Pancreatology: A Primary Care Perspective

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Conflicts

- I have no relevant relationships with ineligible companies to disclose within the past 24 months. (Note: Ineligible companies are defined as those whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.)

Objectives

- To recognize the multiple etiologies of acute pancreatitis
- To state the complications of acute pancreatitis
- To highlight the differences between pseudocysts and true pancreatic cysts
- To elaborate treatment strategies for the pain of chronic pancreatitis

What is the main cause of acute pancreatitis?

Etiologies of Acute Pancreatitis

- Gallstones 35% (microlithiasis)*
- Alcohol 30%
- Smoking
- Hypertriglyceridemia over 1000 mg/dl
- Post ERCP
- Medications (Azathioprine, thiazide, etc)
- Idiopathic

Smoking

- Is an independent risk factor related to the development of acute and chronic pancreatitis
- Smokers with greater than 20 pack year history are at particular risk
- Alcohol and smoking work synergistically

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Amylase and Acute Pancreatitis

Rises within 6 – 12 hours

Half life of 10 hours

What else besides acute pancreatitis causes elevated serum amylase?

Differential Diagnosis

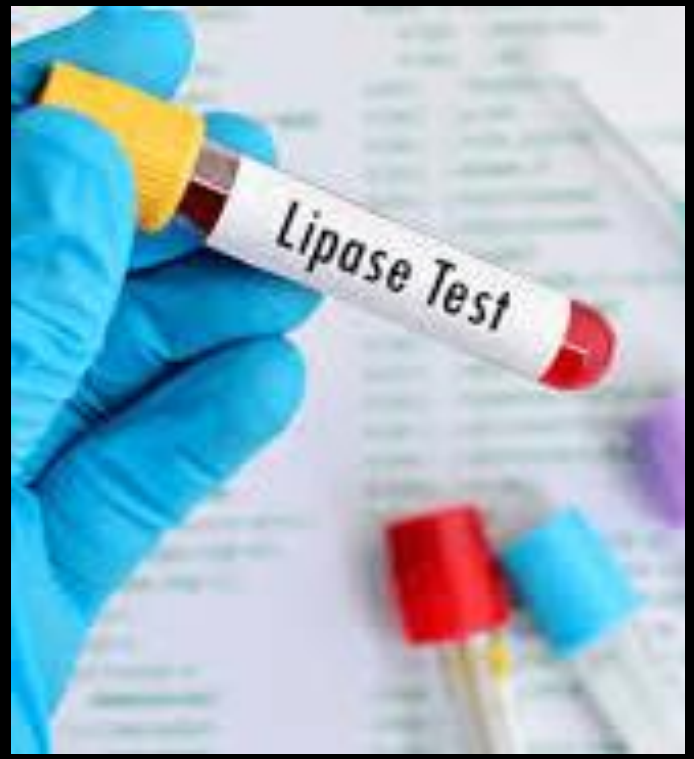
Amylase not very specific for pancreatitis

parotitis

renal failure

ruptured ectopic

Lipase and Acute Pancreatitis



- Rises in 4 – 8 hours
- Peaks at 24 hours
- More sensitive than amylase

Do all patients with acute pancreatitis have an elevated amylase or lipase?

Yes

No

Two out of Three Rule

- To diagnose acute pancreatitis, we must have two out of three of these:

SEVERE EPIGASTRIC PAIN

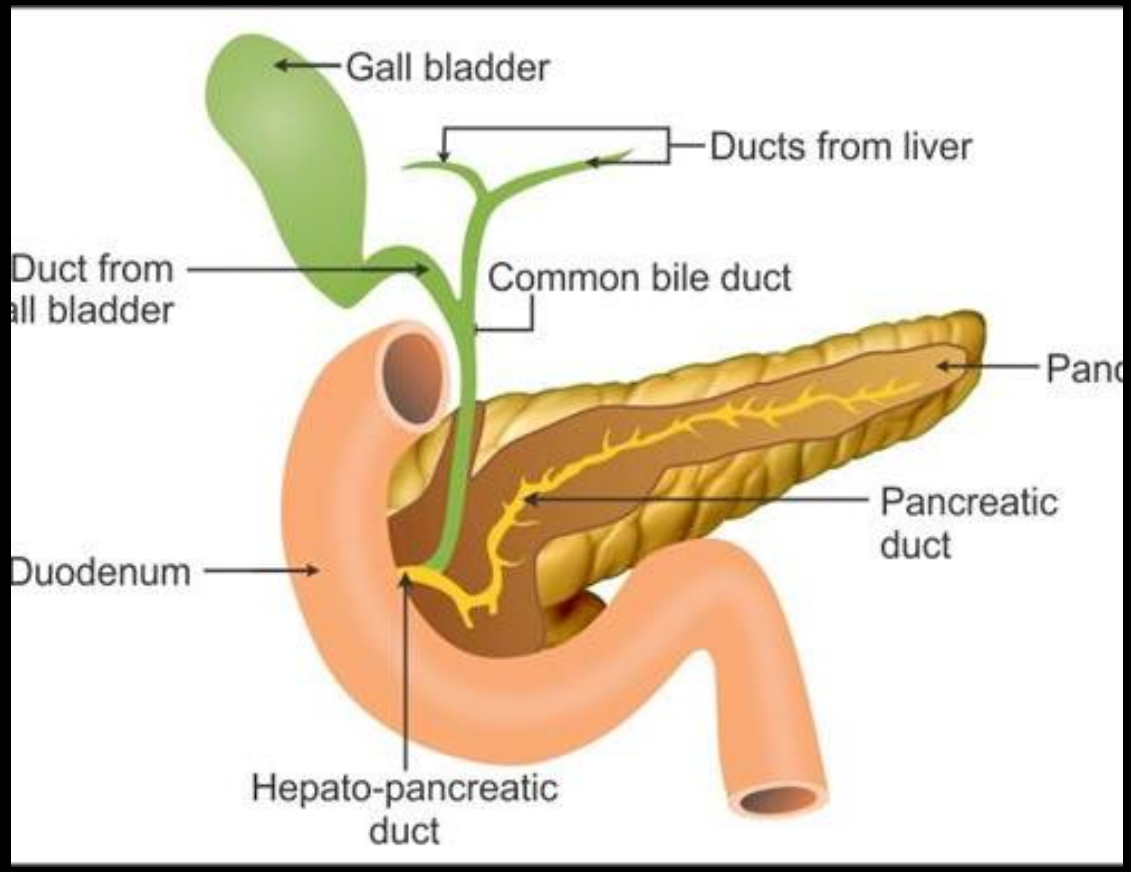
ELEVATED AMYLASE/LIPASE

CHARACTERISTIC FINDINGS ON IMAGING

Do patients with CHRONIC pancreatitis have elevated amylase and lipase?

Is gallstone size a risk factor for developing gallstone pancreatitis?

- Yes
- No



Gallstone Pancreatitis

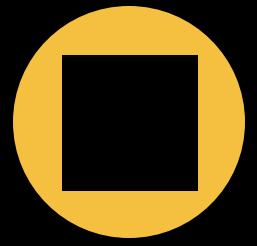
- Gallstones that block the bile duct at the Sphincter of Oddi
- Associated with:
  - pain
  - nausea/vomiting
  - elevated liver function tests
  - elevated lipase
  - fever

How do we assess severity of acute pancreatitis?

