A new duodenal rendezvous technique for biliary cannulation in patients with T-tube after orthotopic liver transplantation (with video)

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Background and Aims: Because a traditional rendezvous (RV) technique implies stretching of the papilla, possibly leading to post-ERCP pancreatitis, an alternative duodenal RV technique was evaluated. The aim was to assess the effectiveness, safety, and amount of time spent performing duodenal RV versus traditional RV cannulation in orthotopic liver transplantation patients with a T-tube.

Methods: We retrospectively reviewed data from a prospective ERCP database held by our university hospital. Twenty patients with a T-tube who had undergone ERCP for biliary adverse events after orthotopic liver transplantation were included. The successful cannulation rate, the amount of time spent performing cannulation, the post-ERCP pancreatitis rate, and hyperamylasemia 24 hours after the procedure were recorded.

Results: Successful cannulation was achieved by the duodenal RV technique in 9 of 10 patients (90%), taking 146 seconds (interquartile range 63-341 seconds) with a short learning curve effect. An unsuccessful duodenal RV procedure occurred because of the angulation of the hydrophilic tip of the guidewire while crossing the papilla, thus preventing cannulation. Successful cannulation was achieved by the traditional RV technique in all cases (N = 11), including the failed duodenal RV technique, taking 374 seconds (interquartile range 320-410 seconds) ($P < .05$ vs duodenal RV). However, no post-ERCP pancreatitis occurred after using the duodenal RV technique compared with 2 episodes of mild pancreatitis after using the traditional RV technique. Twenty-four hours after the procedure, the median amylasemia level was 84 IU/L (interquartile range 49-105 IU/L) and 265 IU/L (interquartile range 73-2945 IU/L) for the duodenal versus traditional RV techniques, respectively (P = not significant).

Conclusions: In patients with a T-tube after liver transplantation, the duodenal RV technique was not associated with post-ERCP pancreatitis, presumably because of the reduction of stress on the major papilla. Cannulation by using the duodenal RV technique was faster compared with the traditional RV technique. These preliminary data point out the use of the duodenal RV technique as the first option to choose in case of failed cannulation before attempting the traditional RV technique.

When dealing with failed cannulation, the access to the biliary tree can be achieved by the rendezvous (RV) technique. In patients who have undergone orthotopic liver transplantation (OLT), the RV technique can be assisted by the T-tube. Because the traditional RV technique implies some stretching of the papilla, which possibly leads to pancreatitis,[1,2] an alternative duodenal RV technique was evaluated.

Abbreviations: OLT, orthotopic liver transplantation; PEP, post-ERCP pancreatitis; RV, rendezvous.

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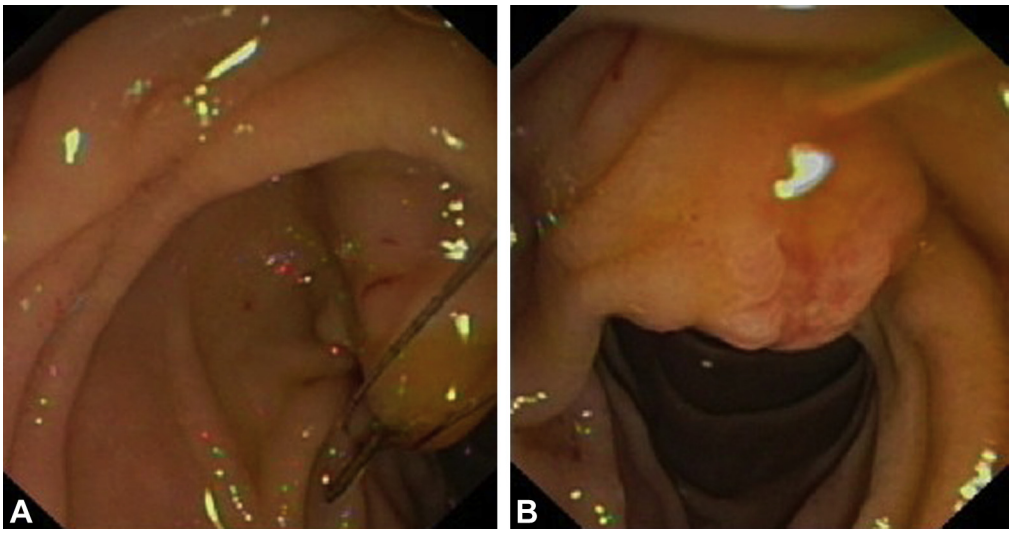

