

# **ABDOMINAL EMERGENCIES**

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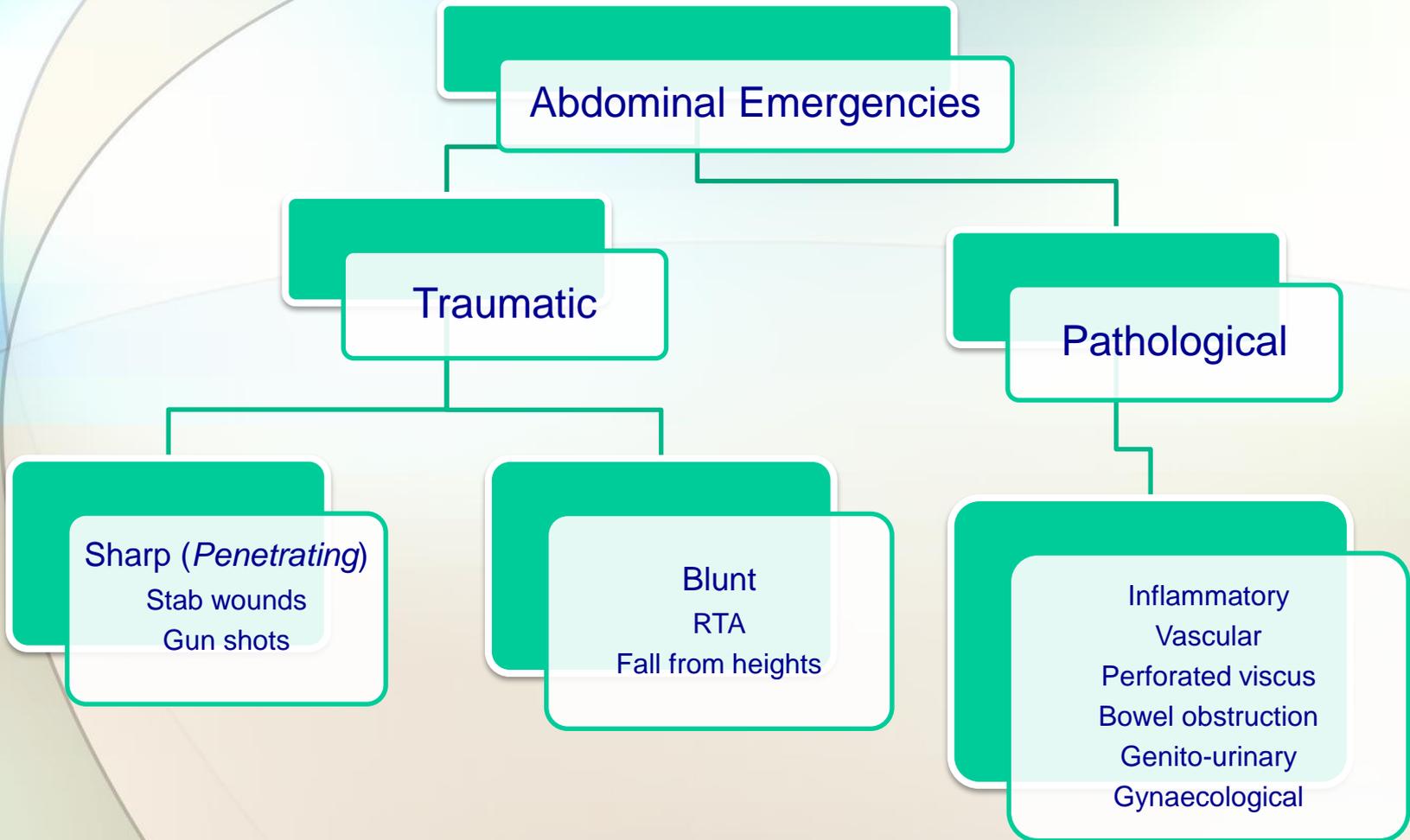
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# Abdominal Emergencies



```
graph TD; A[Abdominal Emergencies] --> B[Traumatic]; A --> C[Pathological]; B --> D["Sharp (Penetrating)  
Stab wounds  
Gun shots"]; B --> E["Blunt  
RTA  
Fall from heights"]; C --> F["Inflammatory  
Vascular  
Perforated viscus  
Bowel obstruction  
Genito-urinary  
Gynaecological"]
```

