Practical introduction to papillary cannulation and sphincterotomy techniques

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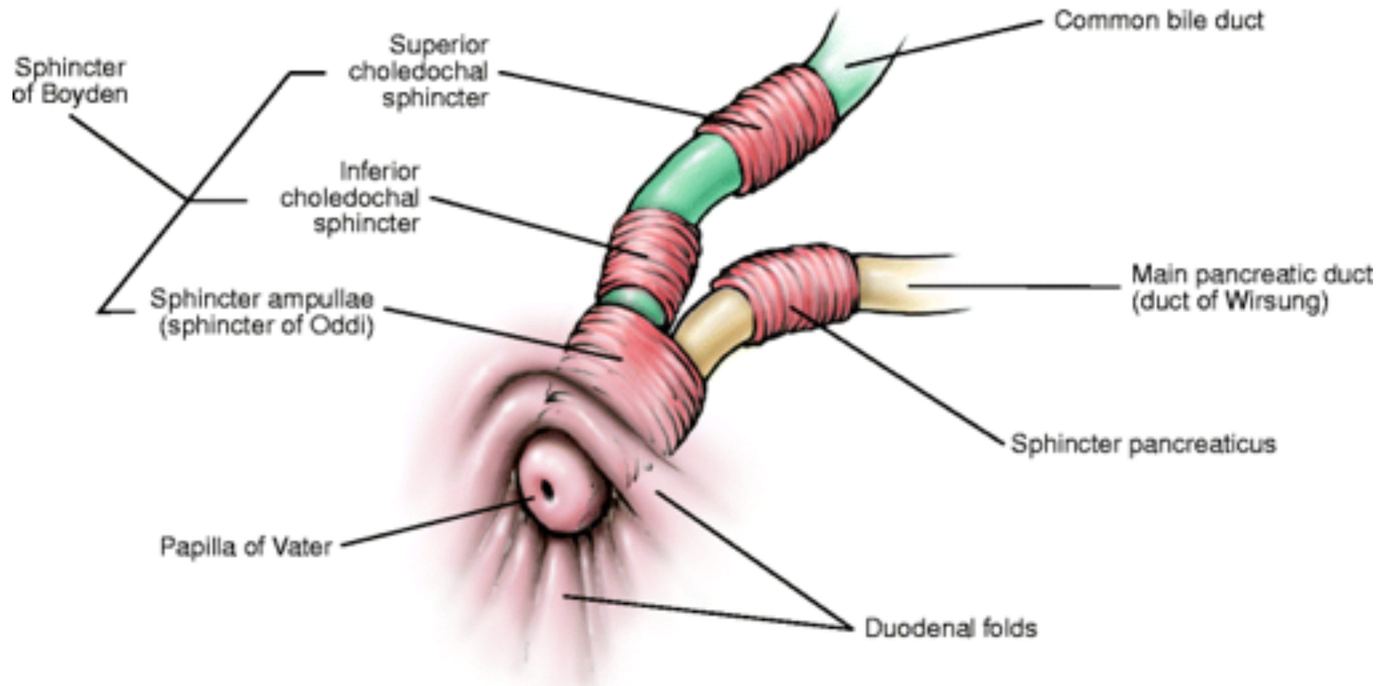
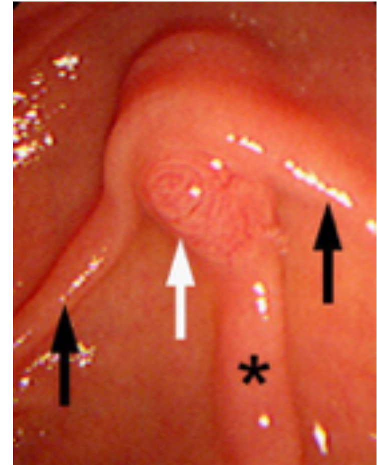
Practical introduction to papillary cannulation and sphincterotomy techniques

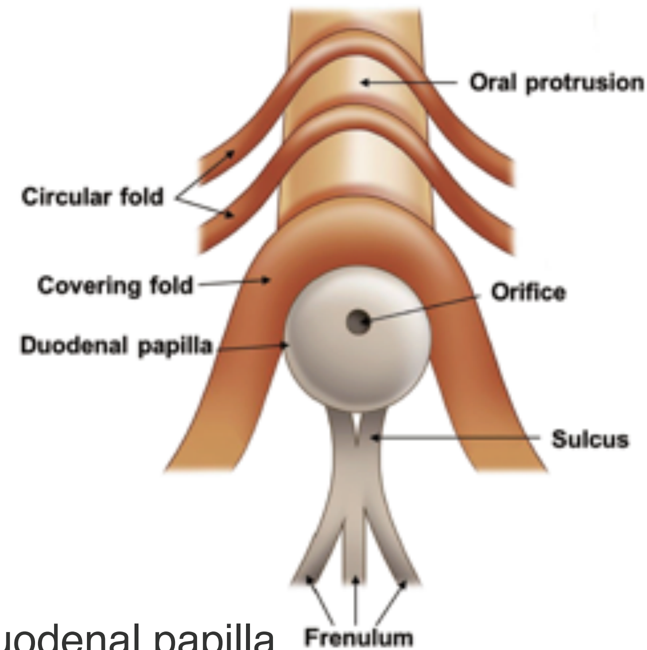
- Vater's ampulla anatomy
- Standard cannulation
- Difficult cannulation
- Precut Sphincterotomy
- Novel devices/technique for duct access
- Results