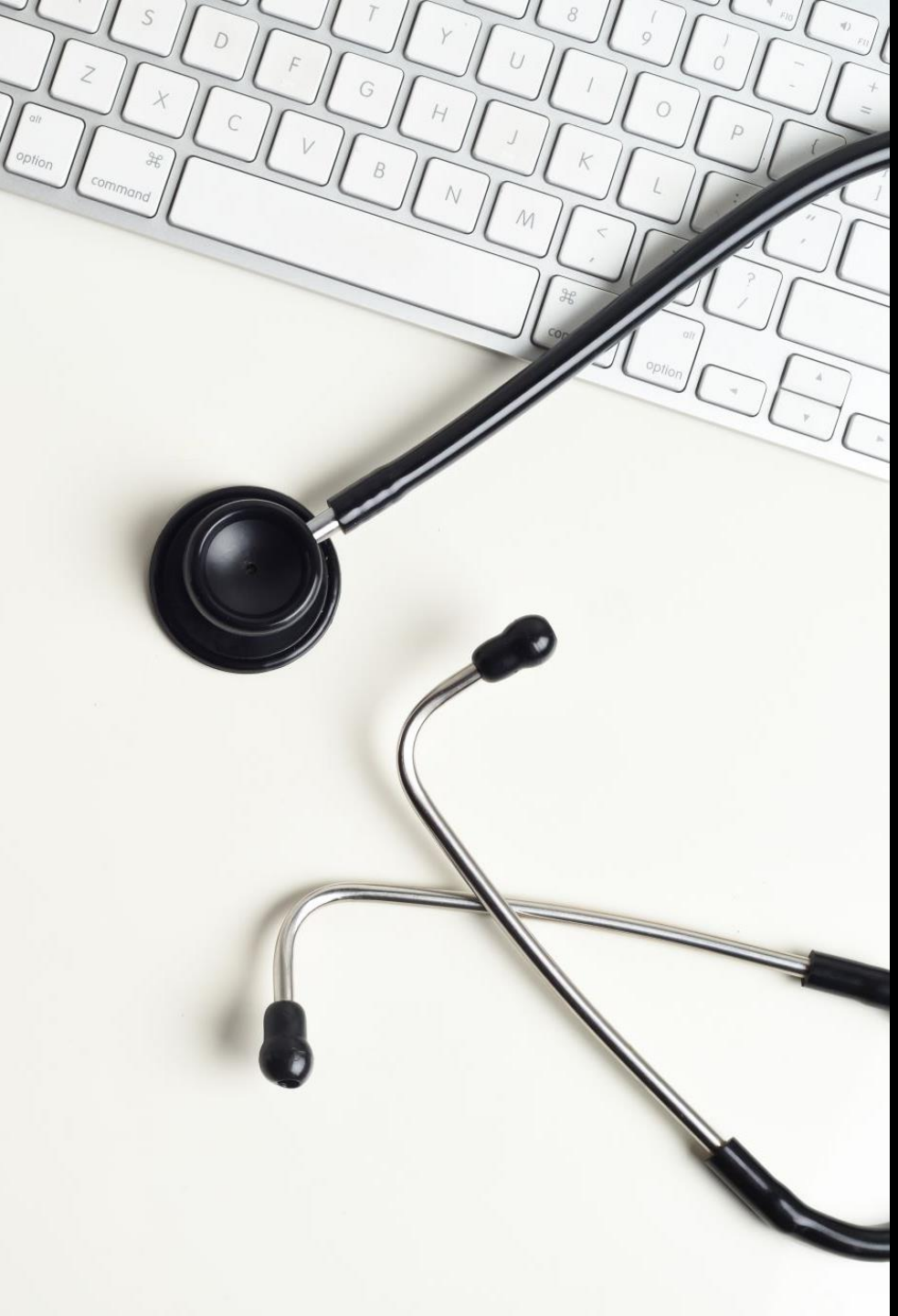
APACHE II Score

Bedside Index for Severity in Acute Pancreatitis (BISAP)

Ranson Criteria



Systemic Inflammatory Response Syndrome



How do we treat acute pancreatitis?

Crockett SD et al
AGA Institute Guideline on Initial Management of Acute Pancreatitis
Gastroenterology 2018:154;1096

Acute Pancreatitis Management

Pain control

Plenty of saline or Ringer’s

Nutrition

Monitor for organ failure

Which of the following are complications of acute pancreatitis? (more than 1 answer possible)

1. Shock
2. Renal failure
3. Respiratory failure
4. Liver failure

What is pancreatic necrosis?

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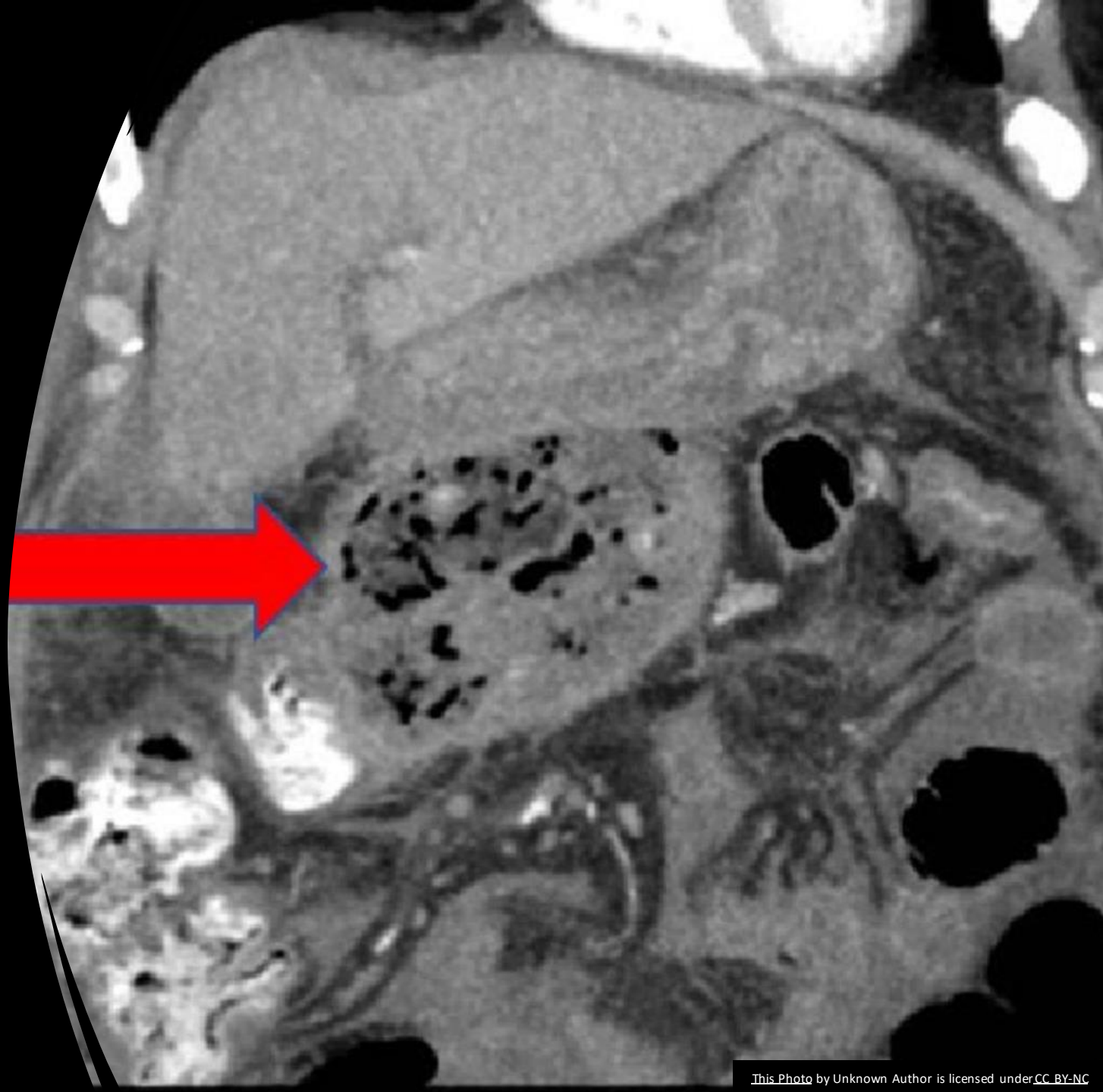
Pancreatic Necrosis

- Dead tissue, solid or liquid, that has the potential for infection
- Occurs in 15% of patients with acute pancreatitis



