

# Chapter 26

Review

1. The brain, a part of the central nervous system (CNS), is divided into the:
  - A. cerebrum, cerebellum, and brain stem.
  - B. cerebrum, brain stem, and spinal cord.
  - C. cerebellum, cerebrum, and spinal cord.
  - D. spinal cord, cerebrum, and cerebral cortex.

**Answer: A**

**Rationale:** The brain and spinal cord comprise the central nervous system (CNS). The brain is divided into three major regions: the cerebrum (the largest portion), the cerebellum, and the brain stem. Each region of the brain carries out specific functions.

1. The brain, a part of the central nervous system (CNS), is divided into the:

A. cerebrum, cerebellum, and brain stem.

**Rationale:** Correct answer

B. cerebrum, brain stem, and spinal cord.

**Rationale:** The spinal cord is not part of the brain.

1. The brain, a part of the central nervous system (CNS), is divided into the:

C. cerebellum, cerebrum, and spinal cord.

**Rationale:** The spinal cord is not part of the brain.

D. spinal cord, cerebrum, and cerebral cortex.

**Rationale:** The spinal cord is not part of the brain.

2. As you are assessing a 24-year-old man with a large laceration to the top of his head, you should recall that:
- A. the scalp, unlike other parts of the body, has relatively fewer blood vessels.
  - B. blood loss from a scalp laceration may contribute to hypovolemic shock in adults.
  - C. any avulsed portions of the scalp should be carefully cut away to facilitate bandaging.
  - D. most scalp injuries are superficial and are rarely associated with more serious injuries.

## **Answer: B**

**Rationale:** Although the scalp is highly vascular and tends to bleed heavily when injured, scalp injuries are rarely the sole cause of hypovolemic shock in adults. However, they can contribute to hypovolemia caused by injuries elsewhere in the body. Scalp lacerations, deep or superficial, should prompt you to look for more serious underlying injuries, such as a skull fracture. If the injury involves an avulsion, the avulsed flap of skin should be carefully replaced to its original position, not cut away.

2. As you are assessing a 24-year-old man with a large laceration to the top of his head, you should recall that:

A. the scalp, unlike other parts of the body, has relatively fewer blood vessels.

**Rationale:** The scalp is highly vascular.

B. blood loss from a scalp laceration may contribute to hypovolemic shock in adults.

**Rationale:** Correct answer

2. As you are assessing a 24-year-old man with a large laceration to the top of his head, you should recall that:

- C. any avulsed portions of the scalp should be carefully cut away to facilitate bandaging.

**Rationale:** The avulsed flap should be carefully replaced to its original position.

- D. most scalp injuries are superficial and are rarely associated with more serious injuries.

**Rationale:** Deep or superficial scalp lacerations should prompt EMS providers to assess for more serious underlying injuries.

3. A rapid and prolonged loss of consciousness is MOST common in patients with a(n):
- A. epidural hematoma.
  - B. subdural hematoma.
  - C. concussion.
  - D. contusion.

## Answer: A

**Rationale:** Epidural hematomas are caused by injury to an artery—usually the middle meningeal artery—that lies in between the skull and brain. Because arteries bleed faster than veins, patients with an epidural hematoma typically experience an immediate and prolonged loss of consciousness as intracranial pressure increases. Subdural hematomas are the result of injury to a vein; therefore, they tend to bleed slowly and usually cause a progressive decline in level of consciousness. Concussions and contusions may cause a loss of consciousness, but it is typically brief.

3. A rapid and prolonged loss of consciousness is MOST common in patients with a(n):

A. epidural hematoma.

**Rationale:** Correct answer

B. subdural hematoma.

**Rationale:** Subdural hematomas tend to bleed slowly and usually cause a progressive decline in level of consciousness.

3. A rapid and prolonged loss of consciousness is MOST common in patients with a(n):

C. concussion.

**Rationale:** Concussions may cause a loss of consciousness, but is typically brief.

D. contusion.

**Rationale:** Contusions may cause a loss of consciousness, but is typically brief.

4. A 44-year-old man was struck in the back of the head and was reportedly unconscious for approximately 30 seconds. He complains of a severe headache and “seeing stars,” and states that he regained his memory shortly before your arrival. His presentation is MOST consistent with a(n):
- A. contusion.
  - B. concussion.
  - C. subdural hematoma.
  - D. intracerebral hemorrhage.

## Answer: B

**Rationale:** A concussion occurs when the brain is jarred around inside the skull. It may result in a brief loss of consciousness and occasionally, amnesia. Seeing stars is a common finding following trauma to the back of the head (occiput), as this region is primarily responsible for vision. A concussion—the least severe of all closed head injuries—typically does not result in physical damage to the brain. Compared to a concussion, a contusion, subdural hematoma, and intracerebral hemorrhage are usually associated with a more prolonged loss of consciousness.

