



# ***Interventional EUS procedures***

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Vietnam

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# ***Spectrum of interventional EUS***

- Celiac plexus neurolysis / block
- Celiac plexus ganglion neurolysis
- Pseudocyst drainage
- Pelvic abscess drainage
- Cholangiography
- EUS-BD
- EUS-AG
- EUS-HGS
- Botox injection
- Cyst ablation
- Brachytherapy, immunotherapy
- EUS-RFA

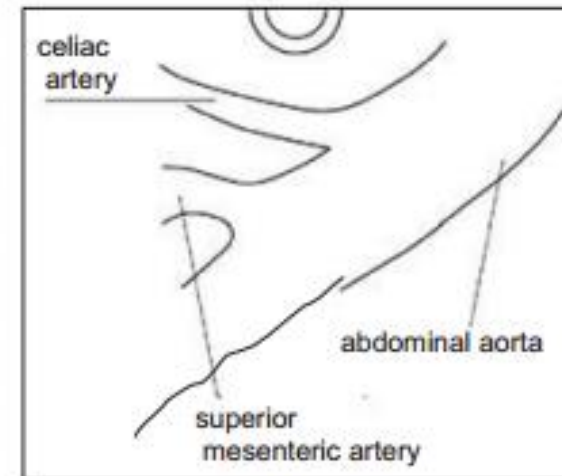
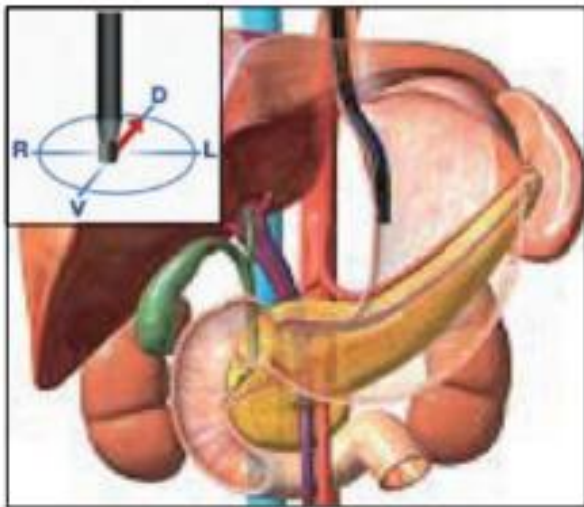


# ***Celiac Plexus Neurolysis / Block***

CPN / CPB

# Use Stomach Step2!

## Step 2



Rotate the scope clockwise to visualize the abdominal aorta. When the scope is advanced caudally from this position along the abdominal aorta, the celiac artery and superior mesenteric artery are imaged. Note that the celiac artery and superior mesenteric artery are not always imaged simultaneously. The celiac artery is usually easier to image. It is therefore recommended to visualize the celiac artery first and then rotate the scope slightly clockwise or counterclockwise to identify the superior mesenteric artery.



