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Gastroenterology & Hepatology
Advanced Practice Providers

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Acute Pancreatitis

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Disclosures

Joanna Healey, AGACNP-BC

No financial relationships to disclose.

Objectives

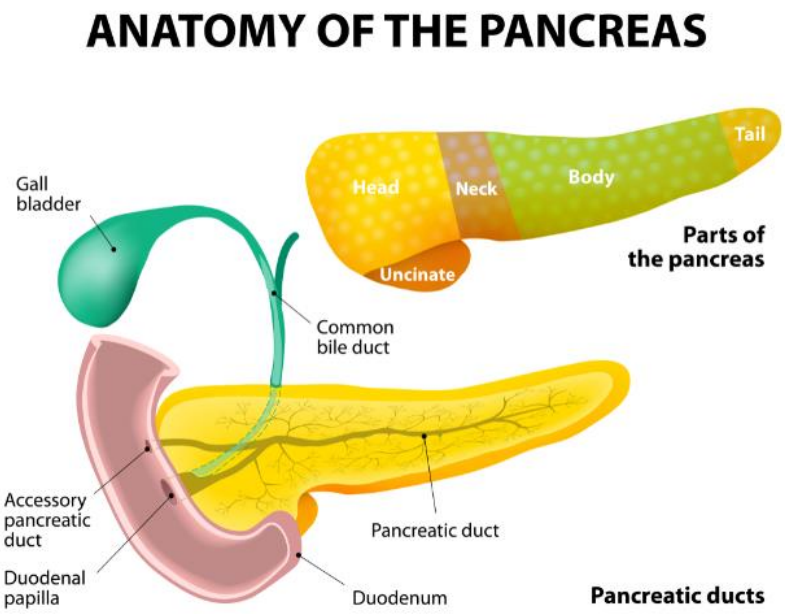
- Discuss incidence and mortality of acute pancreatitis
- Review pancreatic anatomy, variances of normal and function
- Examine presentation, diagnosis and differential diagnosis
- Discuss etiologies and treatment for acute pancreatitis

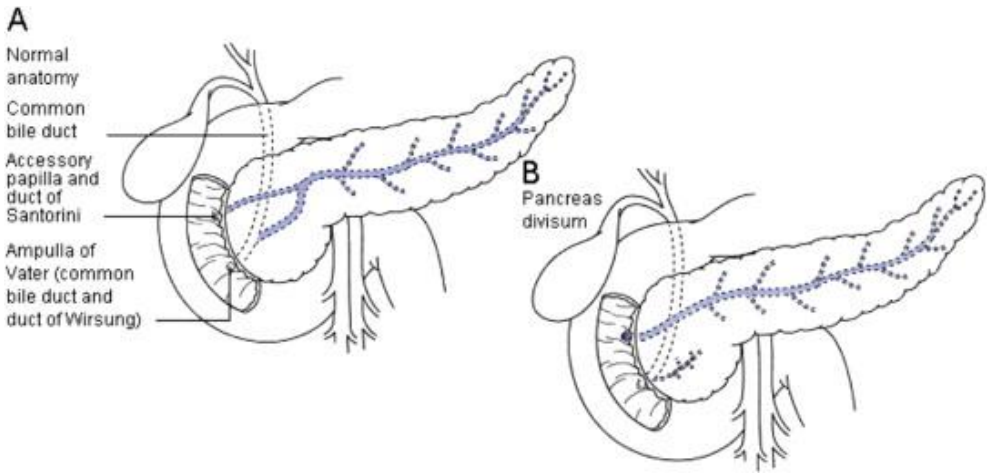
Acute Pancreatitis

- Incidence
  - Reported annual incidence of acute pancreatitis in the United States ranges from 4.9 to 35 per 100,000 population
  - Increasing incidence worldwide due to obesity and gallstone
- Mortality
  - Approximately 5% for acute pancreatitis
  - Usually due to SIRS and organ failure within the first two-week period
  - After two weeks it is usually due to sepsis and its complications
  - Necrotizing pancreatitis 17%

Vege. 2021.

