ACUTE PANCREATITIS

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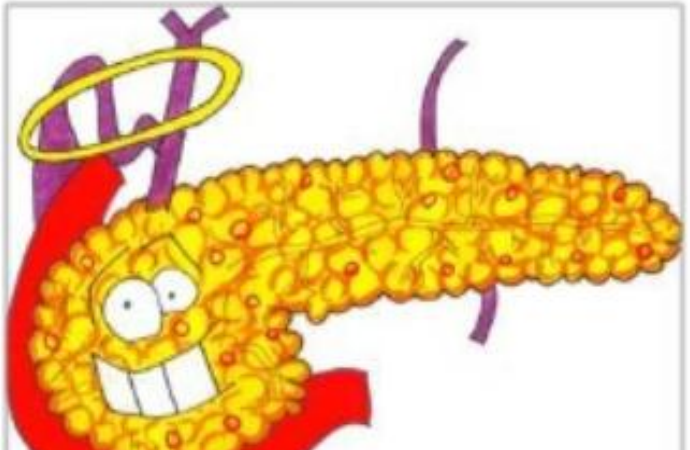
Objectives

- Introduction
- Definition
- Epidemiology
- Aetiology & Pathogenesis
- Signs & Symptoms
- Investigations
- Management
- Complications
- Mortality

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.

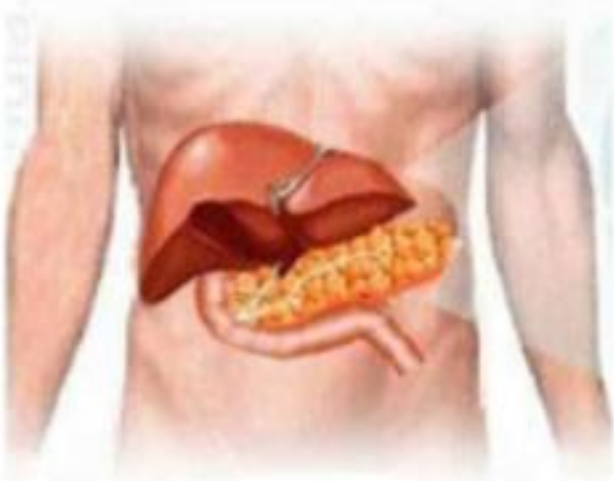


Acute Pancreatitis

- **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.

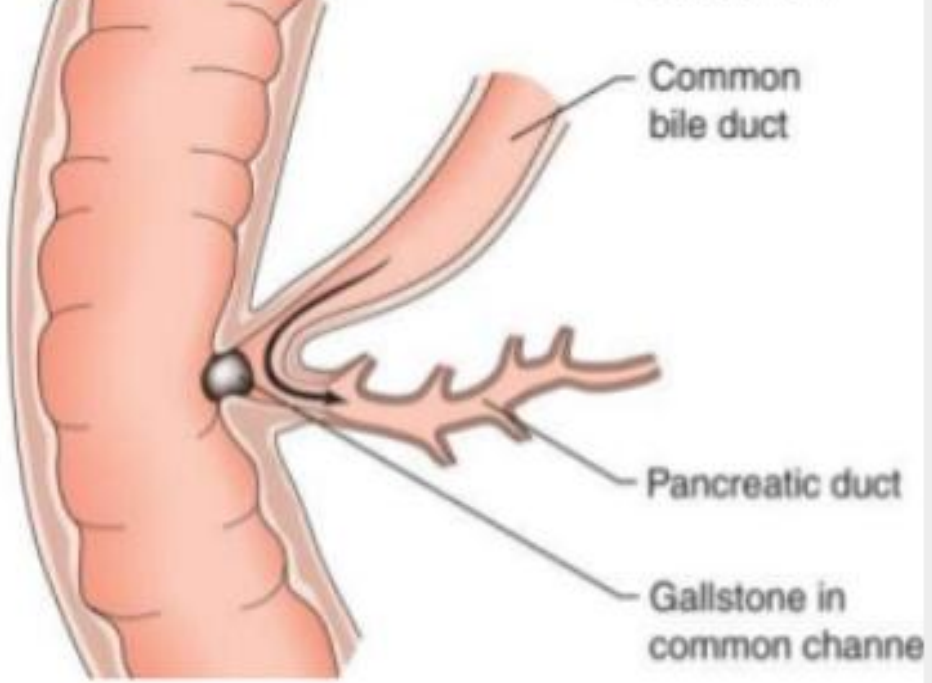
- Reversible inflammation of the pancreas

