

# Acute Pancreatitis

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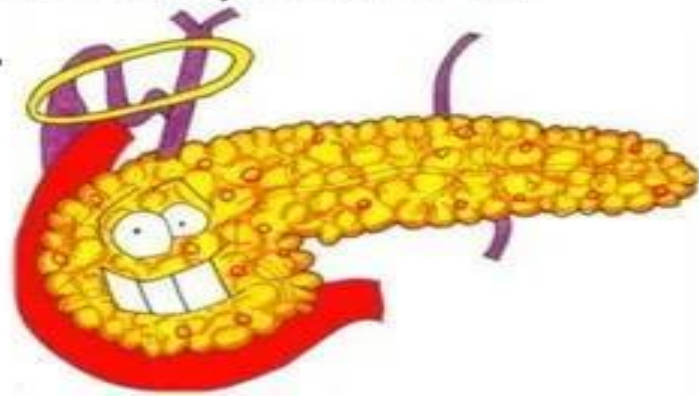
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**Group:** 11

# Pancreatitis

- Inflammation of the pancreatic parenchyma.
- Types:
  1. Acute: Emergency condition.
  2. Chronic: Prolonged & frequently lifelong disorder resulting from the development of fibrosis within the pancreas.



# Acute Pancreatitis

- Definition:

Acute condition of diffuse pancreatic inflammation & **autodigestion**, presents with abdominal pain, and is usually associated with raised pancreatic enzyme levels in the blood & urine.

- Reversible inflammation of the pancreas
- Ranges from mild to severe.



# Epidemiology

- Acute pancreatitis accounts for 3% of all cases of abdominal pain among patients admitted to hospital in the UK.
- Affect 2 – 28 per 100 000 of population.
- It may occur at any age, peak incidence is between 50 and 60 years.
- Women are affected more than men, but men are more likely to suffer recurrent attacks.

# Etiology

- **80%** of the cases are due to gallstones & alcohol.
- The remaining **20 %** of cases are due to:
  1. Congenital: Pancreatic divisum
  2. Metabolic: Hyperlipidemia, Hypercalcemia.
  3. Toxic: Scorpion venom
  4. Infective: Mumps, Coxsackie B, EBV, CMV.



Tityus Trinitatis  
(Found in Central/  
South America and  
the Caribbean)



5. Drugs: Azathioprine, Sulfonamides,  
Steroids, Thiazides, Estrogens.
6. Vascular: Ischemia, Vasculitis  
(SLE,PAN).
7. Autoimmune: Hereditary pancreatitis.
8. Traumatic.
9. Miscellaneous: CF, Hypothermia,  
Periampullary Tumors.
10. Idiopathic.

