

THE ACUTE ABDOMEN

Definition

Abdominal **pain** of short duration that is usually associated with muscular **rigidity**, **distension** and vomiting, and which requires a decision whether an emergent operation is required.

Problems and management options

History and physical examination are central in the evaluation of the acute abdomen. However, in an ICU patient, these are often limited by sedation, paralysis and mechanical ventilation, and obscured by a protracted, complicated in-hospital course. Often an acute abdomen is inferred from unexplained sepsis, hypovolaemia and abdominal distension.

The need for prompt diagnosis and early treatment by no means equates with operative management. While it is a truism that correct diagnosis is the essential preliminary to correct treatment, this is probably more so in non-operative management. On occasions, the need for operation is more obvious than the diagnosis and no delay should be incurred in an attempt to confirm the diagnosis before surgery. Frequently **fluid** resuscitation and **antibiotics** are required concurrently with the evaluation process.

The approach is to evaluate the ICU patient in the context of the underlying disorder and decide on one of the following options:

- **Immediate operation** (surgery now)– the ‘bleeder’ e.g. ruptured ectopic pregnancy, ruptured abdominal aortic aneurysm (AAA) in the salvageable patient
- **Emergent operation** (surgery tonight)– the ‘septic’ e.g. generalized peritonitis from perforated viscus
- **Early operation** (surgery tomorrow)– the ‘obstructed’, e.g. obstructed colonic cancer
- **Radiologically guided drainage** – e.g. localized abscesses, acalculous cholecystitis, pyonephrosis
- **Active observation** and frequent re-evaluation – e.g. localized peritoneal signs other than in the RLQ, selected cases of endoscopic perforation .

Method of diagnosis: Grouping symptoms and signs into clinical patterns based on anatomy and pathology

- **Severe pain with shock** – ruptured AAA, ectopic pregnancy, hepatoma, spleen; acute pancreatitis, mesenteric vascular accident
- **Generalised peritonitis with shock** – perforated peptic ulcer, colonic perforation with fecal peritonitis
- **Pain with vomiting and distension but no rigidity** – intestinal obstruction, obstructed non-strangulated hernia
- **Pain with constipation and distension** – colonic obstruction
- **Mild pain and rigidity with shock** – cholangitis, pyelonephritis
- **Localised peritonitis** – acute appendicitis, diverticulitis, cholecystitis, UTI, PID

Diagnostic adjuncts

The patient is best evaluated after insertion of **nasogastric** and **urinary catheters**. If need be, a small dose of **analgesic** can be given and the bowel evacuated with a fleet **enema** before re-evaluation.

Serum amylase and lipase – pancreatitis
UFEME - urosepsis

Erect CXR – free air is seen in 90% of perforated viscus even after gastric insufflation. Post-laparotomy free air can persist in 10-25% of patients up to 8th POD

AXR – toxic megacolon, gallstone ileus, femoral and obturator hernias, bezoar obstruction

Ultrasonography – hepatobiliary, gynae-uological assessments. Can be done at the bed-side and in patients with contrast allergy or renal failure

CT scan with IV and oral/rectal contrast – most useful screening tool in intra-abdominal sepsis and the postoperative abdomen

Gastrograffin enema and colonoscopy – sigmoid volvulus, pseudocolonic obstruction

Mesenteric angiogram – rarely useful unless done early and revascularisation contemplated in mesenteric thrombosis

Diagnostic peritoneal tap – ascitic fluid wbc >250/mm³ with low pH indicative of peritonitis

Important medical causes

- DKA, Adrenal insufficiency, Uraemia
- Pneumonia, pleuritis
- Myocardial ischaemia
- Primary bacterial peritonitis
- TB peritonitis, Tetanus, Typhoid, Malaria
- Herpes zoster, Tabes dorsalis, Spine osteomyelitis
- Acute porphyria and haemolytic crises
- Acute glaucoma
- Food poisoning, Lead poisoning, Black widow spider bite

Special cases and considerations

Diagnostic adjuncts should be used liberally in the **geriatric** patient, **immunocompromised** patient and patients with **spinal cord injury** in whom the peritoneal signs may be attenuated.

The **postoperative** acute abdomen is usually related to intestinal obstruction, wound infection, anastomotic leaks or intra-abdominal abscesses. Acute cholecystitis, pancreatitis, appendicitis and perforated ulcer can also occur and can be masked by the use of antibiotics.

Spontaneous pneumoperitoneum without peritonitis is an entity by exclusion and does not require surgical intervention.