

Acute inflammation of the pancreas, releasing exocrine enzymes that cause autodigestion of the organ. There may be involvement of local tissues and distant organs e.g. ARDS.

Epidemiology

- Common. 3% of all cases of abdominal pain admitted to hospital.

Causes (Mnemonic - I GET SMASHED)

Gallstones or EtOH (>80%) & Idiopathic (10%) most common.

- **I**diopathic
- **G**allstone
- **E**thanol (alcohol)
- **T**rauma
- **S**teroids
- **M**umps (paramyxovirus) and other viruses (Coxsackie, hepatitis, EBV, CMV)
- **A**utoimmune disease/vasculitis (Polyarteritis nodosa, Systemic lupus erythematosus)
- **S**corpion sting (e.g. Tityus trinitatis), and also snake bites
- **H**ypercalcemia, hypertriglyceridemia and hypothermia
- **E**RPC, estrogens
- **D**rugs (SAND - Steroids & sulfonamides, Azathioprine, NSAIDS, Didanosine & diuretics such as frusemide and thiazides), and duodenal ulcers

Also hereditary pancreatitis and malignancy (1° or 2° pancreatic Ca)

Presentation

History: Most commonly constant epigastric/upper abdominal pain, sudden onset ± radiation to back, vomiting, history of EtOH use, gallstones. Take drug history.

Exam: Epigastric tenderness, may have absent BS, moderate pyrexia, looking unwell with probable tachycardia with some dehydration. Cullen's sign (flank) & Grey Turner's (umbilicus) if haemorrhagic pancreatitis.

Investigations

Urine: U/A for bilirubin. Urinary trypsinogen activation peptide - but rarely done.

Bloods: FBC, UEC, CMP, BSL, LFT, lipase/amylase (lipase ↑sensitive), CRP, ABG, coags, cultures

ECG: non-specific ST-T wave changes, rule out ACS.

Imaging: CXR (erect - ?effusions or Ddx), AXR, CT (80-95% sens, may show collections, dynamic CT shows areas of necrosis that may need surgery also can grade pancreatitis), USS (less sensitive than CT for pancreatitis - overlying bowel gas, good for gallstones/bile duct)

Differential diagnosis

With raised amylase: RF, ectopic preg, DKA, perf DU, mesenteric ischaemia/infarction

With similar pain: SB perforation/obstruction, ruptured/dissecting aortic aneurysm, AMI

Ranson's Criteria (Mnemonic WAG LA BOUCHE)

On Admission:

WBC > 16 × 10⁹/L

Age > 55

Glucose > 10 mmol/L

LDH > 350 IU/L

AST > 250 IU/L

At 48 hours After Admission:

Base deficit > 4

pO2 < 60 mmHg

Urea increase > 1.8 mmol/L

Ca < 2 mmol/L

Hct drop > 10%

Estimated sequestration of fluid > 6L

No. criteria (Mortality rate): 0-2 (~2%), 3-4 (~15%), 5-6 (40%), 7-8 (100%)

Glasgow (Imrie) prognostic score (Mnemonic: PANCREAS)

$PO_2 < 60$ mmHg

Age > 55 y

Neutrophils + all WBC $> 15 \times 10^9$ /L

Calcium < 2 mmol/L

Raised urea > 16 mmol/L

Enzymes AST > 200 U/L, LDH > 600 U/L

Albumin < 32 g/L

Sugar, glucose > 10 mmol/L



APACHE II

Evidence suggests APACHE II scoring @ 24h is at least as accurate as Ranson/Glasgow.

Severity

The following criteria have been used to define severe pancreatitis:

- Ranson ≥ 3 criteria @ 48h
- Glasgow/Imrie score ≥ 3 criteria @ 48h
- APACHE II score ≥ 8
- Presence of organ failure
- Substantial pancreatic necrosis ($\geq 30\%$ glandular necrosis on contrast enhanced CT)
- CRP @ 72hrs after disease onset.
- Urinary trypsinogen activation peptide (TAP) @ 24h

Complications

- Pancreatic necrosis - 3 x mortality risk. Fatal without surgical debridement & antibiotics.
- Acute fluid collections are common in severe pancreatitis (30%-50%). Majority resolve.
- Pancreatic abscess: Mx - surgical drainage.
- Acute pseudocyst (5%) contains pancreatic juice in fibrous capsule. Last > 4 w post-attack.
 - Only need drainage if expanding, infected or symptomatic.
- Chronic pancreatitis (10%)
- Endo: DM or pancreatic insufficiency uncommon after a single episode of pancreatitis.
- Respiratory: Pulmonary oedema, pleural effusions, consolidation, ARDS
- Cardiovascular: hypovolaemia, shock
- Haem: Disseminated intravascular coagulopathy (DIC), splenic vein thrombosis
- Renal: dysfunction due to hypovolaemia, intra-vascular coagulation.
- GIT: ileus

Management

Mild Cases (80%) can be managed on general ward, others in HDU/ICU with full monitoring.

Supportive: NBM, NGT if vomiting, analgesia, IVF, replacement of Ca^{2+} , \pm IDC.

Antibiotics: if proven bacterial infection or severe necrosis (ciprofloxacin or imipenem)

Surgery: If significant necrosis and infection.

Hyperbaric oxygen therapy: Some evidence for benefit.

Treat complications

When recovering:

- Removal of stone if choledocholithiasis by ERCP+sphincterotomy
- Feeding by NJT or percutaneous jejunostomy tube if necrosis/infection (rarely TPN)

Prognosis

- 5% mortality in mild cases, $< 30\%$ mortality in severe cases.