YSET
Yorkshire School of Endoscopic Therapy

The role of interventional endoscopy in pancreatic cancer

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Advanced Clinical Practitioner

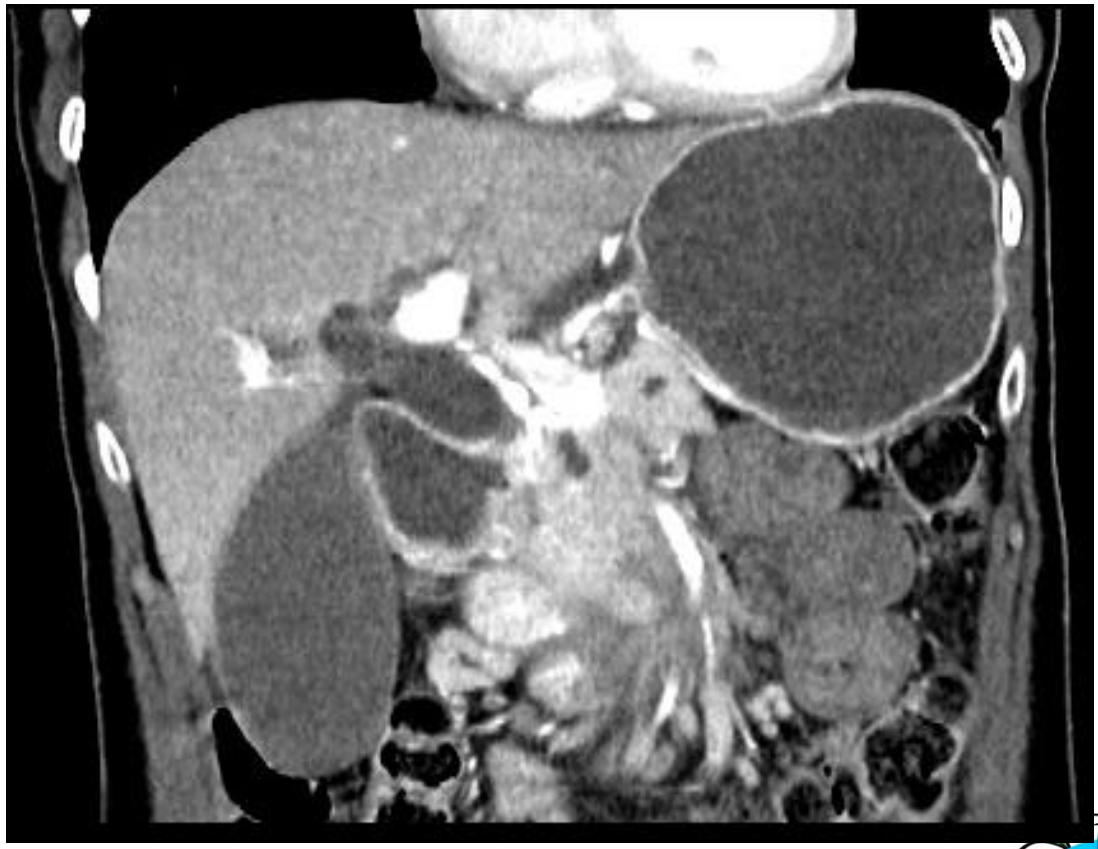
HPB Medicine

St James University hospital

Leeds Centre for Digestive Disease

Case 1: Mrs A

- 57 F
- Known mild Multiple Sclerosis. Fit and well
- Admitted 3 w. nausea & vomiting
- Painless jaundice
- wt loss



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Case 1: Mrs A

CT :

- Mass in pancreatic head
- Dilated CBD & Intrahepatic ducts
- Locally advanced pancreatic malignancy (SMA & PV involved)
- Distal duodenal infiltration with distended stomach

MDT:

- Inoperable pancreatic tumour
- For EUS + ERCP + Duodenal Stent

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Case 1: Mrs A

- Under GA
- Ryles tube in situ on TPN
- EUS + FNB into HOP solid mass for histology
- ERCP:
  - CBD brushings for cytology
  - Biliary stent 6 cm
  - Duodenal stent across D3-D4 stricture

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Indications for EUS

Diagnostic for benign and malignant disease (including staging)

Tissue acquisition

Therapeutic

Inter-luminal anastomoses (bile duct, gallbladder, EDGE, gastrojejunostomy)

Intra-lesional ablative therapy (RFA- especially of NET/ pancreatic mets)

Diagnostic EUS for HPB disease

Staging cancer

- eg duct involvement in ampullary polyps
- Vascular involvement in pancreatic cancer

Benign biliary disease

- CBD stones /microlithiasis
- Chronic pancreatitis

EUS for Tissue Acquisition

- Biliary strictures/ masses
- Pancreatic solid masses
  - Adenocarcinoma/ lymphoma/ mets
  - IgG4 disease/ chronic pancreatitis
  - NETs
- Pancreatic cystic lesions if diagnosis not clear or suspected neoplasia

Cautions

- Significantly safer than ERCP but does have risks particularly with FNB
- 1-2% risk of pancreatitis
- Bleeding
- Infection in sampled area, especially cysts

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Questions for audience

- Would you do EUS and biopsy for every patient presenting with a new pancreatic cancer for palliative chemo?

- Yes
- No
- I don’t know

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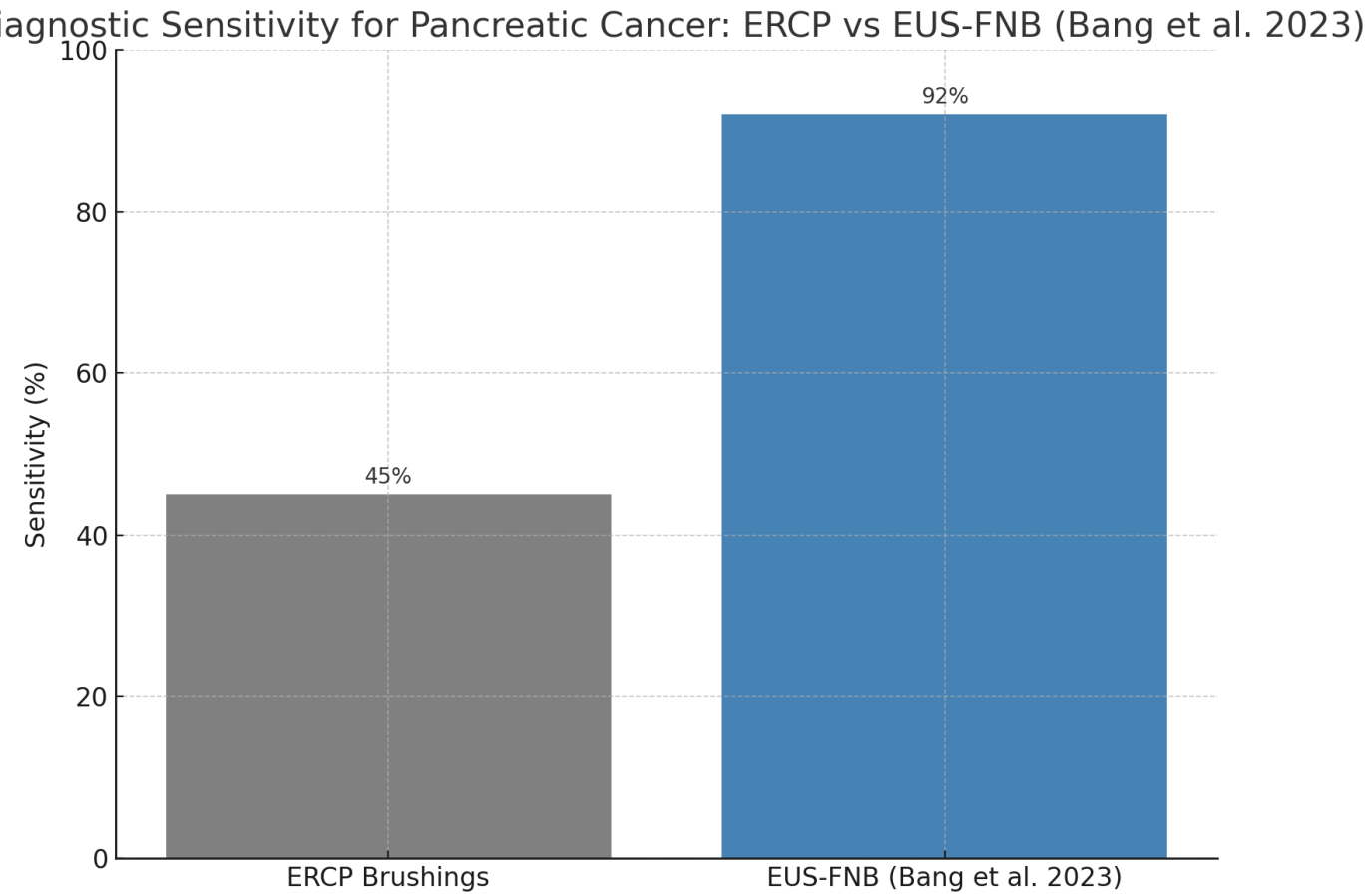
Sampling sensitivity



