

EDITORIAL

What is the most cost-effective method for a difficult biliary cannulation in ERCP?

Endoscopic retrograde cholangiopancreatography (ERCP) has become the method of choice in the majority of cases to relieve common bile duct (CBD) obstruction and to manage other biliary conditions such as leaks. Mastering ERCP requires the experience of a large number of procedures keeping in mind that each one may have its own peculiarity. Deep CBD cannulation is an indispensable prerequisite to carry out ERCP biliary interventions. Cannulation is a skill that can take a significant amount of time to master (1,2), and it constitutes a challenge even for an experienced endoscopist. Furthermore, ERCP complications such as pancreatitis or retroperitoneal perforation of the second duodenal portion where the Vater's papilla is located are frequently associated with a difficult cannulation. Every endoscopist should maintain records of their cannulation and complication rates in order to improve their performance.

Standard cannulation is usually considered when the CBD is accessed by means of a sphincterotome loaded with a hydrophilic-tipped guidewire. When standard cannulation fails, many alternative methods have been described (3). Nevertheless, there is no consensus with regard to the way these advanced techniques should be used for CBD deep cannulation.

Studies dealing with advanced techniques after a failed standard cannulation focus on finding the appropriate steps for ERCP success in conjunction with a lower complication rate. In this issue of the *Spanish Journal of Gastroenterology*, Hwang et al. (4) add a new aspect, which is the cost. What is the method that provides a better outcome, i.e., a higher cannulation rate with fewer complications and at the lowest cost?

In a previous study from the same group (5) they found that early precut sphincterotomy is as efficient as a pancreatic stent in preventing post-ERCP pancreatitis in high-risk subjects. They compared two advanced techniques to access the CBD after a failed standard cannulation, precut and pancreatic stent placement, and no differences were found either in cannulation or complication rate.

Precut or needle-knife-papillotomy (NKP) was first described by Huibregtse in 1986 (6). A free-hand incision is made either starting at the papillary orifice and extending cephalad for a variable distance, or making a puncture in the papilla above the orifice (fistulotomy) and then cutting either upward in a cephalad direction or downward toward the orifice. After this cut, the CBD will theoretically be exposed and cannulation could be accomplished. NKP should be regarded as a high-risk procedure because it is probably the most demanding technique in ERCP. Complications from NKP include pancreatitis, perforation and bleeding. The complication rate may not necessarily decrease in spite of extensive endoscopist experience. Recent studies appear to suggest that pancreatitis might be associated with repeated previous attempts with standard cannulation methods rather than NKP itself (7). Therefore, an early use of NKP during the procedure, once a difficult cannulation is encountered, could prevent higher pancreatitis rates. However, published studies are derived from specialized centers, and their results cannot be achieved in general practice.

Insertion of a plastic pancreatic stent (PS) into the main pancreatic duct (MPD) is the second advanced technique for CBD cannulation compared with NKP by Hwang et al. (4). A PS in the MPD that acts as a "step" to gain access to the CBD is part of the so called "pancreatic techniques" (8) for biliary cannulation (Fig. 1). As standard cannulation is usually made with a sphincterotome loaded with a guidewire, inadvertent guidewire passage into the MPD occurs frequently. The wire can remain in the MPD and it can advance beyond the level of the pancreatic genu to ensure a stable position. If the wire tip is angled, it can be pushed safely to the pancreatic tail as perforation is rare. If a 0.025-inch guidewire is used for standard CBD cannulation, instead of the more frequently used 0.035-inch ones, its passage into the MPD might be even safer due to the fact that it is less rigid (9). Then the sphincterotome is removed and a PS is gently pushed over the guidewire into the pancreas. Afterwards, new attempts to cannulate the CBD above the PS with the sphincterotome are made (Fig. 2). PS insertion facilitates recognition during fluoroscopy of the MPD orientation and helps to avoid repetitive pancreatic cannulations. In addition, the PS lowers the acute CBD angle and facilitates biliary cannulation.

If there is not enough room between the PS and the papillary orifice, NKP can be performed along the PS to open the papilla, allowing the sphincterotome to engage the papillary orifice. In this setting, NKP may be less risky because the PS trails the cutting line. The PS could be removed after biliary cannulation or after completion of the procedure. However, many endoscopists prefer to leave it in place for several days in order to prevent acute pancreatitis. Stents without internal flaps will not require a gastroscopy or duodenoscopy for removal, but an abdominal film may be required to ensure spontaneous passage of the PS.

