

# Chapter 27

Review

# Review

1. When the chest impacts the steering wheel during a motor vehicle crash with rapid deceleration, the resulting injury that kills almost one third of patients, usually within seconds, is:
  - A. a hemothorax.
  - B. aortic shearing.
  - C. a pneumothorax.
  - D. a ruptured myocardium.

# Review

**Answer: B**

**Rationale:** When the chest impacts the steering wheel following rapid forward deceleration, aortic injuries (shearing or rupture) are the cause of death in nearly two thirds of patients. The aorta is the largest artery in the body; when it is sheared from its supporting structures or ruptures outright, exsanguination (bleeding to death) occurs—usually within a matter of seconds.

1. When the chest impacts the steering wheel during a motor vehicle crash with rapid deceleration, the resulting injury that kills almost one third of patients, usually within seconds, is:

A. a hemothorax.

**Rationale:** This is a serious injury, but is not fatal in seconds.

B. aortic shearing.

**Rationale:** Correct answer

1. When the chest impacts the steering wheel during a motor vehicle crash with rapid deceleration, the resulting injury that kills almost one third of patients, usually within seconds, is:

C. a pneumothorax.

**Rationale:** This is a serious injury, but is not fatal in seconds.

D. a ruptured myocardium.

**Rationale:** This is a serious injury, but not common.

2. Signs and symptoms of a chest injury include all of the following, EXCEPT:
- A. hemoptysis.
  - B. hematemesis.
  - C. asymmetrical chest movement.
  - D. increased pain with breathing.

**Answer: B**

**Rationale:** Signs and symptoms of a chest injury include, among others, bruising to the chest, chest wall instability, increased pain with breathing, asymmetrical (unequal) chest movement if a pneumothorax is present, and hemoptysis (coughing up blood) if intrapulmonary bleeding is occurring. Hematemesis (vomiting blood) indicates bleeding in the gastrointestinal tract—usually the esophagus or stomach—not the chest cavity.

2. Signs and symptoms of a chest injury include all of the following, EXCEPT:

A. hemoptysis.

**Rationale:** Hemoptysis is coughing up blood or blood-tinged sputum.

B. hematemesis.

**Rationale:** Correct answer

2. Signs and symptoms of a chest injury include all of the following, EXCEPT:

C. asymmetrical chest movement.

**Rationale:** This may indicate a flailed chest or pneumothorax.

D. increased pain with breathing.

**Rationale:** A chest injury will cause the presence of pain during inspiratory or expiratory chest wall movement.

3. During your assessment of a patient who was stabbed, you see an open wound to the left anterior chest. Your MOST immediate action should be to:
- A. position the patient on the affected side.
  - B. transport immediately.
  - C. assess the patient for a tension pneumothorax.
  - D. cover the wound with an occlusive dressing.

**Answer: D**

**Rationale:** If you encounter an open chest wound, you must cover it with an occlusive dressing. This will prevent air from moving in and out of the wound. After the dressing is applied, however, you must monitor the patient for signs of a developing tension pneumothorax.

3. During your assessment of a patient who was stabbed, you see an open wound to the left anterior chest. Your MOST immediate action should be to:

A. position the patient on the affected side.

**Rationale:** This is not the most immediate action.

B. transport immediately.

**Rationale:** Transport should take place once life threats have been managed

3. During your assessment of a patient who was stabbed, you see an open wound to the left anterior chest. Your MOST immediate action should be to:
- C. assess the patient for a tension pneumothorax.  
**Rationale:** You must monitor for signs of a developing pneumothorax.
  - D. cover the wound with an occlusive dressing.  
**Rationale:** Correct answer

4. When caring for a patient with signs of a pneumothorax, your MOST immediate concern should be:
- A. hypovolemia.
  - B. intrathoracic bleeding.
  - C. ventilatory inadequacy.
  - D. associated myocardial injury.

## Answer: C

**Rationale:** A pneumothorax occurs when air enters the pleural space and progressively collapses the lung. This impairs the ability of the lung to move air in and out (ventilate). As the lung collapses further, ventilatory efficiency decreases, resulting in hypoxemia; this should be your *most* immediate concern. Some patients with a pneumothorax may also experience intrathoracic bleeding and associated myocardial injury, depending on the mechanism of injury and the force of the trauma.