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Indications for ERCP

ERCP is dangerous and should be used for therapeutic interventions only

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ERCP: A risky business

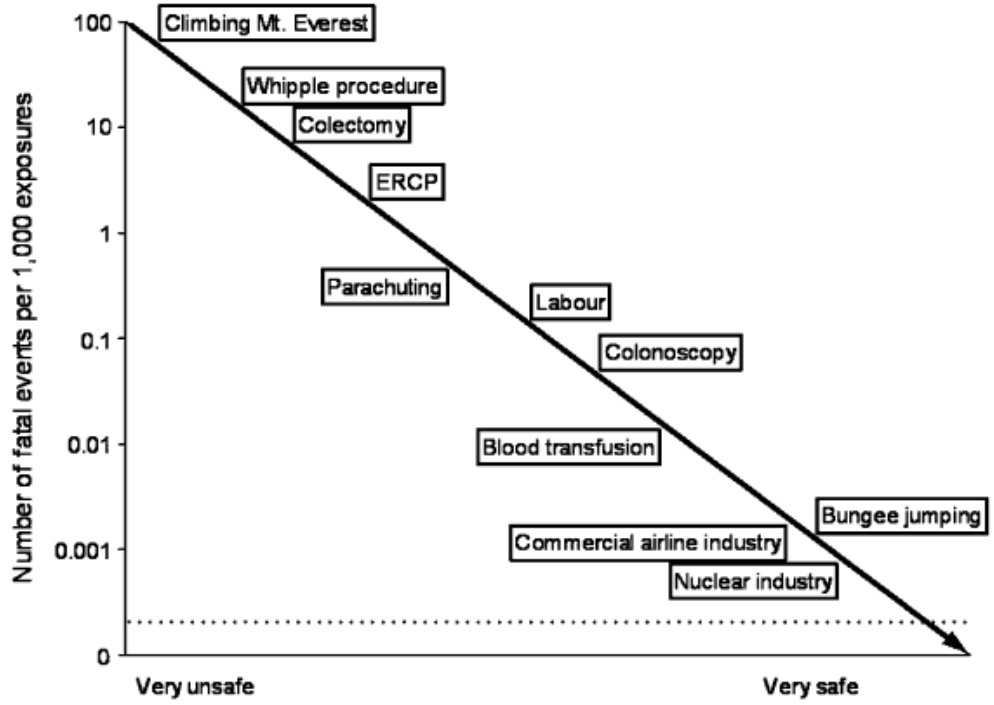

Fig. 1. Safety based on number of fatal events. Adopted from Amalberti R. Five system barriers to achieving ultrasafe health care. Ann Intern Med 2005; 142:756–764.

ERCP is the riskiest routinely performed endoscopic procedure.
Complications often in those who need it the least

Specific complications 6.9%
Severe (>10 nights HS; ICU or surgery) 1.7%
Deaths 0.33%

50,000 ERCP/yr =850 severe AE & 165 deaths

V. De Jonge et al Best Practice & Research Clinical Gastroenterology 2011

30 day mortality post ERCP

- 20-25% 30-day mortality in inoperable hilar malignancy in UK
- RICOCHET study- ERCP mortality 15% (21% unresectable disease, 6% resectable)
- Pancreatic Cancer UK-report “trauma” suffered by some patients from endoscopic procedure
- Patient selection vital

PANCREAS
JOURNAL OF NEUROENDOCRINE TUMORS
AND PANCREATIC DISEASES AND SCIENCES

ORIGINAL ARTICLE

Combined Endoscopic Ultrasonography and Endoscopic Retrograde Cholangiopancreatography in Patients With Malignant Distal Biliary Obstruction Is Associated With Reduced Time to Oncological Therapy Compared With ERCP and Sampling Alone

Gauci, James MSc, MRCP (UK)*; On, Wei MRCP(UK)†; Paranandi, Bharat BSc, FRCP(UK)†; Huggett, Matthew Thomas PhD, FRCP(UK)†; Everett, Simon FRCP(UK)†

Author Information

Pancreas 54(2):p e101-e106, February 2025. | ***DOI:*** 10.1097/MPA.0000000000002401

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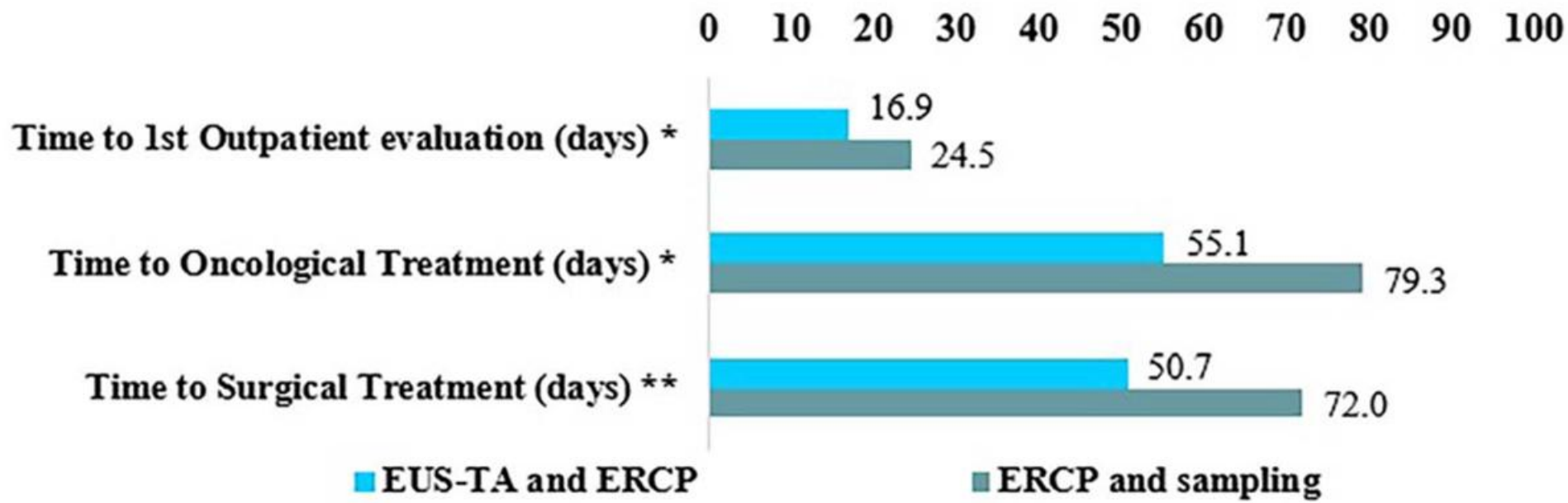


* $p < 0.05$

** p = not significant

FIGURE 1. Mean times to first patient evaluation and treatment.