Vater's ampulla anatomy



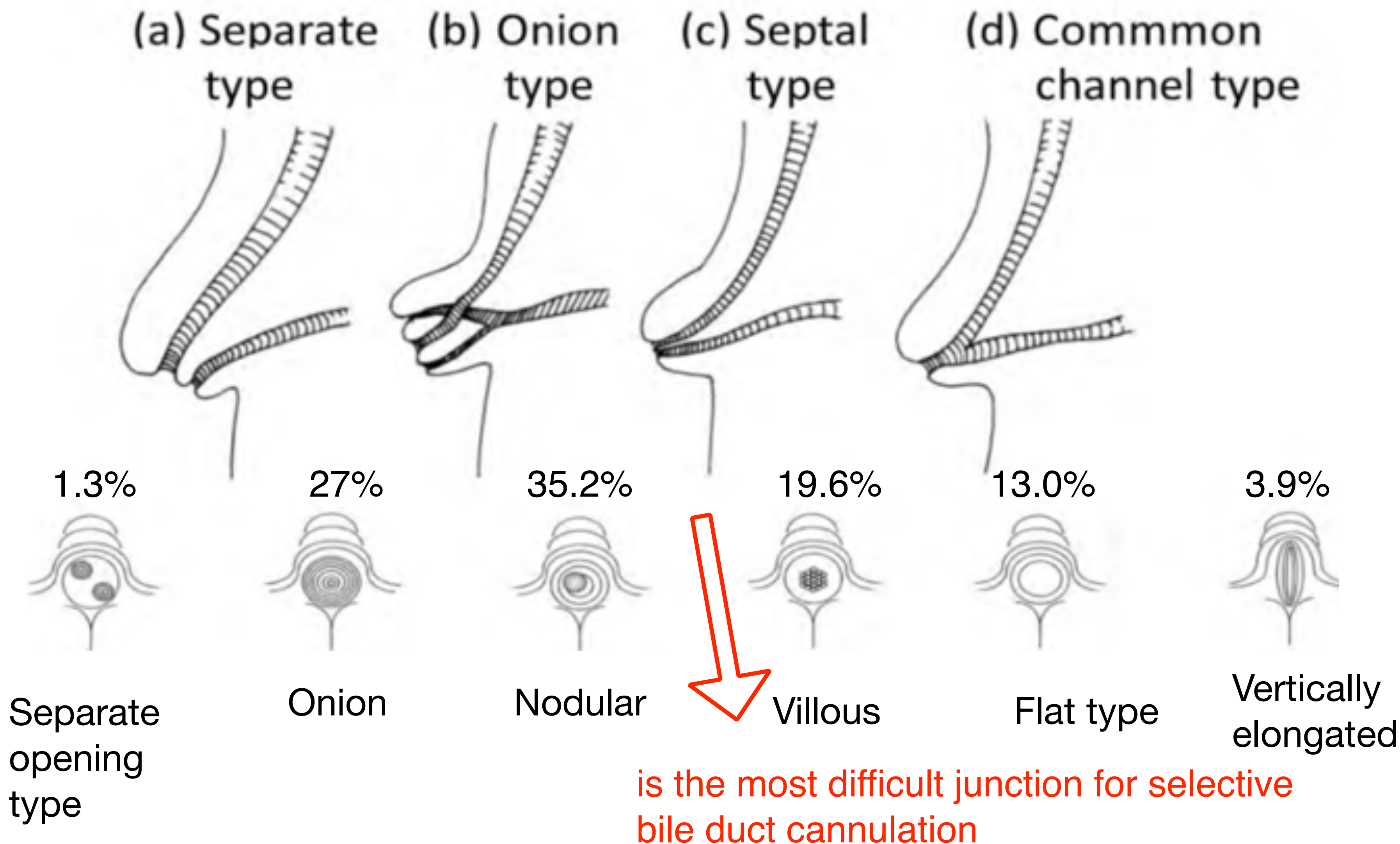


circular fold covers the elevated tissue at the oral side



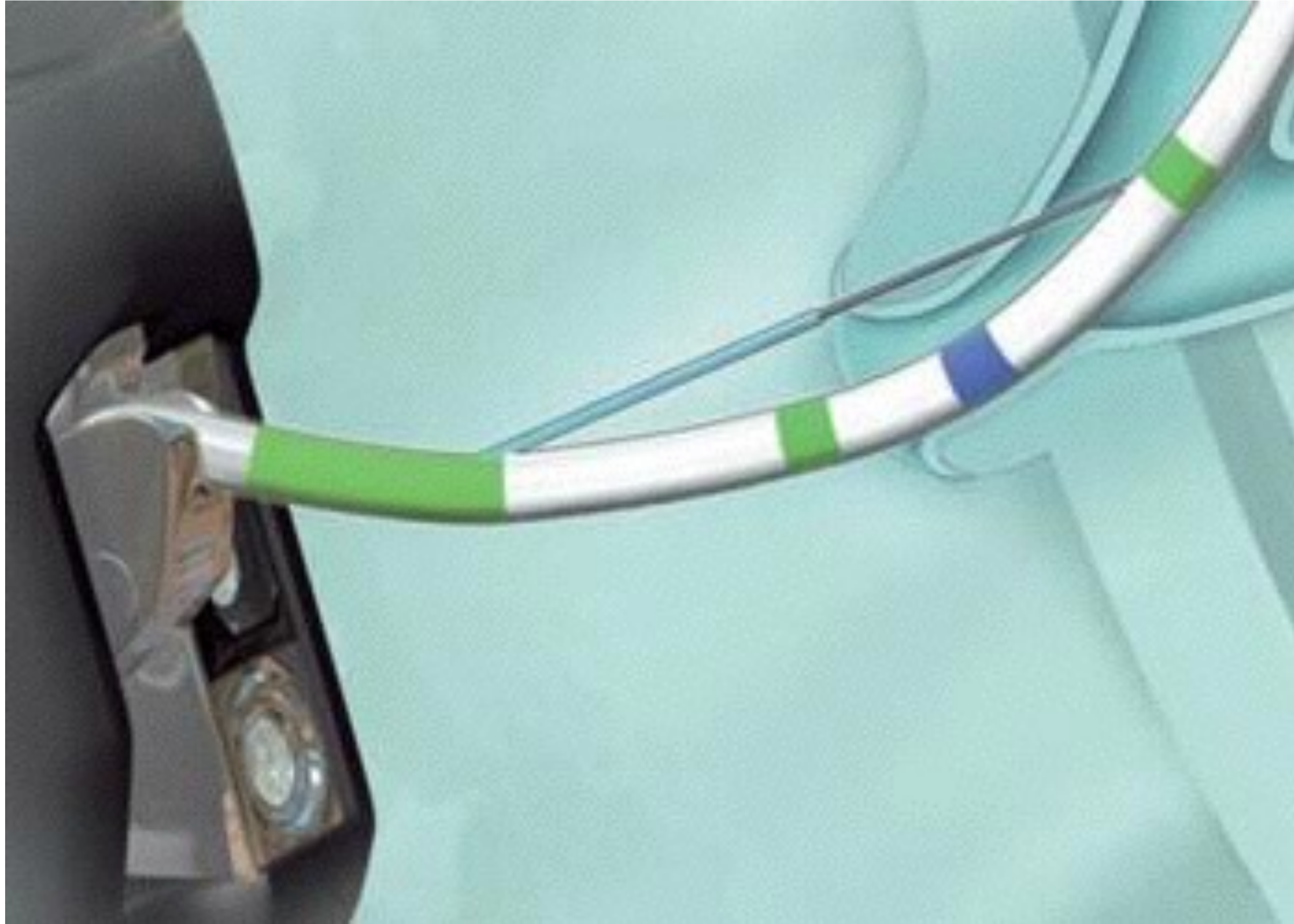
fold runs vertically at the anal side of the major duodenal papilla

Anatomical arrangement of the common bile duct and the main pancreatic duct at the Vater’s papilla