# Causes of Acute Pancreatitis

Idiopathic

Gallstones

Ethanol

Trauma

Steroids

Mumps Autoimmune

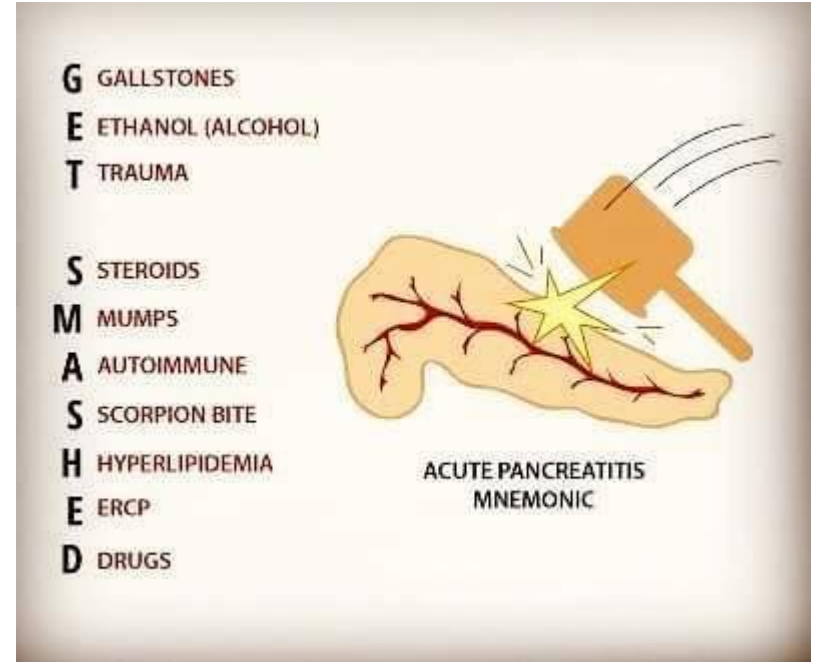
Mnemonics

Scorpion/Snakes

Hyperlipidemia/Hypercalcemia

ERCP

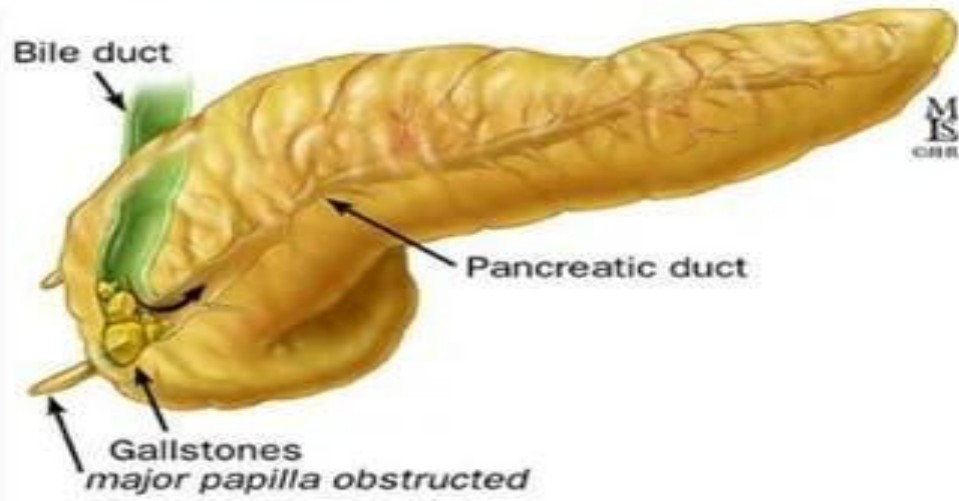
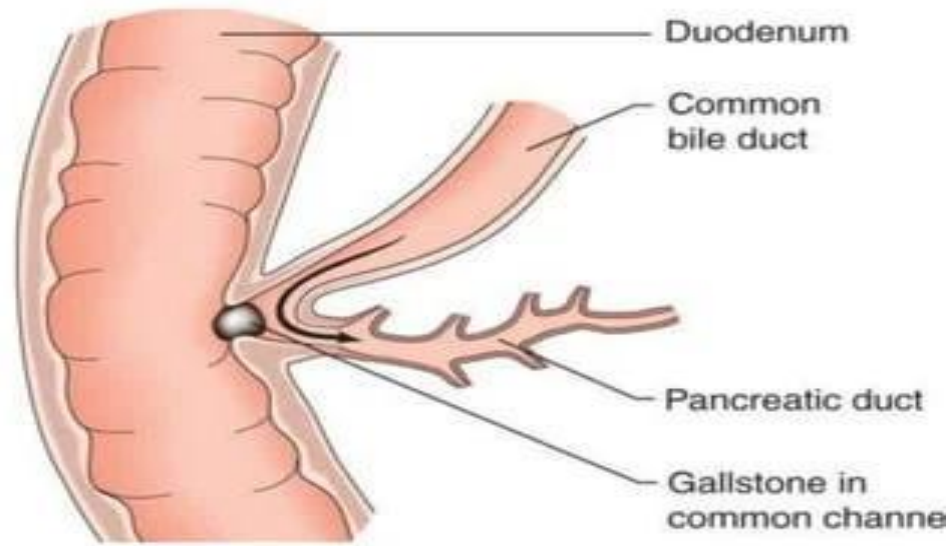
Drugs