The diagram is a hierarchical flowchart. At the top is a white box with a green border containing the text 'Abdominal Emergencies'. Two lines descend from this box to two more white boxes with green borders: 'Traumatic' on the left and 'Pathological' on the right. From the 'Traumatic' box, two lines descend to two more white boxes with green borders: 'Sharp (Penetrating)' (containing 'Stab wounds' and 'Gun shots') on the left, and 'Blunt' (containing 'RTA' and 'Fall from heights') on the right. From the 'Pathological' box, a single line descends to a final white box with a green border containing a list of conditions: 'Inflammatory', 'Vascular', 'Perforated viscus', 'Bowel obstruction', 'Genito-urinary', and 'Gynaecological'. All boxes have a slight drop shadow and are set against a background of overlapping light-colored circles.

## Traumatic

### Sharp (*Penetrating*)

Stab wounds  
Gun shots

### Blunt

RTA  
Fall from heights

## Pathological

Inflammatory  
Vascular  
Perforated viscus  
Bowel obstruction  
Genito-urinary  
Gynaecological

# **TRAUMATIC EMERGENCIES**

- **Death from trauma has a trimodal distribution:**
- **Prehospital Environment: 50%**
- **Within the first few hours: 30%**
- **Later in life: 20%**

# **PRINCIPLES OF ADVANCED RESUSCITATION**

- **Early assessment and primary survey**
- **Simultaneous aggressive resuscitation**
- **Careful secondary survey (full examination, top to toe, front to back)**
- **Transfer to a definitive site of care**

# **ABDOMINAL ULTRASOUND**

- **Commonly used as a bedside investigation**
- **Does not identify injury to hollow viscus**
- **Needs to be repeated**
- **Needs to be supported with other investigations**

- **CT Scan**
  - gold standard only in stable patients
  - Sensitive for blood and retroperitoneal injuries
- **Diagnostic Peritoneal Lavage has a 97% sensitivity rate for blood detection**
  - Very useful in hypotensive unstable patients with polytrauma
  - Negative DPL supports conservative treatment
  - Presence of blood does not necessary require surgery
- **Diagnostic Laparoscopy is only valuable in stable patients as a screening test in penetrating trauma**
  - Detect or exclude peritoneal penetration
  - Reduces the rate of non therapeutic laparotomy

# DAMAGE CONTROL SURGERY

- It is now well recognized that *multiple trauma patients are more likely to die from their intra-operative metabolic failure than from a failure to complete operative repairs*
- Patients with major exsanguinating injuries will *not* survive complex procedures such as formal hepatic resection
- **Death Triad**
  - Coagulopathy
  - Hypothermia
  - Metabolic acidosis

- **Once this metabolic failure has become established it is extremely difficult to control haemorrhage and correct the derangements**
- **For the patients to survive, procedures need to be shortened for rapid correction of hypothermia and metabolism in ICU**
- **Once correction is achieved the definitive surgical procedure can be carried out as necessary - the 'staged procedure'**

# **DAMAGE CONTROL LAPAROTOMY**

- **The principles of damage control surgery are:**
  - **Control of haemorrhage**
  - **Control of contamination**
  - **Avoid further injury**
- **Patients should be transferred rapidly to the operating room without repeated attempts to restore circulating volume.**
- **They require operative control of haemorrhage and simultaneous vigorous resuscitation with blood and clotting factors**

- **Abdominal closure is rapid and temporary.**
- **If possible, the skin only is closed with a rapid continuous suture or even multiple towel clips.**
- **Abdominal compartment syndrome is common**
  - **If in any doubt the abdomen should be left open as a laparostomy with a silo-bag or vacuum-pack technique.**
- **Definitive surgery would be done at a later stage when the patient is stable enough and metabolically corrected**