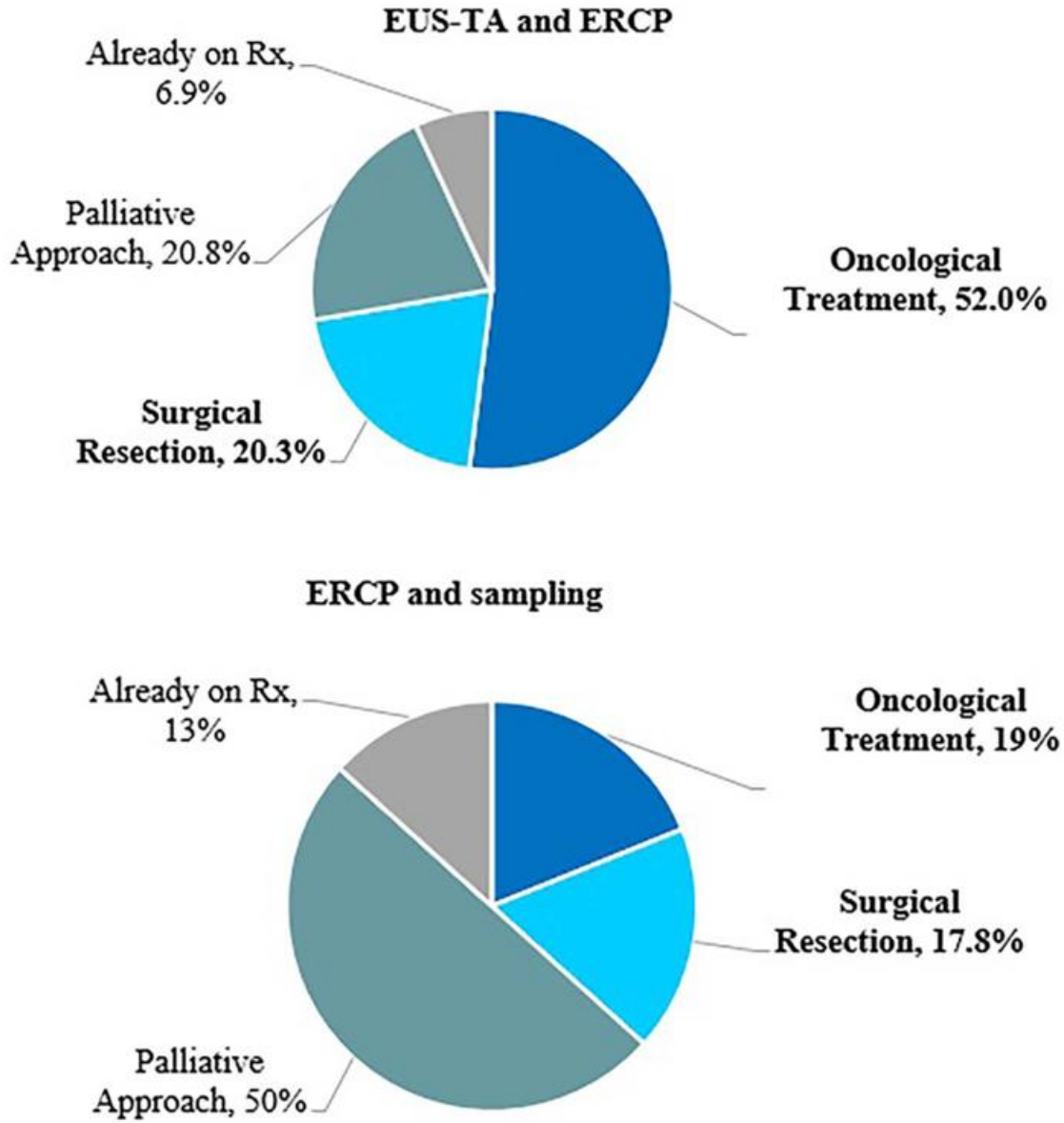


FIGURE 2. Difference in choice of initial therapeutic approach between groups.

Case 2: Mr B

66 M

Background:

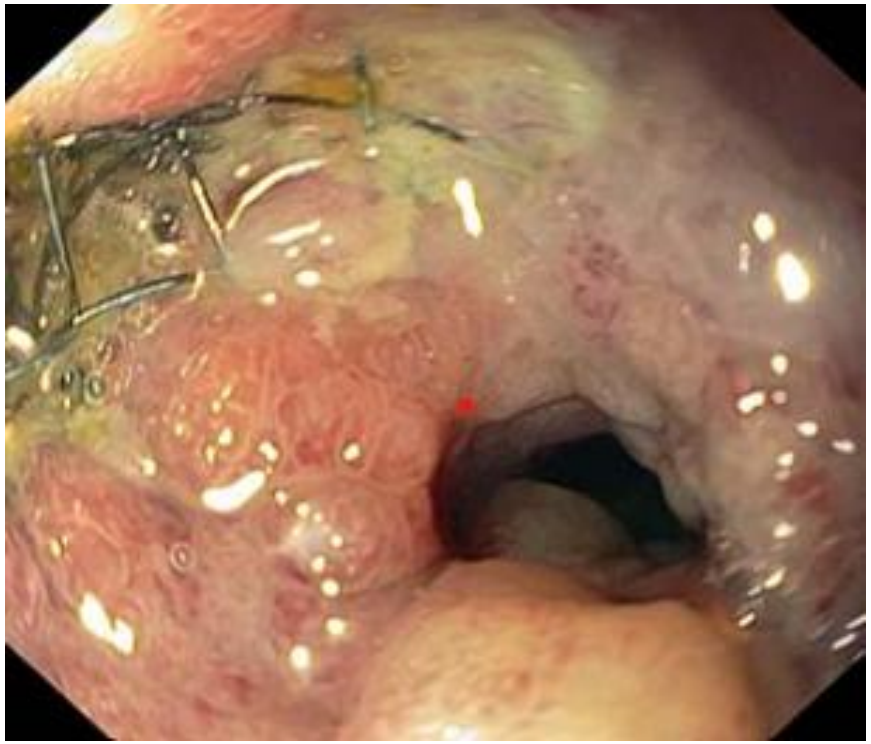
- Known locally advanced HOP cancer
- Not suitable for surgery
- History of hypertension, asthma.
- Smoker