- **Biliary Pancreatitis:**

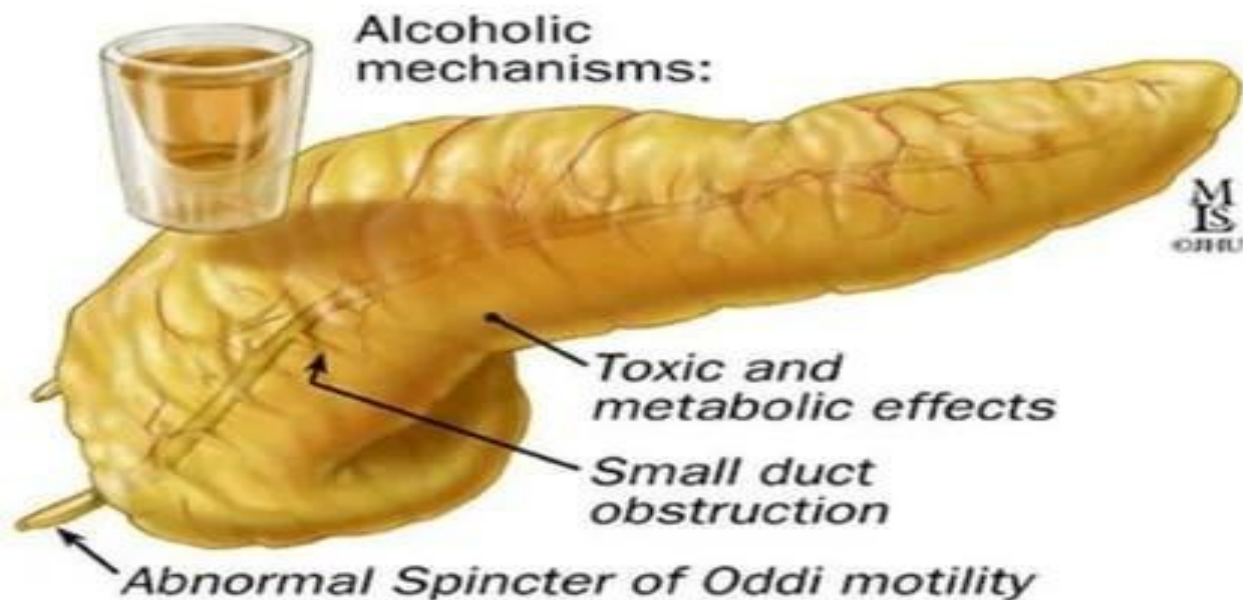
1. Common channel theory
2. Incompetent sphincter of Oddi
3. Obstruction of the pancreatic duct





# Alcoholic Pancreatitis:

- Direct toxic effect on the pancreatic acinar cells
- Stimulation of the pancreatic secretion
- Constriction of the sphincter of Oddi

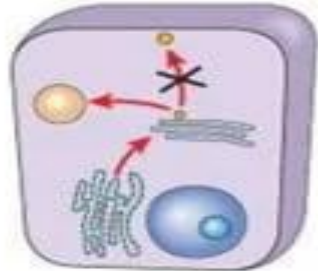
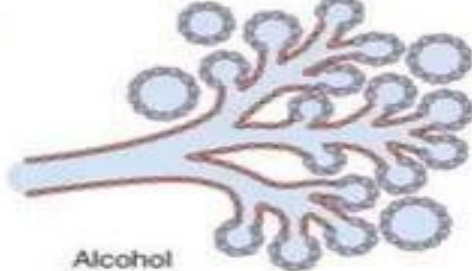
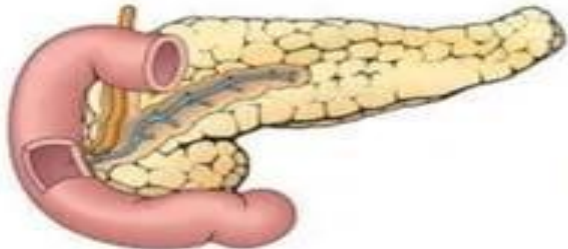


CAUSES:

DUCT OBSTRUCTION

ACINAR CELL INJURY

DEFECTIVE INTRACELLULAR TRANSPORT



MECHANISMS:

Cholelithiasis  
Ampullary obstruction  
Chronic alcoholism  
Ductal concretions

Interstitial edema  
↓  
Impaired blood flow  
↓  
Ischemia

Alcohol  
Drugs  
Trauma  
Ischemia  
Viruses

Release of intracellular  
proenzymes and lysosomal  
hydrolases  
↓  
Activation of enzymes  
(intra- or extracellular)

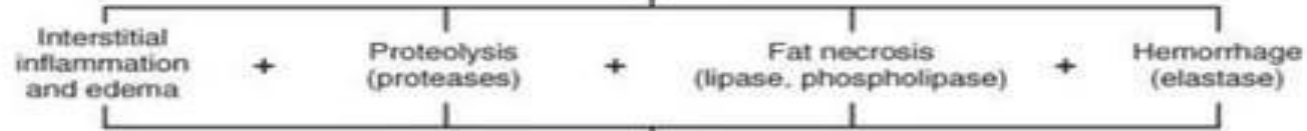
Metabolic injury (experimental)  
Alcohol  
Duct obstruction

Delivery of proenzymes to  
lysosomal compartment  
↓  
Intracellular activation  
of enzymes

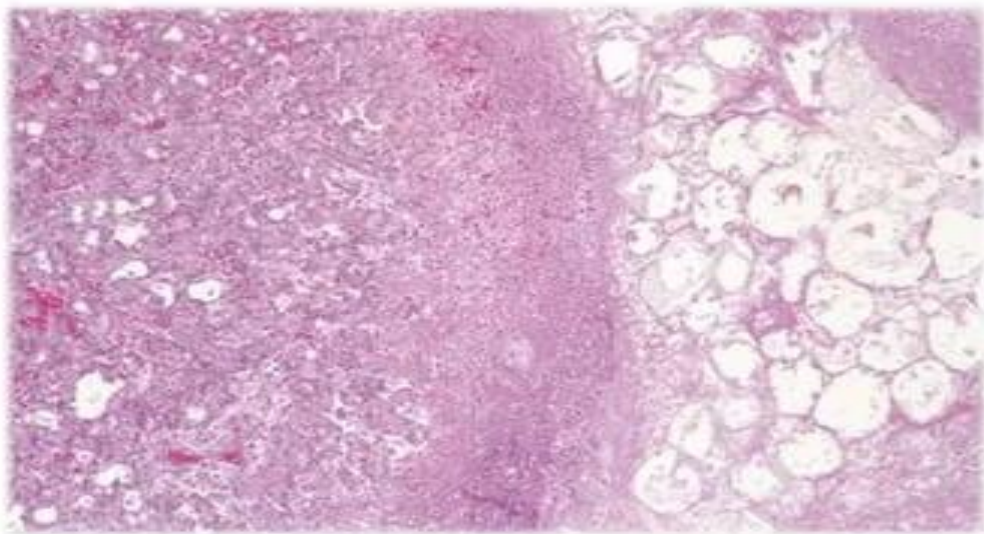
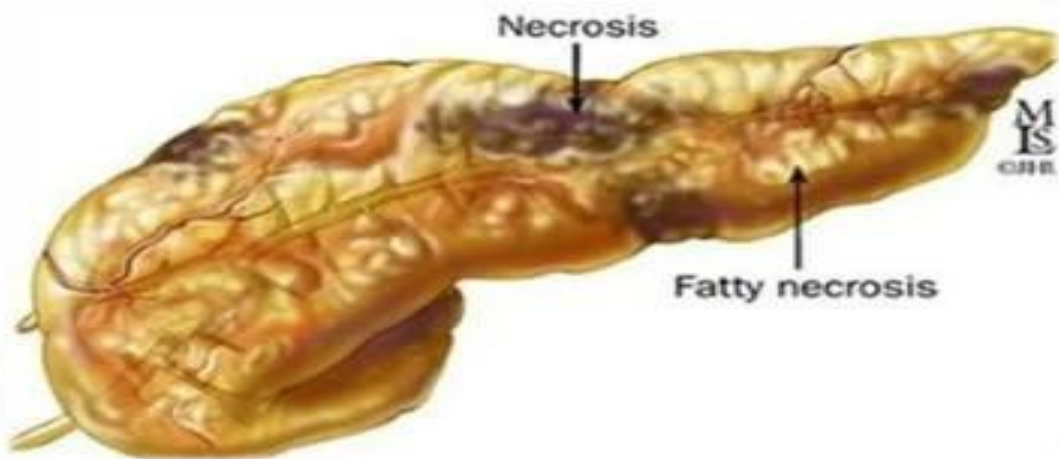
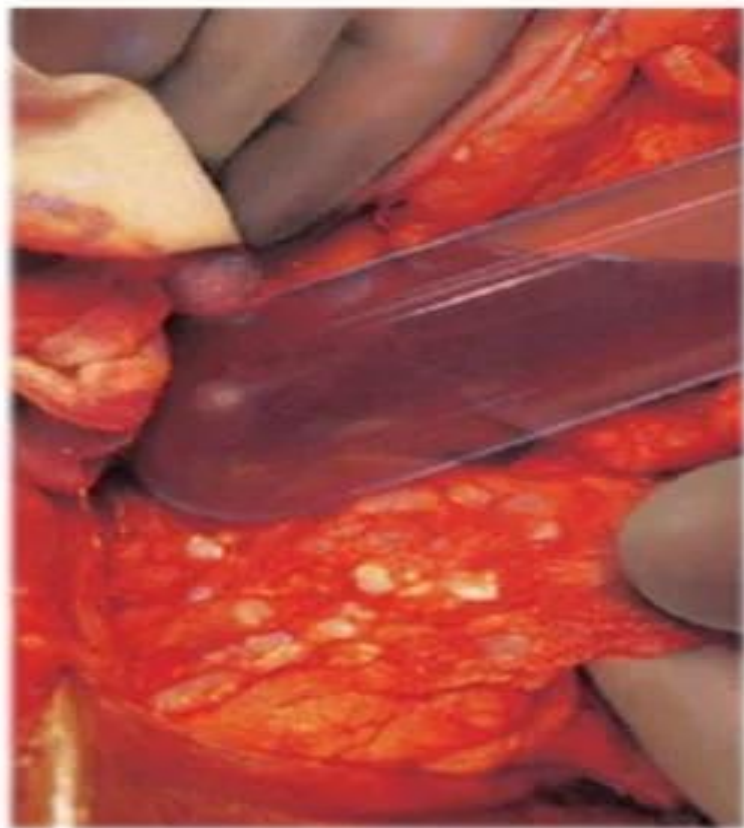
Acinar cell injury

