LESSON ASSIGNMENT

LESSON 4  HEENT Trauma.

LESSON ASSIGNMENT  Paragraphs 4-1 through 4-19.

LESSON OBJECTIVES  After completing this lesson, you should be able to:

4-1. Identify the signs, symptoms, and treatment for these facial injuries: blowout fracture; tripod fracture; mandibular fracture; maxillary fracture; and zygomatic fracture.

4-2. Identify the general considerations for eye injuries.

4-3. Identify the signs, symptoms, and treatment for the following ocular injuries: periorbital hematoma; conjunctival hemorrhage; anterior chamber hemorrhage; superficial foreign body in the eye; corneal abrasion; burns to the eye; penetrating eye injuries; eyeball knocked out of the socket; and eyelid injury.

4-4. Identify the signs, symptoms, and treatment for the following ear injuries/disorders: hematoma of the external ear; laceration of the external ear; perforation of the tympanic membrane; conductive deafness; and foreign bodies in the ear.

4-5. Identify the signs, symptoms, and treatment for the following nose injuries: epistaxis; fracture of the nose; and foreign bodies in the nose.

4-6. Identify the signs, symptoms, and treatment for the following throat injuries: foreign bodies in the oropharynx and foreign bodies in the esophagus.

SUGGESTION  After completing the assignment, complete the exercises of this lesson. These exercises will help you to achieve the lesson objectives.
LESSON 4
HEENT TRAUMA
Section I. HEAD INJURIES

4-1. INTRODUCTION

Trauma can cause injuries to the bones of the face. Such trauma is usually the result of industrial accidents, falls, sporting accidents, and fist fights. Automobile accidents, however, are the most common cause of injuries to facial bones. Most major injuries of this type are dealt with by a specialist, but initial treatment is of vital importance to the patient. Suspect the possibility of a facial fracture if you note the following:

b. Facial deformity.
c. Black eye(s) discoloration below the eye(s).
d. Lower jaw which is swollen/poor jaw function.
e. Loose or broken teeth/knocked out teeth/broken dentures.
f. Other indications of a severe blow to the face.

4-2. FACIAL FRACTURES

a. Blowout Fracture.

(1) Description. A blowout fracture is a fracture in the orbital floor, the bottom of the eye socket. The orbit is the cavity in the skull which contains the eyeball. Commonly, the orbit is called the eye socket. The bottom or floor of the orbit is thin bone, and a blow by a blunt object such as a fist or a baseball bat can fracture or break the bone on the bottom of the eye socket. A blowout fracture is usually not associated with other facial fractures such as fractures of the orbital rim or other facial bones. When the bone at the bottom of the eye socket is broken, the eye drops down out of position causing eye function problems.

(2) Signs/symptoms. Included are the following:

(a) Pain.

(b) Swelling.
(c) Ecchymosis (bruise).
(d) Diplopia (double vision).
(e) Enophthalmos (displaced eyeball receding in orbit).
(f) Limited eyeball motion upward inward, upward outward, and downward gaze on the injured side.

(3) **Diagnosis.** Diagnosis is made by taking a patient history. Did the patient experience a direct blow to the soft tissues of the orbit? Conduct a physical examination of the movement of the eyes. The coordinated action of six muscles controls the movement of each eye. Asking the patient to move his eyes in a specific direction can not only test the function of the six muscles but also help determine the presence of a blowout fracture. In order to test the eye movement of the patient, ask him to follow your finger or a pencil as you move through the six cardinal fields (directions) of gaze. Moving your finger or a pencil at a comfortable distance from the patient, ask him to look to the right; upward to the right of the midline; straight down; to the left; upward to the left of the midline; straight down.

(4) **Treatment.** Protect the area from further injury. Evacuate the patient for further evaluation.

b. **Tripod Fracture.**

(1) **Description.** A tripod fracture is caused by a blow to the cheekbone. The fracture occurs at the juncture of three bones in the cheek.

(2) **Diagnosis.** Diagnosis is made by taking a patient's history. Did the patient suffer a blow to the cheekbone? A physical examination should reveal a lessened sensitivity to touch in the affected area.

(3) **Treatment.** Protect the area from further injury. Evacuate the patient for further evaluation.

c. **Mandibular Fracture.**

(1) **Description.** The mandible is the lower jaw. Mandibular fractures are very common and usually not life-threatening. The mandible bone is very strong, but there are areas of relative weakness where fractures can occur. Mandibular fractures occur more often in areas without teeth than areas with teeth. The patient may only complain of one area of tenderness. Since the force of any blow to the mandible is very strong, look for fractures in other facial areas.
(2) **Signs/symptoms**. Included are the following:

(a) Pain without motion.