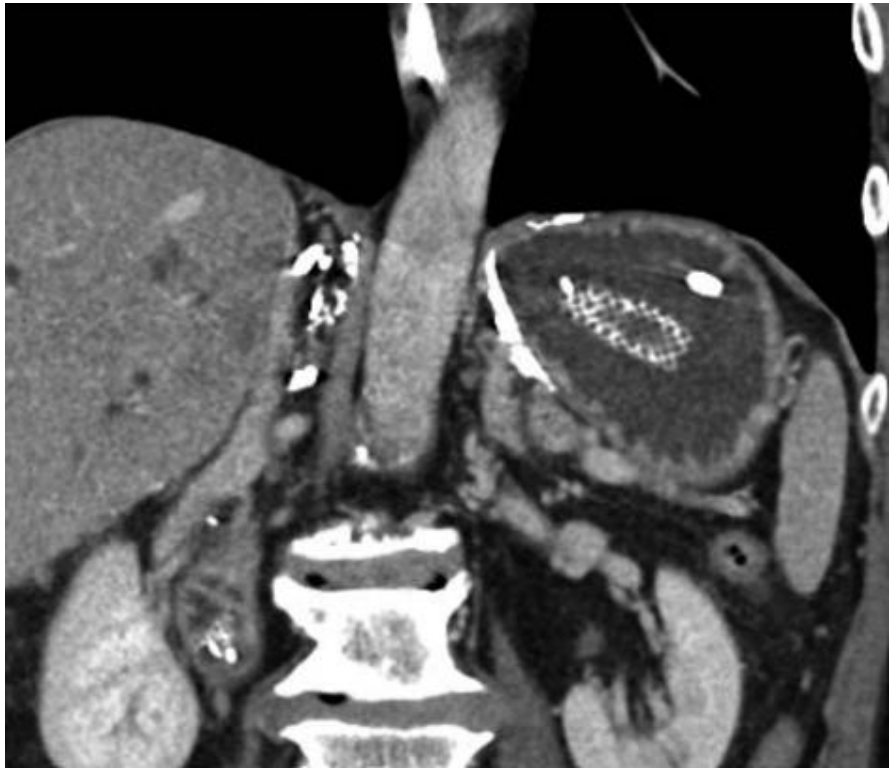
PC:

- Initially presented with GOO – underwent Duodenal stent insertion
- Whilst getting worked up for palliative chemo (8 weeks later), represents with GOO again and jaundice

Case 2: Mr B

- CT: twisted and fractured duodenal stent and biliary dilatation down to HOP mass which is enlarging





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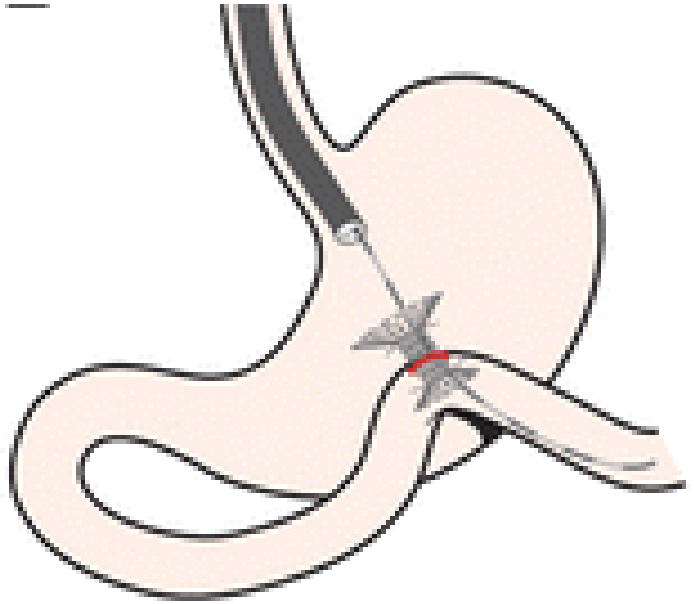
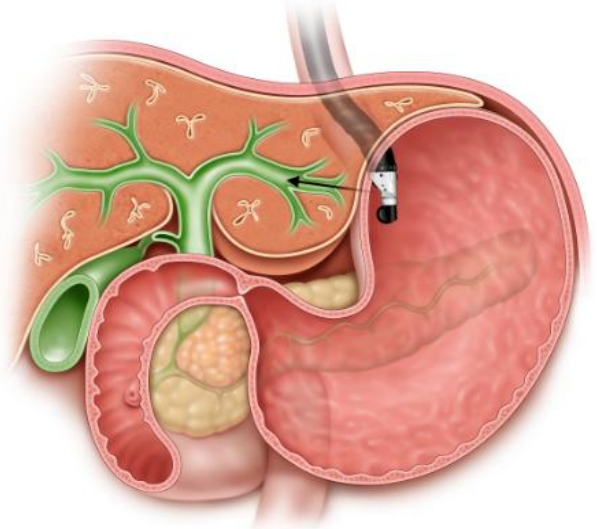
Question for audience

- Are there any other options for patients with biliary and duodenal obstruction?
- ERCP
- EUS
- Surgery
- Do nothing
- PN and PTC

Case 2: Mr B



- EUS guided Gastrojejunostomy to treat GOO
- EUS guided BD (Hep-Gastro) to treat BO



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Malignant distal biliary obstruction

- ERCP standard of care for stenting
- Increasingly used with EUS to get histology (>90% diagnostic accuracy)
- Options in failed ERCP
  - re-attempt ERCP in a pancreatic centre
  - PTC/ PTBD
  - EUS-guided drainage

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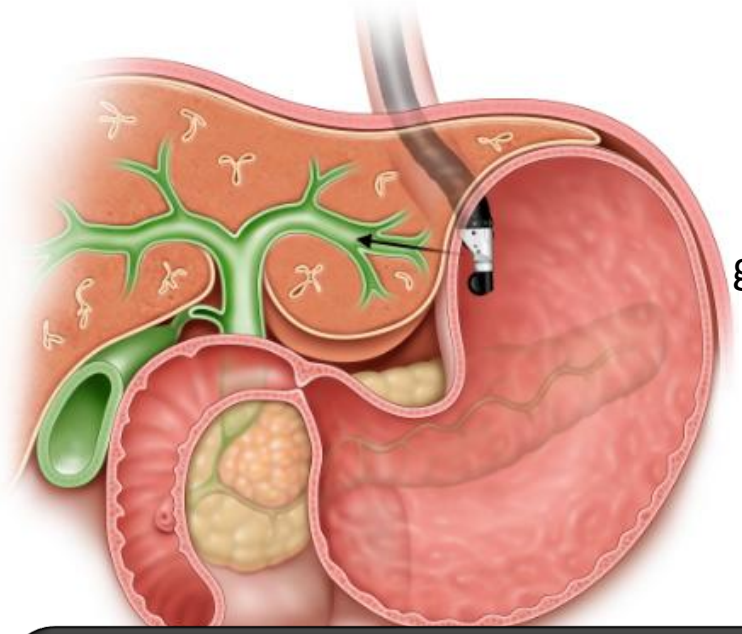
EUS-Guided Bile Duct Drainage



gallbladder

Intrahepatic

Left lobe accessed from stomach

- Hepaticogastrostomy
- Rendezvous
- Antegrade

Extrahepatic

Common bile duct accessed from duodenal bulb

- Choledochoduodenostomy
- Rendezvous

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EUS-BD safety/efficacy

Clinical Success

Efficacy and safety of EUS-guided biliary drainage in comparison with percutaneous biliary drainage when ERCP fails: a systematic review and meta-analysis

Reem Z. Sharaiha, MD, FASGE,[1] Muhammad Ali Khan, MD,[2] Faisal Kamal, MD,[2] Amy Tyberg, MD,[1] Claudio R. Tombazzi, MLS,[2] Bilal Ali, MD,[2] Claudio Tombazzi, MD,[2] Michel Kahaleh, MD, FASGE[1]