# **NON-OPERATIVE MANAGEMENT**

- **Stable patients with accurate CT imaging**
- **Low grade organ injuries**
- **Minimal intra-abdominal blood loss**
- **Needs close observation**
- **Angioembolisation could be valuable for ongoing bleeding with arteriography for liver, spleen and kidney injuries**
- **Antibiotic cover is mandatory for all cases of penetrating abdominal trauma**

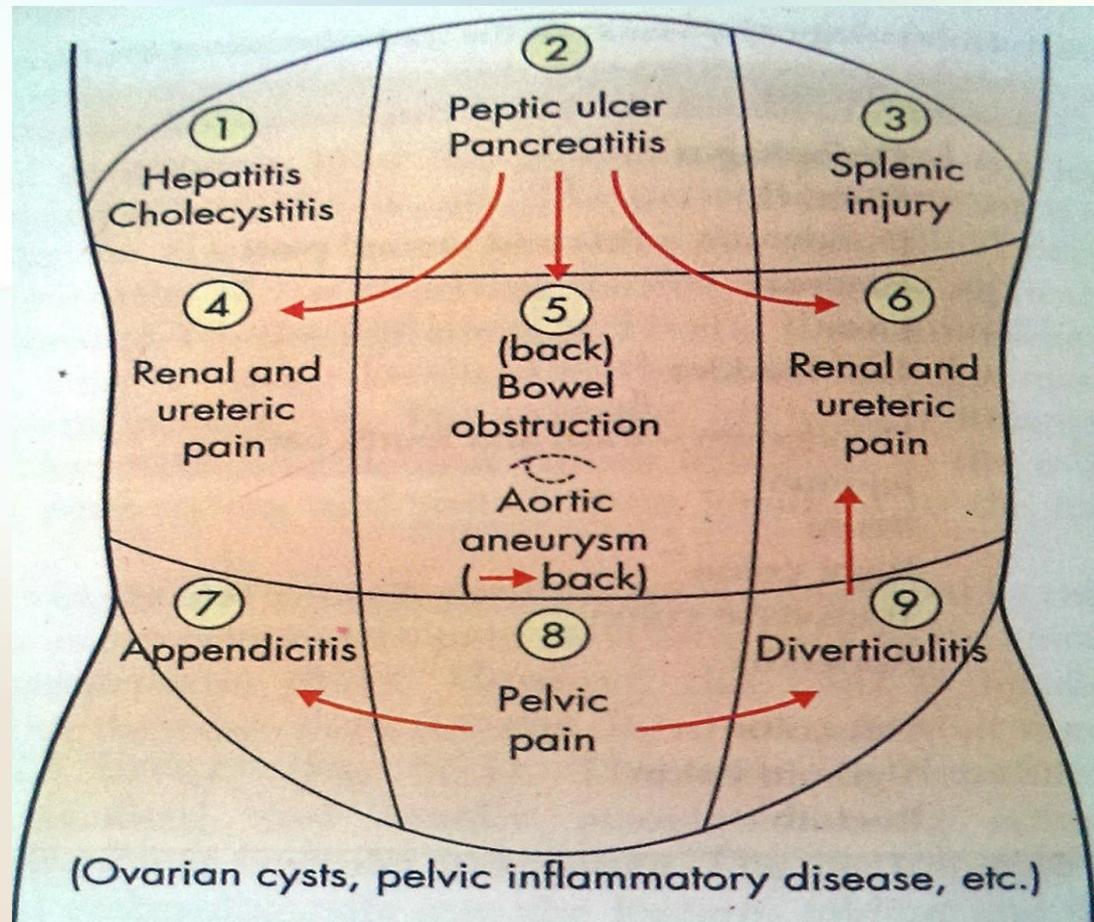
# **ABDOMINAL COMPARTMENT SYNDROME**

## **ACS**

- **Sustained intraabdominal pressure (IAP) > 20 mmHg**
- **Decreased abdominal perfusion pressure**
- **Attributable organ failure**
- **Monitoring through intravesical pressure transducer is the gold standard**

