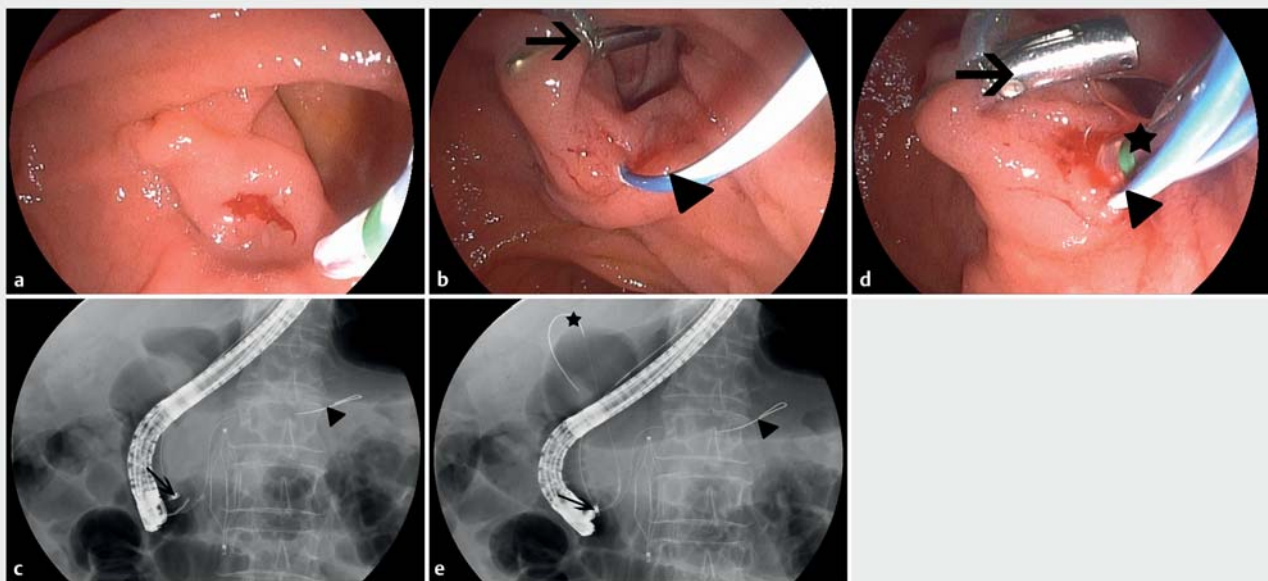


## Clip-and-snare traction facilitates difficult biliary cannulation during ERCP

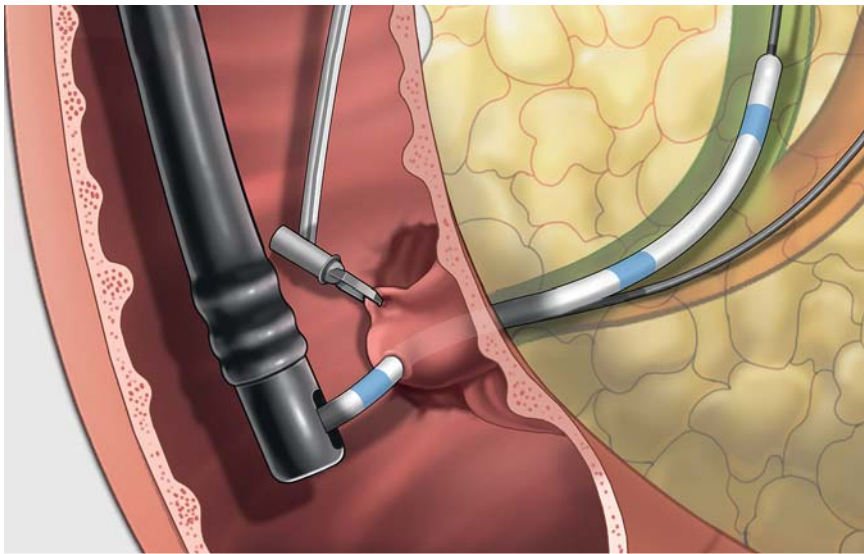
The adequate exposure of the ampullary orifice and reliable fixation of the duodenal papilla are always the basic principles of successful cannulation during endoscopic retrograde cholangiopancreatography (ERCP). In recent years, several traction strategies have proven to be effective in eversion of a hidden papilla within a large diverticulum, such as using a cannula [1], endobiliary forceps [2], or the SpyBite [3] to manipulate the papilla. However, with the above coaxial lifting strategies, it is not possible to optionally adjust the direction and intensity of traction because of interference with the duodenoscope. Therefore, here we report a novel clip-and-snare traction (CST) method to effectively accomplish successful biliary cannulation (► **Video 1**), which had not been possible with guidewire-aided cannulation techniques.