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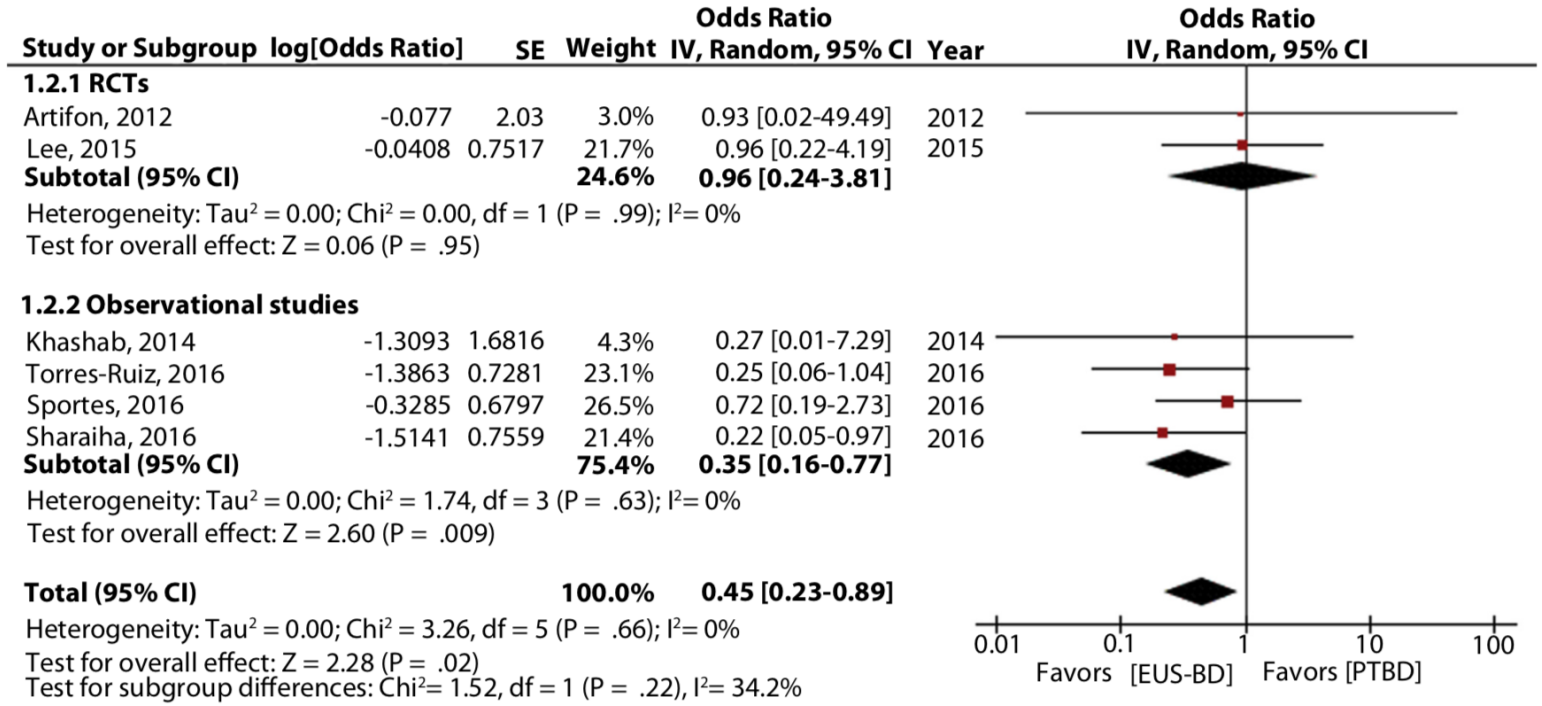

EUS-BD safety/efficacy

Adverse Events

Efficacy and safety of EUS-guided biliary drainage in comparison with percutaneous biliary drainage when ERCP fails: a systematic review and meta-analysis

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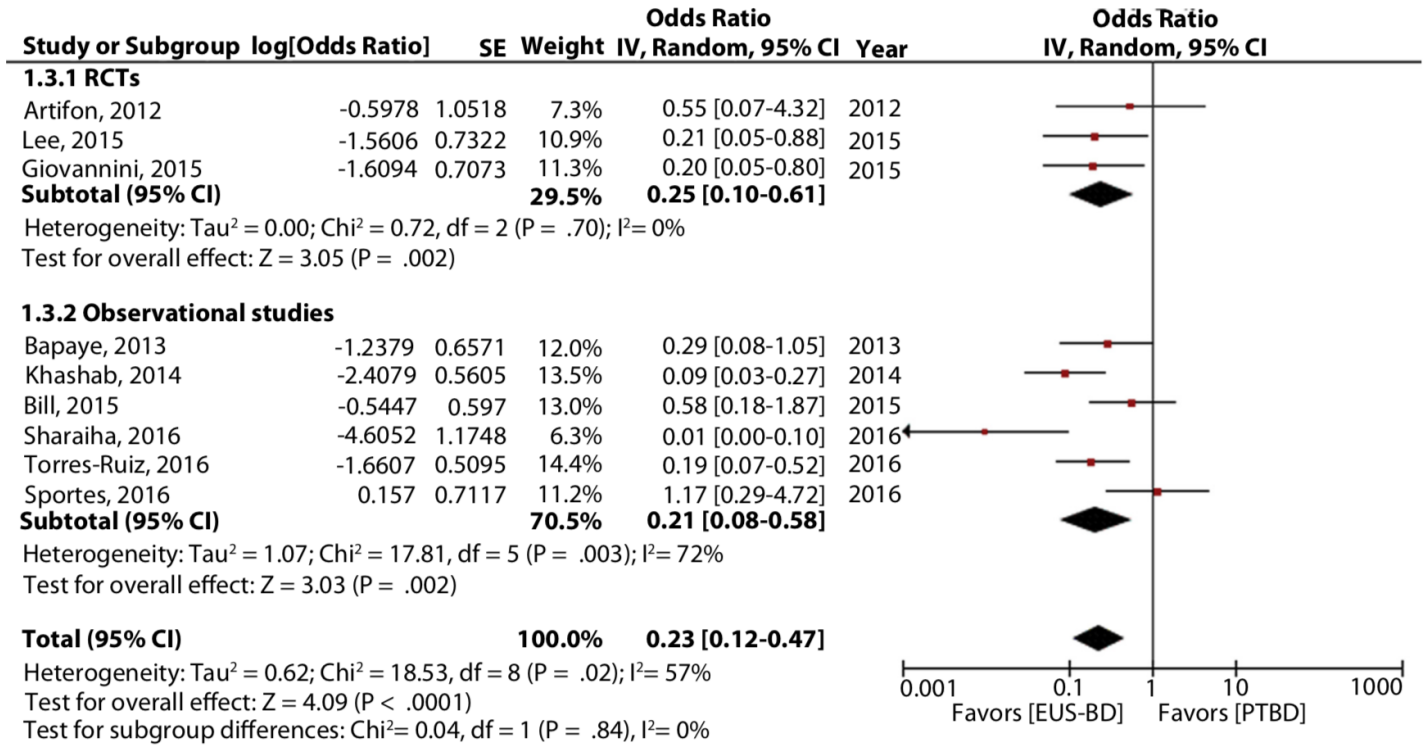
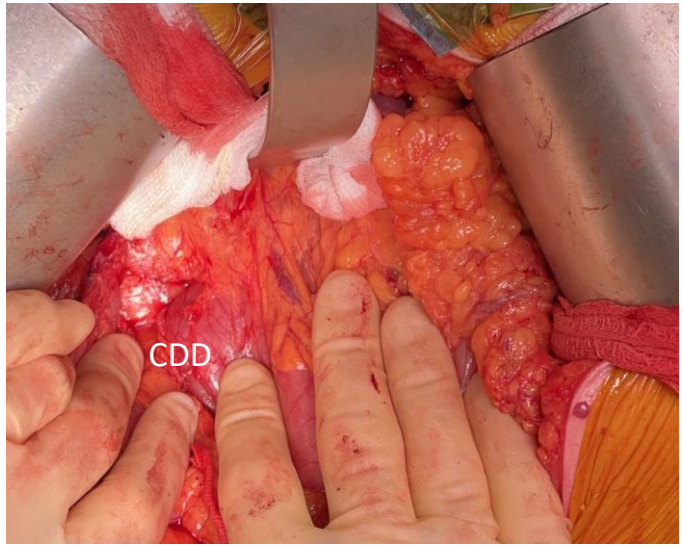
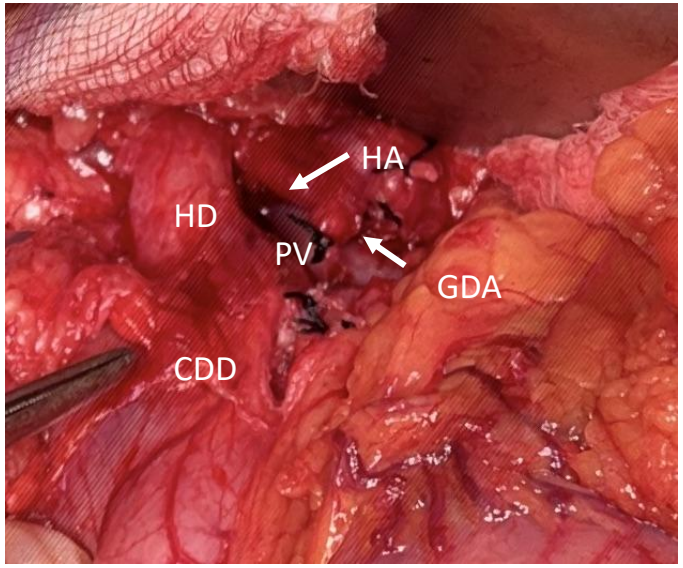


