PRACTICE GUIDELINE

Effective Date: **6-18-04** Manual Reference: **Deaconess Trauma Services**

TITLE: MANAGEMENT OF TRANSMEDIASTINAL GUNSHOT WOUNDS

PURPOSE: To provide guidelines for the diagnosis and management of a patient with a possible gunshot wound that traversed the mediastinum.

DEFINITION: Transmediastinal gunshot wound: A penetrating injury with a trajectory that suggests penetration of any of the structures of the mediastinum, including heart, great vessels, pulmonary hilar structures or esophagus.

GUIDELINES:

1. If the patient is in cardiac arrest without "witnessed signs of life," stop the code.

2. If the patient is in cardiac arrest and has had "witnessed signs of life" in the pre-hospital phase, proceed to open thoracotomy:
   a. Perform emergent left thoracotomy.
   b. Consider right thoracotomy if there is an entry wound on the right side of chest without an exit wound. Always remember that you can "clamshell" the thoracotomy and extend a left thoracotomy to the right and a right thoracotomy to the left.
   c. Control cardiac bleeding with finger compression, Foley balloon tamponade, sutures or skin staples.
   d. Control hilar bleeding with a hilar Satinsky clamp, top to bottom. Remember to take down the inferior pulmonary ligament, if you have to apply the clamp from below.
   e. Control retropleural bleeding with large figure-of-eight sutures.
   f. Control great vessel bleeding with Satinsky clamps, a finger, or sutures.

3. If the patient is hypotensive:
   a. Start vigorous IV resuscitation through large bore IV lines – remember in this case, one above and one below the diaphragm.
   b. If blood pressure improves, then go to # 4 below– "Stable or improving."
   c. If hypotension and tachycardia remains:
      i. Place chest tube in the side of the chest of the bullet entry.
      ii. Consider tension pneumothorax.
      iii. Consider pericardial tamponade.
   d. Consider ongoing bleeding and if time allows obtain a chest x-ray. Mark the entry and exit sites.
   e. Use Massive Transfusion Protocol for blood
   f. If patient requires one unit of blood, use tranxemic acid if blood loss started within <3 hours

g. At this point, if there has been no improvement in blood pressure despite fluid infusion and possible chest decompression, consider going to the operating room.

4. If the patient has vital signs, i.e., BP sys >100, P< 110, then proceed with rapid evaluation to determine injury.
   a. Chest x-ray: treat findings of pneumothorax or hemothorax.
   b. If there is widening of the mediastinum or supramediastinal enlargement, or a difference in the radial pulses, consider angiography.
   c. All transmediastinal injuries treated non-operatively should undergo esophageal imaging studies (e.g., gastrografin swallow).
   d. Alternative to above: If the patient is stable and it appears that the bullet traversed the mediastinum very anterior or very posterior, then a chest CT scan with contrast will be helpful. Bullet tracks are fairly clear on CT image. However, if there is a proximity to any organ, then further diagnostic studies, as noted above, need to be pursued.

5. All patients with transmediastinal gunshot wounds, if managed non-operatively, need admission and follow-up chest x-rays.

REFERENCES:

- Deaconess Trauma Guideline Manual, BLUNT CHEST INJURIES.
- Deaconess Trauma Guideline Manual, PENETRATING CHEST INJURIES.

REVIEWED DATE	REVISED DATE
JAN 05	JAN 08
JAN 06	AUG 2016
JAN 07	
OCT 11	
AUG 14	
JAN 17	
JAN 18	
JAN 19	