Abdominal trauma

Assessment of abdominal trauma

- Assessment of patients with abdominal trauma can be difficult due to
  - Altered sensorium (head injury, alcohol)
  - Altered sensation (spinal cord injury)
  - Injury to adjacent structures (pelvis, chest)
- Pattern of injury will be different between penetrating and blunt trauma

Indications for laparotomy

- Unexplained shock
- Rigid silent abdomen
- Evisceration
- Radiological evidence of intraperitoneal gas
- Radiological evidence of ruptured diaphragm
- Gunshot wounds
- Positive result on diagnostic peritoneal lavage

Imaging

- Either CT or ultrasound can be used for the assessment of abdominal trauma
- CT scanning is preferred method but requires patient to be cardiovascularly stable
- Ultrasound has high specificity but low sensitivity for the detection of:
  - Free fluid
  - Visceral damage

FAST

- Focused assessment for the sonographic assessment of trauma
- Is the use of ultrasound to rapidly assess for intraperitoneal fluid
- Probe is placed on the:
  - Right upper quadrant
  - Left upper quadrant
  - Suprapubic region
- Fluid in subphrenic, subhepatic spaces or Pouch of Douglas in hypotensive patient
- Confirms likely need for emergency laparotomy

Peritoneal lavage

Indications

- Equivocal clinical examination
- Difficulty in assessing patient
- Persistent hypotension despite adequate resuscitation
- Multiple injuries
- Stab wounds where the peritoneum has been breached

Method

- Ensure that a catheter and nasogastric tube are in-situ
- Under LA make vertical sub-umbilical incision and divide linea alba
- Incise peritoneum and insert peritoneal dialysis catheter
- Aspirate any free blood or gastric content
- If no blood seen - infuse 1litre of normal saline an allow 3 min. to equilibrate
- Place drainage bag on floor and allow to drain
- Send 20 ml to laboratory for measurement of RBC, WCC and microbiological examination

Positive result

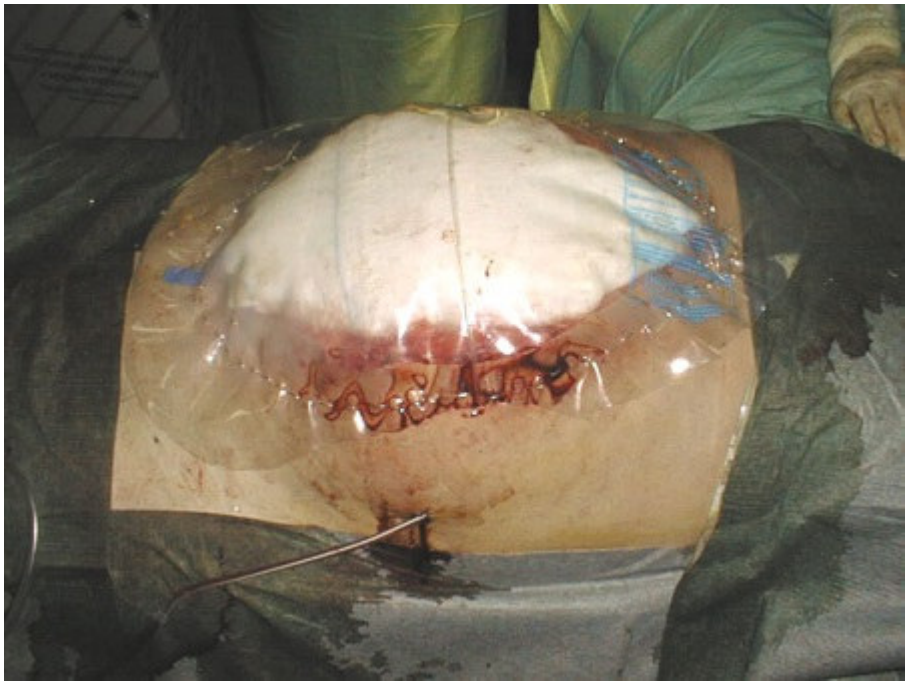
- Red cell count > 100,000 / mm^3
- White cell count > 500 / mm^3
- Presence of bile, bacteria or faecal material

Damage Control Surgery

- Following multiple trauma poor outcome is seen in those with
    - Hypothermia
    - Coagulopathy
    - Severe acidosis
- Prolonged surgery can exacerbate these factors
- As a result the concept of 'damage control' surgery has been developed

Initial operation

- Early management of major abdominal trauma surgery should aim to:
    - Control haemorrhage with ligation of vessels and packing
    - Remove dead tissue
    - Control contamination with clamps and stapling devices
    - Lavage the abdominal cavity
    - Close the abdomen without tension
- A plastic sheet or 'Bogata bag' may be useful



Picture provided by Mr. J C Campbell, Derriford Hospital Plymouth

Intensive care unit

- Early surgery should be followed by a period of stabilisation on the intensive care unit
- During this period the following should be addressed
    - Rewarming
    - Ventilation
    - Restoration of perfusion
    - Correction of deranged biochemistry
    - Commence enteral or parenteral nutrition

'Second look laparotomy'

- Planned re-laparotomy at 24 - 48 hours allows:
    - Removal of packs
    - Removal of dead tissue
    - Definitive treatment of injuries
    - Restoration of intestinal continuity
    - Closure of musculofacial layers of abdominal wall
- This approach has been shown to be associated with a reduced mortality

Gastrointestinal injury

- Small bowel perforations can invariably be primarily closed
- The management of colonic perforations is more controversial
- Used to common practice to excise damaged segment
- Proximal stoma was then fashioned

- Perforation could also be exteriorised as a stoma
- Increasingly recognised that primary repair of colonic injuries is safe
- Now recommended method, especially in the absence of significant contamination