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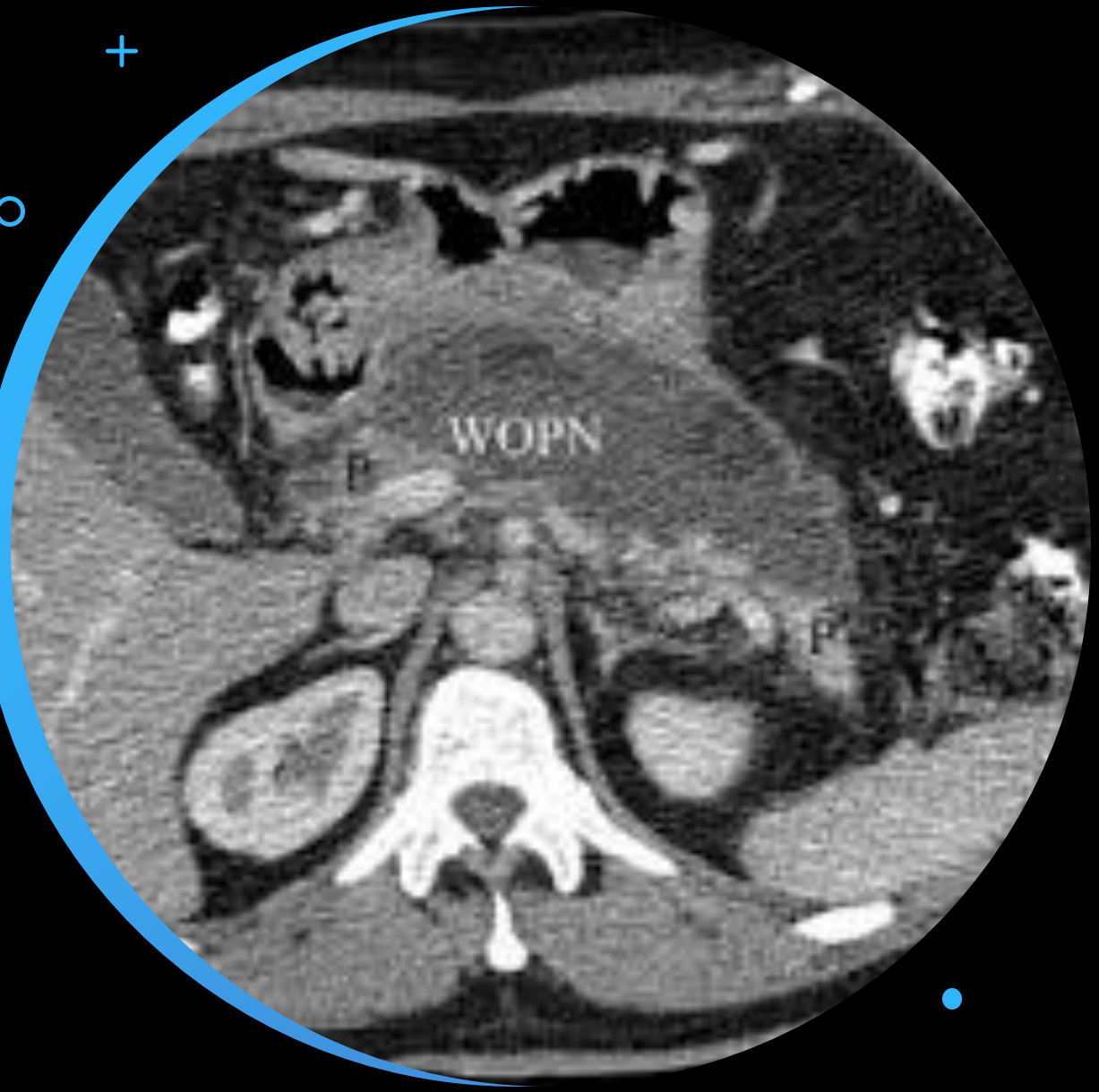
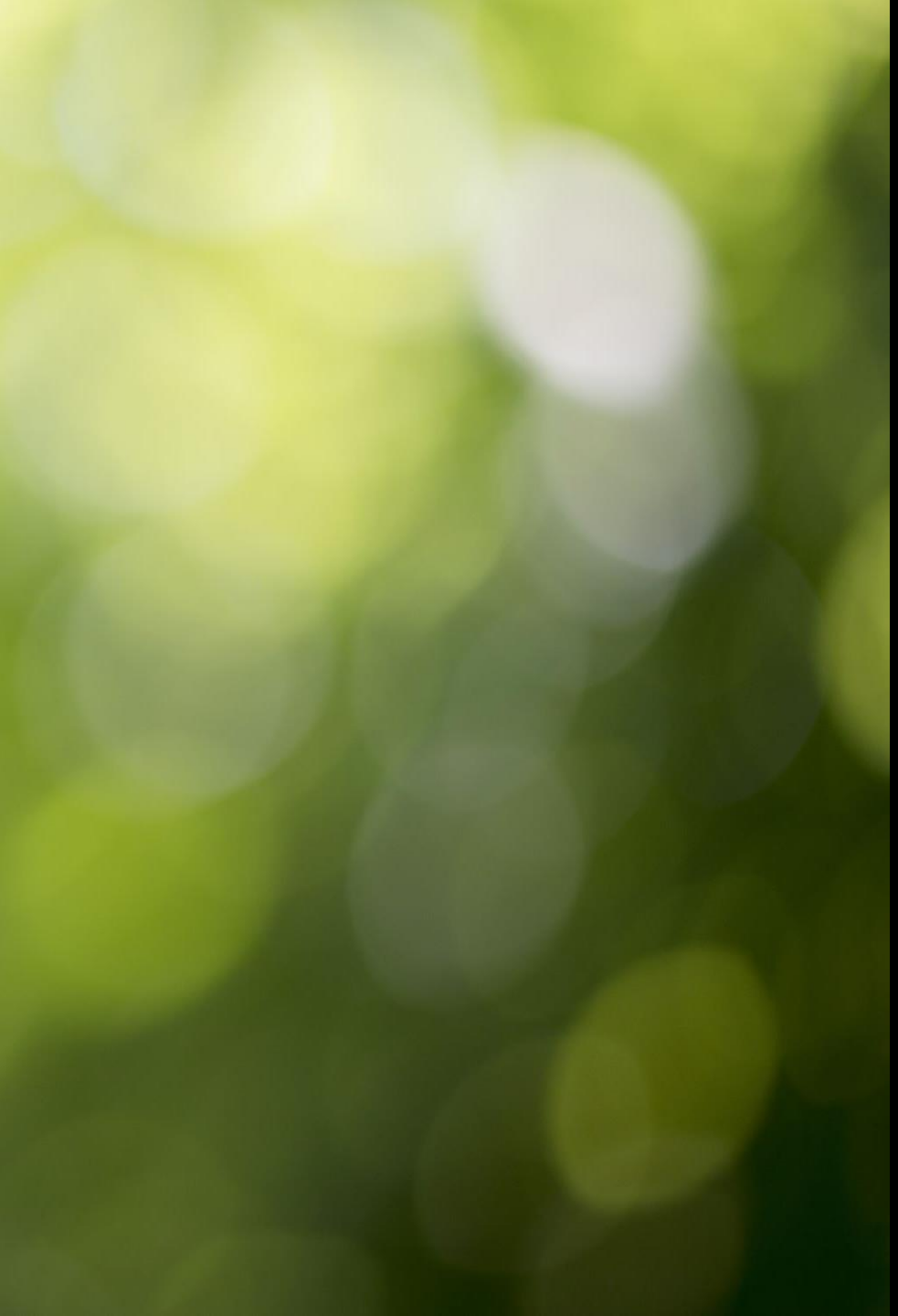


What is walled over pancreatic necrosis?

- More significant disease with increased risk of infection
- An encapsulated collection of pancreatic and/or peripancreatic necrosis



Pancreatic necrosis can be:

- Sterile
- Infected

Step Up Approach for Pancreatic Necrosis:

- Broad spectrum antibiotics for culture proven infection in pancreatic necrosis
- Enteral rather than parenteral feeding
- Drainage &/or debridement may be required in sterile pancreatic necrosis (give it 2 weeks)

Baron TH et al
American Gastroenterological Association Clinical Practice Update: Management of Pancreatic Necrosis
Gastroenterology 2020:158;67

Enteral Nutrition

- Is preferred over hyperalimentation based on patient tolerance

In acute pancreatitis, what is the advantage for early feeding (oral or feeding tube) over hyperalimentation?

In acute pancreatitis, is there an advantage for early feeding (oral or feeding tube) over hyperalimentation?

- Fewer infections, due to preventing bacterial translocation into necrotic tissue

Crockett SD et al
American gastroenterological Association Institute Guideline on Initial Management of Acute Pancreatitis
Gastroenterology 2018:154;1096

20% of acute pancreatitis patients develop an infection

- Are prophylactic antibiotics recommended?

Tenner S et al
American College of Gastroenterology Guideline: Management of Acute Pancreatitis
Am J Gastroenterol 2013:108;1400

Tools of the trade

ERCP

- Invasive
- Sedation
- To assess biliary system and pancreas
- Radiation exposure
- Not used as diagnostic test
- Success rate ERCP removal of CBD stones 93%*

MRCP

- Non invasive
- No sedation
- To assess biliary system and pancreas
- No radiation
- Sensitivity for CBD stones 81-100%*
- Specificity 96-100%*
- Limited sensitivity/specificity for tiny stones

*Lynn AP et al
Endoscopic retrograde cholangiopancreatography in the treatment of intraoperatively demonstrated choledocholithiasis
Ann R Coll Surg Eng 2014:96;45

*Clinical Key, Elsevier, 2021

Mollie

- Is a 86 y o patient with suspected gallstone pancreatitis **without** cholangitis

- Bilirubin 2.0 mg/dl
- U/S 9 mm common duct…no stones
- MRCP shows no evidence of a common duct stone

Should Mollie get an ERCP now?

