Northwest Community EMS System
Continuing Education: August 2012

Thoracic Trauma

Susan Wood RN BSN EMT-P

Objectives:
Upon completion of the class and study questions, each participant will independently do the following with a degree of accuracy that meets or exceeds the standards established for their scope of practice:

1. (C) state the incidence, morbidity and mortality of thoracic injuries in the trauma pt.
2. (C) anticipate thoracic injuries based on mechanism of injury (blunt vs. penetrating).
3. (A) advocate for a thorough assessment be completed in order to determine a differential diagnosis & treatment plan for thoracic trauma.
4. (C) differentiate the purpose & elements between a primary & secondary trauma assessment.
5. (C) discuss the assessment findings associated with lung injuries and describe appropriate management.
6. (C) compare & contrast assessment findings for a pt with thoracic injury that would require unilateral vs. bilateral needle decompression.
7. (C) analyze the findings of a secondary assessment to predict potential injuries in a pt with thoracic trauma.
8. (C) sequence the pathogenesis of life-threatening thoracic injuries.
9. (A) appreciate the need for rapid intervention for the pt with thoracic injuries.
10. (A) value the implications of failing to properly diagnose thoracic trauma.
11. (C) prioritize a rapid treatment plan based on primary & secondary assessment findings of a pt with chest trauma.
12. (A) value the implications of failing to initiate timely intervention to patients with thoracic trauma.
13. (C) set definitive patient care & transport priorities for pts with thoracic injuries.
14. (C) discriminate between assessment findings consistent with a flail chest that would require C-PAP & that needing needle pleural decompression.
15. (C) describe the pathophysiology of life-threatening myocardial injuries including pericardial tamponade, blunt cardiac injury, & myocardial rupture.
16. (C) describe pathophysiology of vascular injuries including injuries to the aorta, vena cavae, & pulmonary arteries/veins.
17. (C) discuss the assessment findings associated with traumatic asphyxia.
18. (C) describe the management of pts with traumatic asphyxia.
19. (C) identify the need for rapid intervention & transport of the pt with traumatic asphyxia.
20. (P) perform trauma assessment for a pt with thoracic trauma & identify life threats consistent with specific mechanism of injury (MOI).

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Trauma Assessment Review

Scenario:

Adult male bicyclist struck by a slow moving car; no helmet & hitting the hood before landing on the street & struck chest; there is only one pt w/ injury noted.

A: He is speaking with you but winded; RR sl. labored w/ asymmetric chest wall movement.

B: BS present of R; diminished on L in upper lobes, no open wounds. Trachea is midline.

C: Positive radial pulse; fast, sl weak with no JVD noted.

D: The pt has a GCS-14 & appears dazed about what just happened; abrasions noted to forehead; glucose-90. The pt. c/o of significant pain on L chest with abrasion noted over area.

VS: HR 110; BP 108/60; RR 24; RA SpO2 94%

Questions		Answers
1.	List two items to be identified in a scene size up.	1. 2.
2.	In the primary assessment, list two areas to be assessed?	1. 2.
3.	Which finding is concerning regarding airway assessment?	
4.	What two assessment findings help you in determining what interventions should/n't be done when assessing breathing?	1. 2.
5.	In addition to the above information, what two additional areas could be assessed during circulation?	1. 2.
6.	What treatment is appropriate with these findings?	
7.	What treatment is ***NOT*** appropriate given these findings?	
8.	Why?	
9.	What is the transport decision for this pt?	
10.	What additional assessment should be completed en route to the hospital?	

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Case #1

Scenario:

Called to the park for adult male involved in an altercation on the ball field; Parents were fighting at little league game about a "bad call" pt was hit several times & pushed to the ground getting the wind knocked out of him.

A: Pt speaking; patent

B: RR fast; labored w/ asymmetric expansion; + accessory muscle use, no paradoxical movement or open wounds; BS: L absent / R diminished; trachea midline.

C: No radial pulse; carotids fast, weak & thready; + JVD; Heart sounds distant

D: Awake, GCS 14; PERL, pain: 9/10

VS: P 117, BP 88/50, RR 28, RA SpO2 86%

	Questions	Answers	
1.	What five immediate life threats are considered?	1 2. 3. 4. 5.	
2.	What injury should be suspected based on this presentation & MOI?		
3.	Define this injury.		
4.	What temporary life saving treatment is needed immediately?		
5.	Identify the landmark for this procedure.		
6.	At what angle should the needle be inserted? If the needle hits a rib, should you adjust over or under the bone? Why?		
7.	Define simple pneumothorax.		
8.	Identify the progression from a simple pneumothorax to a tension pneumothorax.		
9.	In accordance with SOP, identify seven assessment findings consistent with a tension pneumothorax.	1. 2. 3. 4.	5. 6. 7.
10.	What is the cause of death with this injury?		

Case #2

Scenario:

EMS is called for an adult pt that fell from a tree. The pt was cutting branches w/ a saw & the branch he was leaning on gave way. He fell approx 20 feet hitting roof of house, then landing on ground. Bystanders stated he had a positive LOC but now is conscious, holding the L side of his chest with c/o SOB. Injury noted to right upper chest under clavicle.

A: Patent, stating "I can't breathe."

B: ↑ WOB, Extremely labored; BS absent bilaterally, blood bubbling at L chest area with puncture wound; SQ emphysema around opening.

C: Thready distal pulses, no JVD, skin pale cool and moist

D: Awake/agitated; GCS 14; PERL; pain: 8/10

VS: P 116, BP100/50, R 24,RA SpO2 78%

	Questions	Answers
1.	What injury should be suspected based on this presentation and MOI?	
2.	What one assessment finding from above scenario leads you to this conclusion?	
3.	Why are BS absent bilaterally?	
4.	What immediate treatment is needed?	
5.	What equipment is needed in order to perform this life saving measure?	
6.	What is the usual underlying reason for this type of injury?	
7.	What is the underlying reason in which a "sucking sound" is heard with this injury?	
8.	What is the cause of death with this injury?	
9.	What is important to appreciate in regards to the size of the opening with ventilation?	
10.	What should be assessed for after above treatment is done and why? • If this occurs, what should be done immediately?	

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Case #3

Scenario:

Adult M pedestrian vs. auto found lying between median & passenger side of vehicle. Bystanders state that pt was on phone when a vehicle struck him & dragged him approx 30 ft. Upon EMS arrival, pt is conscious and alert but in significant distress.

A: Awake & talking

B: Dyspneic, RR rapid, shallow, labored w/ paradoxical movement of R chest; + BS bilaterally.

C: Radial pulses =, rapid, weak, thready, Ø JVD, skin pale, cool, moist; ECG: ST, no ectopics

D: LOC: Awake, responds to verbal stimuli. Pain: 10/10

VS: P 120, BP 86/50, RR 26, RA SpO_2 84%

	Questions	Answers
1.	What injury should be suspected based on this presentation and MOI?	
2.	What two assessment findings from above scenario support your conclusion?	1. 2.
3.	Define your diagnosis.	
4.	Why is there paradoxical movement of the chest cavity? Where in the chest cavity can this occur?	
5.	What is the treatment for this injury?	
6.	What secondary injury can occur from this primary injury?	

7. Upon auscultation of BS, what is the underlying pathophysiology for auscultating fluid in the lungs of a pt with a pulmonary contusion?

8. When treating a pt with a hemothorax, what should be the goal of fluid resuscitation?

9. What are the classic signs of a pt with a pericardial tamponade in accordance with SOP?

10. What is the underlying pathophysiology for a pt that has commotion cordis & what scenario would be likely for having this occur?