Injuries to the Head, Neck and Spine







Lesson 34: Injuries to the Head, Neck and Spine

You Are the Emergency Medical Responder

You are the emergency medical responder (EMR) with an ambulance crew responding at the scene of a motorcycle accident. As you round a curve and approach the scene, you begin your size-up and see that the motorcycle driver is lying on the road, not moving, and two bystanders appear to be rendering assistance. The motorcycle is a considerable distance from where the driver is located. The motorcyclist is wearing a helmet.



Injuries to the Head: Causes of Head Injuries





DVD Injuries to Head, Neck and Spine





Injuries to the Head: Head Injuries

- Easily injured; no padding of muscle or fat
- Common cause of death, lack of oxygen to brain
- Open head injuries
 - Control bleeding promptly
 - No direct pressure over obvious depressions
 - Do not remove penetrating objects
- Closed head injuries
 - Brain is struck against inside of skull
 - Look for cerebrospinal fluid



Injuries to the Head: Head Injuries (cont'd)

- Skull fractures significant trauma
 - Deformities, CSF, unequal pupils
 - Raccoon eyes, battle signs
- Concussion temporary loss of brain function
- Penetrating wounds
 - Stabilize with bulky dressings
- Scalp injuries
 - Large number of blood vessels
 - Use gentle pressure at first















Scalp Avulsion injury



Before Surgery

After Surgery



Head and Brain Injury: Signs and Symptoms

- Damage to the skull, including deformity to the skull or face
- Pain or swelling at the site of injury
- Irregular breathing
- Sudden, debilitating headache
- Nausea or vomiting
- Incontinence
- High blood pressure and slowed pulse



Head and Brain Injury: Signs and Symptoms (cont'd)

- One-sided paralysis or droopiness; limb rigidity
- Temporary memory loss, especially for periods immediately before and after the injury
- Loss of balance
- Asymmetrical facial movements
- Altered mental status
- Facial bruising, including "raccoon eyes" (visible bruising around the eyes)
- External bleeding



Head and Brain Injury: Signs and Symptoms (cont'd)

- Unusual bumps/depressions
- Blood/fluids from ears, mouth or nose
- Bruising behind the ears ("Battle's sign")
- Unequal pupil size and unresponsive pupils
- Disturbance of vision in one eye or both
- Speech problems
- Seizures





Head and Brain Injury: Providing Care

- Summon more advanced medical personnel
- Follow standard precautions BSI
- Establish manual stabilization
- Perform a primary assessment
- Maintain an open airway
- Control bleeding



 If cerebrospinal fluid leaking from the ears or a wound in the scalp, cover the area loosely with a sterile gauze dressing



Head and Brain Injury: Providing Care (continued)

- Do not attempt to remove any penetrating object; instead stabilize it with a bulky dressing
- Maintain manual stabilization until other EMS personnel arrive and immobilize the patient on a backboard. Apply a cervical collar (C-collar) if trained to do so and protocols allows
- Monitor vital signs and mental status
- Calm and reassure patient



Eye Injuries

- Involvement of eyeball, bone and soft tissue surrounding eye
- Serous and can cause blindness
- Never put direct pressure on the eyeball
- Physician exam necessary for all injuries
- Examples of injuries:
 - Foreign bodies irrigate if possible
 - Chemical exposure irrigate 20 minutes
 - Impaled objects do not remove, page 513









Wrap both eyes, even when only one is injured!



Oral Injuries

- Injuries to teeth or jaws
- If injury has knocked out a tooth, and the patient is conscious, control bleeding:
 - Place rolled dressing in space left by tooth
 - Have patient gently bite down for pressure
- Find any teeth that have been knocked out
 - Handle by crown, rinse gently under water
 - Place in milk or moistened sterile gauze
 - Do not attempt re-implantation







Nose Bleed (Epistaxis)

Caused by a blow by a blunt object. Can also be caused by dry air and high blood pressure.

Treatment

- 1. Pinch nose and lean slightly forward for 10 minutes.
- 2. Apply an ice pack to the bridge of the nose.
- 3. Do not put items into the nose.
- 4. Tell patient to not blow their nose.

Seek advanced care if:

- 1. Bleeding does not stop.
- 2. Bleeding stops then starts again.
- 3. Patient has a history of hypertension.





Injuries to the Neck and Spine

- Mechanism of Injury (MOI)
 - Any fall greater than victim's height
 - Any motor vehicle collision
 - A person found unconscious for unknown reasons.
 - Any injury that penetrates the head or trunk
 - A motor vehicle crash involving a driver or passengers not wearing safety belts or an ejection
 - Any injury in which a victim's helmet (bike or sport) is broken



Neck Laceration

The signs and symptoms of neck injuries may include—

- Obvious lacerations, swelling or bruising.
- Objects impaled in the neck.
- Profuse external bleeding.
- Impaired breathing as a result of the injury.
- Difficulty speaking or complete loss of voice.
- A crackling sound when the patient is speaking or breathing, due to air escaping from an injured trachea or larynx.

Obstructed airway caused by swelling of the throat."





Neck Laceration

Treatment:

- 1. Perform a Primary Assessment.
- 2. Control Bleeding.
- 3. Provide manual stabilization.
- 4. Tell patient to not move their head.
- 5. Do not move the patient.
- 6. Maintain an open airway.
- 7. Call for more advanced assistance.









Neck and Spinal Injuries: Providing Care

- Spinal motion restriction
- Approach from the front
- Primary assessment
- Airway and ventilation management
- Helmet removal:
 - Only with proper training
 - Only if necessary to access and assess patient's airway
 - A minimum of two trained responders present





Neck and Spinal Injuries: General Guidelines

- Do not move the patient or ask the patient to try to find a pain response.
- Keep patient still
- Use Manual Stabilization
- Questions to ask
 - Does your neck or spine hurt?
 - What happened?
 - Can you move your hands and feet?
 - Can you feel me touching your fingers?
 - Can you feel me touching your toes?





Manual Stabilization



- Minimize movement by placing your hands on both sides of the patient's head.
- Support the head in the position found.
 - Do not align the head and neck with the spine if the head is sharply turned to one side, instead maintain the head and neck in the position found.
- Maintain open airway. Control any external bleeding and keep patient from getting chilled or overheated.



You Are the Emergency Medical Responder

As you assess the patient, you find that you cannot determine the status of the airway or breathing because of the patient's helmet.

What do you do next?



Enrichment Removing Helmets

- Sports helmets and motorcycle helmets
- More difficult to access the airway with a motorcycle helmet
- Two rescuers needed to remove a non-athletic helmet
- Athletic helmet removal more challenging because of the need to remove shoulder pads to prevent further injury
 - Typically requires at least five trained rescuers



We will now review the enrichment activity on removing a helmet. This is found in the textbook.