## Celiac Plexus Neurolysis

- w/ alcohol
- For malignancy
- Efficacy: >80%

## Celiac Plexus Block

- w/ steroid
- For benign
- Efficacy: 50%

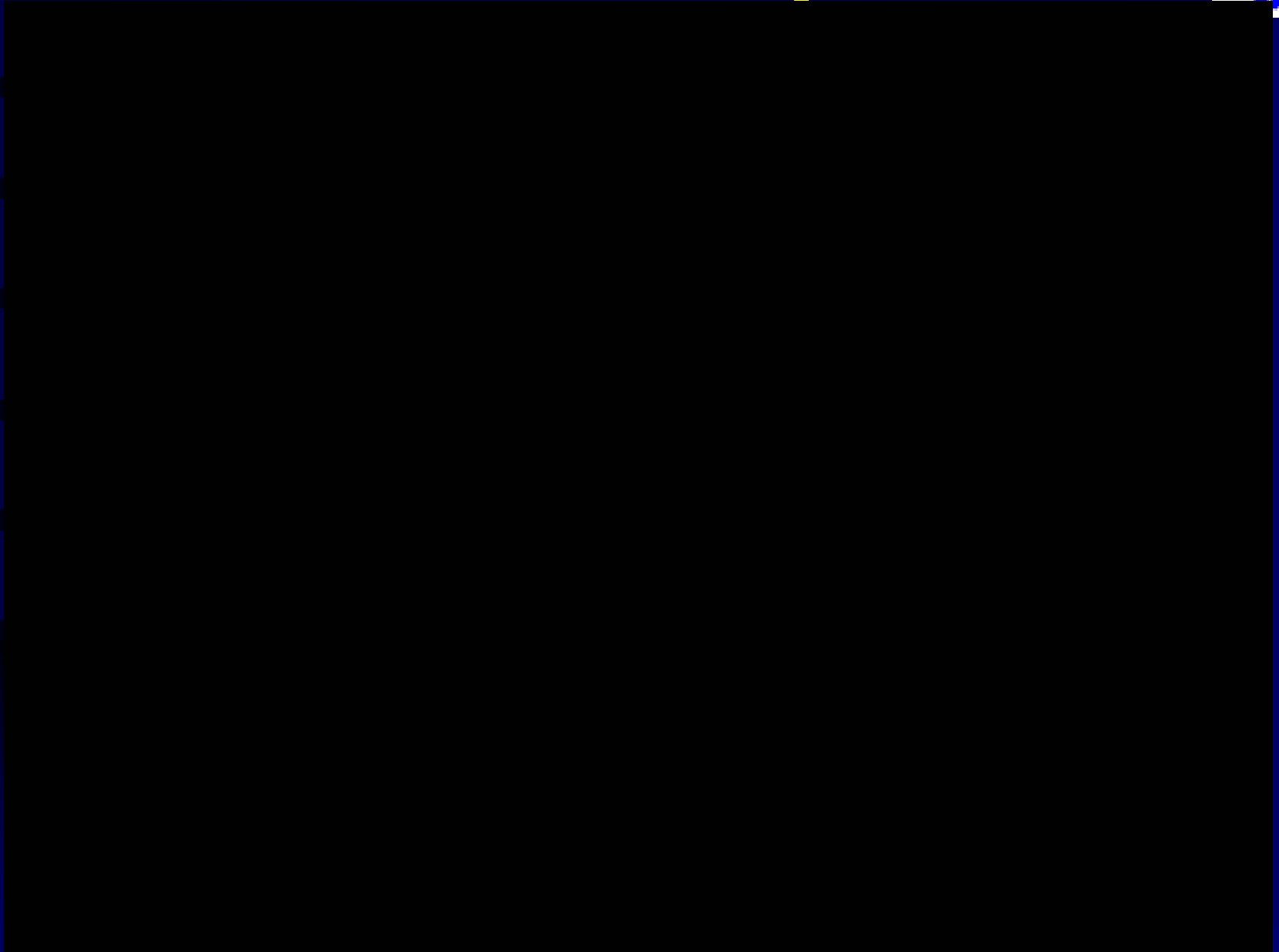
Maurits Wiersema

Frank Gress

The purpose is to reduce  
the amount of narcotics!

International symposium on Endoscopic  
Ultrasonography in NYC, 2002.