- **Risk factors**
  - **Large volume resuscitation**
  - **Core hypothermia**
  - **Coagulopathy**
  - **Severe sepsis and septic shock**
- **Primary ACS is associated with peritoneal/retroperitoneal haemorrhage**
- **Secondary ACS results from oedema or ascites following reperfusion injury after large volume resuscitation**

# **PATHOLOGICAL EMERGENCIES**



# ACUTE ABDOMEN

- **Medical emergency with sudden and severe pain in the abdomen accompanied by signs and symptoms focusing on abdominal involvement**
- **Causes**
  - **Non specific abdominal pain 24-44%**
  - **Acute appendicitis 16-28%**
  - **Acute biliary disease 3-9%**
  - **Bowel obstruction**
  - **Diverticulitis in elderly patients**

# DIAGNOSIS

- Standard physical examination combined with U/S
- CT imaging is only recommended for selective cases due to the risk of irradiation and the costs
- DL should be considered in patients without specific diagnosis after appropriate imaging
- Beside diagnostic laparoscopy is recommended in ICU for
  - Non specific Acute abdomen
  - Sepsis of unknown origin
  - Diffuse gut hypoperfusion
  - Mesenteric ischaemia
  - Refractory lactic acidosis

# **ANALGESIA**

***Early administration of analgesia to patients with acute abdominal pain in the emergency department should reduce patient discomfort without impairing clinically important diagnostic accuracy and is highly recommended***

# MANAGEMENT

- Perforation of abdominal viscus results in sudden acute severe pain
- Generalised peritonitis follows very quickly because of no time for omental sealing
- Stomach, duodenum (peptic ulcer) and the colon (diverticular disease) are common organs to perforate
- Rapid diagnosis and urgent resuscitation are mandatory specially in colonic perforation → foecal peritonitis with high mortality rate
- ***Urgent adequate resuscitation followed by rapid surgical intervention is the cornerstone of management***

- **Complicated intra-abdominal infections are best managed by source infection control and antibiotics**
- **CT or U/S guided drainage after identification of infection source limits the need for surgical intervention**
- **Routine antibiotic coverage specially against enterococci can be useful in some conditions**
- **Early prognostic evaluation of complicated intra-abdominal sepsis is important to select high risk patients for more aggressive procedures**

# **GASTROINTESTINAL VASCULAR EMERGENCIES**

- **Mesenteric vascular occlusion**
  - **Superior mesenteric vessels**
  - **Inferior mesenteric vessels**
  - **Both**
- **Ruptured Abdominal Aortic Aneurysm**
- **Traumatic vascular injury**

- **Risks of GI ischaemic injuries**
  - Infarction, organ failure and death
- **Sudden continuous unusual abdominal pain (abdominal angina)**
- **Normal abdominal examination**
- **Abdominal CT angiography showing ischaemic injury**
  - Occlusion
  - Low flow
- **Selective mesenteric angiographic treatment**
  - **Multidisciplinary approach**
    - Gastroenterologists, Surgeons and Radiologists



# ABDOMINAL AORTIC ANEURYSM

- **AAA may rupture anteriorly (20%) or posteriorly (80%)**
- **Posterior rupture has better prognosis because retroperitoneal tissue arrests further haemorrhage**
- **Preoperative fluid and blood resuscitation maintaining a lower to optimal blood pressure just to keep the level of consciousness paramount**
  - Extremely low BP risks ischaemia to vital organs
  - High or sometimes normal blood pressure can cause profuse bleeding and death
- **In theatre before induction and skin incision adequate resuscitation and fluid management should be fulfilled**
  - Extreme hypotension can happen after induction or at opening of the abdomen
- **Intra-operatively care has to be taken during clamping/declamping especially if suprarenal**
  - Renal and gut ischaemia
  - Reperfusion injury

# REFERENCES

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**THANK YOU**