4. When caring for a patient with signs of a pneumothorax, your MOST immediate concern should be:

A. hypovolemia.

**Rationale:** This may be indicated by the signs and symptoms of shock.

B. intrathoracic bleeding.

**Rationale:** The patient may experience this, but inadequate ventilation is your immediate concern.

4. When caring for a patient with signs of a pneumothorax, your MOST immediate concern should be:

C. ventilatory inadequacy.

**Rationale:** Correct answer

D. associated myocardial injury.

**Rationale:** The patient may experience this, but inadequate ventilation is your immediate concern

5. What purpose does a one-way “flutter valve” serve when used on a patient with an open pneumothorax?
- A. It prevents air escape from within the chest cavity.
  - B. It allows a release for air trapped in the pleural space.
  - C. It only prevents air from entering an open chest wound.
  - D. It allows air to freely move in and out of the chest cavity.

**Answer: B**

**Rationale:** A one-way flutter valve is used to treat patients with an open pneumothorax (sucking chest wound), and serves two purposes: it allows air trapped in the pleural space to escape during exhalation, *and* it prevents air from entering the pleural space during inhalation. These combined effects alleviate pressure on the affected lung, which allows it to reexpand.

5. What purpose does a one-way “flutter valve” serve when used on a patient with an open pneumothorax?

A. It prevents air escape from within the chest cavity

**Rationale:** It allows air to exit the chest.

B. It allows a release for air trapped in the pleural space

**Rationale:** Correct answer

5. What purpose does a one-way “flutter valve” serve when used on a patient with an open pneumothorax?

C. It only prevents air from entering an open chest wound

**Rationale:** It prevents air from entering and allows air to exit the chest.

D. It allows air to freely move in and out of the chest cavity

**Rationale:** It allows air to move out freely and prevents air from entering.

6. Signs of a cardiac tamponade include all of the following, EXCEPT:
- A. muffled heart tones.
  - B. a weak, rapid pulse.
  - C. collapsed jugular veins.
  - D. narrowing pulse pressure.

## Answer: C

**Rationale:** Cardiac tamponade, which is almost always caused by penetrating chest trauma, occurs when blood accumulates in the pericardial sac. This impairs the heart's ability to contract and relax; as a result, the systolic blood pressure decreases and the diastolic blood pressure increases (narrowing pulse pressure). Because the heart cannot adequately eject blood, it backs up beyond the right atrium, resulting in jugular venous distention. In some cases, heart tones may be muffled or distant. Other signs include a weak, rapid pulse and hypotension.

6. Signs of a cardiac tamponade include all of the following, EXCEPT:

A. muffled heart tones.

**Rationale:** This is an assessment finding with cardiac tamponade.

B. a weak, rapid pulse.

**Rationale:** This is an assessment finding with cardiac tamponade.

6. Signs of a cardiac tamponade include all of the following, EXCEPT:

C. collapsed jugular veins.

**Rationale:** Correct answer

D. narrowing pulse pressure.

**Rationale:** This is an assessment finding with cardiac tamponade.

7. After experiencing penetrating trauma to the chest, your patient's blood pressure is 110/80 mm Hg. Which of the following repeat blood pressures is MOST indicative of a cardiac tamponade?

- A. 116/74 mm Hg
- B. 100/90 mm Hg
- C. 128/60 mm Hg
- D. 140/80 mm Hg

**Answer: B**

**Rationale:** Among the other signs of a cardiac tamponade, a narrowing of the pulse pressure (the difference between the systolic and diastolic pressure) may be observed. Of the choices in this question, the blood pressure of 100/90 mm Hg has a pulse pressure of only 10 mm Hg, which is less than any of the other values listed.

7. After experiencing penetrating trauma to the chest, your patient's blood pressure is 110/80 mm Hg. Which of the following repeat blood pressures is MOST indicative of a cardiac tamponade?