# ***Celiac Plexus Injection***

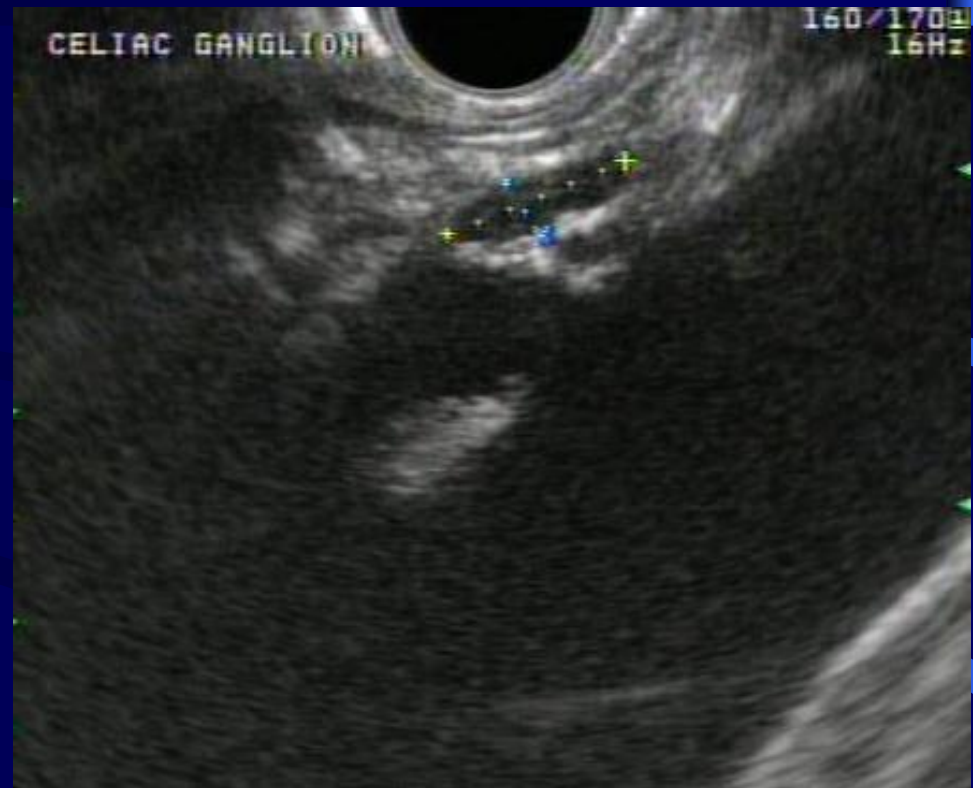


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# ***Celiac Ganglion Neurolysis***

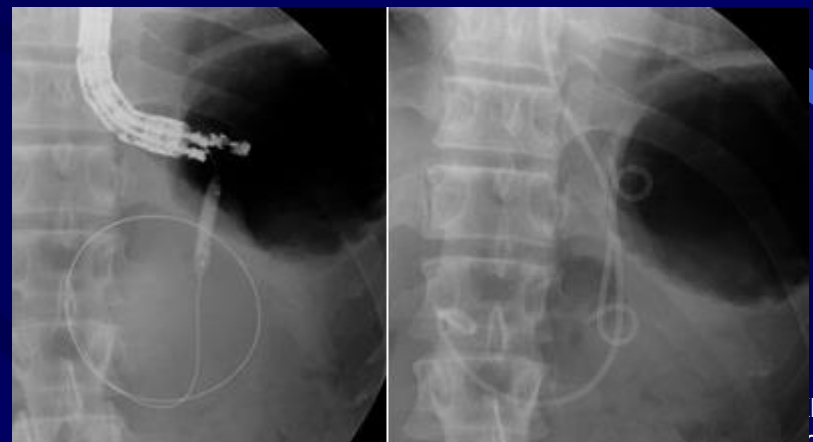
- Ganglion can be detected in 72.7%.
  - Gerke H, et al. GIE 2006.
- Better visualization w/ CLA scope
  - Gleeson et al. Endoscopy 2007.
- Better efficacy (94%) compared with CPN
  - Levy et al. AJG, 2008.





# ***Pseudocyst drainage***

- Tube insertion for pseudocyst w/ CLA scope
- Better result than surgery in terms of rec. rate and success rate: 89.5% (206/230)
  - Giovannini M. Tech Gastrointest Endosc, 2007



