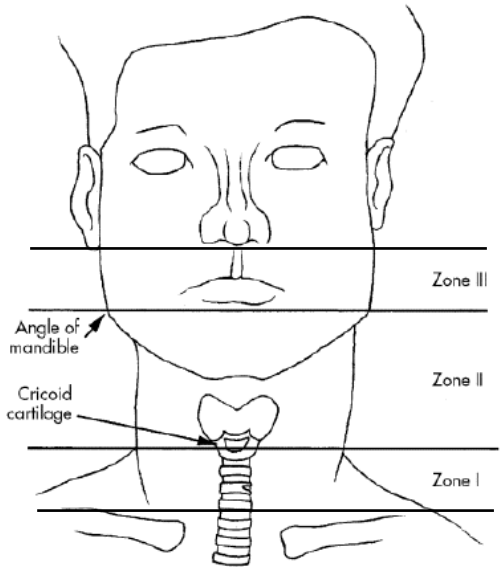
Penetrating Neck Trauma

Zones of the Neck



Zone I

- From clavicles to cricoid
- Usual Mx: Inv 1st (CTA±bronch±oesophoscopy), as some injuries occult & haem control can be hard.

Zone II

- Between cricoid and angle of mandible.
- Mx: OT, but if stable & likely vascular inj, ?inv first

Zone III

- Above mandible to BOS
- Mx: : Inv 1st (CTA±others if indicated). May help to plan surgical approach.

Assessment

Airway – Expect difficulty. Ensure patent & protected.
C-Spine injury – low risk unless GSW. All should get XR or CT.
Local exam to see if platysma breached, hard/soft signs *(no consensus for signs in textbooks)*
Hard signs: Airway obstruction, bubbling air in wound, severe active/pulsatile bleeding, shock, large/expanding haematoma, evolving stroke
?Hard signs: ↓↓radial pulse, bruit/thrill, haemoptysis/haematemesis, dyspnoea, sc emphysema
Soft signs: moderate/non-expanding haematoma, oropharyngeal blood, mediastinal air, chest tube air leak, dysphonia/dysphagia/odynophagia,
Neuronal damage:

- Phrenic n. (hemidiaphragm paralysis) → subclav vein ± art injury (n. lies between vessels)
- Vagal n. (tachycardia) → common carotid or IJV injury (nerve travels between them)
- Recurrent laryngeal n. (hoarse/vocal cord paralysis) → thyroid ± tracho-oesoph. injury
- Sympathetic chain (Horner's syndrome)

Complications

- Haemorrhage
- Infection
- Pulmonary injury
- Brachial plexus injury
- Thoracic duct injury

Investigations

CXR, C-spine XR, CT angio or catheter angio or Doppler USS (may miss Z1/3 injuries), upper airway endoscopy, oesophagoscopy & oesophageal contrast studies.

Management

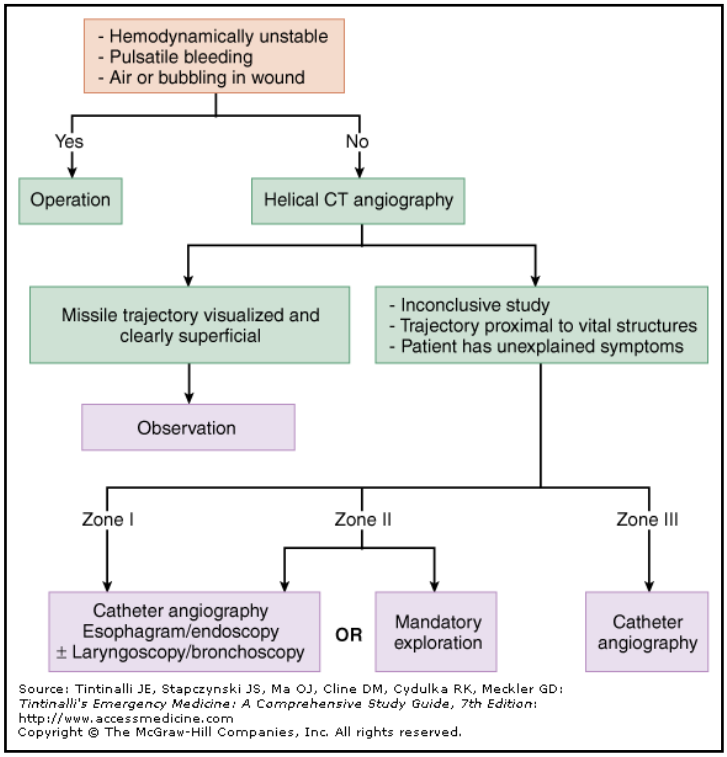
General: Leave FB until OT, head down if sucking wound, pressure on bleeding, IVC to opp side
Early airway control