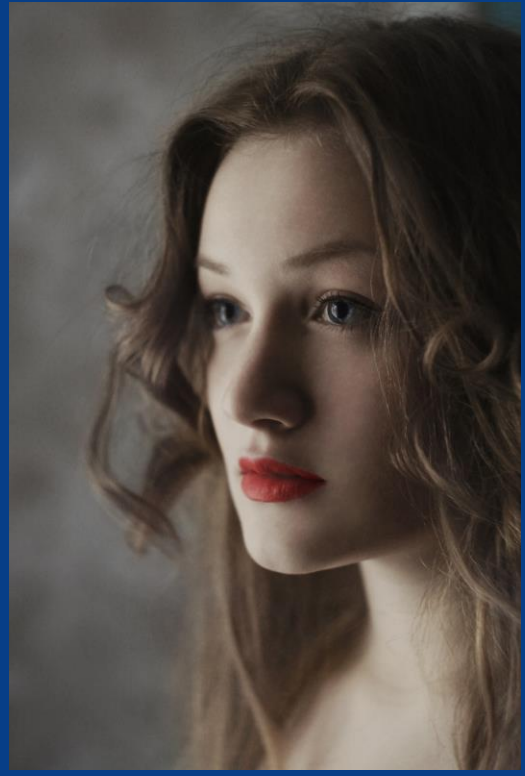
- YES
- NO

Buxbaum JL et al
ASGE guideline on the role of endoscopy in the evaluation and management of choledocholithiasis
Gastrointestinal Endoscopy 2019:89;1075

ERCP Indications for Gallstone Cholangitis

- In most patients with gallstone pancreatitis, gallstones pass spontaneously
- ERCP indicated for patients with gallstone pancreatitis AND cholangitis

Mollie’s granddaughter Mel



- Age 36 has gallstone pancreatitis and cholangitis

The next step is:

1. ERCP
2. MRCP
3. Endoscopic ultrasound
4. Surgery

What is the best time to consider a cholecystectomy for a patient with mild gallstone pancreatitis?

1. Wait 6 weeks after the episode

2. During that hospitalization

Buxbaum JL et al
ASGE guideline on the role of endoscopy in the evaluation and management of choledocholithiasis
Gastrointestinal Endoscopy 2019:89;1075

Surgery?

- Reduction of mortality from 17% to 5% in early surgery group

DaCosta DW et al
Same-admission versus interval cholecystectomy for mild gallstone pancreatitis (PONCHO)
Lancet 2015:386;1261

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Counterpoint

- The rationale for delaying cholecystectomy in gallstone pancreatitis is to reduce inflammation and thus decrease operative complications

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What are some complications of acute pancreatitis?

What are some complications of acute pancreatitis?

Pulmonary edema

Adult respiratory distress syndrome

Pseudocyst

Necrosis

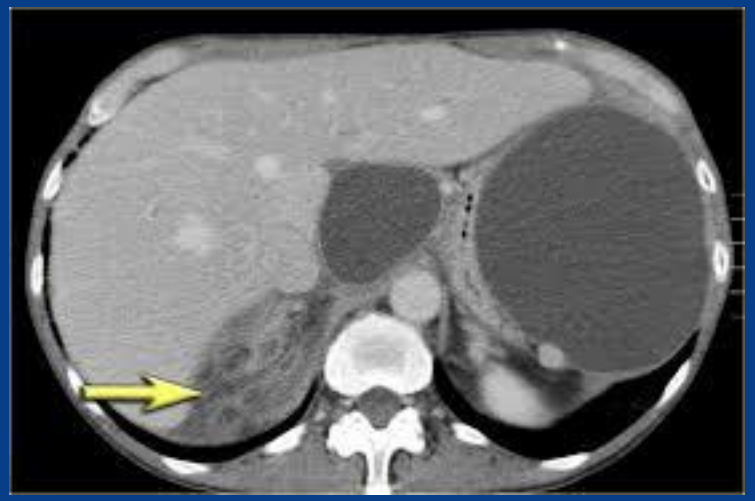
Hypotension

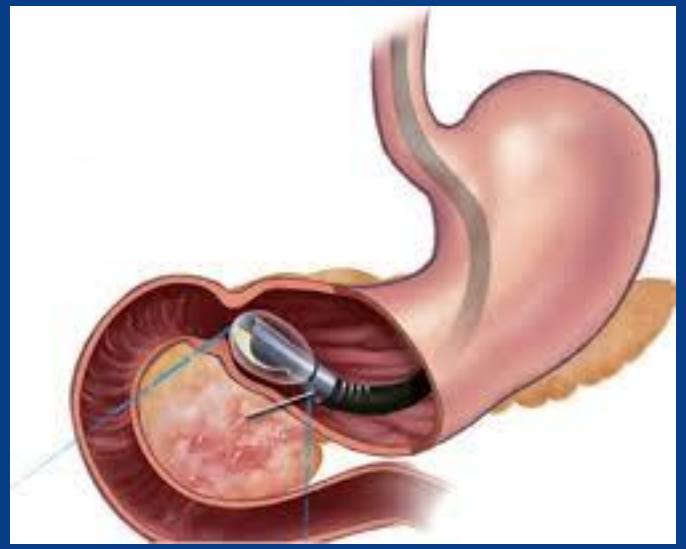
Cascading organ failure

Pancreatogenic Diabetes

- Occurs in **acute** or **chronic** pancreatitis
- Type 3c diabetes (T3cDM)
- Severity of pancreatitis related to risk of developing T3cDM
- There are no guidelines when to screen for this

What is a Pseudocyst?