4. A 44-year-old man was struck in the back of the head and was reportedly unconscious for approximately 30 seconds. He complains of a severe headache and “seeing stars,” and states that he regained his memory shortly before your arrival. His presentation is MOST consistent with a(n):

A. contusion.

**Rationale:** This is when brain tissue is damaged and the patient presents with prolonged confusion and loss of consciousness.

B. concussion.

**Rationale:** Correct answer

4. A 44-year-old man was struck in the back of the head and was reportedly unconscious for approximately 30 seconds. He complains of a severe headache and “seeing stars,” and states that he regained his memory shortly before your arrival. His presentation is MOST consistent with a(n):

C. subdural hematoma.

**Rationale:** This is an accumulation of blood beneath the dura mater.

D. intracerebral hemorrhage.

**Rationale:** This is bleeding within the brain itself.

5. A young male was involved in a motor vehicle accident and experienced a closed head injury. He has no memory of the events leading up to the accident, but remembers that he was going to a birthday party. What is the correct term to use when documenting his memory loss?
- A. concussion
  - B. cerebral contusion
  - C. retrograde amnesia
  - D. anterograde amnesia

**Answer: C**

**Rationale:** The term amnesia means loss of memory; it is common in patients who have experienced a cerebral concussion. Amnesia of events leading up to an injury is called retrograde amnesia. Anterograde amnesia—also called posttraumatic amnesia—is the inability to remember events that occurred—or will occur—after the injury.

5. A young male was involved in a motor-vehicle accident and experienced a closed head injury. He has no memory of the events leading up to the accident, but remembers that he was going to a birthday party. What is the correct term to use when documenting his memory loss?

A. concussion

**Rationale:** This occurs when the brain is jarred inside the skull.

B. cerebral contusion

**Rationale:** This is when tissue is bruised and damaged in a local area. It may result in prolonged confusion.

5. A young male was involved in a motor-vehicle accident and experienced a closed head injury. He has no memory of the events leading up to the accident, but remembers that he was going to a birthday party. What is the correct term to use when documenting his memory loss?

C. retrograde amnesia

**Rationale:** Correct answer

D. anterograde amnesia

**Rationale:** This is the loss of memory relating to events that occurred after the injury.

6. A distraction injury to the cervical spine would MOST likely occur following:
- A. a diving accident.
  - B. blunt neck trauma.
  - C. hyperextension of the neck.
  - D. hanging-type mechanisms.

**Answer: D**

**Rationale:** Excessive traction on the neck, such as what occurs during hanging-type mechanisms, can cause a distraction injury of the cervical spine. Distraction injuries can cause separation of the vertebrae and stretching or tearing of the spinal cord.

6. A distraction injury to the cervical spine would MOST likely occur following:

A. a diving accident.

**Rationale:** This would possibly cause a compression injury.

B. blunt neck trauma.

**Rationale:** This can result in a fracture or neurologic deficit.

6. A distraction injury to the cervical spine would MOST likely occur following:

C. hyperextension of the neck.

**Rationale:** This can result in a fracture or neurologic deficit.

D. hanging-type mechanisms.

**Rationale:** Correct answer

7. During immobilization of a patient with a possible spinal injury, manual stabilization of the head must be maintained until:
- A. an appropriate-size extrication collar has been placed.
  - B. the patient is fully immobilized on a long backboard.
  - C. a range of motion test of the neck has been completed.
  - D. D. pulse, motor, and sensory functions are found to be intact.

## Answer: B

**Rationale:** Manual stabilization of the patient's head must be maintained until he or she is *fully* secured to the long backboard. This includes the application of an extrication collar, straps, and lateral immobilization (head blocks). Pulse, motor, and sensory functions must be checked before and after the immobilization process. *Do not* assess range of motion in a patient with a possible spinal injury; this involves moving the patient's neck and may cause further injury.

7. During immobilization of a patient with a possible spinal injury, manual stabilization of the head must be maintained until:

A. an appropriate-size extrication collar has been placed.

**Rationale:** This is only one small part of the total immobilization process.

B. the patient is fully immobilized on a long backboard.

**Rationale:** Correct answer

7. During immobilization of a patient with a possible spinal injury, manual stabilization of the head must be maintained until:

C. a range of motion test of the neck has been completed.

**Rationale:** Do not assess the range of motion in a patient with a possible spinal injury.

D. pulse, motor, and sensory functions are found to be intact.

**Rationale:** This is done before and after complete immobilization.

8. Your patient is a 21-year-old male who has massive face and head trauma after being assaulted. He is lying supine, is semiconscious, and has blood in his mouth. You should:
- A. insert a nasal airway, assess his respirations, and give 100% oxygen.
  - B. suction his airway and apply high-flow oxygen via a nonrebreathing mask.
  - C. manually stabilize his head, log roll him onto his side, and suction his mouth.
  - D. apply a cervical collar, suction his airway, and begin assisting his ventilations.