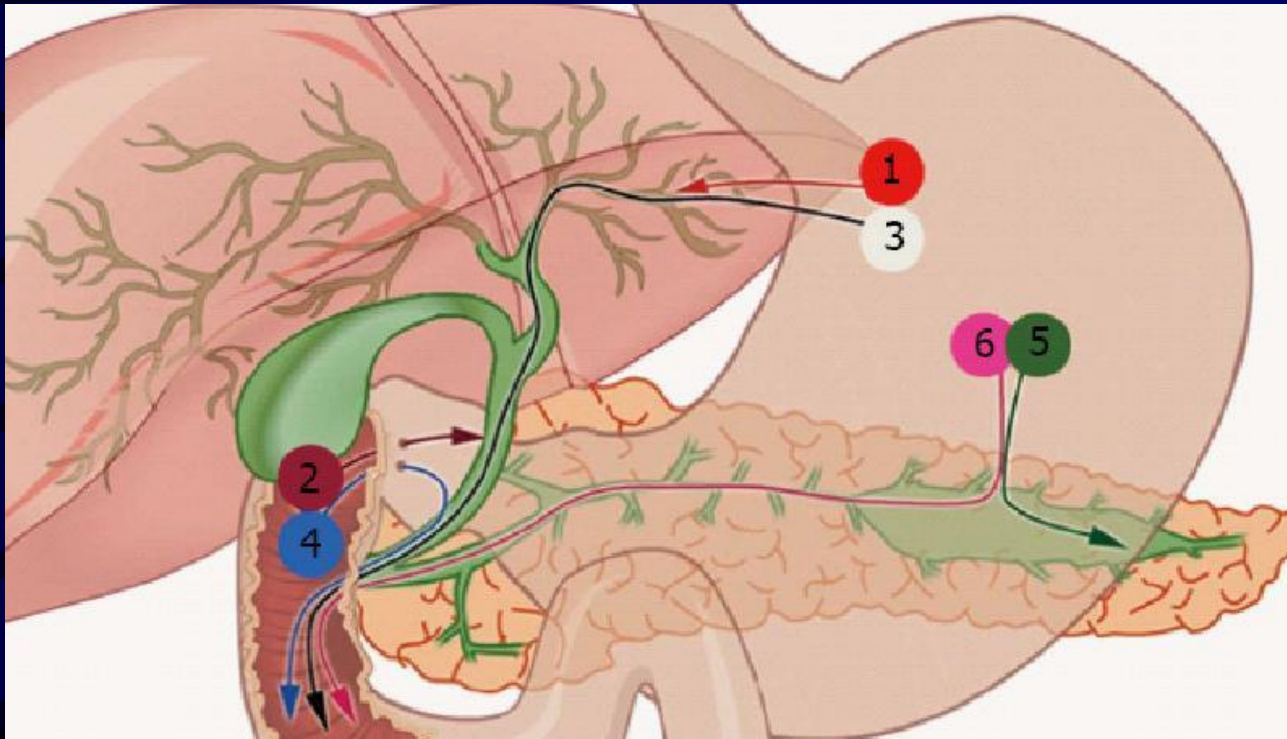




# ***Pelvic abscess drainage***

- Drainage through the colon
- Success rate
  - 75% (12cases) –Giovannini et al.
  - 100% (4cases) –Shyan et al.

# *Therapeutic endoscopic cholangiopancreatography*



- 1.EUS-HGS (hepaticogastrostomy)
- 2.EUS-BD (choledochoduodenostomy)
- 3.EUS-AG (transpapillary drainage w/ intrahepatic access)
- 4.Transpapillary Drainage w/ extrahepatic access

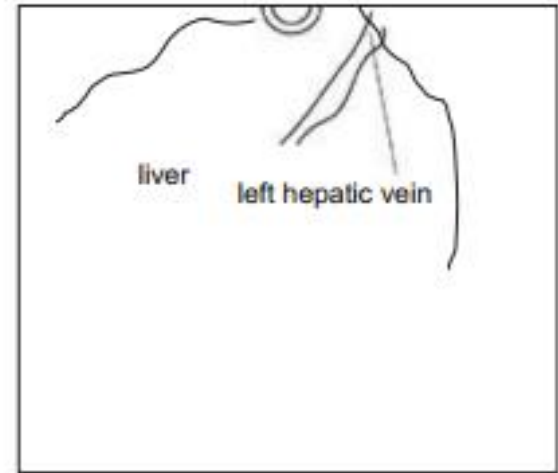
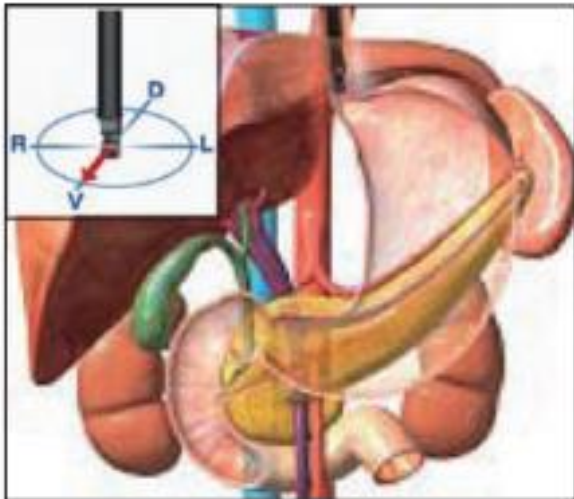