Pancreatic Anatomy

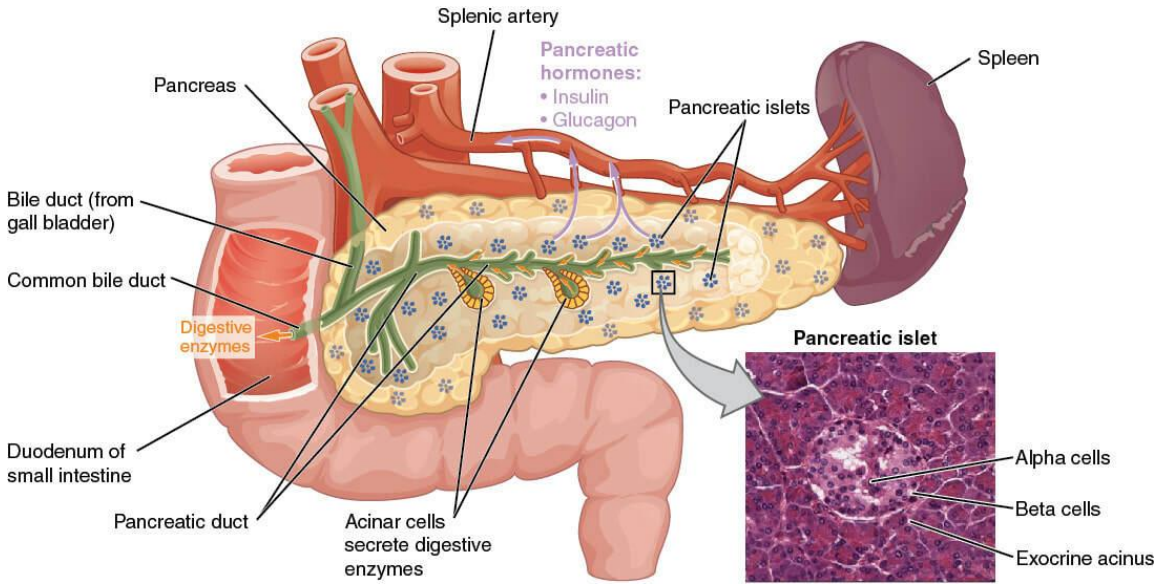




Preisler. 2021; Lin & Mulholland. 2004.

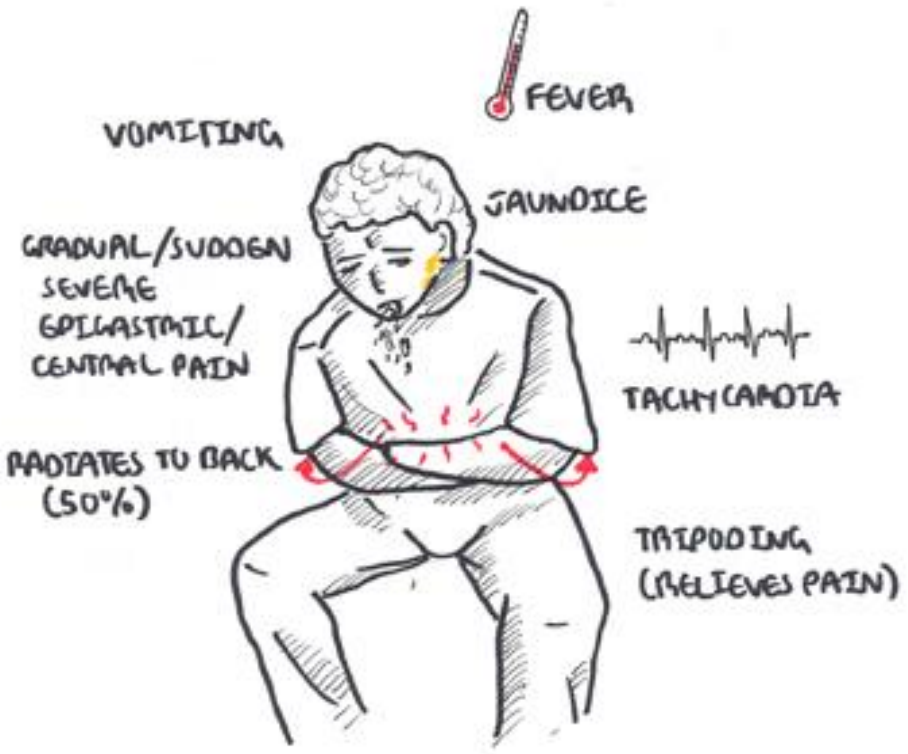
Pancreatic Function

- Exocrine
  - Pancreatic acinar cells – produce digestive enzymes
- Endocrine
  - Insulin and glucagon



Olive. 2019; Vege. 2021.