EUS CDD and Surgery





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Original article

Thieme

Biliary drainage prior to pancreatoduodenectomy with endoscopic ultrasound-guided choledochoduodenostomy versus conventional ERCP: propensity score-matched study and surgeon survey

OPEN ACCESS

- Consecutive patients who underwent PPD after preop biliary drainage
- Primary outcome was major postoperative complications
- Propensity score-matching (1:3) analysis was performed
- 42 EUS-CDS, 895 ERCP
- No increase in rate of complications

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EUS-BD vs ERCP?

Gastroenterology 2023;165:1249–1261

Endoscopic Ultrasound-Guided Biliary Drainage of First Intent With a Lumen-Apposing Metal Stent vs Endoscopic Retrograde Cholangiopancreatography in Malignant Distal Biliary Obstruction: A Multicenter Randomized Controlled Study (ELEMENT Trial)

- EUS-CDS comparable and safe compared to ERCP in patients with MDBO – ELEMENT trial
- Reduced post procedure pancreatitis risk

Gastroenterology 2023;165:473–482

ENDOSCOPY

EUS-Guided Choledocho-duodenostomy Using Lumen Apposing Stent Versus ERCP With Covered Metallic Stents in Patients With Unresectable Malignant Distal Biliary Obstruction: A Multicenter Randomized Controlled Trial (DRA-MBO Trial)

- Shorter time, less fluoroscopy
- No effect on PPPD outcomes

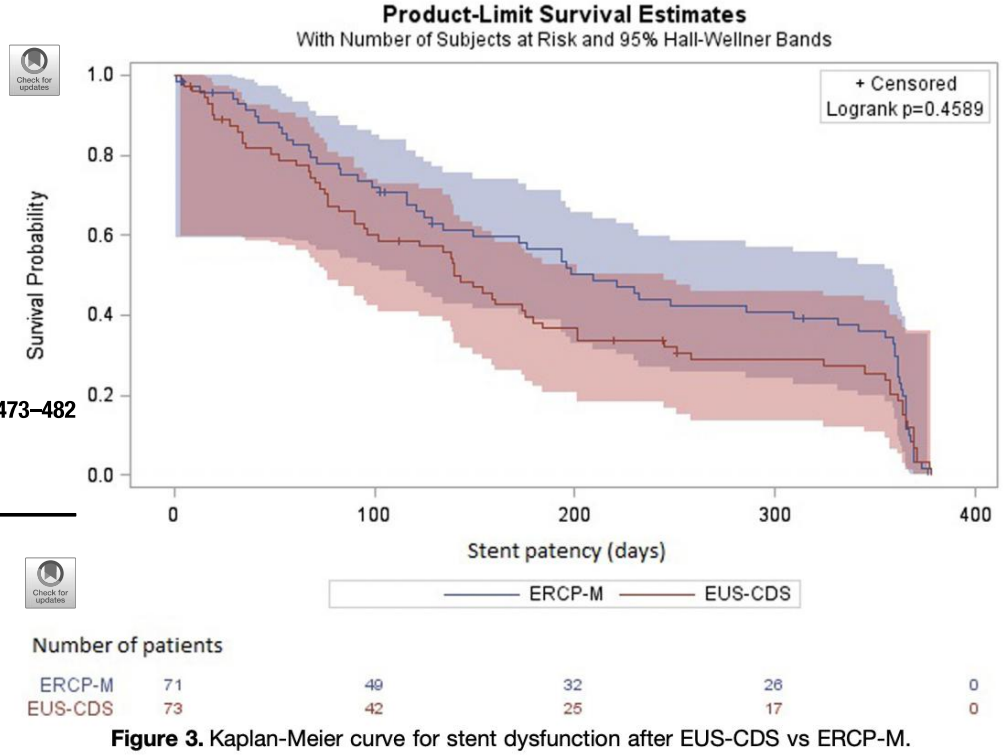

Figure 3. Kaplan-Meier curve for stent dysfunction after EUS-CDS vs ERCP-M.

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EUS-gastrojejunostomy

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- Laparoscopic gastrojejunostomy standard of care
  - Surgically unfit patients
  - Duodenal stenting often has poor functional result

- EUS-GJ with LAMS is a minimally invasive alternative
  - More feasible with development of 20mm diameter LAMS
  - Data limited

EUS-gastrojejunostomy

- Considered in place of lap-GJ in malignant GOO
- Superior to duodenal stenting
- Patients with good PS
- Patients likely to survive > 3 months