ACTIVATED ENZYMES

LESIONS:



ACUTE PANCREATITIS





# Symptoms

- Upper Abdominal pain, sudden onset, sharp, severe, continuous, radiates to the back, reduced by leaning forward.

Generalized abdominal pain, radiates to the shoulder tips. Patient lies very still.

- Nausea, non-projectile vomiting, retching
- Anorexia
- Fever, weakness



# Signs

- Distressed, moving continuously, or sitting still
  - Pale, diaphoretic. Confusion
  - Low grade fever
  - Tachycardia, Tachypnea
  - Shallow breathing
  - Hypotension
  - Mild icterus
- 
- Abdominal distension (Ileus, Ascites)
  - Grey Turner's sign, Cullen's sign, Fox's sign
  - Rebound tenderness, Rigidity
  - Shifting dullness, reduced bowel sounds



# Differential Diagnosis

- ✓ Perforated viscus (DU)
- ✓ Acute cholecystitis, Biliary colic
- ✓ Acute intestinal obstruction
- ✓ Esophageal rupture
- ✓ Mesenteric vascular obstruction
- ✓ Renal colic
- ✓ Dissecting aortic aneurysm
- ✓ Myocardial infarction
- ✓ Basal pneumonia
- ✓ Diabetic ketoacidosis





# Investigations

## Blood tests:

- Complete Blood Count
- Serum amylase & lipase
- C-reactive Protein
- Serum electrolytes
- Blood glucose
- Renal Function Tests
- Liver Function Tests
- LDH
- Coagulation profile
- Arterial Blood Gas Analysis