Presentation



- Pain
- Nausea/vomiting
- Fever
- Jaundice
- Tachycardia

Hasudungan. 2016.

Diagnosis

- Laboratory findings
  - **Serum amylase** – Rises within 6 to 12 hours of the onset symptoms; half-life of approximately 10 hr.
  - **Serum lipase---** Sensitivity for acute pancreatitis ranging from 82 to 100 percent Serum lipase rises within 4 to 8 hours of the onset of symptoms, peaks at 24 hours
  - **Liver Enzymes**→ Elevations in trans
  - **CBC**→ Leukocytosis
  - **BMP**→ Electrolyte/Renal abnormalities
- Imaging
  - Xray
  - Ultrasound
  - CT
  - MRI

Vege. 2019.

Differentials

- Peptic ulcer disease
- Cholecystitis, Choledocholithiasis or Cholangitis
- Intestinal obstruction
- Mesenteric ischemia
- Hepatitis

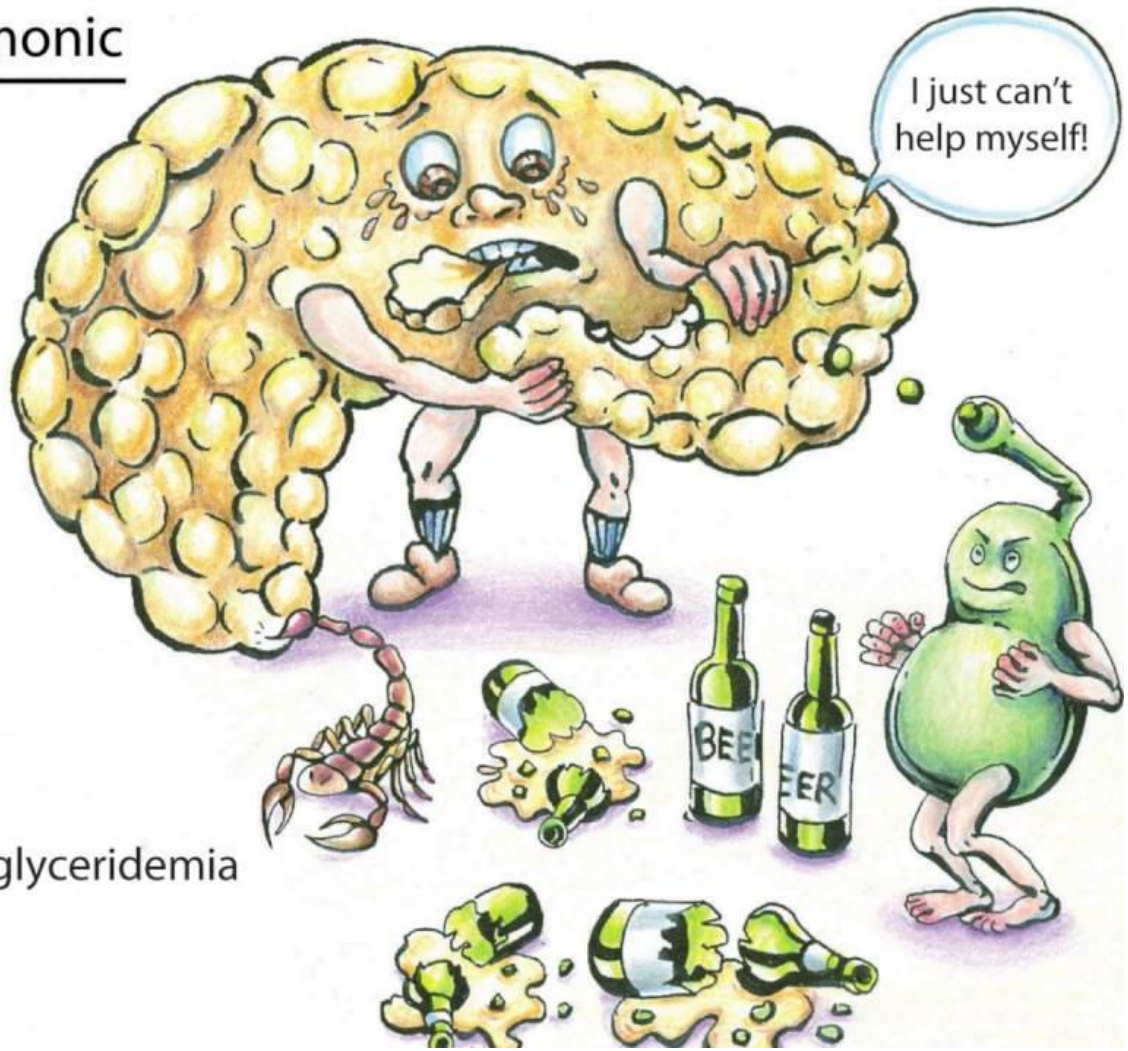
Vege. 2019.