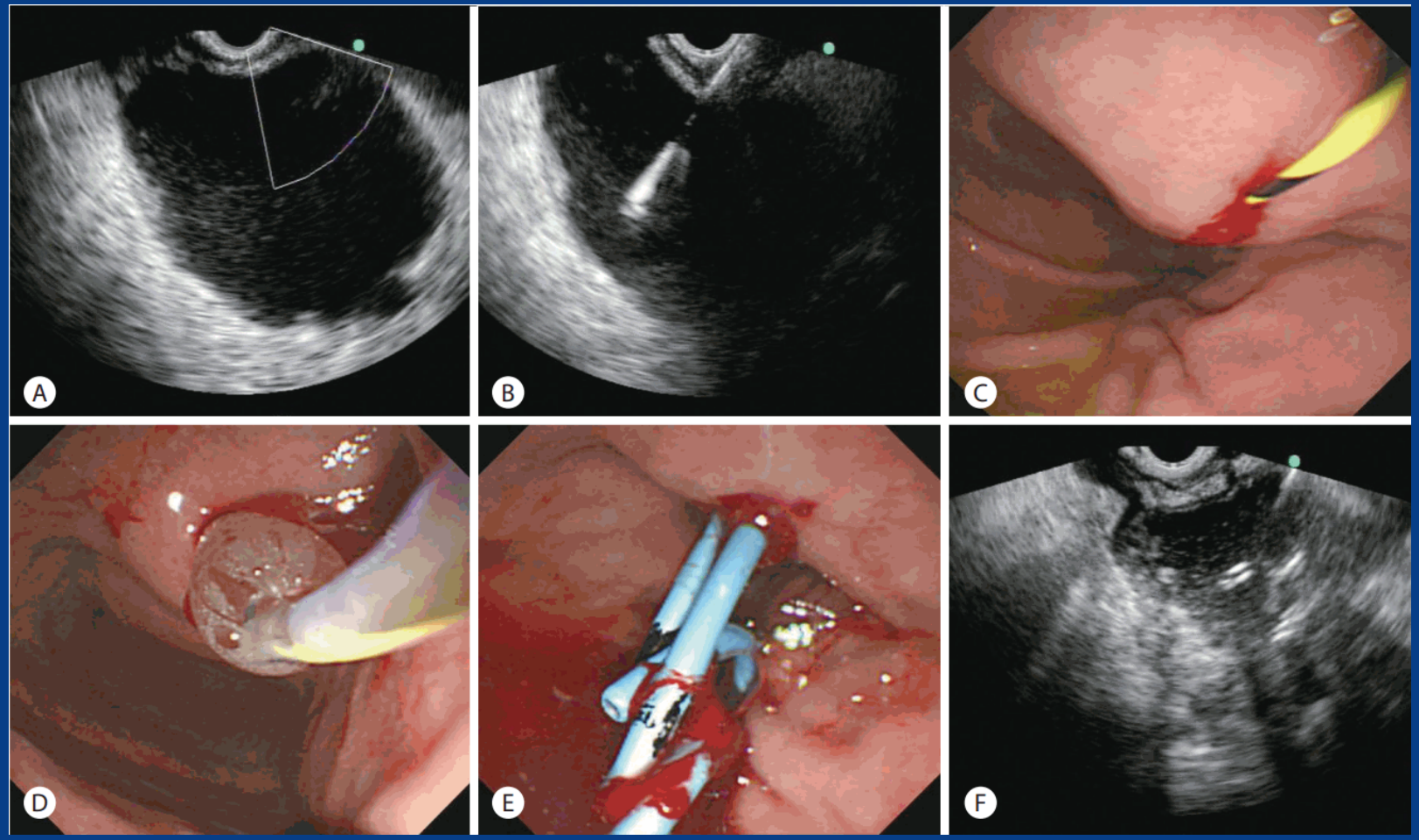
Pseudocyst

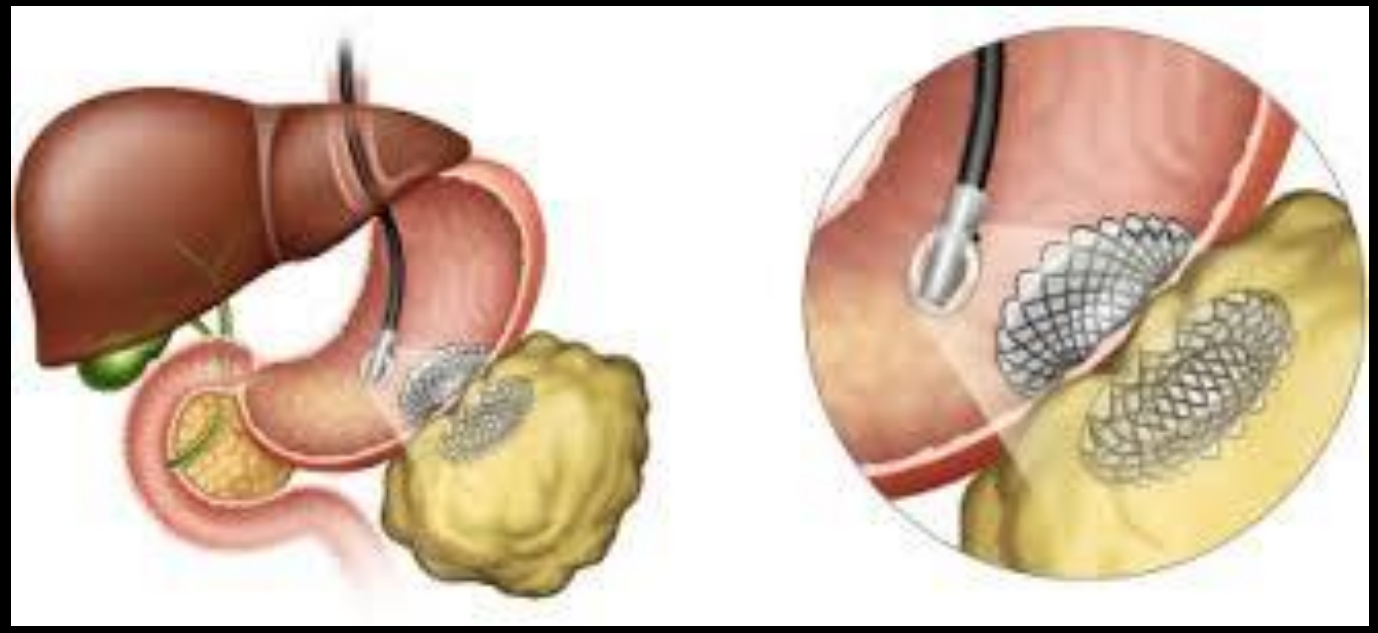
- A fluid cavity that lacks endothelial cells
- Pseudocyst are **75%** of all pancreatic masses

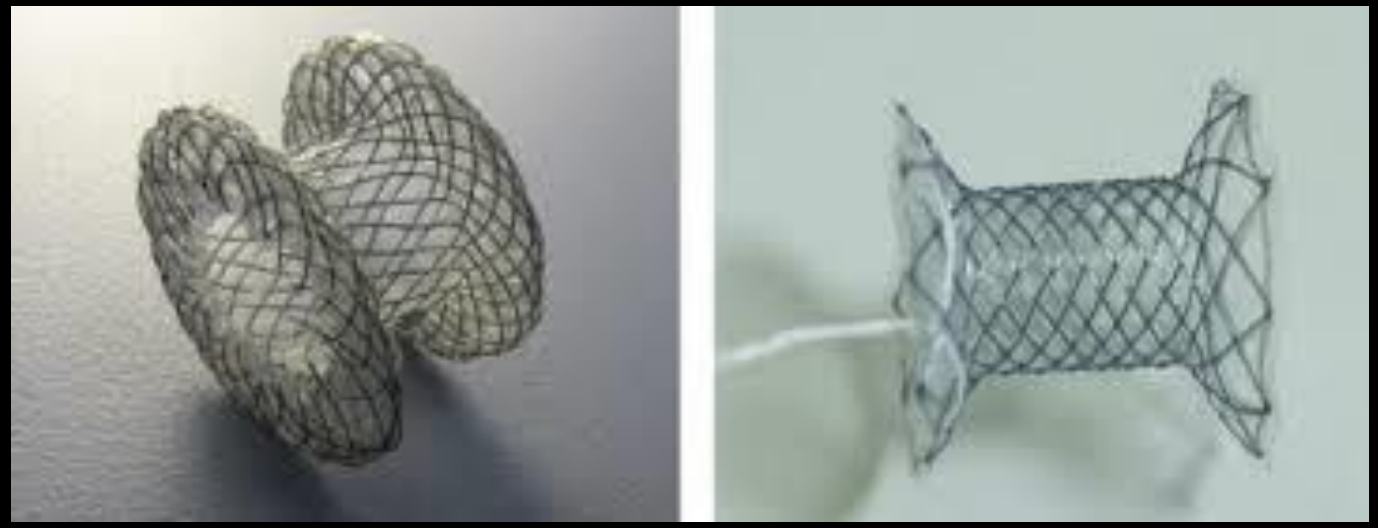
Approach to Pseudocysts With **MINIMAL** Symptoms

- Follow up imaging every 3 – 6 months
- Watch for pain, fever, change in nutrition
- Most resolve over time