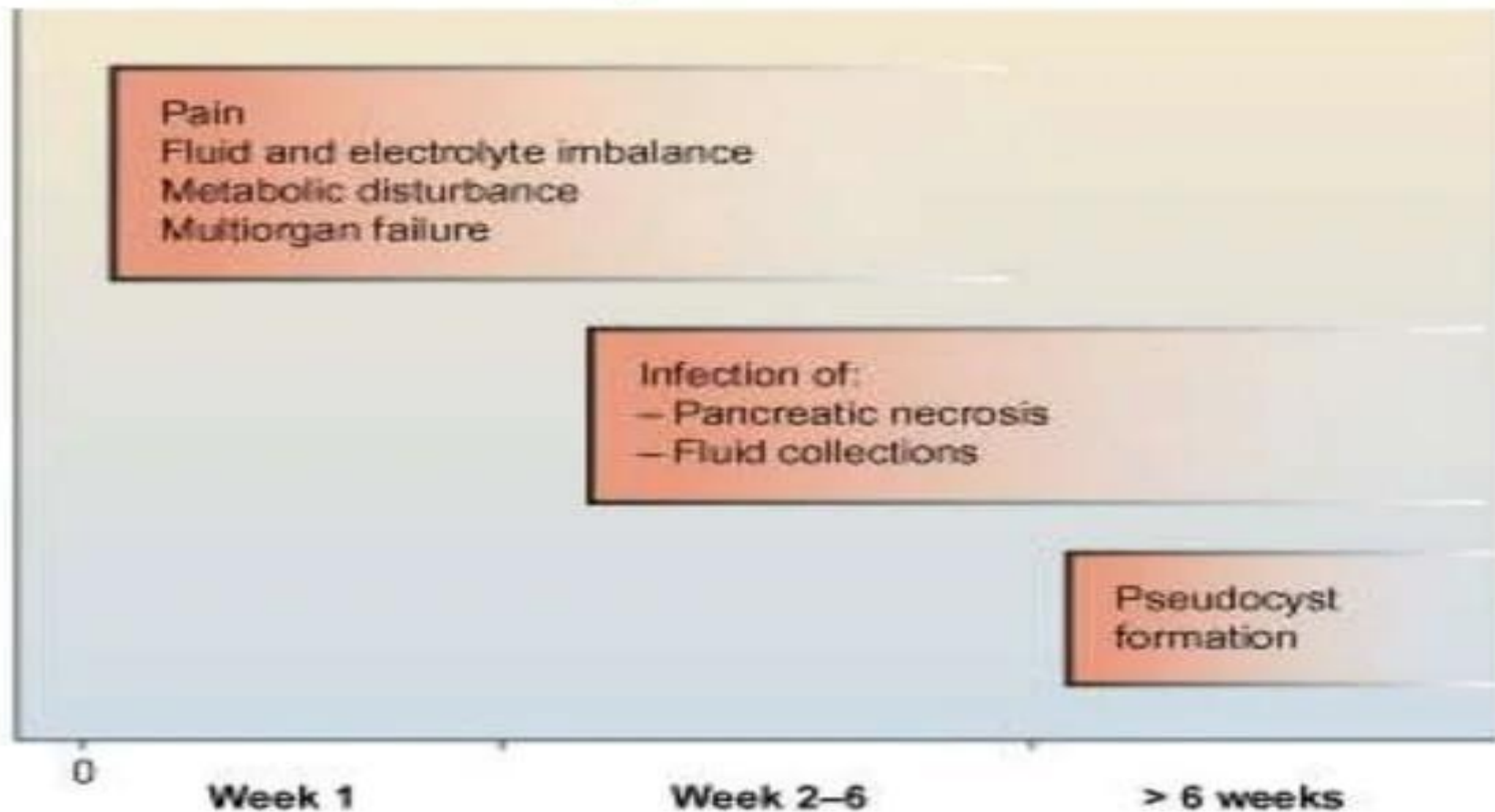


# Role of Antibiotics

- Prophylactic antibiotics have shown **No decrease** in mortality in severe acute pancreatitis.
- **Antibiotics are justified if:**
  1. Gas in retroperitoneal space
  2. Needle aspiration of necrotic material confirms infection
  3. Sepsis
  4. CRP of  $> 120$  mg/L
  5. Peri-pancreatic fluid collection
  6. Organ dysfunction
  7. APACHE II Score of  $> 6$



