

## SURGICAL ABDOMEN

You may be asked to help resuscitate a patient before OT or provide postoperative ICU care.

Sometimes, patients develop surgical problems during ICU care though they have been admitted for a different cause.

It can be very difficult to diagnose surgical abdomen because lots of times these patients are very sick and have a number of causes to account for their deterioration. Abdominal examinations are unreliable because patients are usually sedated, or even paralyzed. Free gas under diaphragm can be missed because our CXR are usually supine. USG examination can be suboptimal. Even CT scan can miss early ischaemic bowel...

Have a high index of suspicion especially if

- acute deterioration in clinical state without a obvious cause
- sudden increase in metabolic acidosis
- new infection
- patients with DM, vascular disease, atrial fibrillation, shock are prone to develop mesenteric ischaemia
- critically ill patients are prone to develop acalculous cholecystitis

Involve surgeons early.

### General Principles

- Admission notes: preop – co morbidities, medications  
intraop – operation notes and anaesthetic record
- Examinations – vitals, drains, stoma ( note colour, output)
- Routine bloods (lactate as indicated), CXR, ECG
- General care: NPO, IV maintenance fluid  
DVT prophylaxis – mechanical prophylaxis  
stress ulcer prophylaxis  
pain relief  
perioperative antibiotics
- Watch out for specific complications:  
e.g. bleeding  
anastomotic leak  
abdominal compartment syndrome  
wound infection/ dehiscence  
ischaemic limb...

## Abdominal Compartment Syndrome

Definition: sustained increase in pressure within the abdomen, pelvis, retroperitoneum that adversely impairs blood flow and organ function.

Normal pressure	<10mmHg
Mild	10 -20mmHg
Moderate	21 – 35mmHg ⇒ may need operation
Severe	>35mmHg ⇒ need operation

In our unit, the urinary bladder pressure is usually taken as an approximation of the IAP. Alternatively, if you have a femoral CVP in place, it can also reflect the IAP (but will not reflect the filling pressure of the right heart in this case).

## Acute pancreatitis

Not commonly seen in ICU but presents a challenge to the ICU doctor

Some of the complications seen include

ARDS

SIRS/septic shock and multi-organ failure

Sepsis – nosocomial pneumonias, abdominal infections with multi-resistant organisms

Abdomen: abdominal compartment syndrome, haemorrhage, perforation of viscus, mesenteric thrombosis with ischaemic bowel

Poor nutrition, severe and prolonged ileus

Critical illness polyneuropathy

### Diagnosis

Often already made by parent team doctor – ICU admission due to complications/severity of pancreatitis

Suspect in patients with abdominal pain, nausea, vomiting, fever of uncertain origin, leukocytosis, haemodynamic instability of uncertain explanation

Physical exam – jaundice, abnormal vital signs eg. low-grade fever, tachycardia, tachypnoea, hypotension, upper abdomen tenderness, peritoneal irritation, signs of extravasation of blood into retroperitoneal tissues (Grey Turner's – flanks; Cullen's – periumbilical)

Lab tests – we mainly do amylase (note that hyperamylasaemia may be nonspecific and associated with many conditions); CBC show leukocytosis; hypocalcaemia; abnormal liver function test with raised ALP, bilirubin especially if biliary cause

### Radiography

- ultrasound to detect gallstones, dilated bile ducts, ascites.
- **CT abdomen**– important test. Advantages of this test - diagnostic, can assess severity of pancreatitis, identify other complications of pancreatitis, or rule out other conditions of

acute abdomen, may be even therapeutic (see areas necrosis/abscesses that mandate drainage)

- Plain X-ray – nonspecific; sentinel loop not often seen, see ileus, calcified pancreas acute on chronic pancreatitis, calcified gallstones

#### Management

- Fluid resuscitation, guided by haemodynamic monitoring and urine output
- Oxygen therapy – hypoxia due to ARDS, atelectasis from diaphragmatic splinting (pain, ascites), large pleural effusions; may need mechanical ventilation
- Early ERCP (within the first 1-2 days) if gallstone pancreatitis
- IV antibiotic – not routine but recommended. Need good penetration into pancreatic tissue and good cover for gram-negative enteric organisms (imipenem, meropenem, ciprofloxacin, levofloxacin)
- Infection diagnosed with ultrasound, CT; may need percutaneous aspiration; gram stain and cultures
- Surgical debridement for patients with following
  - Extensive pancreatic necrosis, suspect or proven infection eg abscess
  - Unstable patients, suspect infection
  - Abdominal compartment syndrome
  - Other acute abdomen complicating pancreatitis
  - Work closely with the surgeons - may need frequent surgical debridement
- Consider early tracheostomy if need to go to OT frequently
- Nutrition – enteral feeding preferred when ileus resolves. Feeding tube can be inserted beyond the Ampulla of Vater into the jejunum to lessen the stimulation of pancreatic enzymes. TPN during acute phase