Etiology: I GET SMASHED

I GET SMASHED Mnemonic

Pancreatitis

Idiopathic
Gall Stones
Ethanol (Alcohol)
Trauma
Steroids
Mumps / **M**alignancy
Autoimmune
Scorpion Stings
Hypercalcemia / **H**ypertriglyceridemia
ERCP
Drugs



Kloss & Bruce. 2016.

Etiologies Continued

- Idiopathic
- Trauma
- Steroids
- Mumps/Malignancy
- Autoimmune
- Scorpion sting
- Hypertriglyceridemia

Treatment

- Fluid resuscitation 5 to 10 mL/kg per hour of isotonic crystalloid
- Severe volume depletion that manifests as hypotension and tachycardia, rapid repletion with 20 mL/kg of intravenous fluid given over 30 minutes followed by 3 mL/kg/hour for 8 to 12 hours
- Multimodal pain control
- Nutrition
- Antibiotics
- Treat underlying cause

Vege. *Management of acute pancreatitis*. 2021.

Complications

Revised definitions of morphological features of acute pancreatitis

1. Interstitial edematous pancreatitis

Acute inflammation of the pancreatic parenchyma and peripancreatic tissues, but without recognizable tissue necrosis
Contrast-enhanced computed tomography criteria:
- Pancreatic parenchyma enhancement by intravenous contrast agent
- No findings of peripancreatic necrosis

2. Necrotizing pancreatitis

Inflammation associated with pancreatic parenchymal necrosis and/or peripancreatic necrosis
Contrast-enhanced computed tomography criteria:
- Lack of pancreatic parenchymal enhancement by intravenous contrast agent, and/or
- Presence of findings of peripancreatic necrosis (see below—acute peripancreatic fluid collection and walled off necrosis)

3. Acute peripancreatic fluid collection (APFC)

Peripancreatic fluid associated with interstitial edematous pancreatitis with no associated peripancreatic necrosis. This term applies only to areas of peripancreatic fluid seen within the first four weeks after onset of interstitial edematous pancreatitis and without the features of a pseudocyst.
Contrast-enhanced computed tomography criteria:
- Occurs in the setting of interstitial edematous pancreatitis
- Homogeneous collection with fluid density
- Confined by normal peripancreatic fascial planes
- No definable wall encapsulating the collection
- Adjacent to pancreas (no intrapancreatic extension)

4. Pancreatic pseudocyst

An encapsulated collection of fluid with a well defined inflammatory wall usually outside the pancreas with minimal or no necrosis. This entity usually occurs more than four weeks after onset of interstitial edematous pancreatitis to mature.
Contrast-enhanced computed tomography criteria:
- Well circumscribed, usually round or oval
- Homogeneous fluid density
- No non-liquid component
- Well defined wall (ie, completely encapsulated)
- Maturation usually requires >4 weeks after onset of acute pancreatitis; occurs after interstitial edematous pancreatitis

5. Acute necrotic collection (ANC)

A collection containing variable amounts of both fluid and necrosis associated with necrotizing pancreatitis; the necrosis can involve the pancreatic parenchyma and/or the peripancreatic tissues
Contrast-enhanced computed tomography criteria:
- Occurs only in the setting of acute necrotizing pancreatitis
- Heterogeneous and non-liquid density of varying degrees in different locations (some appear homogeneous early in their course)
- No definable wall encapsulating the collection
- Location—intrapancreatic and/or extrapancreatic