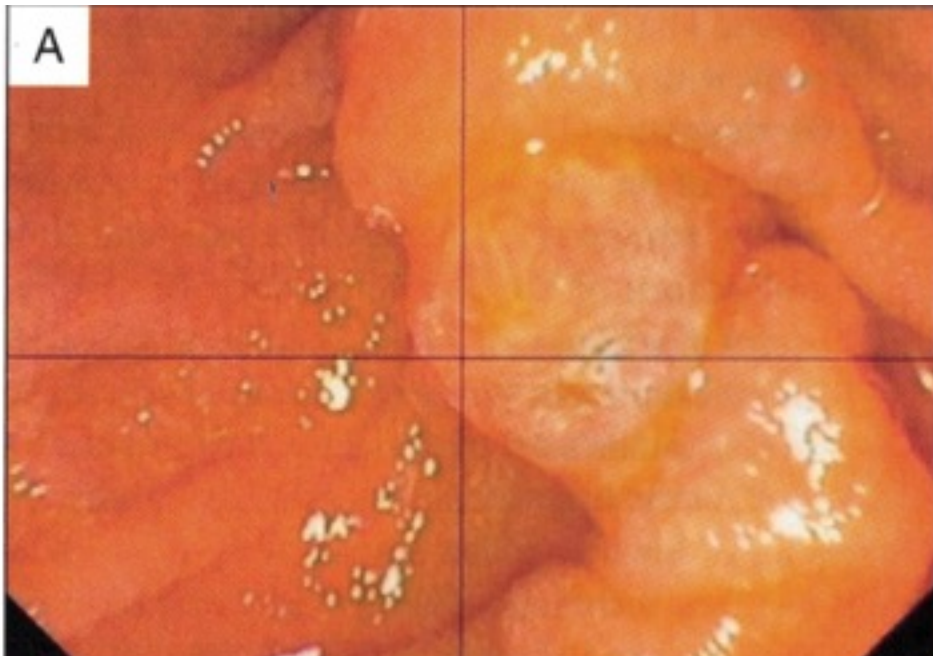


Susumu Shinoura and Kenji Chinen. EC Gastroenterology and Digestive System 2018

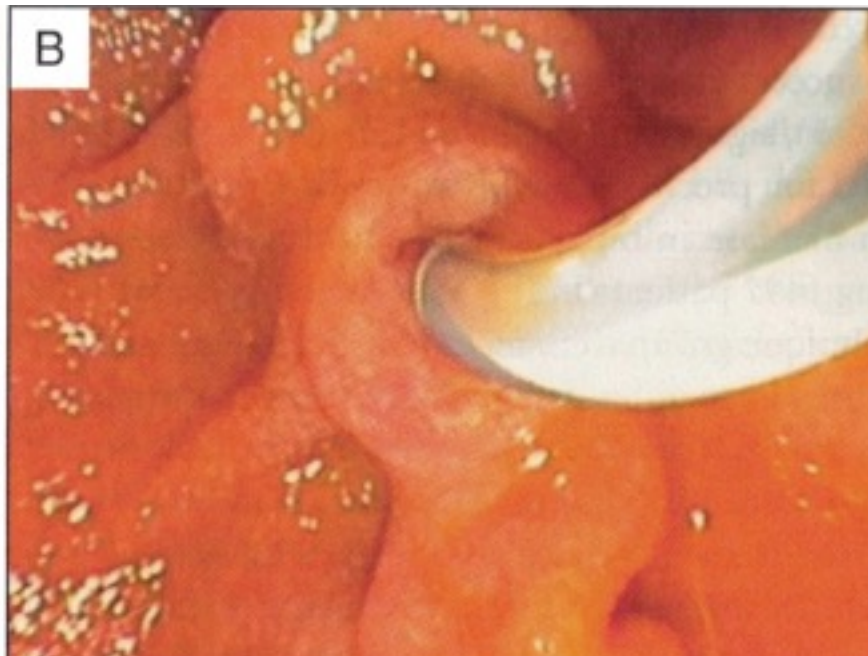
Standard cannulation



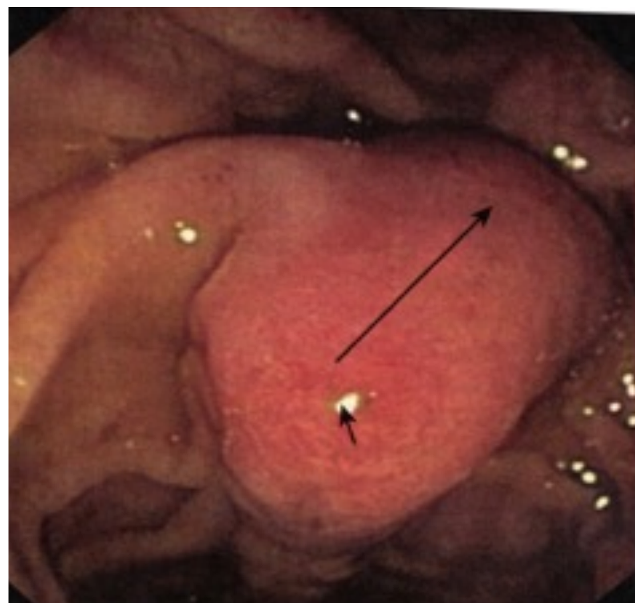
Papilla is not rotated on its long axis



Optimal monitor position of papilla for cannulation



A direct approach at 11 o'clock



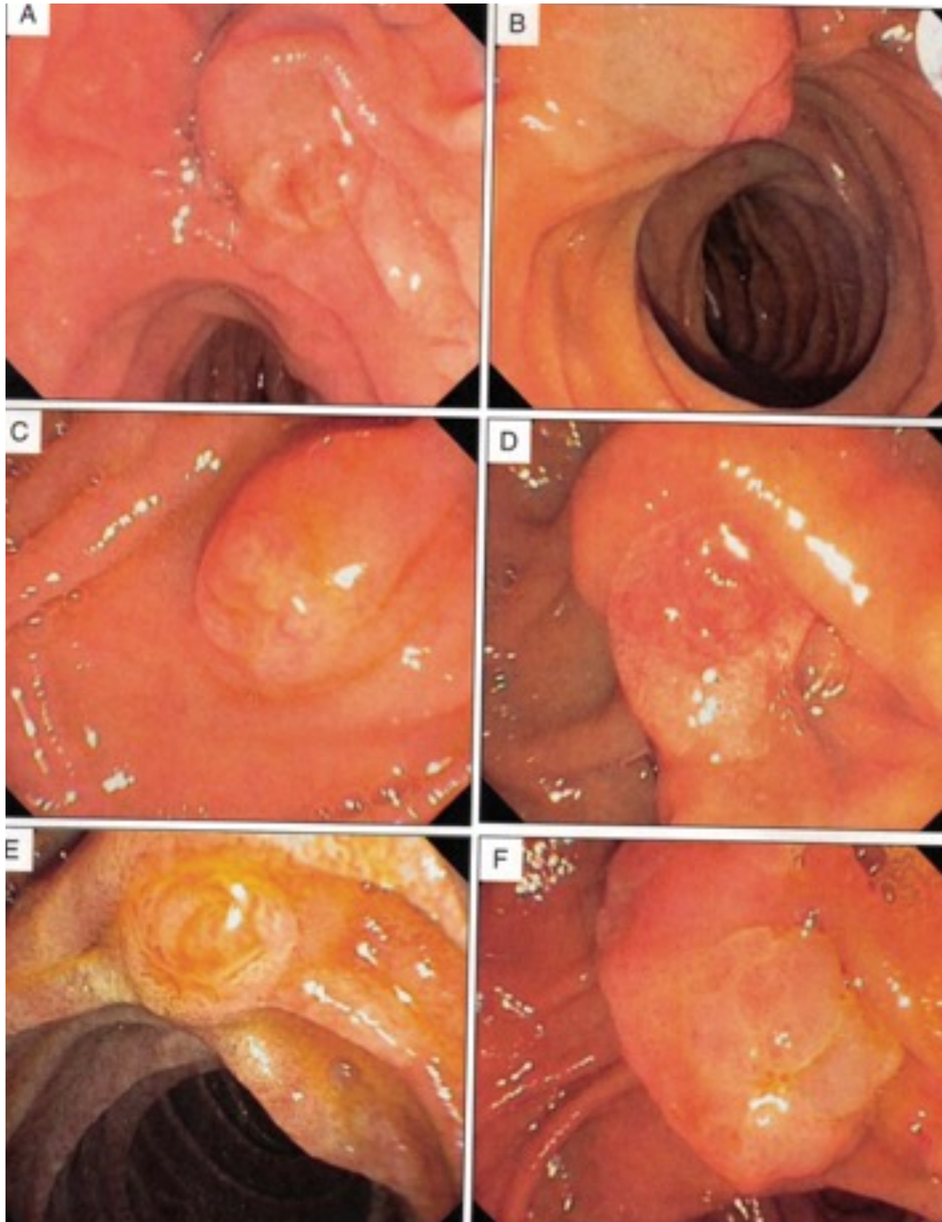
The papilla is en face with the endoscope - likely to be 11 o’clock - short arrow

Intramural segment runs backward to the right - long arrow

Position !