The European Society of Gastrointestinal Endoscopy (ESGE) Guideline proposes that the definition of a difficult biliary cannulation in an intact papilla is any of the following: cannulation attempts of a duration of > 5 minutes, > 5 attempts, or two inadvertent guidewire passages into the MPD (10).

Although inadvertent guidewire passage into the pancreas is common in CBD guidewire assisted cannulation, the guidewire does not always fit correctly in the MPD (Fig. 2). Sometimes the guidewire sticks in side branches instead of following the MPD. A well-positioned guidewire in the MPD is a real blessing. This can occur only once during an ERCP, and during the next attempt neither the CBD nor the MPD can be cannulated. Therefore, even during the first guidewire passage into the MPD, the endoscopist must seriously consider performing some pancreatic technique for CBD cannulation instead of removing the guidewire from the pancreas and trying again with the standard technique.

Hwang et al. (4) have found in their current study that for a difficult CBD cannulation, NKP is more cost-effective than the PS because there is no need for an abdominal film to check for PS spontaneous passage or a second endoscopic procedure to remove indwelling stents. At this point some objections are raised. If the guidewire has passed correctly into the MPD, should it be removed and a NKP performed because it is cheaper? Perhaps NKP should be performed only if no duct is accessed with the guidewire, whilst always keeping in mind the possible risks (11,12).

A cannulation time exceeding ten minutes, one or more pancreatic duct wire passages and NKP are among the commonly recognized risk factors for ERCP-related complications (13). As an early NKP can reduce the pancreatitis rate, the avoidance of repeated guidewire passages into the MPD with an early use of pancreatic techniques can prevent papillary edema and pancreatic damage. As only one pancreatitis event should be considered as too much if it is preventable, NSAIDs and, if possible, a PS should be employed in advanced CBD cannulation techniques.

Hwang et al. (4) show a great skill performing NKP that cannot be generalized. The average skilled endoscopist must think carefully if a properly positioned guidewire in the MPD should be removed instead of performing some pancreatic technique for CBD cannulation. Besides pancreatitis, NKP can significantly increase the risk of two other complications: perforation and hemorrhage. Without an extensive experience in NKP, the complication rate will render the technique less cost-effective, and ERCP with NKP will be more expensive than using pancreatic techniques.

Many endoscopists have experienced that a good ERCP outcome can change to a complete failure in a moment. A guidewire into the MPD can facilitate in many cases a safe CBD cannulation.

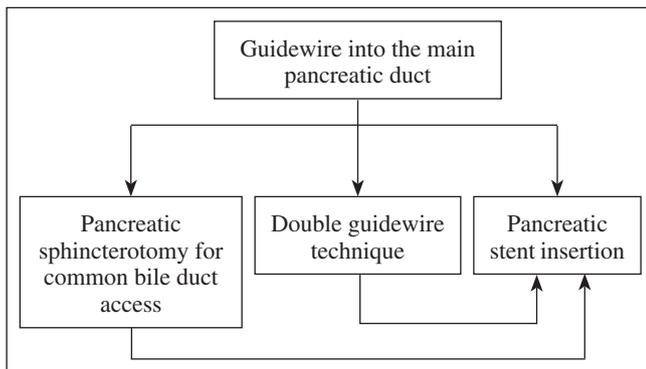


Fig. 1. Different techniques for common bile duct cannulation after inserting a guidewire in the main pancreatic duct. A plastic stent should always be inserted in the pancreas at the end of the procedure to prevent acute pancreatitis.

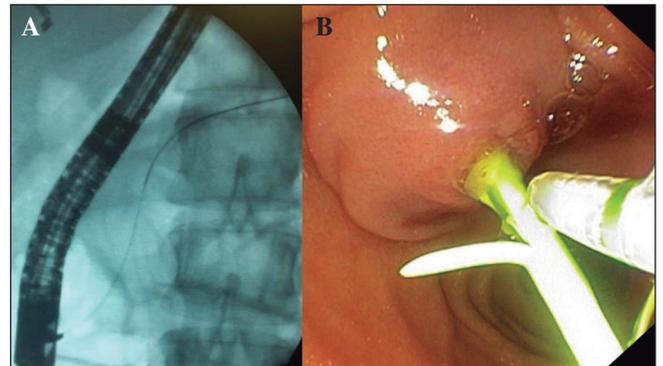


Fig. 2. A. A 0.025-inch guidewire properly positioned along the main pancreatic duct. B. A plastic stent is inserted in the pancreas over the guidewire. The common bile duct can be cannulated above the stent.

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