6. Walled-off necrosis (WON)

A mature, encapsulated collection of pancreatic and/or peripancreatic necrosis that has developed a well defined inflammatory wall. WON usually occurs >4 weeks after onset of necrotizing pancreatitis.
Contrast-enhanced computed tomography criteria:
- Heterogeneous with liquid and non-liquid density with varying degrees of loculations (some may appear homogeneous)
- Well defined wall, that is, completely encapsulated
- Location—intrapancreatic and/or extrapancreatic
- Maturation usually requires four weeks after onset of acute necrotizing pancreatitis

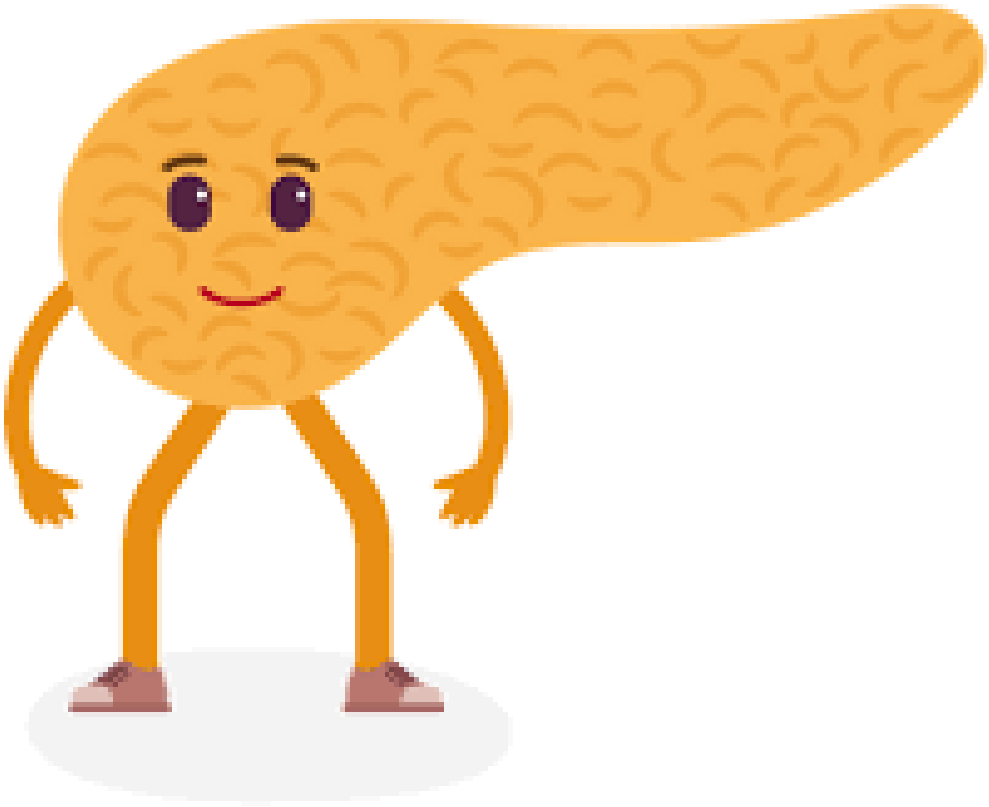
Complications Continued

- Splanchnic venous thrombosis
- Pseudoaneurysm
- Abdominal compartment syndrome
- Systemic complications

Follow Up

- Surgical
- PCP
- Therapeutic Endoscopy
- Psychological/rehabilitation

Questions



References

Hasudungan, A. (2016, September). Retrieved from Armando Hasudungan Biology and Medicine Videos: https://armandoh.org/disease/acute-pancreatitis/.

Kloss & Bruce. (2016). Retrieved from YouTube: https://www.youtube.com/watch?v=GfZ4fD9_4Hk.

Lin, T. R., & Mulholland, M. W. (2004). Pancreatic Anomalies. In Encyclopedia of Gastroenterology (pp. 35-37). Elsevier.

Olive, K. P. (2019, September). Olive Lab. Retrieved from https://www.olivelab.org/the-pancreas-overview.html.