Baron et all. ERCP.:Third Edition. Elsevier. 2019

Images of different papilla morphologies and suggested approaches to cannulation



A- Floppy papilla - long intramural segment - direction of intramural BD

B- downward facing papilla - long scope position

C-left ward-facing papilla - tip GW-orifice - align ST direction of intramural BD

D-papilla with protruding septum -wire lead technique

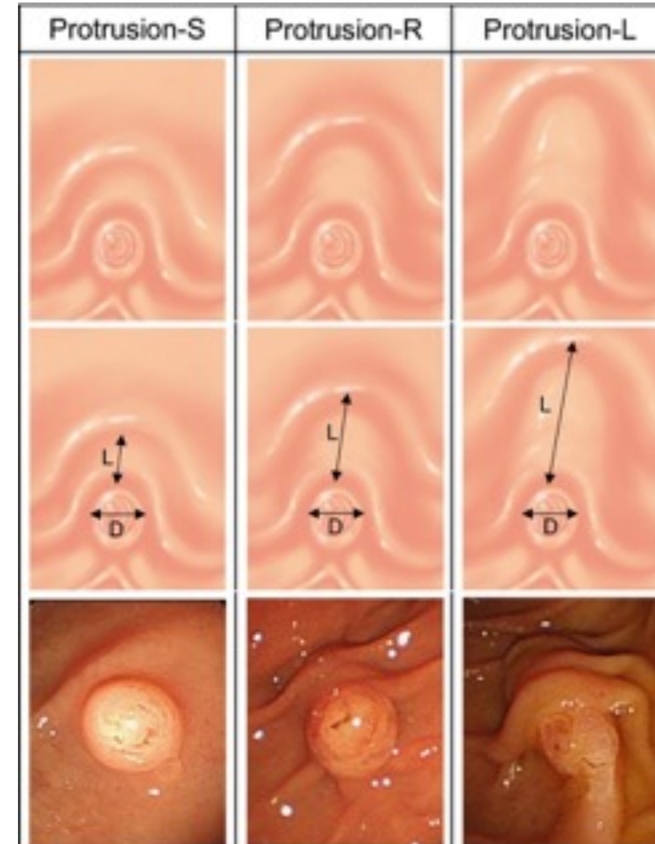
E- papila without clear orifice -left upper corner

F - papillary adenoma - orifice more central position

Baron et all. ERCP.:Third Edition. Elsevier. 2019

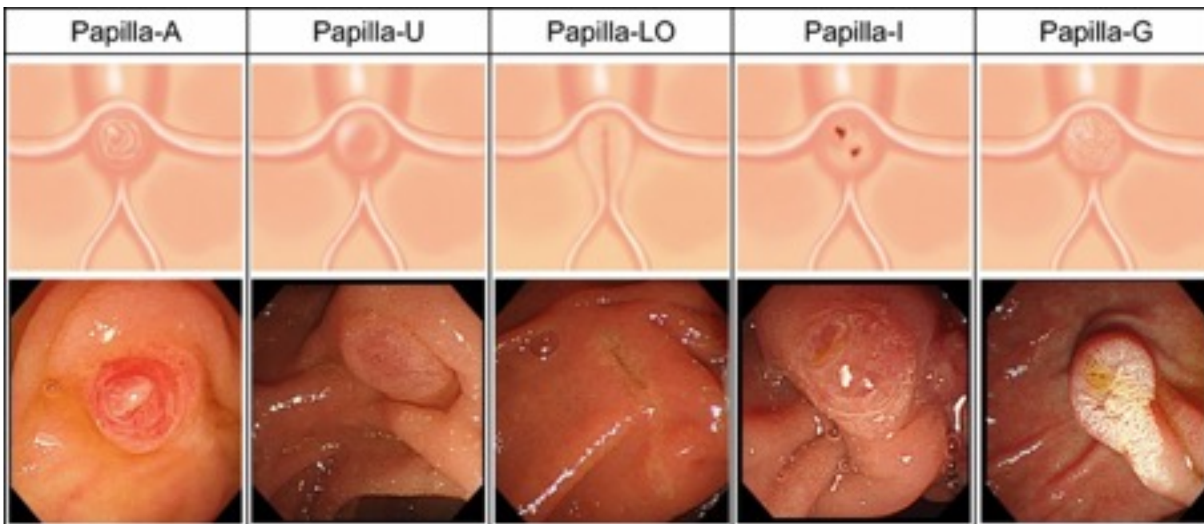
Oral protrusion of the Duodenal Papilla

-**small** (Protrusion-S), for which the ratio of the length of the oral protrusion to the transverse diameter of the papilla was less than one-half
- **regula**r (Protrusion-R), for which the ratio was one-half or more but less than 2
- **large** (Protrusion-L), for which the ratio is 2 or more.



Papilla pattern classification

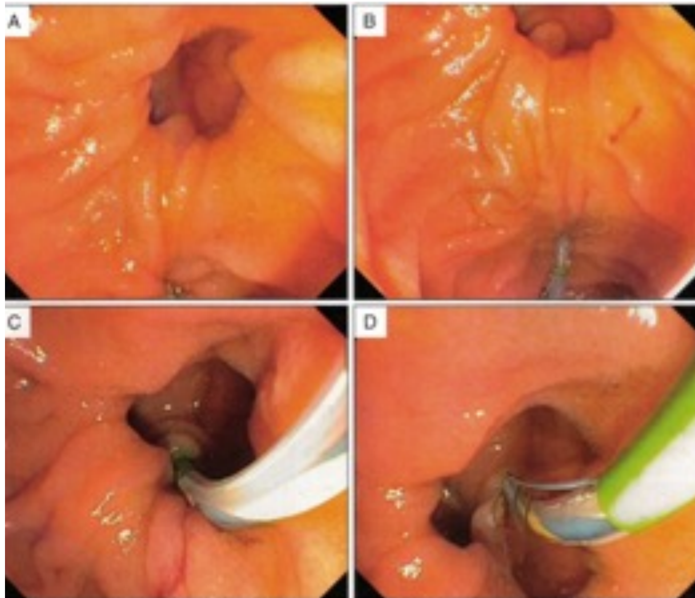
Annular Unstructured Longitudinal Isolated Gyrus