Pancreatic Stent for SYMPTOMATIC Pseudocyst/Necrosis

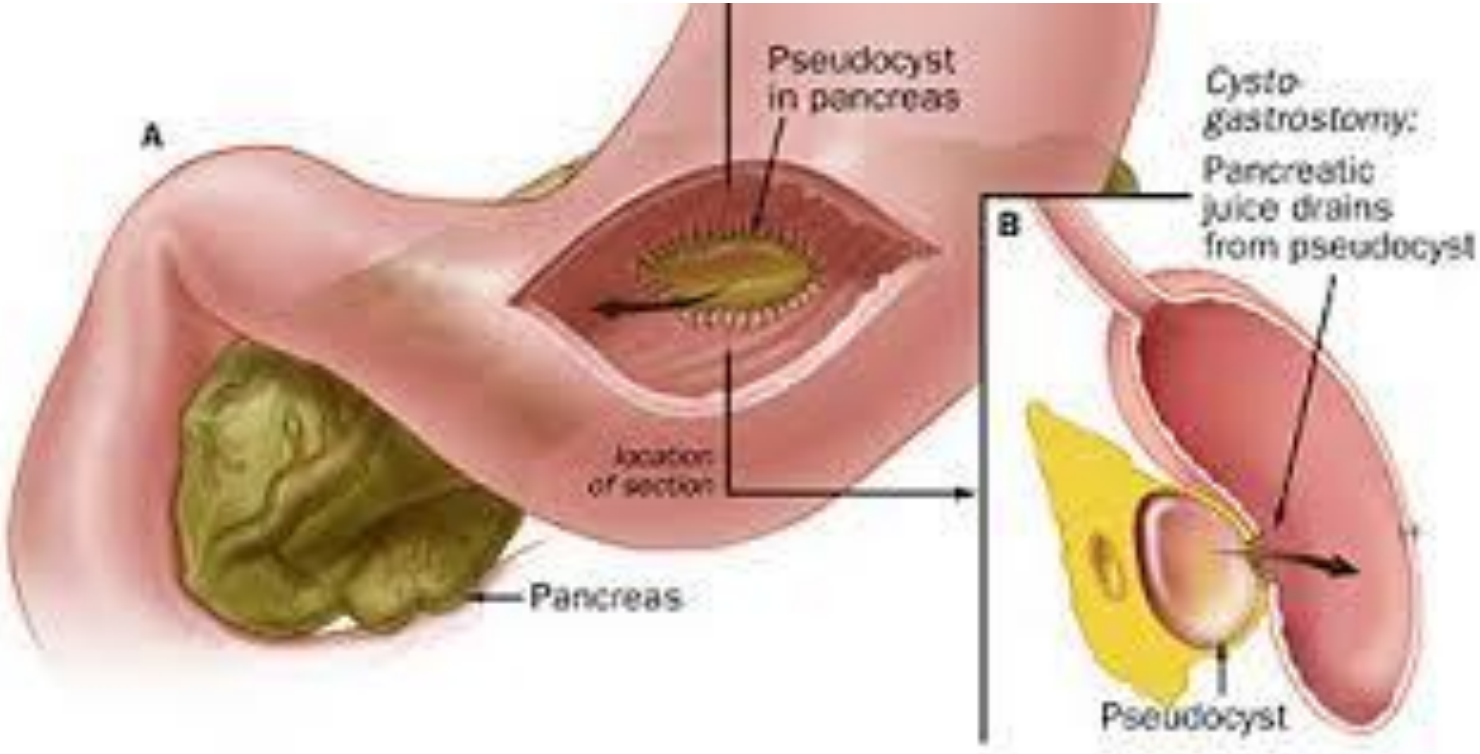






Endoscopic Drainage for SYMPTOMATIC Pseudocyst or Necrosis

Surgery for SYMPTOMATIC Pancreatic Pseudocysts/Necrosis



What is the difference between a pseudocyst and a true pancreatic cyst?

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Pancreatic Cysts Not All Are Benign

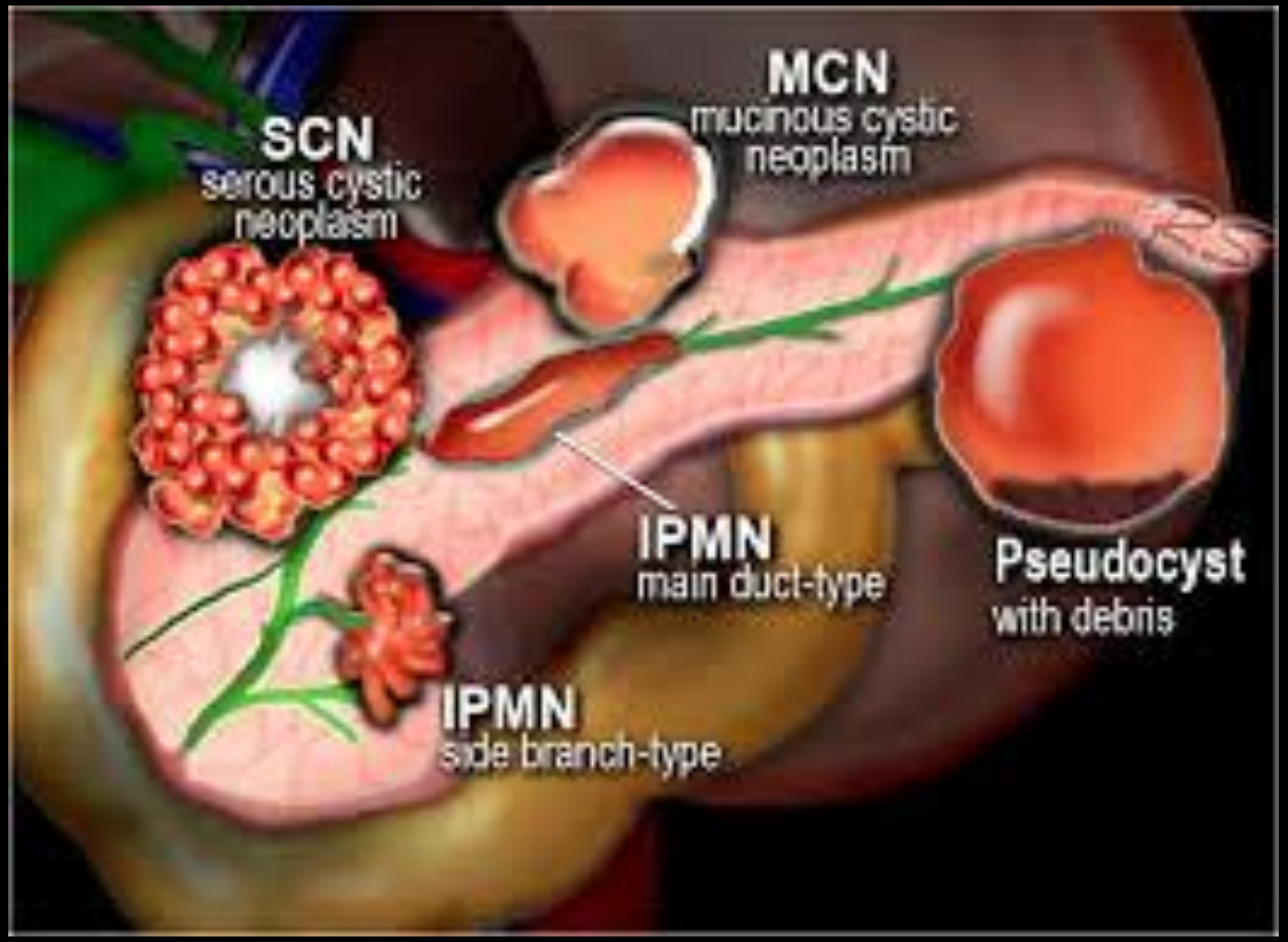
- Increasingly found as epi phenomena as a result of CT, MRI
- Up to 13.5% of pts getting imaging for other reasons are found to have pancreatic cystic lesions

Zanini N et al
More than ten millions Europeans have an asymptomatic pancreatic cyst. A San Marino nationwide population-based study on pancreatic cyst prevalence
HPB 2016:18;e836