Preisler, S. R. (2021, March 17). Pancreas anatomy: How this organ plays a key role in your body. Retrieved from Ezra.com: https://ezra.com/the-pancreas-anatomy-and-functions/.

Vege, S. S. (2021, January 13). Etiology of acute pancreatitis. Retrieved July 2021, from UpToDate: https://www.uptodate.com/contents/etiology-of-acute-pancreatitis?search=acute%20pancreatitis%20incidence&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1.

Vege, S. S. (2021, March 8). Management of acute pancreatitis. Retrieved from UpToDate: https://www.uptodate.com/contents/management-of-acute-pancreatitis?search=treatment%20of%20pancreatitis&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1#H22664712.

Vege, S. S. (23, October 2019). Clinical manifestations and diagnosis of acute pancreatitis. Retrieved July 2021, from UpToDate: https://www.uptodate.com/contents/clinical-manifestations-and-diagnosis-of-acute-pancreatitis?search=diagnosis%20of%20pancreatitis&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1#H13.

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The Pancreas: Cysts and Spots

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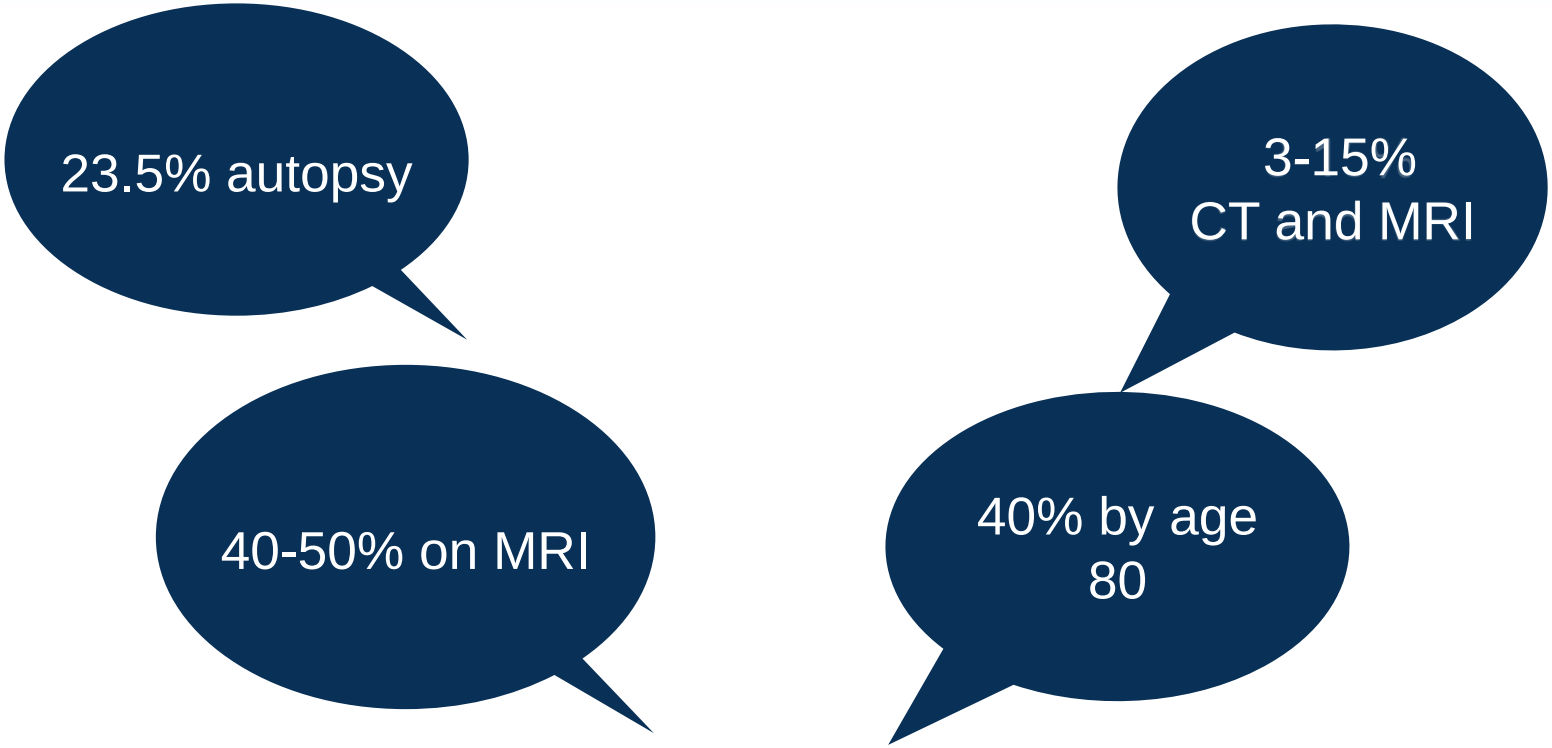
Disclosures