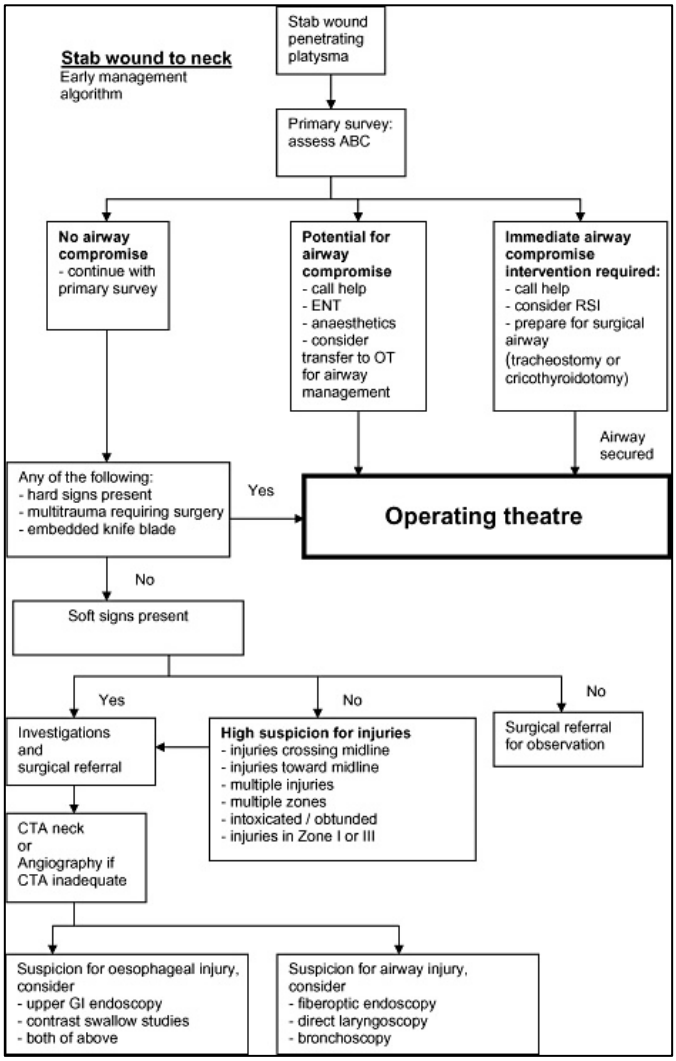
- Indications: Airway obstruction, stridor, expanding neck haematoma, haemoptysis, visible defect in trachea, ↓↓LOC, ineffective ventilation
- Method: Depends on injury level & extent. Options: orotracheal (under direct vision), direct transwound (care not to push distal trachea away), fibreoptic laryngoscopy, cricothyroidotomy (injury above thyroid cartilage), tracheostomy (injury below thyroid).

Surgery

- Indications: Hard signs, airways compromise, embedded penetrating object, other trauma requiring OT, unable to determine extent of injury, ?platysma breached.

Algorithms





Laryngotracheal Trauma

Blunt trauma - Rare esp in children. Laryngeal cartilage most often involved. ?C-spine #
Penetrating - 25% have associated oesophageal injury

Assessment

History: Hoarse voice, pain, SOB, dysphagia
Exam: Aphonia (severe), stridor, subcut emphysema
Inv: Fibre optic laryngoscopy, X-ray limited use. CT helpful but pat may not be able to lie flat

Management

Cricotracheal separation

Intubation – by most experienced operator. One size smaller than normal, under direct visualisation, without force. May use RSI, gaseous induction or sedation & local anaesthesia.

Laryngeal or higher injury

Awake tracheostomy is favoured.

Surgery

May be required if major wound or cartilaginous fracture.

Complications

Fibrosis or stenosis.