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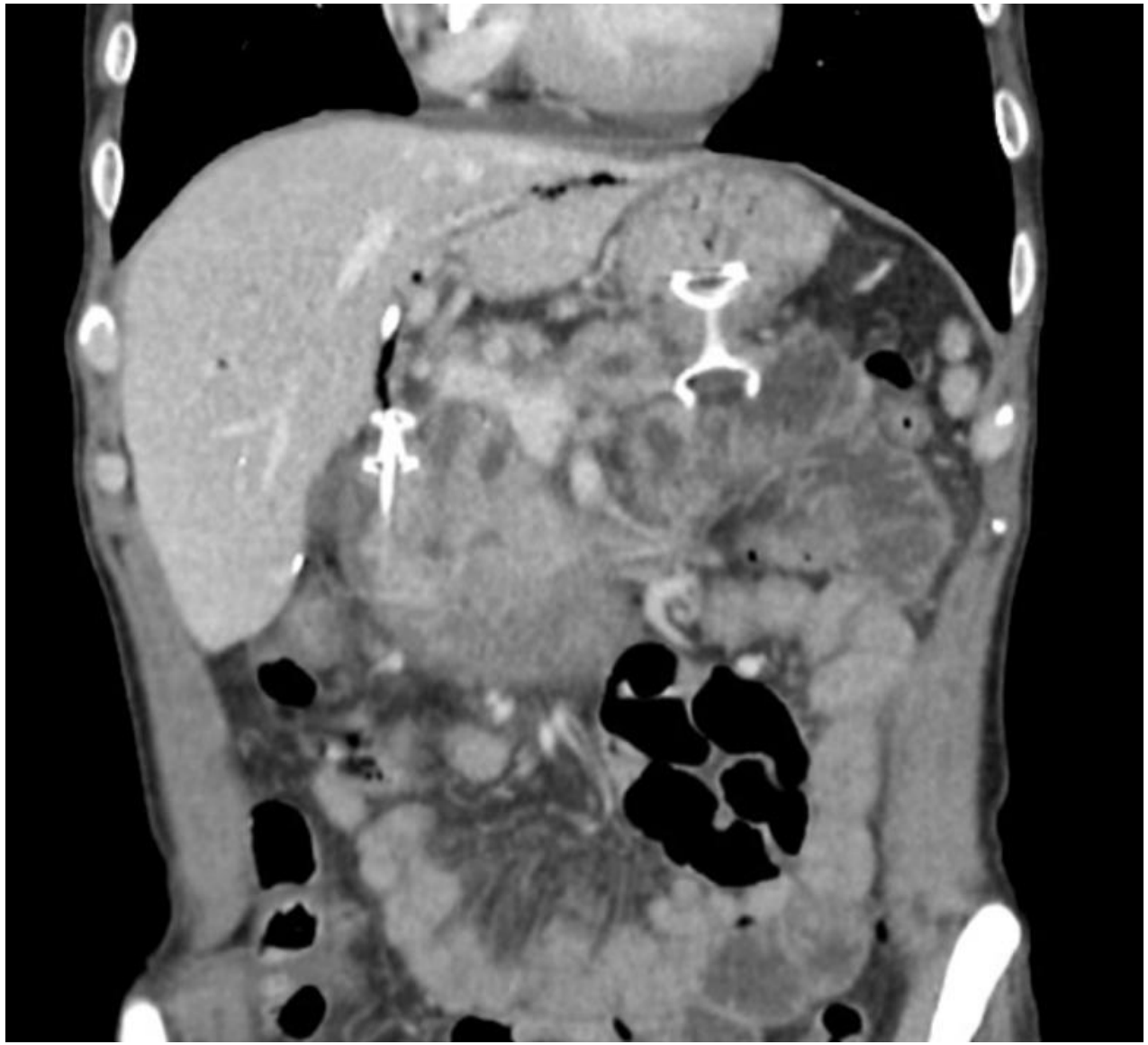

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The Lancet Gastroenterology & Hepatology
Volume 9, Issue 2, February 2024, Pages 124-132

Articles

Endoscopic ultrasonography-guided gastroenterostomy versus uncovered duodenal metal stenting for unresectable malignant gastric outlet obstruction (DRA-GOO): a multicentre randomised controlled trial

- 97 patients
- 1:1 randomisation stenting or EUS-GJ
- Stent patency better in GJ group
  - (HR= 0.13; p<0·0001)
- Symptoms better in GJ group
  - (mean= 2.41; p=0.012
- No difference in complications

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Case selection for Coeliac Plexus Nerve Block

When, where and how?

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Definitions

- Coeliac Plexus Block (CPB)
  - Injection of bupivacaine and steroid (triamcinolone)
- Coeliac Plexus Neurolysis (CPN)
  - Injection of bupivacaine and alcohol/ phenol

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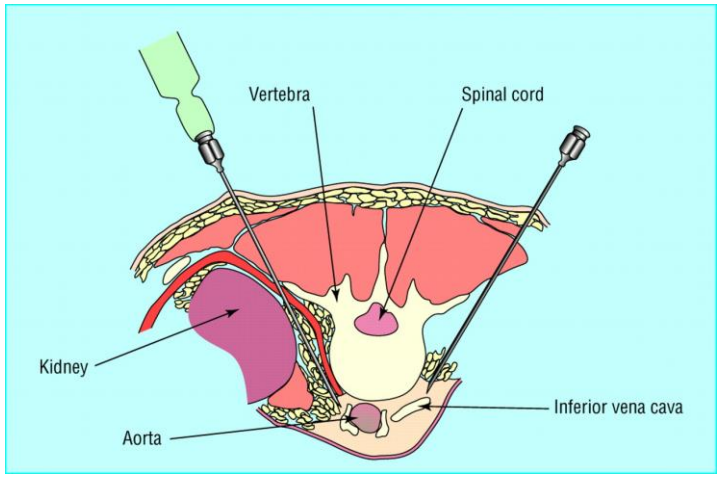
Case selection

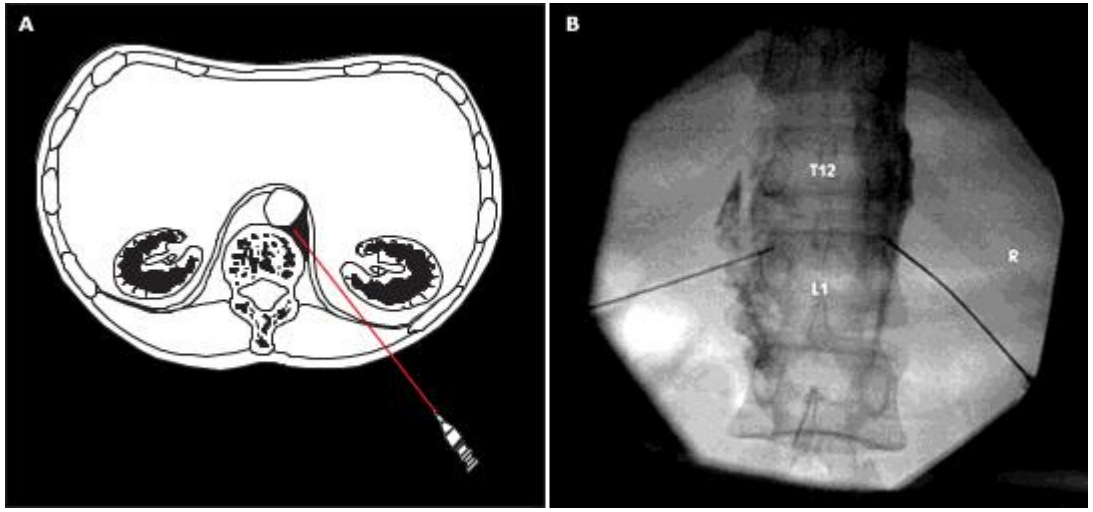
- Benign
  - Pattern of disease- neuropathic vs. obstructive
  - Alternatives

- Malignant
  - Histologically confirmed?
  - CPN or CPB?
  - One side or two?
  - Palliative care involvement

Percutaneous CPN/CPB

- Traditional method
- US or CT guidance
- Radiology time
- Complications i.e.. paraplegia





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Endoscopic Ultrasound guided CPN/CPB

- Most direct access
- Minimises risk and complications
- Cost effective
- Single operator and can be done as a day case