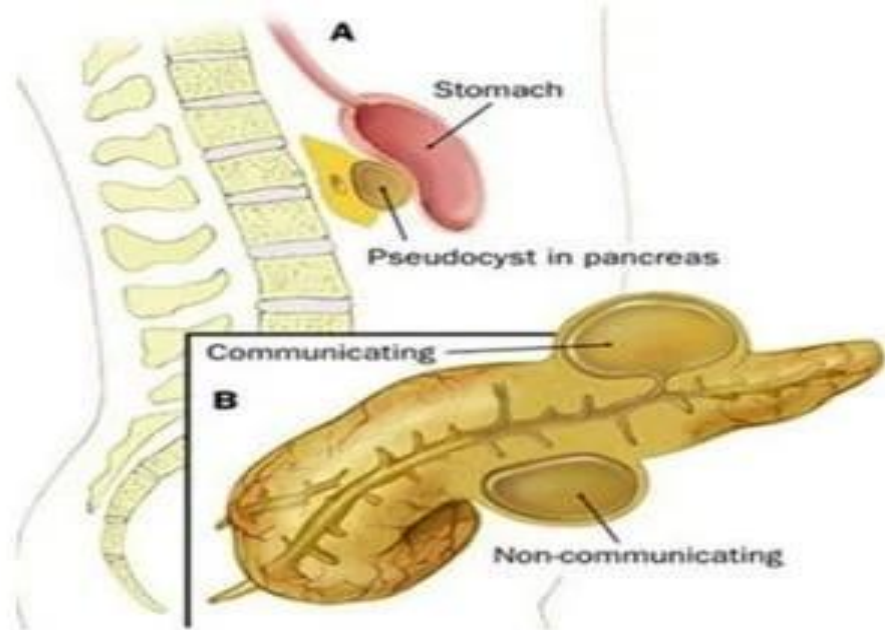
# Complications



# Pancreatic

## Pseudocyst:

- Wall formed by granulation tissue & fibrosis
- typically presents as abdominal pain, abdominal mass, & persistent hyperamylasemia in a patient with prior pancreatitis.



### **Distinguishing a pseudocyst from a cystic neoplasm**

- History
- Appearance on CT and ultrasound
- FNA of fluid, preferably under EUS guidance
  - CEA (high level in mucinous tumours)
  - Amylase (level usually high in pseudocysts, but occasionally in tumours)
  - Cytology

## Intervention in Pseudocyst

- Symptomatic
- Enlarging
- Size > 6 cm
- Duration more than 6 weeks
- Infected pseudocysts
- Complications due to pressure symptoms  
GOO/obstructive jaundice
- Haemosuccus pancreaticus



# Treatment

- Percutaneous drainage - for poor risk patients only
- Open procedures
  - Distal pancreatectomy
  - Cystogastrostomy
  - Cystoduodenostomy
  - Roux – en – y cystojejunostomy
  - Whipple procedure
- Endoscopic procedures – stenting
- Laparoscopic procedures



## Possible complications of a pancreatic pseudocyst

Process	Outcomes
Infection	Abscess Systemic sepsis
Rupture	
Into the gut	Gastrointestinal bleeding Internal fistula
Into the peritoneum	Peritonitis
Enlargement	
Pressure effects	Obstructive jaundice from biliary compression Bowel obstruction
Pain	
Erosion into a vessel	Haemorrhage into the cyst Haemoperitoneum

## **Sterile and infected pancreatic necrosis:**

- Diffuse or focal area of non-viable parenchyma, typically associated with peripancreatic fat necrosis. These areas can be identified by an absence of contrast enhancement on CT.
- They're sterile to begin with, but can become subsequently infected, due to the gut bacterial translocation.
- Sterile necrotic material should not be drained or interfered with.
- If the patient shows signs of sepsis, then one should determine whether the necrosis is infected.

# Mortality

- Mild acute pancreatitis: Mortality rate of 1%
- Severe pancreatitis: Mortality rate of 75-90%
- Overall mortality rate of 15-20%
  
- First week of illness -> MODS
- Subsequent weeks -> infection



Thank You!