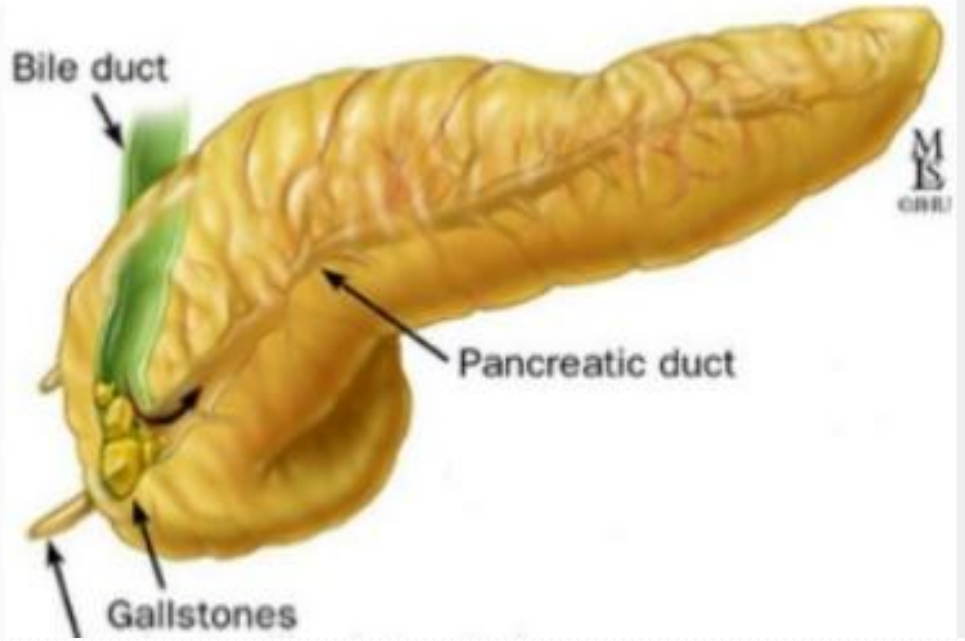


- Ranges from mild to severe.

- **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

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 the men, but men are more likely to suffer recurrent attacks.

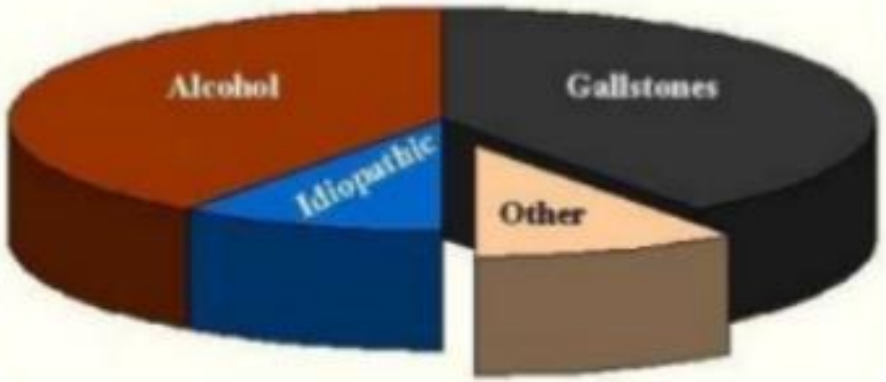
Etiology

- **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.

Beware of **MEDVIPS**, which may cause drug-induced pancreatitis.

Methyldopa/
Metronidazole
Estrogen
Didanosine
Valproate
Isoniazid
Pentamidine
Sulfonamides

- **Mnemonic for the causes of Acute Pancreatitis:**

'I get smashed'

Idiopathic
Gallstones
Ethanol
Trauma
Steroids
Mumps
Autoimmune
Scorpion / **S**nakes
Hyperlipidaemia / **H**ypercalcaemia
ERCP
Drugs

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.

