



Round : General surgery

Group no : B3

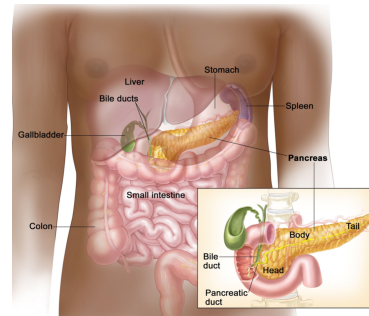
Done By : Fatima abu assal

Pancreatitis:

🌸 Pancreas is supplied by the pancreatic branches of the splenic artery

Endocrine	Exocrine (Mainly)
Alpha cells – Glucagon Beta cells – insulin Gama cells – polypeptides Delta cells – somatostatin	Alpha amylase – starch digestion Lipase – fat digestion Proteases – protein digestion

By Acinar Cells



🌸 The activation of pancreatic enzymes needs: Alkaline environment + the presence of Ca^{+2}

🌸 All pancreatic enzymes produce in inactive form except lipase, ribonuclease, and deoxyribonuclease

Chronic pancreatitis:

✨ Chronic inflammatory disease of the pancreas (**irreversible** destruction)

🌸 Almost all patients with cystic fibrosis develop chronic pancreatitis

✨ Pain is the most important symptom

🌸 Most pt described the pain as diffuse dull abdominal pain

✨ If the pain is limited to body and tail then left subcostal and back pain are described while if the head of the pancreas is involved the pain will be in epigastric and right subcostal

🌸 Weight loss, steatorrhea is common

🌸 **Amylase will arise only in early stages**

✨ Pancreatic calcifications may be seen on abdominal x-ray

✨ Diffuse scarring to pancreatic tissue

✨ impairment of endocrine function of the pancreas results in type 3C diabetes pancreatic pancreatogenic diabetes

🌸 Most common cause of pancreatitis worldwide is alcohol abuse

🌸 Most common cause pancreatitis in Jordan is gallbladder stone

✨ chronic pancreatitis due to alcohol is more common in males, whereas that due to hyperlipidemia is more common in females.

🌸 Findings characteristic of chronic pancreatitis:

The presence of stones, cysts, Lobularity// Irregular, Dilation, Hyperechoic margins in main pancreatic duct

Acute pancreatitis:

🌸 **inflammation** of the pancreas due to premature activation of pancreatic enzymes leading to auto digestion (Microorganisms are absent)

✨ Anything that injures the acinar cells and impair the secretion of zymogen granules

✨ Pain is the commonest and earliest symptom

✨ F>M

🌸 GB-stone (The MC cause)

🌸 Ethanol (2nd MC cause)

🌸 Trauma (most common cause in childhood)

✨ Severe constant pain felt first in epigastrium and localized to one of the upper quadrants , half of patient report that the pain radiate to back

✨ vitals usually show signs of tachycardia hypotension tachypnea

✨ May be associated with Cullen's sign and grey turner sign

✨ Guarding an upper abdomen is usually present while rigidity rarely occur

🌸 Pancreatic pseudo cyst associated with acute pancreatitis >chronic (collection of amylase rich fluid enclosed in the wall of fibrous or granulation tissue) managed by Internal drainage into stomach or to jejunal loop

🌸 Serum amylase level 3 to 4 times above normal(normal serum amylase level does not exclude acute pancreatitis)(normal level=100-300)// 🌸 The most common condition to cause hyperamylasemia is ruptured aortic aneurysm.

🌸 Lipase is more sensitive and a specific then amylase(remain elevated longer than amylase up to week)

NOTES

S. Amylase tends to be higher in gallstone pancreatitis

S. Lipase tend to be higher in alcoholic pancreatitis

🌸 HYPERcalcemia then Pancreatitis then HYPOcalcemia (as it bounds to fatty acid)

🌸 HYPERlipidemia then Pancreatitis then more HYPERlipidemia

✨ X-ray and ultrasound are not diagnostic but they are useful in differential diagnosis

✨ CT with IV contrast is indicated in: the main investigations in any pancreatic ds.