► **Video 1** In a patient undergoing endoscopic retrograde cholangiopancreatography for biliary stones, an intradiverticular papilla meant access to the bile duct failed, despite multiple attempts at traditional guidewire-aided cannulation. An endoclip was inserted through the endoscope to grasp the papilla and was interlinked with a snare. The clip-and-snare traction (CST) tools were used to pull the papilla out of the diverticulum, thereby clearly exposing the ampullary orifice. With the CST-assisted cannulation technique, the first guidewire was rapidly advanced into the pancreatic duct and, after several attempts, the bile duct was successfully cannulated with a second guidewire.



► **Fig. 1** Views during difficult biliary cannulation of an intradiverticular papilla. **a** Endoscopic appearance showing the edematous mucosa of the intradiverticular papilla after several attempts at biliary cannulation. **b, c** The clip-and-snare traction (CST) tools (arrow) are used to evert the papilla out of diverticulum, which allows the guidewire to smoothly cannulate the main pancreatic duct (triangle), as seen on: **b** endoscopic view; **c** radiographic view. **d, e** With the first guidewire occupying the pancreatic access (triangle), a second guidewire is then advanced deep into the bile duct (star), as seen on: **d** endoscopic view; **e** radiographic view.



► **Fig. 2** Illustration of difficult biliary cannulation using the clip-and-snare traction (CST) method, which allows good visualization of the biliary orifice and reliable stability of the papilla, so that biliary cannulation can be achieved through the papillary orifice.

The patient was being treated by ERCP for common bile duct stones. Attempts were made to access the biliary tree using the guidewire-aided cannulation technique; however, as the ampulla of Vater was hidden inside a diverticulum, attempts to gain access were unsuccessful and, after 15 minutes, the mucosa of the papilla became swollen, with the orifice of papilla becoming obscured (► **Fig. 1 a**). Subsequently, the CST method was applied to pull the papilla back out of the diverticulum and the ampullary orifice was eventually turned outward. After several attempts at cannulation, the guidewire smoothly advanced into pancreatic duct (► **Fig. 1 b,c**). Attempts were made to perform biliary cannulation in the region towards the upper left orifice of the papilla using a sphincterotome with a second guidewire, and a successful cannulation of the bile duct was finally achieved (► **Fig. 1 d,e**).

In this patient, the independent lifting technique of CST was employed to optimize the position of the papilla and its

orifice by free movements of pull, push, pick, and rotate (► **Fig. 2**), which led to successful biliary cannulation in a short time. As the CST method is very simple to manipulate, it may be applied to routine biliary cannulation in any patients where a lifting technique is required.

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#### Competing interests

None

#### The authors

**Xiao Hu\***, **Yun-chao Yang\***, **Xiao-gang Liu**, **Ren-yi Zhang**, **Sheng-xi Han**, **Liang-ping Li**, **Wei-hui Liu**

Department of Gastroenterology and Hepatology, Sichuan Academy of Medical Sciences & Sichuan Provincial People's Hospital, Chengdu, Sichuan Province, China

\* Contributed equally to this work – both 1st author

#### Corresponding author

**Wei-hui Liu, MD, PhD**

Department of Gastroenterology and Hepatology, Sichuan Academy of Medical Sciences & Sichuan Provincial People's Hospital, Chengdu, Sichuan Province, 610072, China  
audiliu12@163.com

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