Erin Garris, PA-C

Speaker Bureau: AbbVie, Clinical Area – Exocrine Pancreas Insufficiency

Incidence



- Scans are getting better, cheaper, more prevalent so data is changing rapidly

Pancreas Pseudocysts

- Complication of pancreatitis; occurs 10% of patients with acute pancreatitis
- Seen 4+ weeks after acute, non necrotizing, pancreatitis
- No malignant potential
- Unilocular, 2-20cm in size
- On FNA: high amylase, low CEA, no mucin, thin fluid
- Plan: Monitor, often self resolve, cystgastrostomy if needed

Intraductal Papillary Mucinous Neoplasm (IPMN)

- Most commonly diagnosed and resected cystic lesion of pancreas
- Average age 65 yo; M=F
- Benign but does have malignant potential
- Can be side branch or main duct IPMN, higher malignant transformation with MD
- High risk features include size, nodularity, main pancreas duct involvement

- On FNA: CEA high (>192 ng/mL), variable to high amylase, mucin, thick fluid
- Plan: <2 cm monitor with imaging, 2–3 cm evaluate with FNA, >3 cm or with high risk features such as mural nodularity or PD >10 mm send for consideration of resection
- Often monitor at least 5 years, MRI/MRCP if possible
- Does need ongoing monitoring after resection as can recur

Mucinous Cystic Neoplasms (MCNs)

- 95% female; mean age 40 yo, known as “mother cyst”
- 97% found in the body/tail
- Very low risk malignant at presentation; 4-13% will progress to malignancy over time
- On FNA: high CEA (>192 ng/mL), variable to low amylase, +mucin, thick fluid; similar to IPMN but not of the duct
- Plan: Typically resect and do not recur, no need for monitoring

Serous Cystic Neoplasms (SCN)

- Accounts for 1% of incidentally found cysts
- Typically older females >60 yo
  “grandmother cyst”
- Benign with rare case reports of
  malignant transformation
- Average size 4 cm, often microcystic
- On FNA: CEA low, amylase low, no mucin,
  thin fluid
- Plan: monitor

Solid Pseudo Papillary Neoplasms (SPNs)

- Rare, large, mixed cyst/solid
- 30 yo female, pancreas body/tail
- Often LARGE so size can cause mass effect and symptoms related to that
- Benign but 10-20$ risk of malignant transformation
- On FNA: low CEA, low amylase, thin hemorrhagic fluid
- Plan: Resect due to age at diagnosis, large size, and malignant potential

Case

- Generally healthy 66 yo female presented to the ED with 3 days of progressive epigastric abdominal pain, +N/V, no fever
- In the ED lipase was elevated to 647 (ULN 51). LFTs normal. WBC normal. Triglycerides and Calcium normal
- Patient is s/p cholecystectomy and CT abdomen/pelvis reveals peripancreatic fat stranding and a 5.3 cm hypoattentuating lesion of the pancreas tail

What Next?

- Minimal alcohol (1-2 glasses wine/week), no tobacco history
- No family history of pancreas disease/malignancy or autoimmune disease
- No prior pancreatitis/similar pain
- Just recently diagnosed with mild HTN and started on HCTZ

- Likely drug induced pancreatitis – recommend told HCTZ
- Wait 4-6 weeks for pancreatitis to heal then EUS
- EUS reveals cystic lesion with area of subtle nodularity and apparent connection to pancreas duct. FNA confirms mucin and CEA 563 ng/mL. No malignancy but is evidence of high grade dysplasia
- Send to surgery distal pancreatectomy +/- splenectomy but will require ongoing surveillance imaging with MRI/MRCP for side branch IPMN

QUESTIONS????