🌸 ERCP should be sought in patients with severe acute gallstones pancreatitis and signs of biliary obstruction and cholangitis

🌸 In pancreatitis management the Prophylactic antibiotic isn't recommended

✨ administration of Antibiotic in pancreatitis only if there is infected pancreatic necrosis or other (documented infection (UTI, chest infection, cholangitis, acute cholccystitis.etc)

(هون المضاد الحيوي يكون عشان هاي الأمراض مش عشان التهاب البنكرياس)

AB (antibiotics) are justified if →

- Gas in retroperitoneal space
- Needle aspiration confirms infection
- Sepsis
- CRP of >120mg/ml
- peri-pancreatic fluid collection
- Organ dysfunction

✨ Note: Infective Pancreatitis has the highest severity

✨ Some drugs can cause pancreatitis:

(cs, diuretics, H₂-antagonist)

🌸 Hereditary familial pancreatitis: (mutation in cationic trypsinogen (PRSS1))

✨ Colon cut off sign is a finding on abdominal X-Ray

🌸🌸 What is the severity of acute pancreatitis? Use Ranson's criteria : (((most important)))

Give every of the following criteria one point

On admission (Remember LEGAL)	48 hours after admission (ABCD)
Leucocytes: Above 16000/uL	Arterial PO ₂ : <u>Less</u> than 60mmHg
Enzyme <u>AST</u> : Above <u>250</u> IU/L	Blood urea nitrogen (BUN) : <u>Above</u> <u>5</u> mg/dL
Blood <u>glucose</u> : Above <u>200</u> mg/dL	Base deficit : <u>Above</u> <u>4</u> Eq/L
Age : Above 55 years	Serum <u>Calcium</u> : <u>Less</u> than <u>8</u> mg/L
<u>LDH</u> enzyme: Above <u>350</u> IU/L	Hemato <u>Crit</u> decrease : <u>more</u> than <u>10</u> %
	Fluid sequestration <u>more</u> than <u>6</u> L

Score 2 or less: Mortality is less than 1%

Score 3-4 : Mortality is 15%

Score 5-6 : Mortality is 40%

Score 7 or more : Mortality is 100%

Score 3 or more consider acute severe pancreatitis

MODIFIED GLASGOW CRITERIA

• Glasgow prognostic score: (Note PANCREAS Acronym)

1. PaO₂ < 8kPa (60mmHg)
2. Age > 55 years
3. Neutrophils: WBC > 15 x10⁹/l ~ 14000
4. Calcium < 2mmol/l
5. Renal function: Urea > 16 mmol/l
6. Enzymes: AST/ALT > 200 IU/L or LDH > 600 iu/L
7. Albumin < 32 g/l
8. Sugar: Glucose > 10mmol/L

• Score ≥ 3 indicates severe pancreatitis

2. A 45-year-old female presents with abdominal pain and an elevated amylase and lipase. The rest of her laboratory values are remarkable for a mildly elevated AST of 100 and elevated white blood cell count of 15,000. On hospital day 3, her pain is resolved and she is tolerating a regular diet. Which of the following should be performed prior to discharge?

- a. ERCP
- b. RUQ ultrasound**
- c. Amylase and/or lipase
- d. CT scan of abdomen
- e. Serum ethanol level

2. Answer: b. RUQ ultrasound is the most sensitive means to establish the likely etiology of gallstones as the source of pancreatitis, thus impacting consideration of cholecystectomy prior to discharge. Gallstone disease is one of the most common etiologies of pancreatitis. In medically fit patients, cholecystectomy on index admission is associated with reduced risk of recurrent pancreatitis and readmission rates

1. A 65-year-old female presents to clinic with an incidental finding of a 5-cm cystic pancreatic head mass with calcified central scar. Endoscopic ultrasound (EUS)-guided fine needle aspirate (FNA)-guided aspirate of the fluid reveals a low CEA and amylase level with no evidence of malignancy on cytology. What is the most likely diagnosis?