## Answer: C

**Rationale:** Blood or other secretions in the mouth place the airway in *immediate* jeopardy and must be removed before they are aspirated. At the same time, you must protect the patient's spine due the mechanism of injury. Therefore, you should manually stabilize the patient's head, log roll him onto his side (allows drainage of blood from his mouth), and suction his mouth for up to 15 seconds. After ensuring that his airway is clear, assess his breathing and give high-flow oxygen or assist his ventilations. Nasal airways should not be used in patients with severe facial or head trauma.

8. Your patient is a 21-year-old male who has massive face and head trauma after being assaulted. He is lying supine, is semiconscious, and has blood in his mouth. You should:

A. insert a nasal airway, assess his respirations, and give 100% oxygen.

**Rationale:** Nasal airways should not be used in patients with severe facial or head trauma or with suspected fractures.

B. suction his airway and apply high-flow oxygen via a nonrebreathing mask.

**Rationale:** This must be done after manual stabilization of the spine and rolling the patient to his side.

8. Your patient is a 21-year-old male who has massive face and head trauma after being assaulted. He is lying supine, is semiconscious, and has blood in his mouth. You should:

C. manually stabilize his head, log roll him onto his side, and suction his mouth.

**Rationale:** Correct answer

D. apply a cervical collar, suction his airway, and begin assisting his ventilations.

**Rationale:** The cervical collar should be applied but manual stabilization must take place first. There are no indications here that the patient's rate of respirations are inadequate and require assisted ventilations.

9. A man is found slumped over the steering wheel, unconscious and making snoring sounds, after an automobile accident. His head is turned to the side and his neck is flexed. You should:
- A. gently rotate his head to correct the deformity.
  - B. carefully hyperextend his neck to open his airway.
  - C. apply an extrication collar with his head in the position found.
  - D. manually stabilize his head and move it to a neutral, in-line position.

**Answer: D**

**Rationale:** The patient's snoring sounds indicate an airway problem, which must be corrected or he may die. Manually stabilize his head; carefully move it to a neutral, in-line position; and reassess his breathing. Do not rotate or hyperextend the neck of a patient with a possible spinal injury; the results could be disastrous.

9. A man is found slumped over the steering wheel, unconscious and making snoring sounds, after an automobile accident. His head is turned to the side and his neck is flexed. You should:
- A. gently rotate his head to correct the deformity.  
**Rationale:** Do not hyperextend the neck of a patient with a possible spinal injury.
  - B. carefully hyperextend his neck to open his airway.  
**Rationale:** Do not hyperextend the neck of a patient with a possible spinal injury.

9. A man is found slumped over the steering wheel, unconscious and making snoring sounds, after an automobile accident. His head is turned to the side and his neck is flexed. You should:

C. apply an extrication collar with his head in the position found.

**Rationale:** The head must be placed in a neutral position to open the airway.

D. manually stabilize his head and move it to a neutral, in-line position.

**Rationale:** Correct answer

10. You should NOT remove an injured football player's helmet if:
- A. a cervical spine injury is suspected, even if the helmet fits loosely.
  - B. the patient has a patent airway, even if he has breathing difficulty.
  - C. he has broken teeth, but only if the helmet does not fit snugly in place.
  - D. the face guard can easily be removed and there is no airway compromise.

## Answer: D

**Rationale:** In general, you should leave a helmet on if it fits snug and does not allow movement of the head within the helmet, the patient's airway is patent, no airway problems are anticipated, and the patient is breathing without difficulty. If you can easily remove the face guard (often the case with football helmets) and there are no airway problems, do so but leave the helmet on. If the helmet is loose, the airway is in anyway compromised, or the patient has difficulty breathing or is in cardiac arrest, the helmet must be removed.

10. You should NOT remove an injured football player's helmet if:

A. a cervical spine injury is suspected, even if the helmet fits loosely.

**Rationale:** If the helmet allows for movement of the head, it should be removed.

B. the patient has a patent airway, even if he has breathing difficulty.

**Rationale:** The helmet must be removed if the patient is having breathing difficulty.

10. You should NOT remove an injured football player's helmet if:

C. he has broken teeth, but only if the helmet does not fit snugly in place.

**Rationale:** Broken teeth present a potential for airway obstruction.

D. the face guard can easily be removed and there is no airway compromise.

**Rationale:** Correct answer