent blockage. During repeat ERCP, although biliary access was achieved with a guidewire, catheter advancement failed due to a tight distal bile duct stricture and unfavorable ductal angulation. A second guidewire was introduced alongside the first, which improved duct straightening and scope stability. This allowed successful catheter passage and placement of a new plastic stent.

This case demonstrates that the double-guidewire technique is a simple, effective, and practical method to facilitate deep biliary intervention in patients with altered anatomy and complex strictures.

2. Introduction

Endoscopic retrograde cholangiopancreatography (ERCP) plays a crucial role in both the diagnosis and treatment of biliary and pancreatic disorders. However, performing ERCP in patients with surgically modified gastrointestinal anatomy, such as those with Roux-en-Y reconstruction or Billroth II gastrectomy, is often technically demanding.

In such cases, reaching the papilla itself can be difficult due to altered

intestinal pathways, adhesions, and reduced maneuverability of standard endoscopes. Even after successful cannulation of the bile duct, advancing therapeutic devices like catheters or stents may fail, especially when there is severe biliary stricture or misalignment between the bile duct and endoscope axis.

Although various specialized accessories have been developed to improve success rates, there is still no universally simple method to ensure smooth deep insertion of devices in such difficult scenarios. This report presents a practical technique using a double-guidewire approach to overcome these limitations.

3. Case Presentation

A 70-year-old male patient with a history of total gastrectomy and Roux-en-Y reconstruction performed for gastric cancer was evaluated after imaging revealed a suspicious pancreatic lesion with associated bile duct dilatation. ERCP confirmed a markedly irregular and narrowed distal common bile duct, and biopsy results indicated adenocarcinoma.

An endoscopic sphincterotomy was performed, followed by insertion of a 5-Fr plastic biliary stent, which initially improved bile drainage. The patient was subsequently started on chemotherapy. Seven months later, he presented with fever, abdominal discomfort, and clinical signs consistent with acute cholangitis. Investigations revealed obstruction of the previously placed biliary stent, and repeat ERCP was planned for stent exchange.

Using a forward-viewing colonoscope suitable for altered anatomy, the endoscope was advanced to the major papilla, which appeared swollen due to tumor infiltration. Initial attempts at guidewire cannulation alongside the existing stent were unsuccessful because of poor alignment and unstable scope positioning.

The previously placed stent was then removed, and a guidewire was successfully inserted into the intrahepatic bile duct. However, despite achieving biliary access, advancement of the catheter through the severely narrowed distal bile duct was unsuccessful. The main reasons were the tight stricture and significant mismatch between the bile duct axis and catheter direction.

To overcome this difficulty, a second identical guidewire was introduced into the bile duct alongside the first. This additional wire helped straighten the bile duct pathway and improved stability of the endoscope. As a result, the catheter could be advanced smoothly through the stricture.

Following successful passage, a new 7-Fr plastic biliary stent was placed without difficulty. The procedure was completed without complications, and the patient recovered well, with resolution of cholangitis symptoms.

ANNALS OF MEDICAL AND CLINICAL CASES

4. Discussion

ERCP in patients with altered gastrointestinal anatomy continues to be one of the most challenging areas in therapeutic endoscopy. Surgical reconstruction significantly changes normal anatomical pathways, making scope navigation and papilla access difficult. In addition, post-surgical angulation and adhesions often reduce the ability to maintain a stable position during cannulation.

In this case, although biliary access was achieved, the main challenge was deep insertion of the catheter through a malignant stricture. The distorted anatomy created an unfavorable angle, resulting in poor transmission of force from the endoscope to the catheter tip.

The double-guidewire technique proved useful in resolving this issue. By inserting a second guidewire parallel to the first, the bile duct was effectively straightened, and the axis alignment between the endoscope and bile duct was improved. This enhanced mechanical support allowed controlled and stable advancement of the catheter through the stricture.

One of the key advantages of this technique is its simplicity. It does not require specialized equipment and can be performed immediately using standard guidewires available in any endoscopy unit. This makes it particularly valuable in emergency situations such as acute cholangitis or stent occlusion.

Additionally, this technique may have broader applications beyond ERCP, including other endoscopic procedures where ductal or luminal angulation limits device passage, such as stent exchange or endoscopic ultrasound-guided interventions.

5. Conclusion

The double-guidewire technique is a simple and effective method to facilitate deep biliary cannulation and stent placement in patients with altered gastrointestinal anatomy. By improving duct alignment and endoscope stability, it allows successful advancement of devices through difficult strictures. This method can be considered a useful adjunct in complex ERCP cases where conventional approaches are unsuccessful.

References

1. Committee AT, Enestvedt BK, Kothari S, Pannala R, Yang J, Fujii-Lau LL, Hwang JH, et al. Devices and techniques for ERCP in the surgically altered GI tract. *Gastrointest Endosc.* 2016; 83(6): 1061-1075.
2. Moreels TG. Altered anatomy: enteroscopy and ERCP procedure. *Best Pract Res Clin Gastroenterol.* 2012; 26(3): 347-357.
3. Lee A, Shah JN. Endoscopic approach to the bile duct in the patient with surgically altered anatomy. *Gastrointest Endosc Clin N Am.* 2013; 23(2): 483-504.
4. Okabe Y, Ishida Y, Kuraoka K, Ushijima T, Tsuruta O. Endoscopic bile duct and/or pancreatic duct cannulation technique for patients with surgically altered gastrointestinal anatomy. *Dig Endosc.* 2014; 26(Suppl 2): 122-126.
5. Lin LF, Siauw CP, Ho KS, Tung JC. ERCP in post-Billroth II gastrectomy patients: emphasis on technique. *Am J Gastroenterol.* 1999; 94(1): 144-148