- a. Pancreatic adenocarcinoma
- b. Intraductal papillary mucinous neoplasm
- c. Mucinous cystic neoplasm
- d. Serous cystadenoma**
- e. Pancreatic pseudocyst

1. Answer: d. Serous cystadenoma (SCA) is most commonly discovered incidentally in women in the fifth to sixth decades of life. Imaging characteristics include a microcystic "honeycomb" appearance with central scar present in 30%. SCA is a benign lesion and asymptomatic patients do not require resection or additional surveillance imaging.

3. A 73-year-old male is referred for evaluation of an incidentally discovered 2-cm cyst in the tail of his pancreas. On examination the patient has no abdominal pain, and his laboratory values are unremarkable. He undergoes an endoscopic ultrasound which shows a cystic lesion that appears to communicate with the pancreatic duct, originating from a side branch. Which of the following is the next step in management?

- a. Distal pancreatectomy
- b. Total pancreatectomy
- c. Observation**
- d. Enucleation
- e. Biopsy

3. Answer: c. Side branch IPMN management per current consensus guidelines recommends resection in patients with lesions >3 cm, mural nodules, cytology concerning for malignancy, or in symptomatic patients. In patients without these concerning features, routine surveillance imaging is recommended.

4. A 35-year-old female is found to have an incidentally discovered 3-cm cystic lesion in the tail of her pancreas on a CT scan. She undergoes an endoscopic ultrasound which reveals a 3.5-cm cyst without communication with the pancreatic duct. Analysis of cyst fluid reveals high levels of mucin. What is the next step in the management of this patient?

- a. Distal pancreatectomy
- b. Repeat CT scan in 1 year
- c. MRCP
- d. Total pancreatectomy
- e. Endoscopic drainage

4. **Answer: a.** Main duct IPMNs have a high incidence of associated malignancy or high-grade dysplasia (70%) and oncologic resection is recommended in medically fit patients. Intraoperative frozen section is useful to confirm the resection margin is free of high-grade dysplasia or malignancy.

5. A 59-year-old male is 2 weeks out from a pancreaticoduodenectomy for pancreatic adenocarcinoma complicated by a pancreatic fistula. He presents to the ED with new onset of bloody output in his drain. He is tachycardic to the 110s, but otherwise looks well. His Hgb is 10. What is the best course of management for this patient?

- a. CT scan
- b. ERCP
- c. Angiogram
- d. Exploratory laparotomy
- e. Remove the drain

5. **Answer: c.** Pseudoaneurysm, most commonly of the GDA stump, is a relatively rare, but potentially fatal complication following pancreatectomy. Patients may present with an initial "herald" bleed, followed by postoperative hemorrhage. Initial diagnosis with angiography allows for simultaneous treatment via embolization or stent placement.

6. A 60-year-old physically fit female with painless jaundice and a 20-lb weight loss presents for evaluation of a 2-cm hypodense mass in the head of the pancreas on CT scan. The patient was referred to you from a gastrointestinal medicine colleague, who performed an endoscopic ultrasound with biopsy and ERCP with stent. The biopsy is suspicious for malignancy. By imaging, the lesion appears to be clearly resectable without evidence of

malignancy. Which of the following is the most appropriate management of this patient?

- a. Repeat endoscopic ultrasound with biopsy
- b. Pancreaticoduodenectomy
- c. Total pancreatectomy
- d. MRI pancreatogram
- e. Neoadjuvant chemoradiation

6. **Answer: b.** Patients with suspicious pancreatic mass consistent with adenocarcinoma should undergo pancreatectomy if resectable at

time of diagnosis. Pathologic confirmation with tissue biopsy may confirm the diagnosis, but is not required in patients with a resectable lesion. While several studies have shown adjuvant chemotherapy to provide a survival benefit, neoadjuvant therapy remains controversial and is reserved for patients with borderline resectable disease.