# ***EUS –guided Hepaticogastrostomy***

EUS-HGS

# Use Stomach Step1!

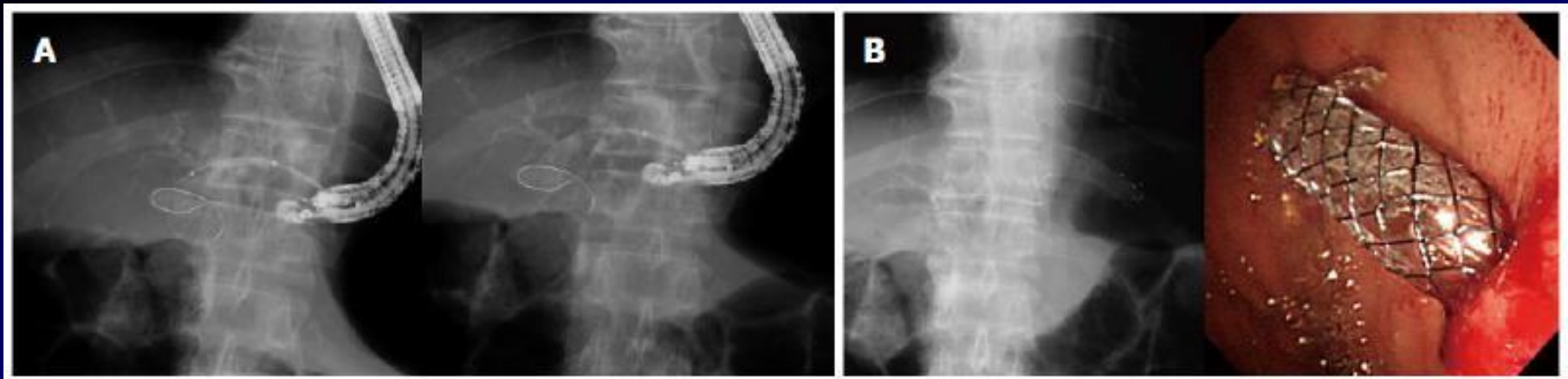
## ■ Step 1



With the patient lying in the left lateral position, the (outer region of the) left lobe of the liver is imaged after the scope has passed the diaphragm. The transducer is now oriented anteriorly toward the abdominal wall of the patient. The left hepatic vein is also observed from this position.

# ***EUS-HGS***

- Puncture B2 or B3 of intrahepatic biliary duct in the left lobe of liver w/ 19G needle
- Deliver the guidewire through the needle and dilate the tract
- Deliver the fully covered metallic stent