Protrusion-L is a significant risk factor for difficult biliary duct cannulation

Watanabe M. Dig. Dis.Sci 2019

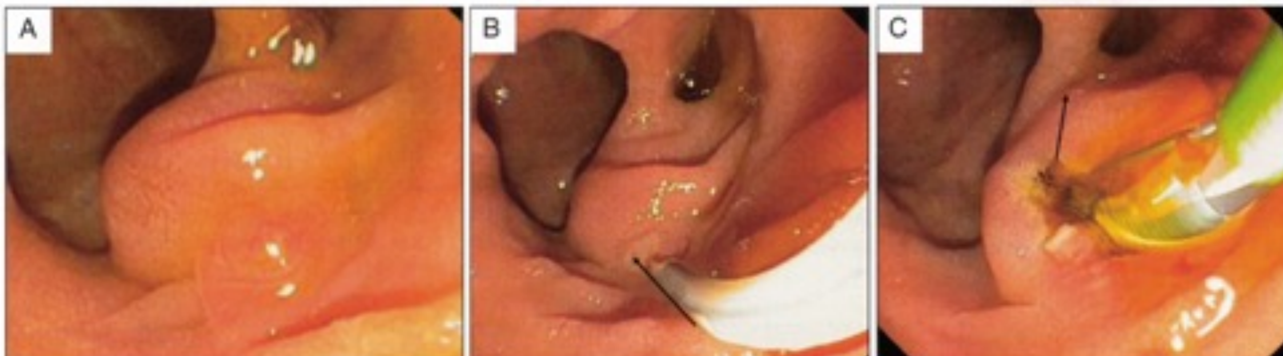
Periampullary Diverticulum



Pappila located deep within a diverticulum

Downward traction

Sphincterotomy

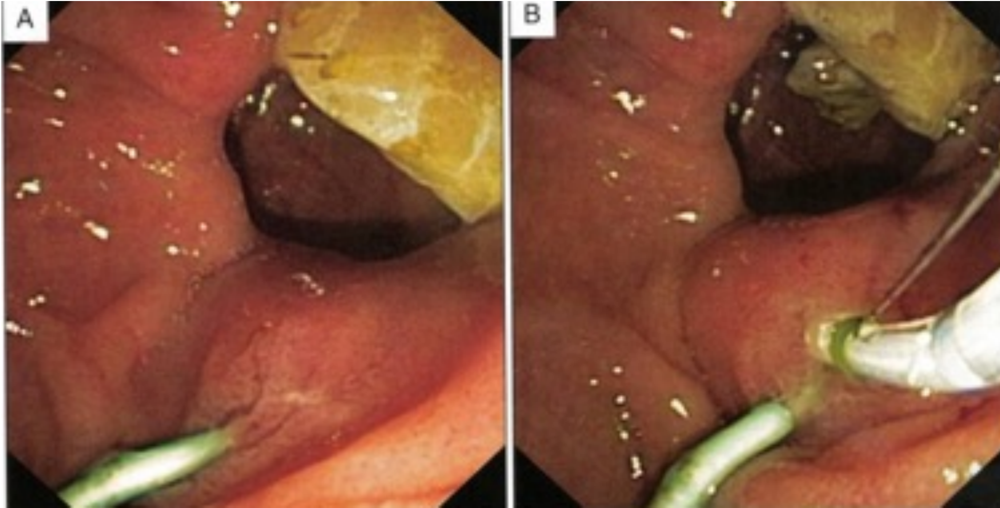


Safe cutting direction

The intramural segment is readily visible leading back from the papilla

Baron et all. ERCP.:Third Edition. Elsevier. 2019

Periampullary Diverticulum



Papilla has been everted by a pancreatic duct stent
BD can be cannulated above stent

The papilla is located on the inside rim of a diverticulum

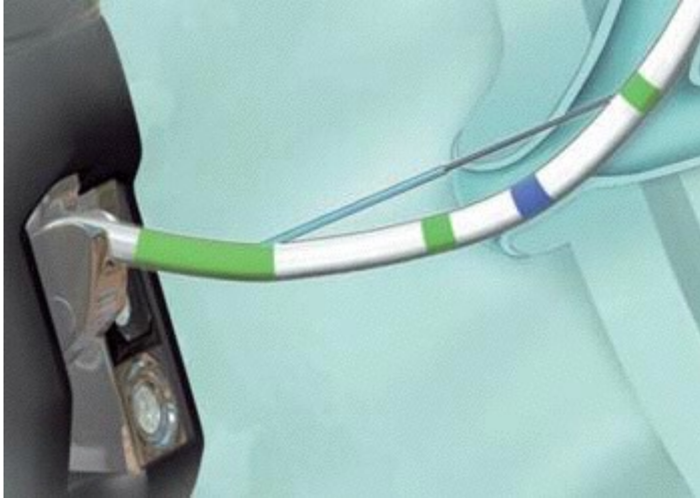
It is everted into the duodenal lumen by pushing on its outermost side

Baron et all. ERCP.:Third Edition. Elsevier. 2019

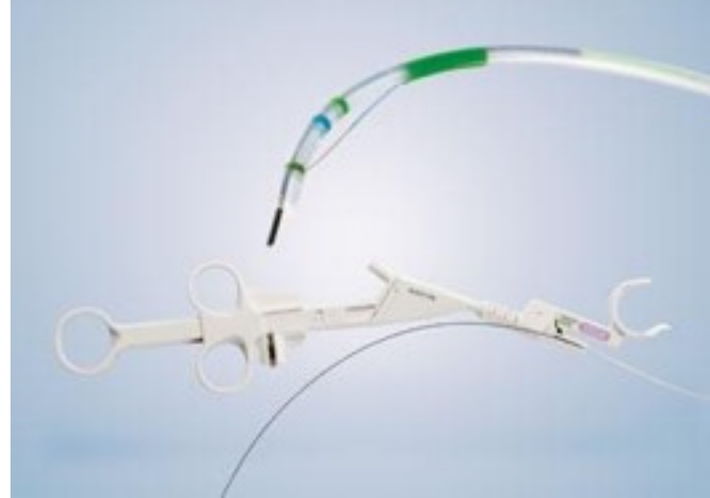
My Cannulation and Sphincterotomy technique