A. 116/74 mm Hg

**Rationale:** The pulse pressures are not narrowed.

B. 100/90 mm Hg

**Rationale:** Correct answer

7. After experiencing penetrating trauma to the chest, your patient's blood pressure is 110/80 mm Hg. Which of the following repeat blood pressures is MOST indicative of a cardiac tamponade?

C. 128/60 mm Hg

**Rationale:** The pulse pressures are not narrowed.

D. 140/80 mm Hg

**Rationale:** The pulse pressures are not narrowed.

8. During your assessment of a patient with a closed chest injury, you should NOT intentionally assess for:

A. bruising.

B. deformities.

C. crepitus.

D. breath sounds.

**Answer: C**

**Rationale:** Crepitus, the sound made (or sensation felt) when broken bone ends rub together, is not intentionally assessed for in patients with any injury; it is a coincidental finding that should be documented.

Intentionally assessing for crepitus—which involves moving or manipulating the injured area—may worsen the injury and should be avoided.

8. During your assessment of a patient with a closed chest injury, you should NOT intentionally assess for:

A. bruising.

**Rationale:** This may be seen on inspection.

B. deformities.

**Rationale:** This may be visualized during the inspection of a patient's chest.

8. During your assessment of a patient with a closed chest injury, you should NOT intentionally assess for:

C. crepitus.

**Rationale:** Correct answer

D. breath sounds.

**Rationale:** EMTs must assess for adequate lung sounds.

9. Paradoxical chest movement is typically seen in patients with:

- A. a flail chest.
- B. a pneumothorax.
- C. isolated rib fractures.
- D. a ruptured diaphragm.

**Answer: A**

**Rationale:** Paradoxical chest movement occurs when an area of the chest wall bulges out during exhalation and collapses during inhalation. This type of abnormal chest movement is seen in patients with a flail chest—a condition in which several adjacent ribs are fractured in more than one place, resulting in a free-floating segment of fractured ribs.

9. Paradoxical chest movement is typically seen in patients with:

A. a flail chest.

**Rationale:** Correct answer

B. a pneumothorax.

**Rationale:** This will produce unilateral chest wall movement.

9. Paradoxical chest movement is typically seen in patients with:

C. isolated rib fractures.

**Rationale:** This will produce pain, but not irregular chest wall movement.

D. a ruptured diaphragm.

**Rationale:** This typically occurs on the left side. You may hear bowel sounds over the lower chest area.

10. A 40-year-old man, who was the unrestrained driver of a car that hit a tree at a high rate of speed, struck the steering wheel with his chest. He has a large bruise over the sternum and an irregular pulse rate of 120 beats/min. You should be MOST concerned that he:
- A. has injured his myocardium.
  - B. has a collapsed lung and severe hypoxia.
  - C. has extensive bleeding into the pericardial sac.
  - D. is at extremely high risk for ventricular fibrillation.

**Answer: A**

**Rationale:** A myocardial contusion, or bruising of the heart muscle, is usually the result of blunt trauma—specifically to the center of the chest. In some cases, the injury may be so severe that it renders the heart unable to maintain adequate cardiac output; as a result, blood pressure falls. The pulse rate is often irregular; however, lethal cardiac dysrhythmias such as ventricular tachycardia and ventricular fibrillation are uncommon.

10. A 40-year-old man, who was the unrestrained driver of a car that hit a tree at a high rate of speed, struck the steering wheel with his chest. He has a large bruise over the sternum and an irregular pulse rate of 120 beats/min. You should be MOST concerned that he:

A. has injured his myocardium.

**Rationale:** Correct answer

B. has a collapsed lung and severe hypoxia.

**Rationale:** This will produce an absence or decrease of breath sounds and unilateral chest wall expansion.

10. A 40-year-old man, who was the unrestrained driver of a car that hit a tree at a high rate of speed, struck the steering wheel with his chest. He has a large bruise over the sternum and an irregular pulse rate of 120 beats/min. You should be MOST concerned that he:

C. has extensive bleeding into the pericardial sac.

**Rationale:** This will produce muffled heart sounds and decreased cardiac output.

D. is at extremely high risk for ventricular fibrillation.

**Rationale:** Lethal dysrhythmias are uncommon.