Figure 1. Duodenal rendezvous. **A**, The tip of the sphincterotome is progressively aligned to the guidewire rising from the papilla. **B**, When the sphincterotome is in the kissing position to the papilla, the guidewire is easily inserted into it.

MATERIALS AND METHODS

Duodenal RV technique

All of the patients underwent ERCP while under conscious sedation (intravenous meperidine, 30-50 mg and intravenous midazolam. 1-5 mg). Both the left lateral and prone positions were used to facilitate access to the T-tube at the upper right abdominal quadrant during endoscopy. An Olympus TJF 145 or 160 duodenoscope (Olympus Surgical Technologies Europe, Hamburg, Germany) was used. After intubating the descending duodenum, spasmolytic drugs (intravenous hyoscine N-butylbromide, 20-40 mg or intravenous glucagon, 1 mg) or warm water injection into the duodenum were administered to suppress peristalsis.

A 260-cm long, 0.035-inch guidewire (Jagwire; Boston Scientific, Natick, Mass) was pushed into the T-tube and, anterogradely crossing the major papilla, into the duodenum (Fig. 1A) under radiographic control. The guidewire was withdrawn 1 to 2 mm out of the papilla. For successful cannulation, the guidewire was moved back and forth a few millimeters while the tip of the sphincterotome was kept firmly close to the papilla (kissing position) (Video, available online at www.giejournal.org). The hydrophilic tip of the guidewire was engaged into the tip of the sphincterotome. During the back-and-forth movements of the guidewire, the sphincterotome was progressively bent to achieve a favorable axis aligned with the intrabiliary portion of the wire under radiographic control (Fig. 1B). The guidewire was gently pushed into the sphincterotome for 30 cm to stabilize the next operative steps. A 4.4F tipped sphincterotome (Autotome; Boston Scientific) was used in all the cases, whereas round-tipped ones were not tested. Larger tipped sphincterotomes were not needed to facilitate cannulation. Only over-the-wire cannulation was considered successful, and cannulation alongside the wire was not attempted. After 10 minutes of failed attempts, the duodenal RV technique was considered unsuccessful. After the duodenal RV technique failed, the traditional RV technique was applied. Sphincterotomy with blended current was performed after cannulation. Afterward, the short guidewire was withdrawn from the T-tube and inserted anterogradely into the sphincterotome and used to pass the anastomotic stricture or leak site. When the sphincterotome entered the recipient biliary tree, the T-tube was removed. All of the ERCPs ended with placing an 8.5F or 10F plastic stent to relieve the biliary anastomotic stricture when present and to prevent sepsis secondary to leakage from the T-tube insertion site. A wide-spectrum antibiotic was administered for 48 to 72 hours to prevent postprocedural sepsis, and, in the absence of adverse events, patients were discharged 24 hours after the procedure.

Traditional RV technique

A 450-cm long, 0.035-inch guidewire (Jagwire; Boston Scientific) was inserted into the T-tube and, anterogradely crossing the major papilla, into the duodenum. The hydrophilic tip of the guidewire was grasped by a polypectomy snare (Fig. 2A) and gently pulled out through the accessory channel of the duodenoscope (Fig. 2B). When an appropriate length of the guidewire reached out of the duodenoscope, the guidewire was inserted into the tip of a sphincterotome (Fusion; Cook Medical, Bloomington, Ind or Autotome; Boston Scientific) (Fig. 2C). The sphincterotome was pushed over the guidewire into the duodenoscope and then across the major papilla. After sphincterotomy, the guidewire was