V-System Single-Use Triple-Lumen Sphincterotomes CleverCut 3 V

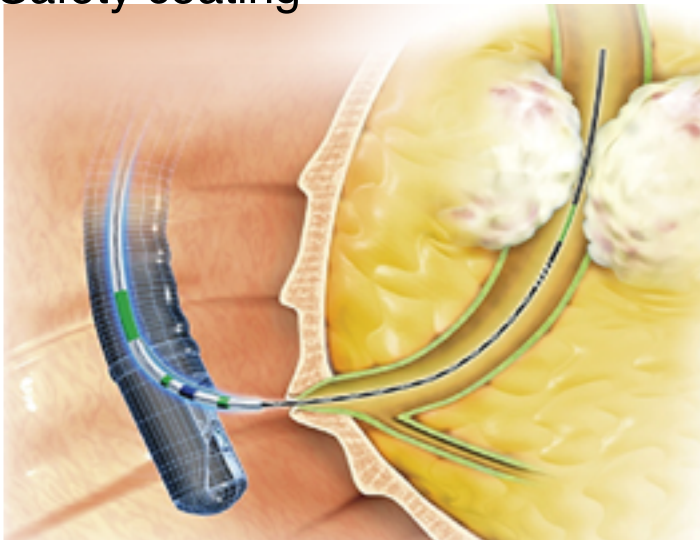
Cutting Wire 20 mm



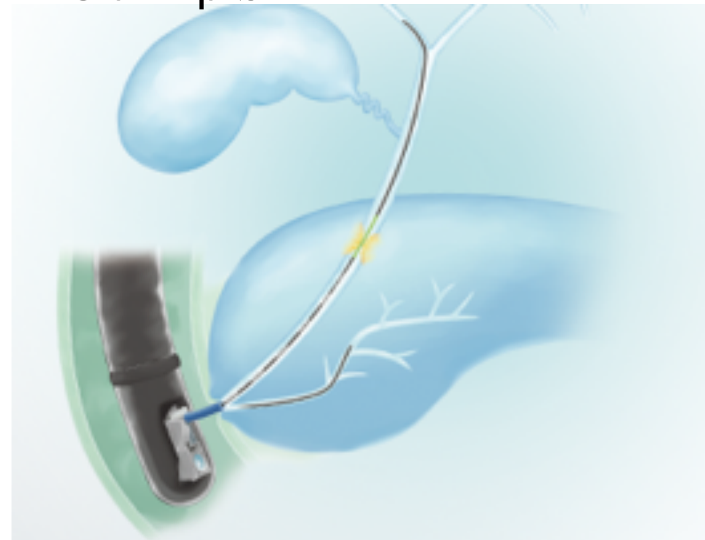
Distal tip length 3 mm



Safety coating



Distal Tip ø 4.4. Fr

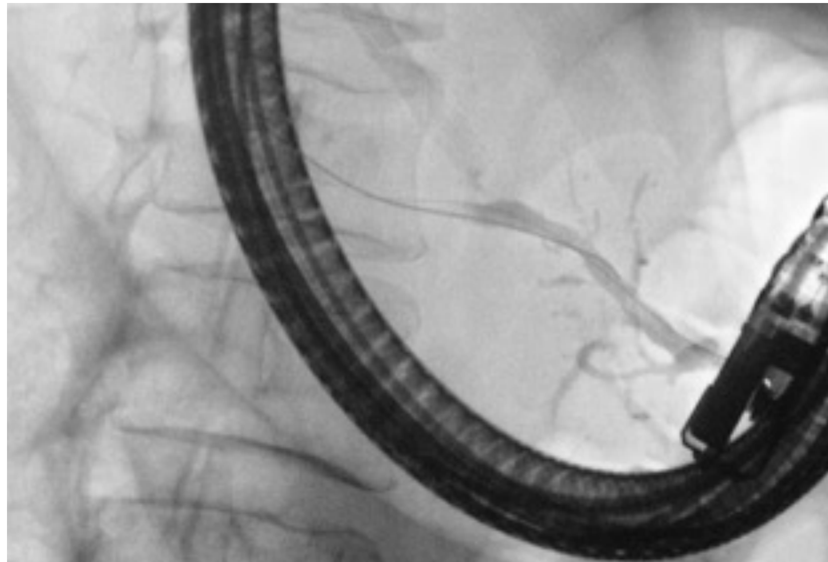


0.25 GW VisiGlide2 Straight tip

Difficult cannulation

Difficult SBC:

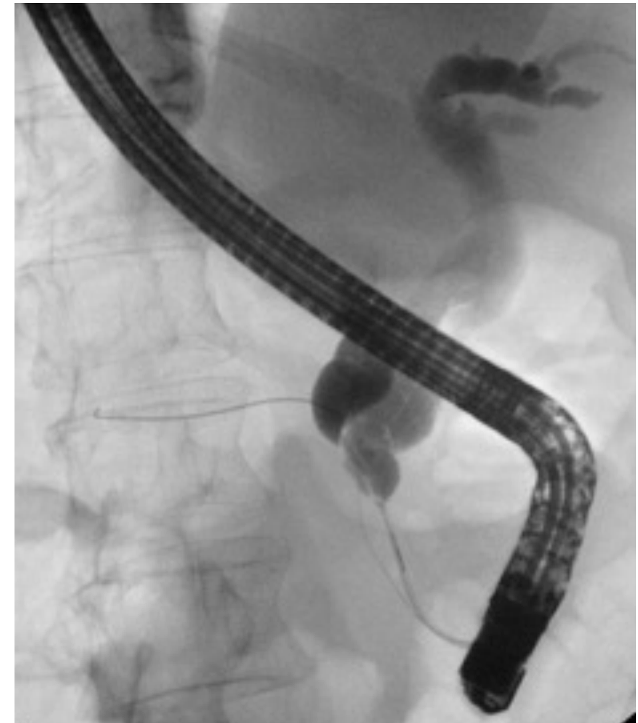
More than 5 contacts with the papilla whilst attempting to cannulate
More than 5 min
More than 1 intended pancreatic duct cannulation or opacification