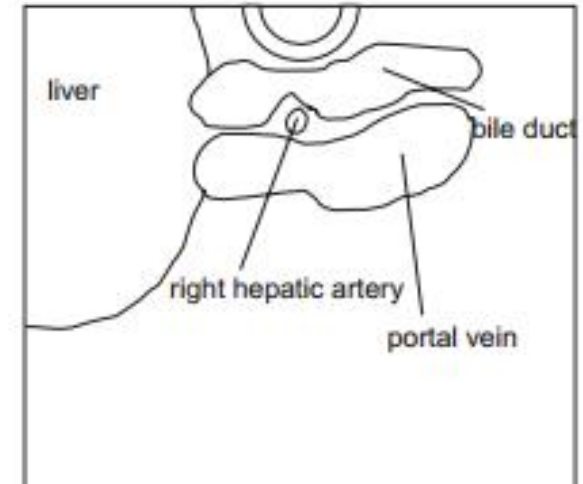


# ***EUS-guided biliary drainage***

EUS-BD

# ***Use duodenal bulb position!***

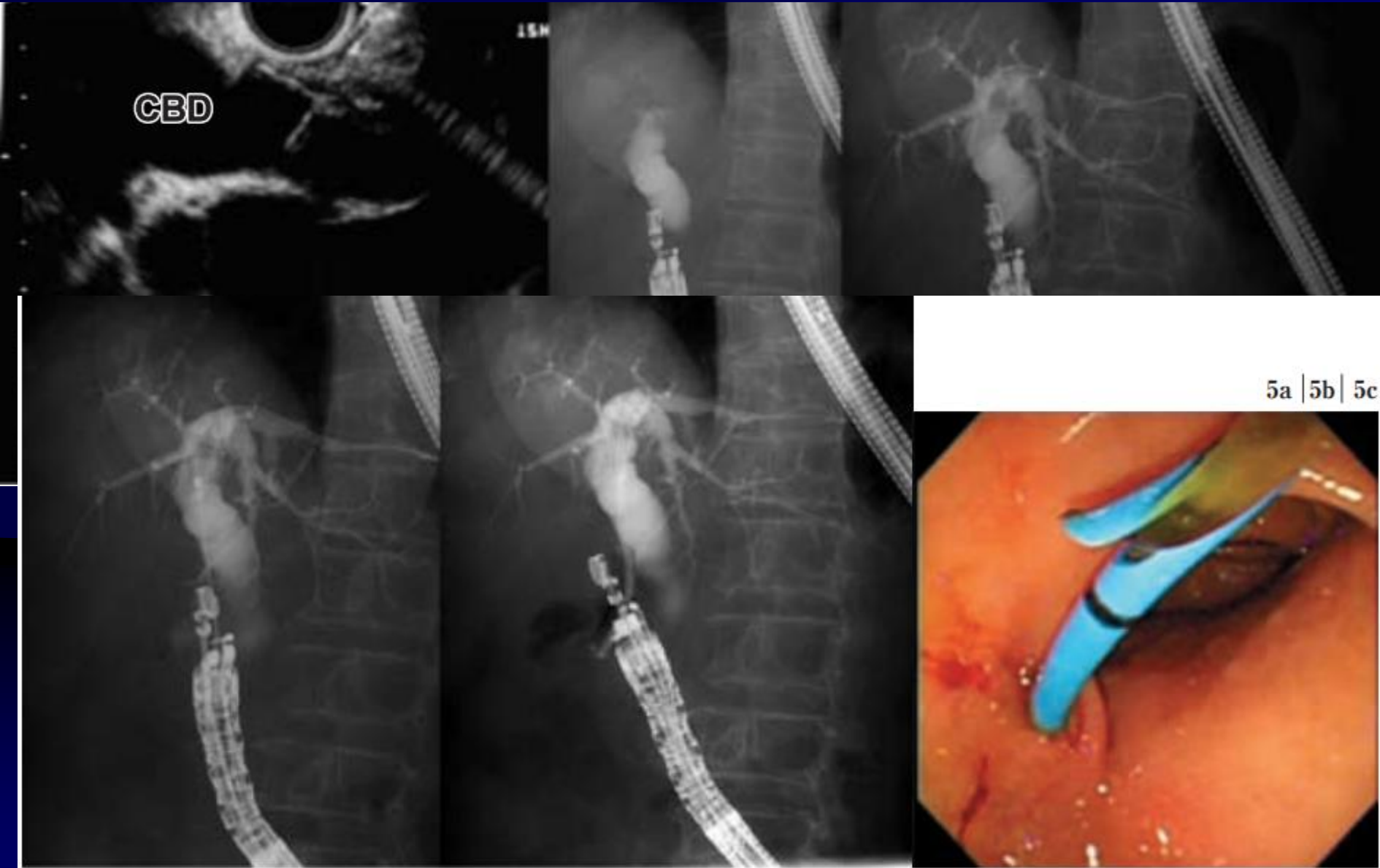
## 3. Procedure - Scanning from the duodenal bulb -



Advance the scope slightly from this position and rotate it counterclockwise to visualize the portal vein, bile duct and right hepatic artery. At this time, the transducer is directed cranially.