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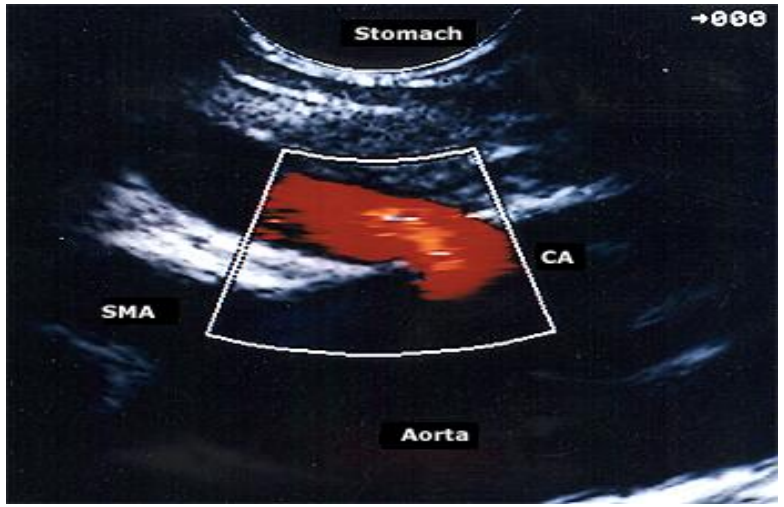
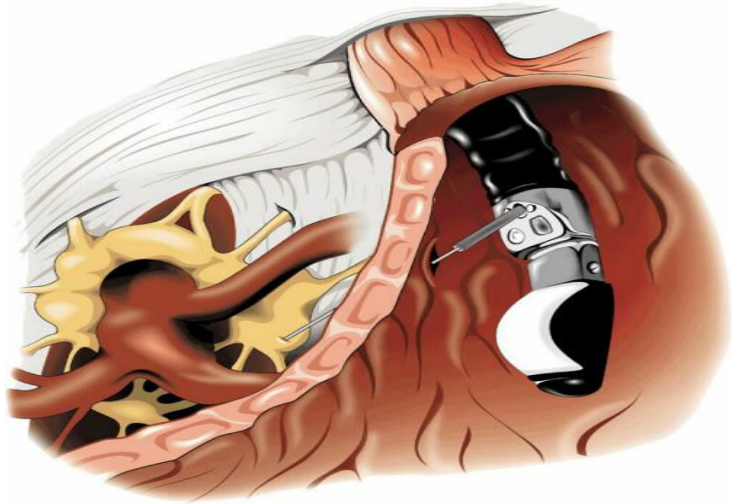
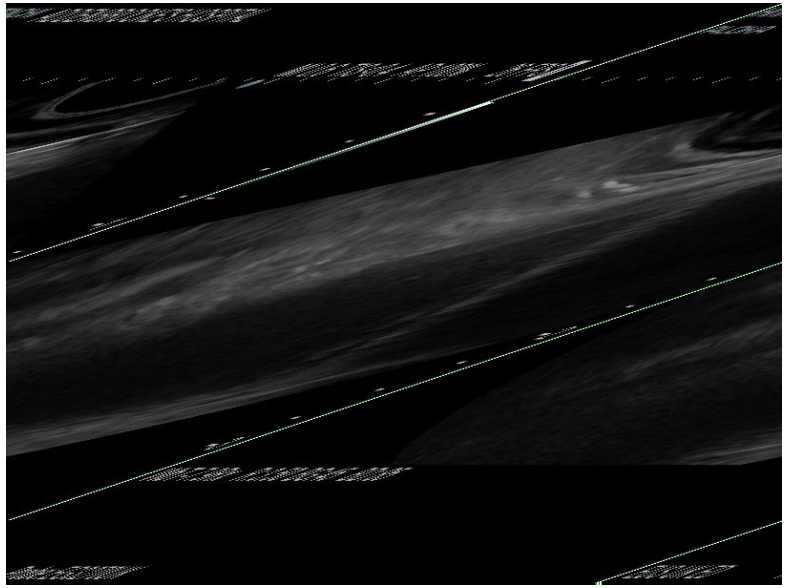
The procedure







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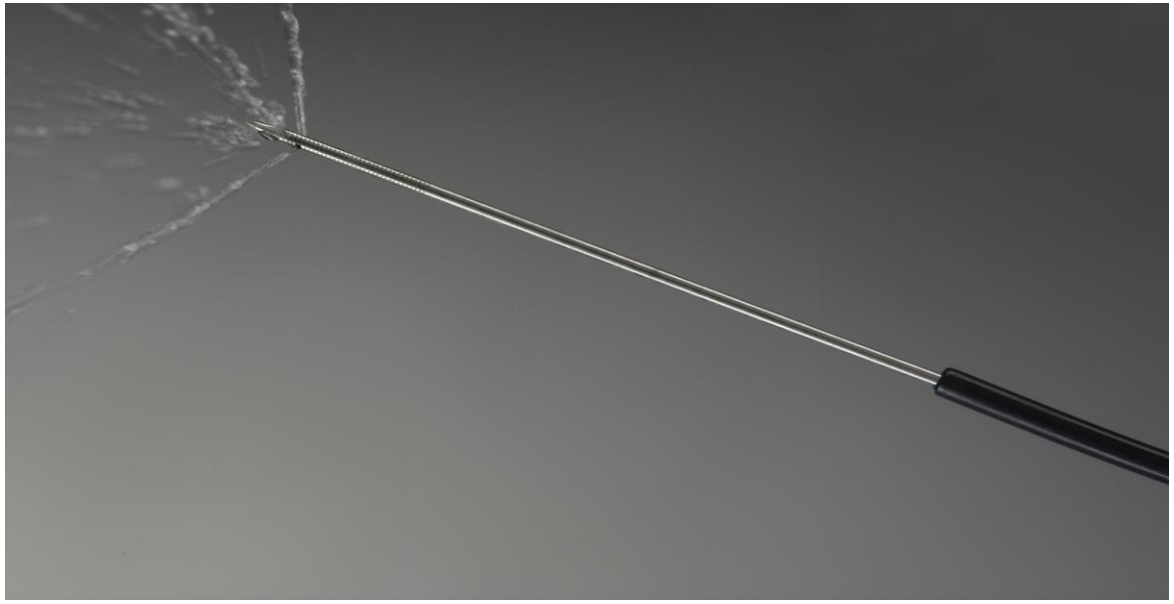

CPN – 5-20 mls of 0.25% bupivacaine followed by 10 mls of 98% ethanol

CPB – Bupivacaine followed by steroid injection – Triamcinolone 80 mg in 5mls

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Complications

CPB

- 7% complication rate from 481 procedures
- Transient diarrhoea and hypotension in 7 and 4% respectively
- Increased pain in 2%
- Infectious complications – uncommon but reported in case reports

CPN

- 21% complication rate from 661 procedures
- Diarrhoea, hypotension in 7 and 4%
- Increased pain in 4%
- Major complications in 0.2% (visceral infarction, retroperitoneal abscess or bleeding, permanent paralysis, PE, bilateral diaphragm paralysis)

Pancreatic cancer

Pain is the most common disabling symptom

occurs in 80% overall

30-40% at diagnosis

Narcotic analgesics are the cornerstone of treatment

side effects can limit doses necessary

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EUS guided CPN for pancreatic cancer

2 meta-analyses

- 72-80% pain relief

Early CPN vs. standard analgesic therapy

- Wyse et al 2011 RCT
- Significant improvement in pain scores and trend to lower opiate requirement

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Key messages to take home:

- Adding EUS-FNB to ERCP gives better diagnostic sensitivity and reduces time to chemo
- EUS-BD is a useful adjunct in failed ERCP, and can be used instead of ERCP in selected cases
- EUS-GJ is an emerging treatment for GOO in fit patients and is superior to duodenal stenting or bypass surgery
- EUS-CPN should be considered early in patients with pancreatic cancer pain

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Any questions?

Thank you

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