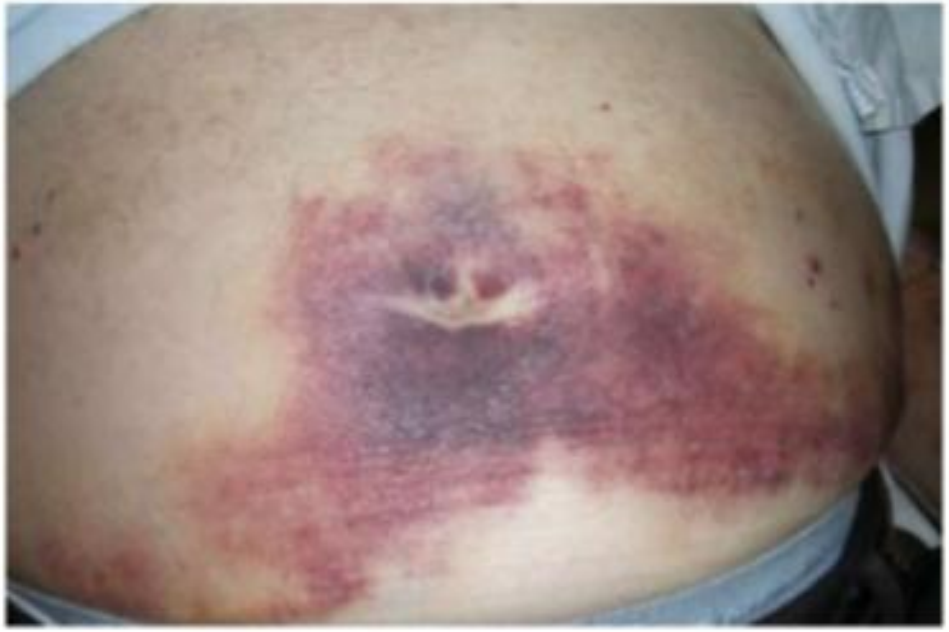
- Nausea, non-projactile vomiting, retching
- Anorexia
- Fever, weakness

Signs

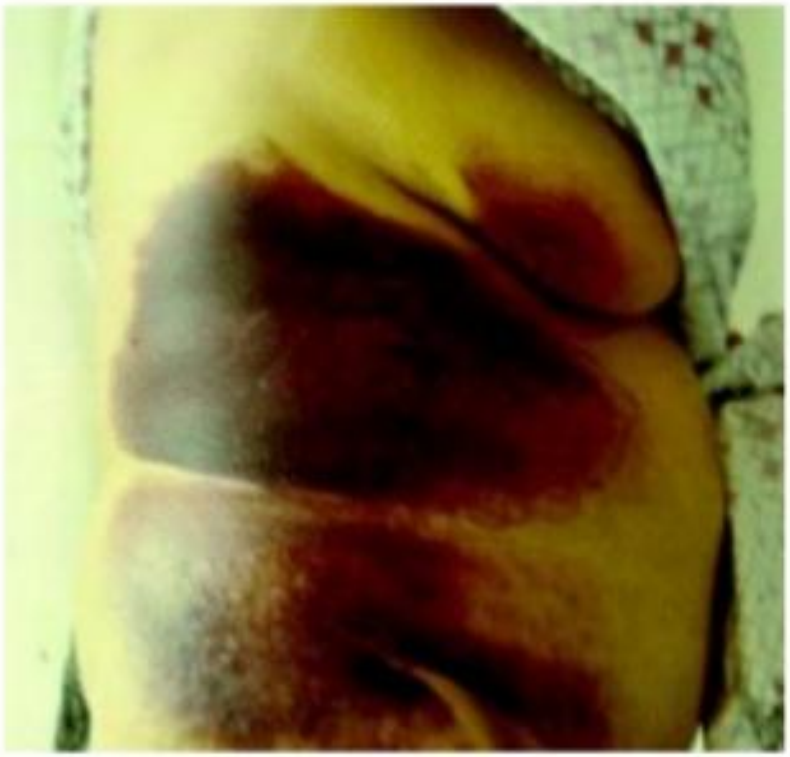
- Distressed, moving continuously, or sitting still
- Pale, diaphoretic. Confusion
- Low grade fever
- Tachycardia, Tachypnea
- Shallow breathing
- Hypotension
- Mild icterus

