Management of Transmediastinal Gunshot Wounds

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Case Presentation

- 23 yo man, GSW left chest, 2nd IC space, PAL
- Mumbling
- Decreased breaths on the left
- BP 70s/40s, P110s
- Initial GCS 12
Case Presentation

- CXR – hemo/pneumothorax
- Left tube thoracostomy – 1400 cc blood
- Intubated in the ED
- Labs
  - CBC 10.87 > 12.2/39.9 < 198
  - BMP 141 / 4.0 / 104 / 12 / 12 / 1.38 < 344
  - Lactate 13.3
  - ABG 7.12 / 45 / 160 / 13 / 98 / -13.8
Case Presentation

- Left exploratory thoracotomy with extension to clamshell incision, left subclavian vein repair, left upper lobe tractotomy and tractorrhaphy, thymectomy, fiberoptic esophagoscopy
- 4000cc EBL, 10L crystalloid
- 14 pRBC, 10 FFP, 2 Plt, 2 cryoprecipitate
Case Presentation

• Bullet holes
  – Left upper lobe
  – Posterior mediastinum, hematoma
  – Left innominate vein, confluence
  – Left subclavian

• 4 chest tubes
Case Presentation

- Transferred to ICU
- POD#2: Extubated, Chest tubes placed to water seal
- POD#3: CTA Chest
- POD#4: Basilar chest tubes removed
- POD#6: Apical chest tubes removed
- POD#10: D/C home
Outline

• Background
• Anatomy
• Assessment
• Question
• Management
• References
Background

- 25% of traumatic deaths – thoracic injury
- Transmediastinal GSW – 50% thoracic vascular injury
- Overall survival has not changed
  - 1966: 20% mortality
  - 1981: 36%
  - 2000: 31%
  - Dr. Burack: 42%
Assessment

- ATLS
- ABCs
- Physical exam
- Adjuncts
  - CXR
  - FAST
Role for no chest tube?

- EAST Guidelines – level III recommendation
  - All hemothoraces, regardless of size, should be considered for drainage
- Effectiveness of chest tube clamping in massive hemothorax
  - The Journal of Trauma 1995
Management

• Hemodynamically stable
• traditional work-up
  – Aortography, catheter based
  – Bronchoscopy
  – Esophagoscopy/contrast esophagography
  – transesophageal echocardiography
• Selective
  – CT scanner to screen
Triage and Outcome of Patients with Mediastinal Penetrating Trauma

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Management

• Extremis – Resuscitative thoracotomy
• Hemodynamic compromise – OR
  – Sternotomy
  – Thoracotomy
  – Clamshell
  – Laparotomy
Thoracotomy Indications

- Traumatic thoracotomy
- Hemopericardium
- Free wall, septal, or valvular cardiac disruption
- Cardiac herniation
- Massive Air leak
- Tracheal, bronchial, esophageal, or great vessel injury
- 1500 cc initial blood loss from tube thoracostomy
- 200-250 cc/hr blood loss from tube thoracostomy
Management

• Lung injuries
  – lobectomy, pneumonectomy
  – Bleeding/air leak: tractotomy
Management

• Tracheobronchial injuries
  – Lacerations = interrupted absorbable suture
  – Circumferential = end-to-end anastomosis
Management

• Esophageal injuries
  – visualize the entire extent of the mucosal injury
  – Repair in two layers, tension free
Management

• Great Vessel Injury
  – Ascending aorta
  – Aortic arch
  – Innominate artery
  – Carotid/subclavian
  – Pulmonary artery

• SVC
Fig. 3. Algorithm for management of transmediastinal gunshot wounds at LAC + USC medical centre.

