Thoracic & Abdominal Trauma

Mark J. Harris M.D.
Associate Professor
Department of Anesthesiology
University of Utah
Salt Lake City
Thoracic Trauma
Introduction

Causes 25-50% trauma deaths in US
Pneumothorax

- Air between parietal / visceral pleura ➔
  - breath sounds ↓ / absent
  - hyperresonant to percussion

- Severe V/Q mismatch ➔ hypoxia

- Tx = chest tube 4th / 5th intercostal space anterior to mid-axillary line
Hemothorax

1. Lung laceration
2. Intercostal / internal thoracic artery injury
3. Great vessel tear

- Difficult to assess volume
  - Lose 50% blood volume before shock apparent
- Chest tube early
  - Thoracotomy if > 1500 ml rapid loss
Flail Chest

= at least 2 fractures per rib, in at least 2 ribs

Indicates presence of underlying pulmonary contusion.
Pulmonary Contusion

- Present in 25-35% blunt chest trauma

- Risk factor for:
  - ARDS
  - pneumonia
  - long-term respiratory dysfunction
Cardiac Tamponade

- Beck’s Triad:
  - distended neck veins
  - hypotension
  - quiet heart sounds

- Anesthesia - maximise:
  - inotropism
  - chronotropism
  - preload
Myocardial Contusion

- Present in 5-50% of chest trauma

- Isolated ECG changes → cardiac rupture
  - ventricular ectopics / fibrillation
  - right ventricle / interventricular septum

- Delay nonurgent surgery for 24-48 h
Myocardial Contusion

Will ↑ hemodynamic consequences of mechanical ventilation

- Try to decrease ventilation pressure:
  - low tidal volume
  - high frequency

- Caution w/ blood volume and fluid loading
Aortic Injury

- 2nd highest cause death in blunt trauma
- Nearly always w/ other injuries
- Intraop - meticulous BP control
Thoracic Trauma
- anesthetic challenges

- Ventilatory insufficiency:
  - tension pneumothorax
  - flail chest

- CV compromise:
  - hypovolemia
  - myocardial contusion
  - pericardial tamponade
  - cardiogenic shock
Abdominal Trauma
# Abdominal Trauma

<table>
<thead>
<tr>
<th>Issues</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large blood loss</td>
<td>Large volume resuscitation available</td>
</tr>
<tr>
<td>Minimal signs</td>
<td><strong>before</strong> incision</td>
</tr>
<tr>
<td>Tamponade</td>
<td>Prepare to treat ischemic organs / compartment syndrome of legs</td>
</tr>
</tbody>
</table>