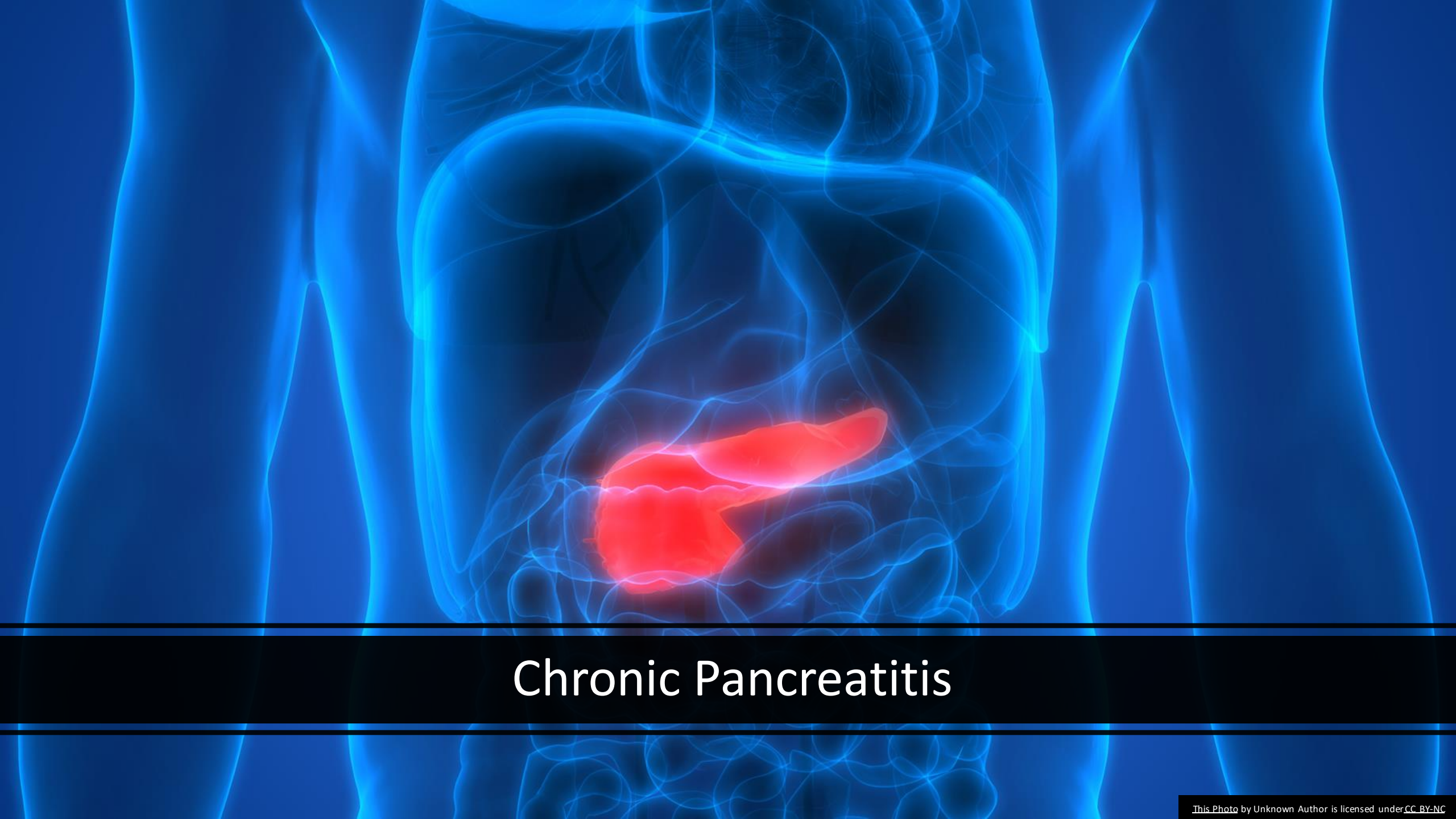
Pancreatic Cysts: When Should We Be Concerned?

- Cysts over 3 cm
- Risk stratification based on imaging
- Pancreatic duct over 5 – 9 mm

Pancreatic Cysts



Intraductal Papillary Mucinous Neoplasm



Chronic Pancreatitis

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Chronic Pancreatitis has Two Components

Abdominal pain

Pancreatic insufficiency

Pancreatic Insufficiency

A condition characterized by deficiency of exocrine pancreatic enzymes that

Results in inability to digest food properly

Cigarette Smoking is an Independent Risk Factor For Acute and Chronic Pancreatitis

Yadav D et al
North American Pancreatic Study Group
Alcohol consumption, cigarette smoking and the risk of recurrent acute and chronic pancreatitis
Archives of Int Med 2009:169;1035

Which of the following can lead to chronic pancreatitis?

1. Hyperlipidemia
2. Hypercalcemia
3. Idiopathic
4. Heredity

Besides alcohol, what else can cause chronic pancreatitis?

- Smoking
- Autoimmune
- Hereditary
- Idiopathic
- Obstruction
- Cystic fibrosis
- Hyperlipidemia
- Hypercalcemia

What is the BEST test to make a diagnosis of chronic pancreatitis?

1. CT scan
2. MRCP
3. Endoscopic ultrasound
4. Fecal elastase
5. There is no BEST test

There is no Gold Standard

- The most useful diagnostic test is careful H & P

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Gardner TB et al
ACG Clinical Guideline: Chronic Pancreatitis
Am J Gastro 2020:115;322

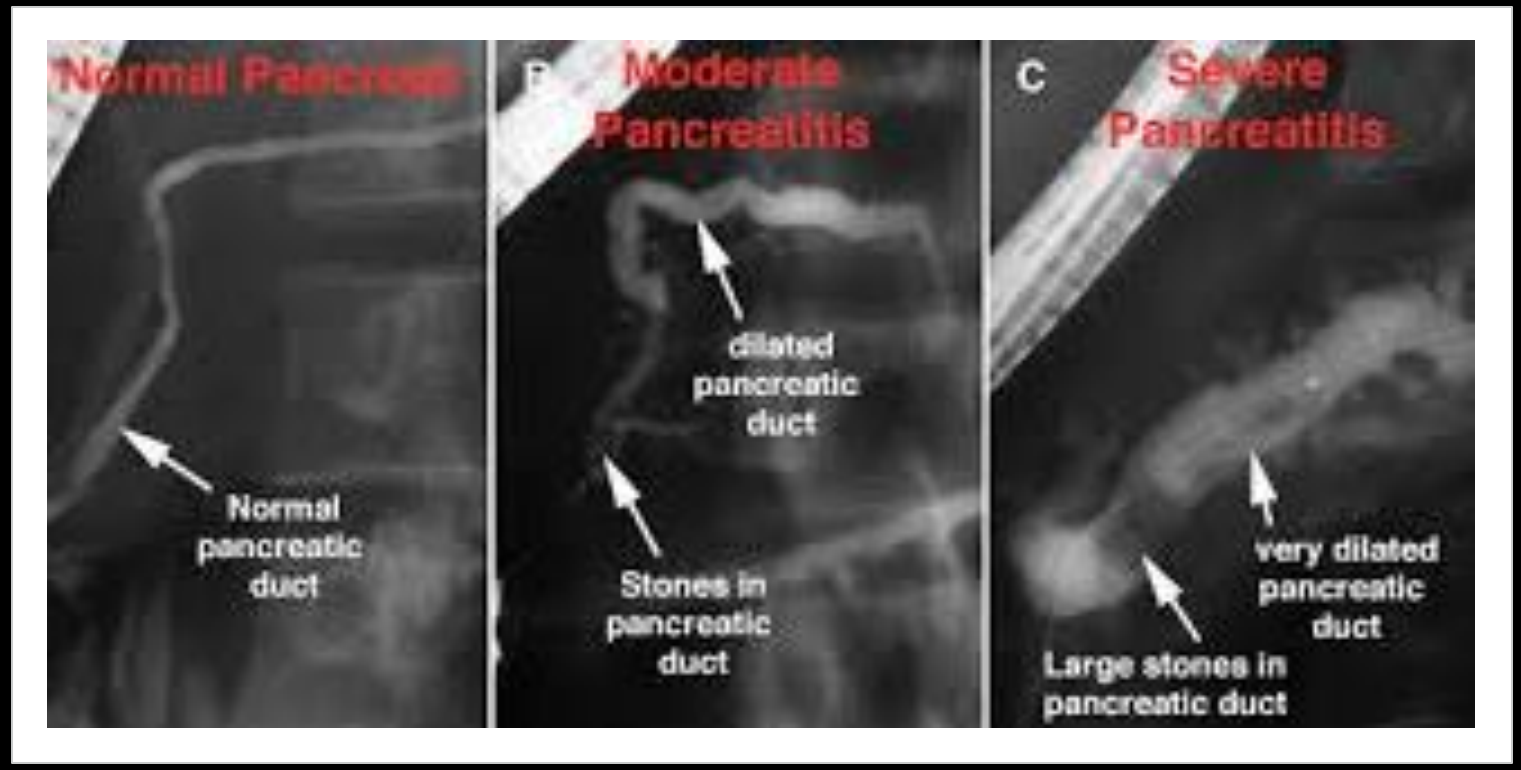
Fecal Elastase

Is a protease

Less than 200 mcg/gm stool shows pancreatic insufficiency

90% sensitivity

Low sensitivity for early/mild chronic pancreatitis



Should ERCP be used for diagnostic purposes?