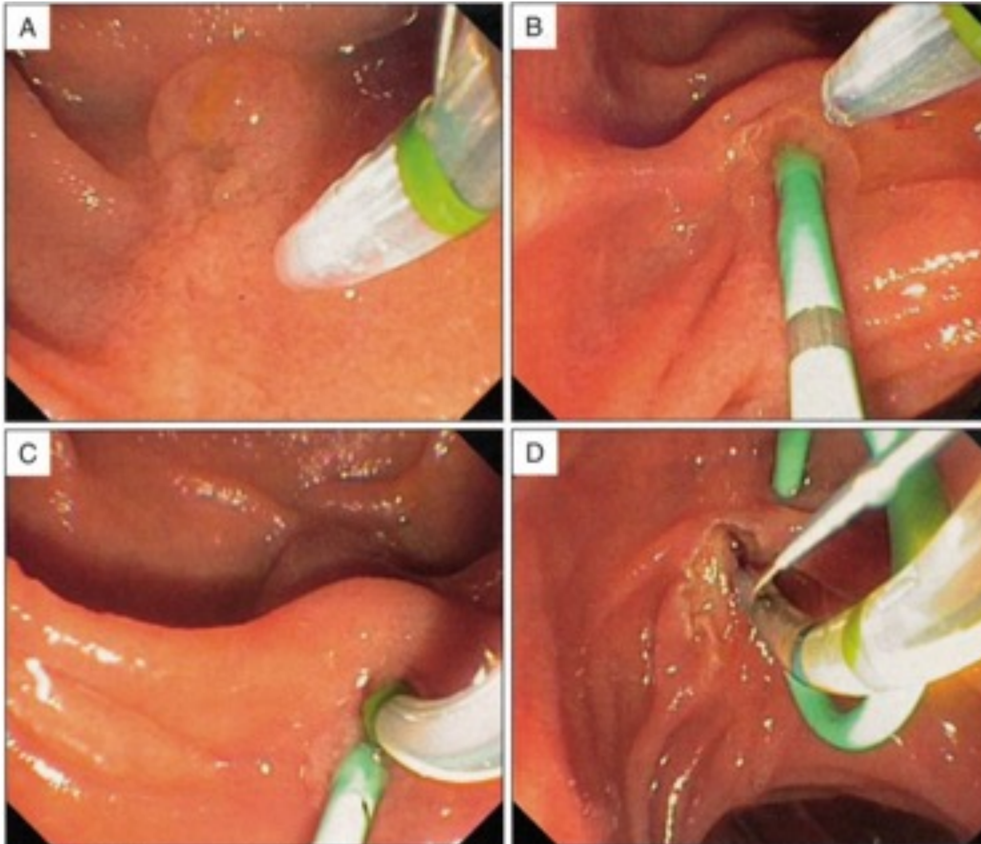
Testoni et al. ESGE. Endoscopy 2016

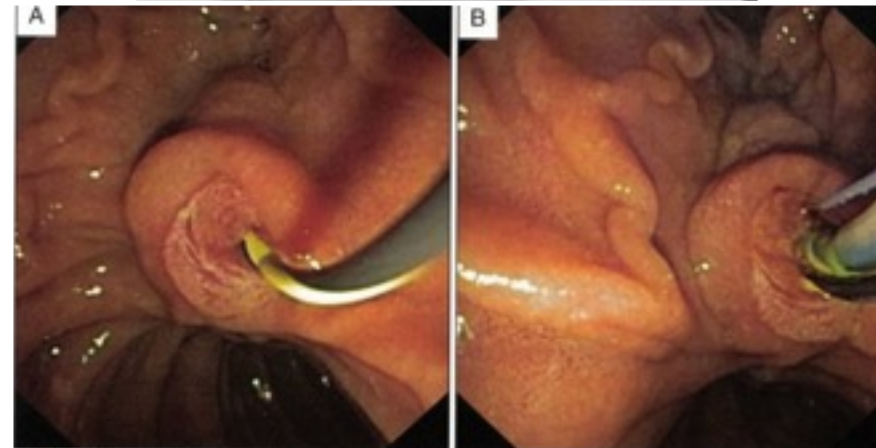
Difficult cannulation

Dual wire technique



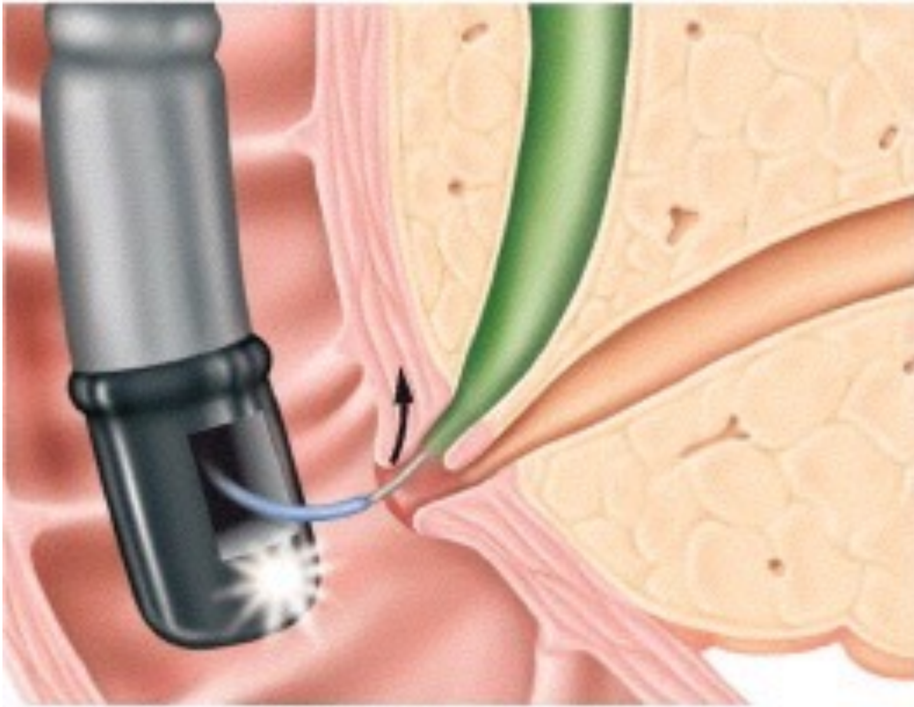
Pancreatic stent placement with wire cannulation over the stent

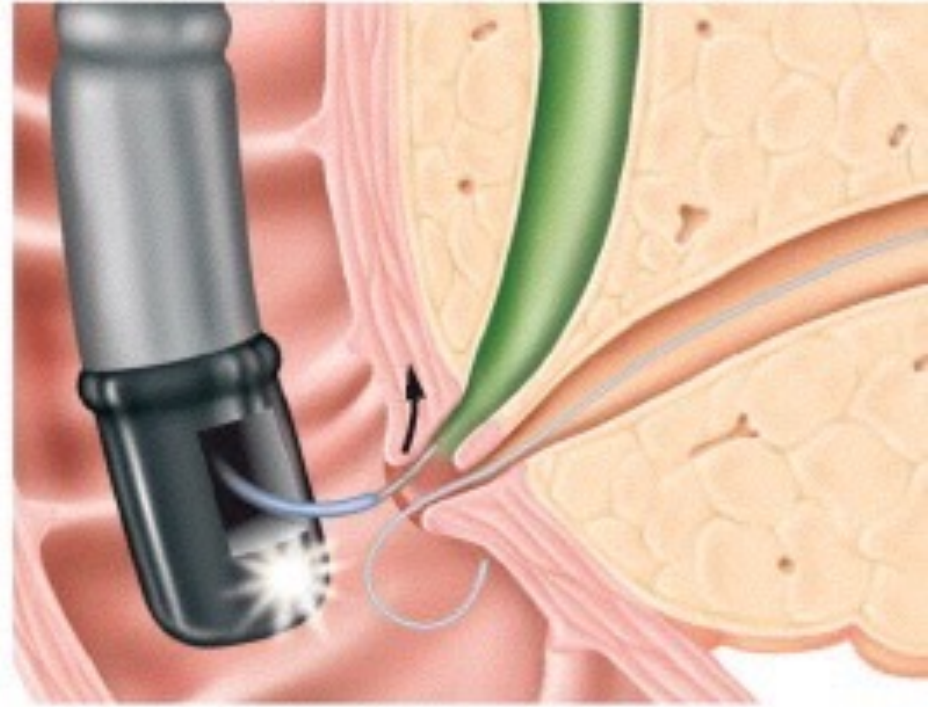




Baron et all. ERCP.:Third Edition. Elsevier. 2019

Precut Sphincterotomy



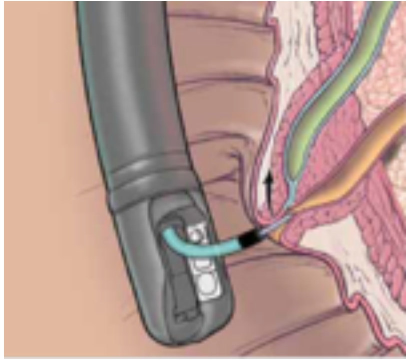


- PS is performed when standart techniques fail to achive selective biliary cannulation (SBC)

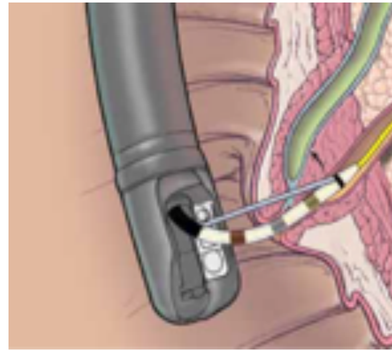
- A „Precut“ is defined as an incision into the ampulla of Vater or CBD prior to gaining SBC

Precut Sphincterotomy techniques

Precut papillotomy - Free-hand needle-knife

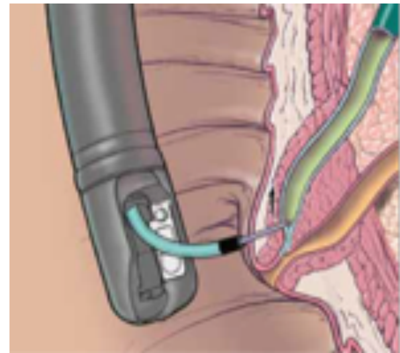


Transpancreatic precut sphincterotomy



This technique involves intentional seating of the tip of a standard traction papillotome into the pancreatic duct and cutting through the septum in the direction of the bile duct