# ***EUS-BD***



# ***EUS-AG***



- Same technique as EUS-HGS
- Insert the guidewire through the papilla
- Then, perform normal endoscopic biliary drainage (EBD)



# ***EUS-guided cyst ablation***



- Developed as an alternative to surgery
  - Safe, minimally invasive
  - Useful in poor surgical candidates
  - Cyst ablation effective in kidney, liver, thyroid
- 
- Puncture w/ 22G needle
  - Suck out
  - 80% Ethanol irrigation for 5min.
  - Efficacy: 78.2% (18/23)

Brugge WR . Tech Gastrointest  
Endosc 2007.

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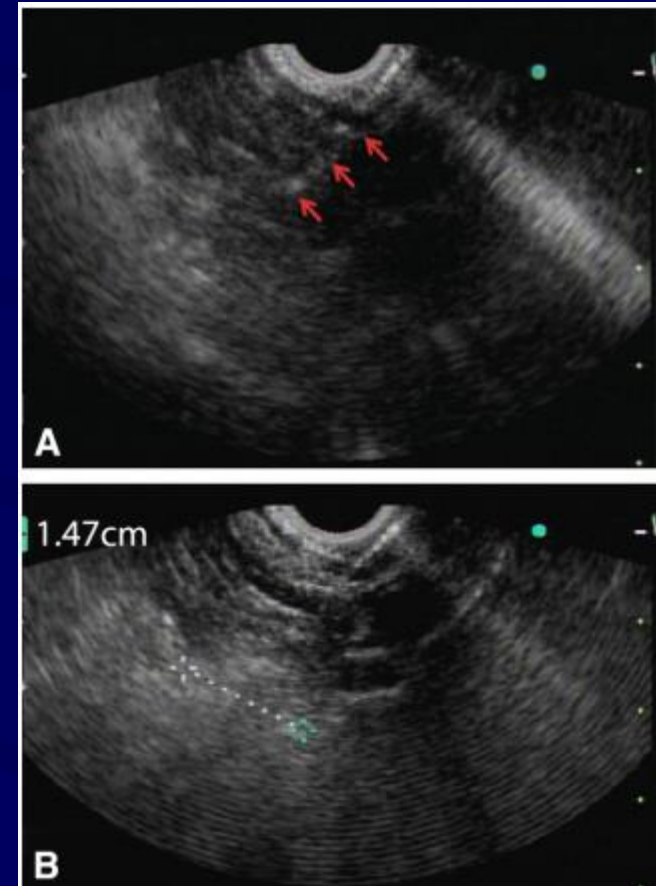
# ***Anti-tumor agents, Brachytherapy, Immunotherapy***

- TNFerade (anti-tumor drug) delivered w/ the needle
  - Chang KJ, et al. GIE, 2004.
- Radio-active seed delivered through the needle
  - Lah JJ, Kuo JV, Chang KJ, et al. GIE, 2005
- Allogeneic mix lymphocyte culture (cytoimplant) delivered through the needle
  - Chang KJ, et al. : Cancer, 2000



# ***EUS-RFA GIE 2012.***

- Use the same technique for liver tumor w/ CLA scope



## **EUS-guided radiofrequency ablation of the porcine pancreas**

Hong Jun Kim, MD,<sup>1</sup> Dong-Wan Seo, MD, PhD,<sup>1</sup> Aizan Hassanuddin, MMed, MRCP,<sup>1</sup> Su-Hui Kim,<sup>2</sup>  
Hee Jung Chae,<sup>3</sup> Ji Woong Jang, MD,<sup>1</sup> Do Hyun Park, MD, PhD,<sup>1</sup> Sang Soo Lee, MD, PhD,<sup>1</sup>  
Sung-Koo Lee, MD, PhD,<sup>1</sup> Myung-Hwan Kim, MD, PhD<sup>1</sup>



# ***Conclusion***

- There is a wide spectrum of interventional EUS.
- These procedures are definitely based on the proper EUS-FNA technique.
- Many experimental studies are on going.