Pain in Chronic Pancreatitis is Multi Focal

- Cerebral cortex
- Spinal/Peripheral
- Intrapancreatic

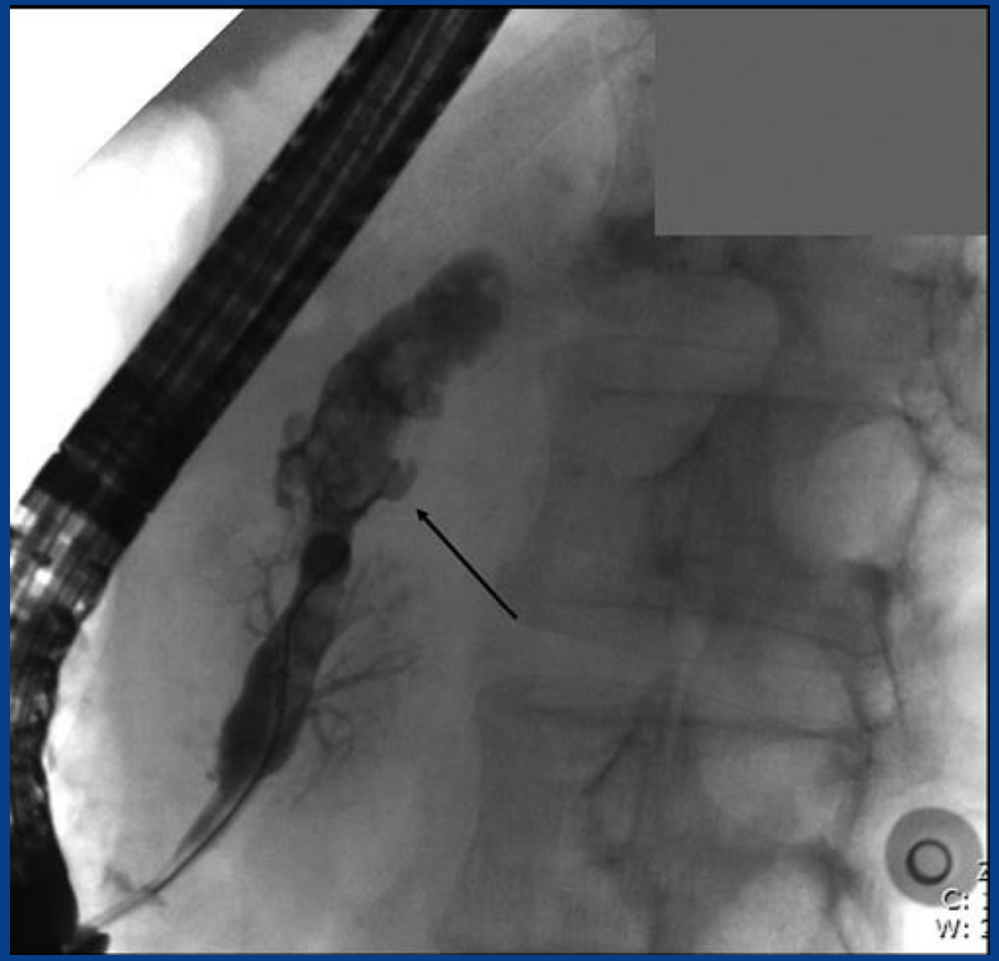
How to Treat Pain in Chronic Pancreatitis

- Endoscopic decompression of pancreas usually undertaken prior to surgery:

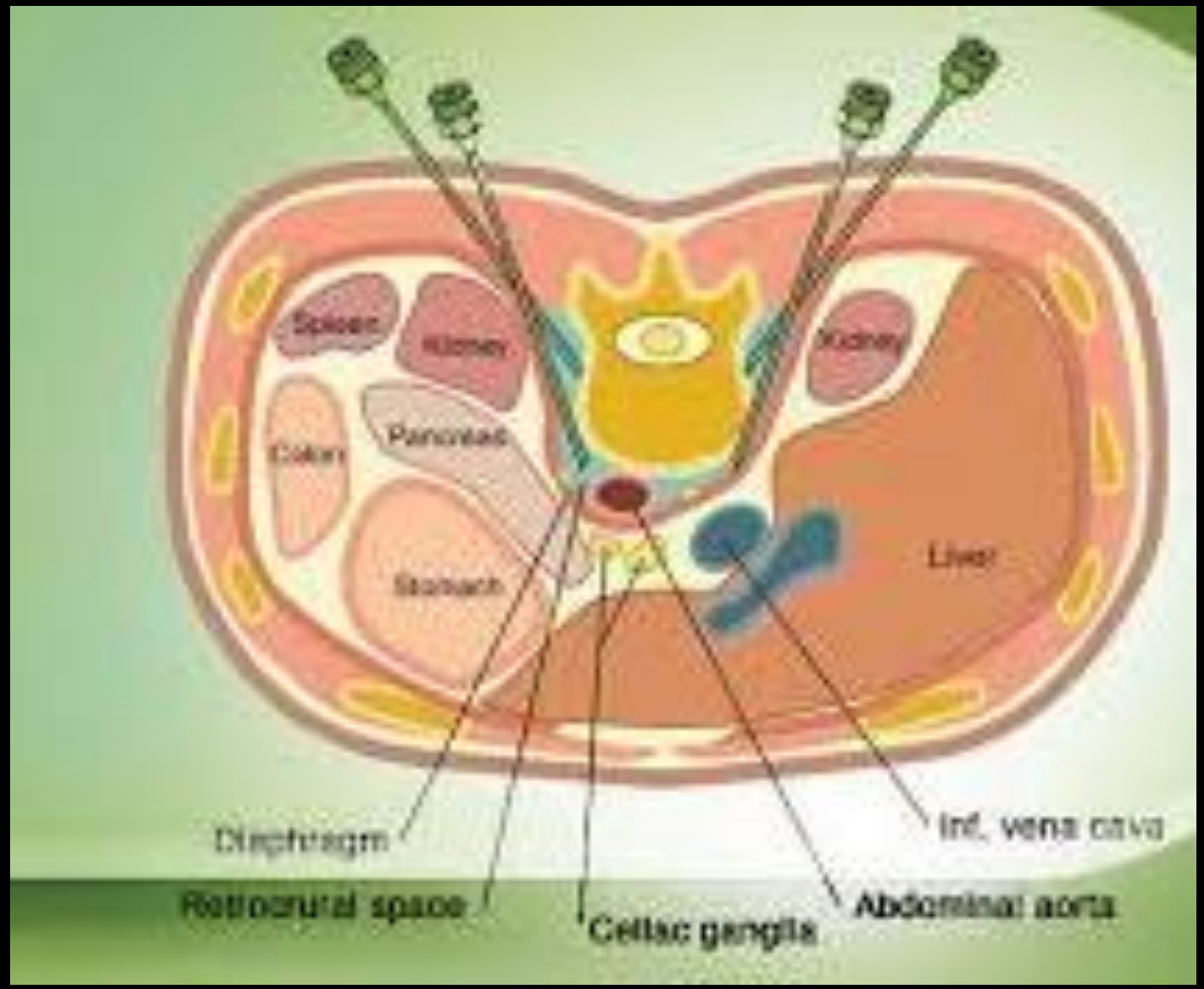
  Including lithotripsy
- Surgery
- Celiac Plexus block

Gardner TB et al
ACG Clinical Guideline: Chronic Pancreatitis
Am J Gastroenterol 2020:115;322

Endoscopic Decompression of Pancreas



Surgical Treatment



Celiac Plexus Block

Chronic Pancreatitis and the PCP

- Risk for osteoporosis &
- Vitamin deficiencies

Which of the following are risk factors for the development of pancreatic cancer?

1. Smoking
2. Family history
3. Chronic pancreatitis
4. All the above

Pancreatic Cancer Presentation

- Abdominal pain
- Epigastric mass
- Jaundice
- A clue may be sudden weight loss, new or worsening diabetes

- 70% in head of pancreas & biliary obstruction

Survival from Pancreatic Cancer

- Only 15% or less are surgical candidates
- 5 year survival 10%

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National Cancer Institute: Surveillance, Epidemiology, and End Results Program https://seer.cancer.gov/statfacts/html/pancreas.html

Tanya

- Is a 49 y o with a 5 cm asymptomatic pseudocyst that has been present for 6 months
- This occurred after a gallstone pancreatitis
- PE: Unremarkable
- ABD soft, LUQ fullness
- WBC 16,500 with shift to L
- Lipase 140 U/L
- Chem Panel normal

What is the next step

1. Percutaneous drainage ASAP
2. Continue to observe
3. Endoscopic drainage
4. Surgery

Bill

- Age 49 has two first degree relatives who died of pancreatic cancer
- He feels well, but wants you to order a CT just to be sure
- How do you respond?

Bill

- NOT recommended as per US Preventive Services Task Force

- Send to a research center doing pancreatic cancer studies

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Conclusions

- Lipase has fewer false positives when diagnosing acute pancreatitis
- Smoking is a risk factor in the development of acute and chronic pancreatitis
- Chronic pancreatitis has two components; abdominal pain and pancreatic insufficiency
- There is no one single BEST test to diagnose chronic pancreatitis

Thank You

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