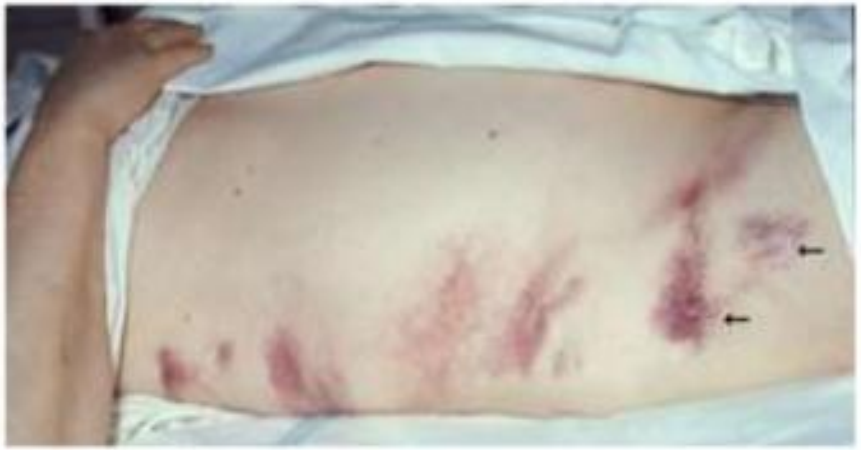
- Abdominal distension (Ileus, Ascites)
- Grey Turner's sign, Cullen's sign, Fox's sign
- Rebound tenderness, Rigidity
- Shifting dullness, reduced bowel sounds

Cullen's Sign



Grey Turner's Sign





Fox's Sign

Differential Diagnosis

- ✓ Perforated viscus (DU)
- ✓ Acute cholecystits, 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

DIAGNOSTIC FINDINGS

- **Primary test**
- Serum amylase — Increased (>200 U/L)
- Serum lipase — Elevated
- Urinary amylase — Elevated
- **Secondary tests**
- Blood glucose — Hyperglycemia
- Serum calcium — Hypocalcemia
- Serum triglyceride — Hyperlipidemia

Management

- **Collaborative care**
- Objective of collaborative care for acute pancreatitits include:
- Relief of pain
- Prevention or alleviation of shock
- Reduction of pancreatic secretions
- Control of fluid and electrolyte imbalances
- Prevention or treatment of infections
- Removal of the precipitating cause

- **Conservative therapy**
- Focused on supportive care
- Pain management(Iv morphine,antispasmodic)
- Correction of hypovolemia using normal saline and colloids.
- Use NG suction to reduce vomiting and gastric distension
- Decrease stimulation of pancreas
- Avoidance of alcohol.
- Keep patient in NPO

- Oxygen for hypoxic patients those with acute respiratory distress syndrome.

- **Pharmacological therapy**
- **Morphine** –relief of pain.
- **Nitroglycerine or papaverine**–relaxation of smooth muscles and relief of pain.
- **Antispasmodic(dicyclomine,propantheline bromide)**–decreased of vagal stimulation,motility,pancreatic outflow.
- **Carbonic anhydrase inhibitor (acetazolamide)** reduction in volume and bicarbonate concentration of pancreatic secretions.

- **Antacids** – neutralizations of gastric hydrochloride.

- **Histamine(H2) receptor antagonists ranitidine**
- **proton pump inhibitors (omeprazole)**

–decrease in HCL and stimulates pancreatic secretion

- ***Calcium*** :if hypocalcemia tetany occur
- Prophylactic broad spectrum antibiotic
- Pancreatic enzyme replacement.

- **Nutritional management**
- Diet: low in fat and high in protein and carbohydrates
- Small frequent feeding
- Pancreatic enzyme supplementation with meals
- Correct malabsorption of the fat-soluble vitamins (A, D, E, K) and vitamin B12

Diet low in fat &High In Proteins:

- Lean meats,
- sea food,
- Beans,
- Soya,
- Eggs,
- Nuts & seeds

Pancreatic Enzyme replacement Thearapy:

•Is the use of medications that contain enzymes to replace what the pancreas is no longer making or releasing. These medications contains

•**Proteases** to digest protein, **amylase** to digest carbohydrates & lipases to digest fat.

Surgical Management of Pancreatitis

For etiology:

- Cholecystectomy(removal of gallbladder)
- ERCP(Endoscopic retrograde Cholangio pancreatogram)
- CBD exploration(common bile duct Exploration)
- Pancreatojejunostomy.

For complications:

1.Pancreatic resection

2.Pancreatic debridement

3.Drainge of pancreatic abscess

4.Cystogastrostomy or cystoduodenostomy or cystojejunostomy.