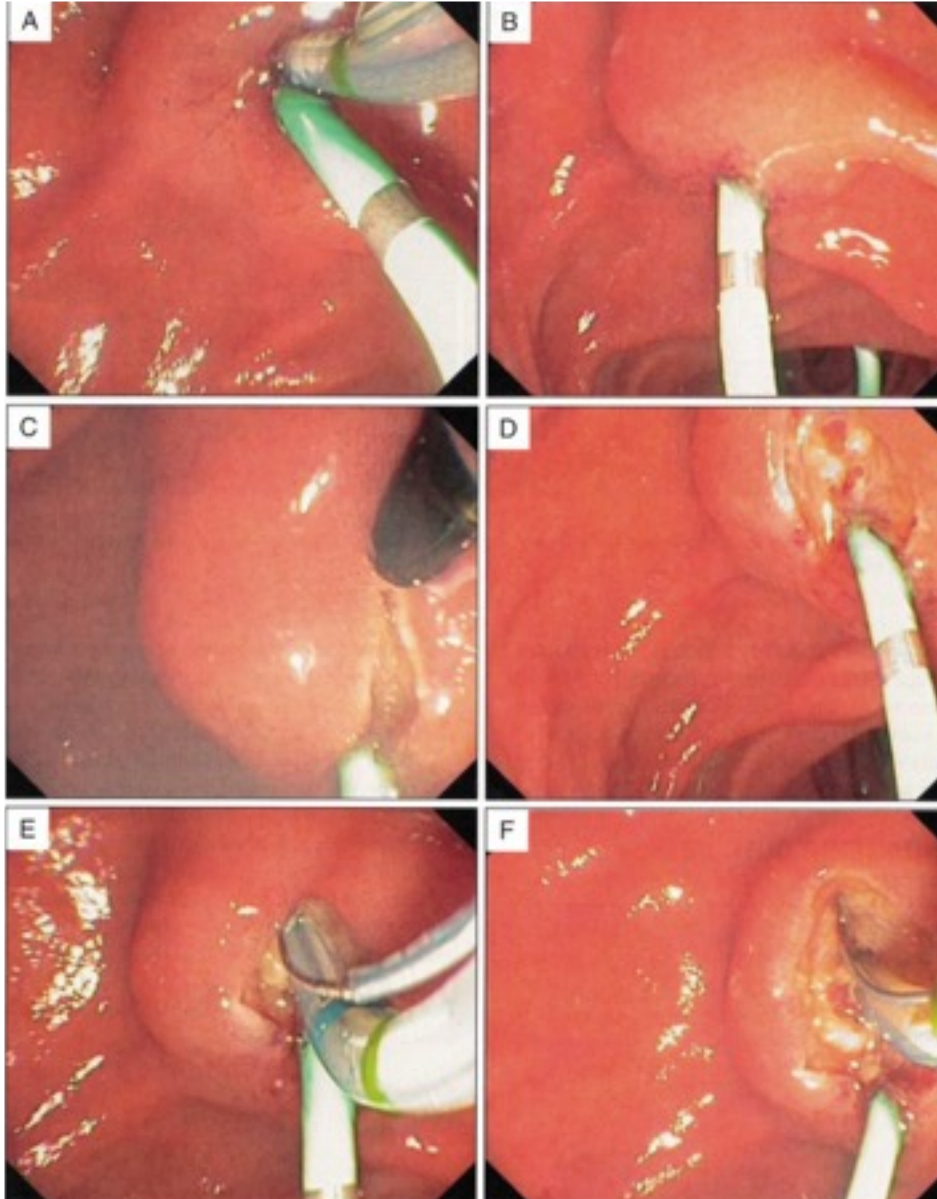
Precut fistulotomy



A variation of the needle-knife technique involves making a puncture into the papilla above the orifice

DaVee T., et al. Prec ut sphincterotomy for selective biliary duct cannulation during ERCP. Ann GE (2012) 25, 1-12

Precut Sphincterotomy - over PS



A- resistant papilla to cannulation

B- Long intramural segment - ideal for NK

C- needle-knife sphincterotomy

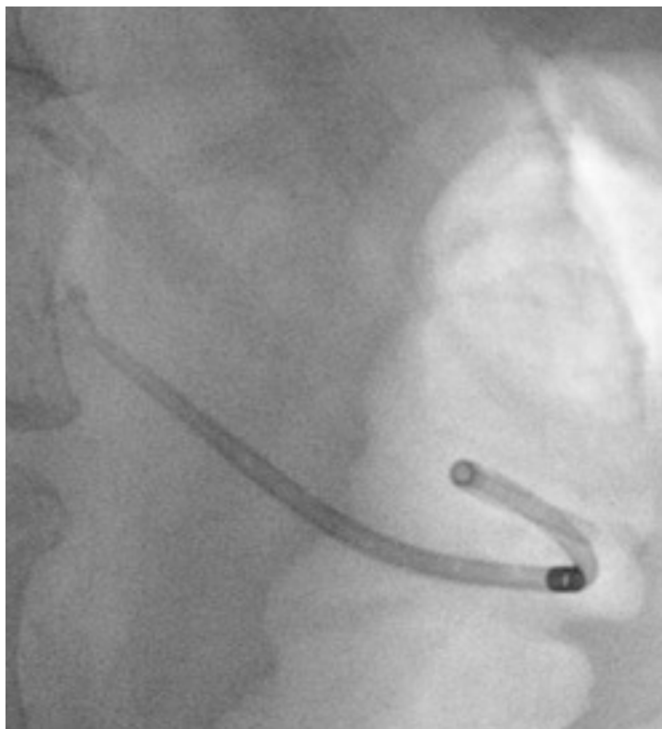
D - biliary orifice - visible as red punctum above stent

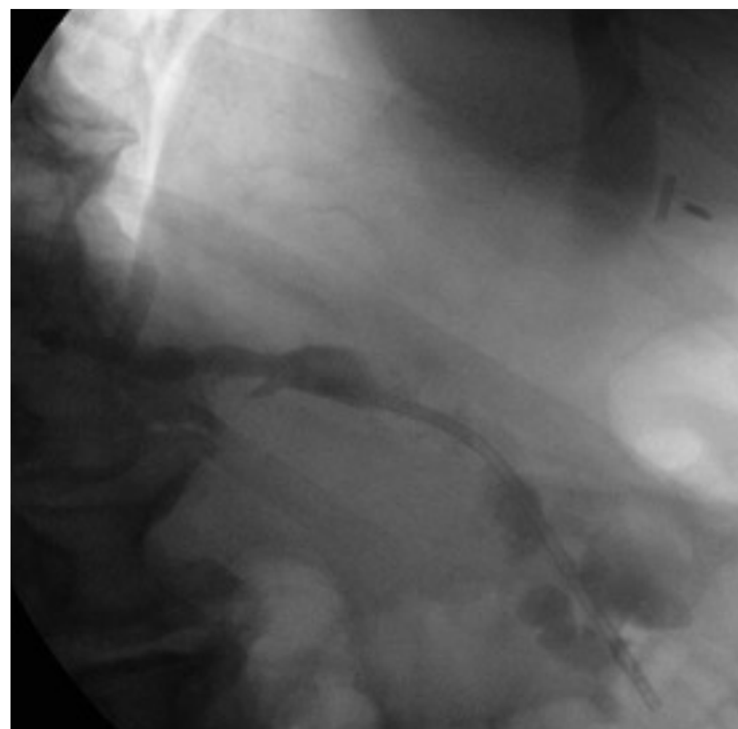
E/F Deep biliary cannulation - sphnicterotomy completed

Baron et all. ERCP.:Third Edition. Elsevier. 2019

Pancreatic Stent

Prior placement of a pancreatic stent can reduce the incidence of post-endoscopic retrograde cholangiopancreatography (ERCP) pancreatitis in a number of settings including, precut papillotomy for any indication, after biliary sphincterotomy in patients with sphincter of Oddi dysfunction, or after difficult cannulation





My precut Sphincterotomy techniques

Needle-knife sphincterotom

0.25 GW VisiGlide2 Straight tip

When PS fails - next session after 3-7 days

Novel devices/techniques for duct access

- **Ultra-small sphincterotome** — An ultra-small-caliber sphincterotome (1 mm diameter) introduced through a 6F or a 7F catheter has been evaluated for achieving conventional or precut papillotomy

- **Suprapapillary blunt dissection** — Suprapapillary blunt dissection involves creation of an initial linear cut over the mucosa of the infundibulum of the papilla with a needle-knife papillotome - endoscopic dissection of the distal biliary tract (EDBT) as a new technique in cases of difficult cannulation of the CBD.

- **Endoscopic scissors** — Endoscopic scissors have been used to cut through the papillary roof or septum without cautery to gain biliary access.

- **Endoscopic ampullectomy** — Endoscopic ampullectomy has been performed for gaining biliary access when other methods have failed. This technique is somewhat radical and seems appropriate only in extremely unusual circumstances.

RESULTS

- The guidewire-assisted technique for primary biliary cannulation, reduces the risk of post-ERCP pancreatitis

- Pancreatic guidewire (PGW)-assisted biliary cannulation in patients where biliary cannulation is difficult

- The strength of the indication for biliary therapy

- The urgency of obtaining biliary drainage

TAKE HOME MESSAGE

There is probably no procedure in interventional endoscopy that requires more precise technique than precut papillotomy. It is important to remember that the published literature is primarily derived from specialized centers, and that the practicing endoscopist may not be able to achieve similar results

THANK YOU FOR YOUR ATTENTION