(b) Tenderness over the site of the fracture.

(c) Swelling.

(d) Bruise.

(e) Malocclusion (teeth do not close properly to chew).

(f) Cannot open mouth.

(g) Excessive salivation.

(h) Facial appearance is abnormal.

(i) No feeling in the lower lip.

(3) **Treatment**. Protect the area from further injury. Evacuate the patient for further evaluation. Wiring and or surgery of the jaw may be required.

d. **Maxillary Fracture**.

(1) **Description**. The maxilla, the upper jaw bone, is located in the middle third of the face and is a stable, sturdy structure. A great amount of force is required to fracture this bone. The most common cause of maxillary fracture is an automobile accident. There may be massive hemorrhaging due to laceration of major vessels in the nasopharyngeal area from the force of the blow which caused the fractures. These fractures have the potential to be life-threatening since airway obstruction and exsanguination (bloodlessness) may occur. Airway obstruction may be caused by displacement of the maxilla.

(2) **Signs/symptoms**. Included are the following:

(a) Pain.

(b) Swelling.

(c) Ecchymosis (bruise).

(d) Malocclusion (teeth do not close properly for chewing most common sign).

(e) Palpable fracture separations.
(3) **Treatment.** Protect the area from further injury. Evacuate the patient for further evaluation. Usually, a specialist will need to wire the jaw and perhaps perform surgery.

e. **Maxillary and Zygomatic Fractures.**

(1) **Description of zygoma or malar bone (cheek bone) problem.** The cheek bone occupies a prominent position in the structure of the face. The zygomatic bone meets other facial bones at three points. If there is trauma to the zygoma, a problem usually occurs at one of these three points. Sutures are another name for the three points: the zygomaticofrontal suture, the zygomaticomaxillary suture, and the zygomaticotemporal suture. The zygoma is in a prominent position and liable for all kinds of trauma, but the most common trauma is from blows of fists. Blows to the zygoma may cause the bone to move in almost any direction, but it usually is displaced downward and inward.

(2) **Signs/symptoms.** Included are the following:

(a) Pain.

(b) Swelling.

(c) Ecchymosis (bruise).

(d) Epistaxis (nosebleed) on one side if injury at zygomaticomaxillary suture or if maxillary sinus lining is torn.

(e) Pain on opening the mouth.

(f) Injured side of face flattened or depressed.

(g) Teeth don't make proper contact for chewing.

(3) **Treatment of oral fractures (mandible, maxilla, zygoma).**

(a) Protect the patient from further injury.

(b) Evacuate for further evaluation.

(c) Usually requires wiring of jaw and/or surgery.
Section II. EYE INJURIES

4-3. GENERAL CONSIDERATIONS

a. Key Considerations in Initial Care. Be careful about moving the patient's head. Try to immobilize head movement. Avoid pressure when examining the patient. Have the patient avoid coughing or straining, if possible. Do not use Betadine® on the patient's eyes. Continually reassure the patient.

b. Evacuation. Transport the patient in the supine position with his upper torso elevated 15 to 30 degrees. When the patient is being evacuated by air, give oxygen as indicated. Advise the air crew to climb slowly and avoid abrupt maneuvering. The aircraft cabin should be at sea level pressure, and the aircraft should be flying at low level. Request that you be informed of any change in flight altitude.

4-4. NONPENETRATING EYE INJURIES

a. Periorbital Hematoma (Black Eye).

   (1) Description. A hematoma may be described as an abnormal mass of blood located outside the blood vessels. The cause of a periorbital hematoma, a black eye, is usually blunt trauma to the orbital region; for example, as a result of a fist fight.

   (2) Signs/symptoms. Included are the following:

      (a) Swelling of soft tissue.

      (b) Discoloration (black and blue spot on the skin caused by escaped blood from injured blood vessels).

   (3) Treatment. Recommended treatment is application of cold packs for 24 to 36 hours. Analgesics may be taken for pain. A blow heavy enough to cause periorbital hematoma may also cause underlying injuries. It is, therefore, very important to assess the patient for underlying fractures.

b. Subconjunctival Hemorrhage.

   (1) Description. This type of hemorrhage is often spontaneous and usually occurs in only one eye. This condition may occur after a bout of sneezing, coughing, or vomiting.

   (2) Signs/symptoms. The hemorrhage will appear bright red with sharp delineations. The hemorrhage stops at the corneoscleral limbus. The condition is asymptomatic with the accumulated blood being absorbed in two or three weeks.
(3) **Treatment.** Included are the following:

(a) Apply cold packs.

(b) Reassure the patient.

c. **Anterior Chamber Hemorrhage (Hyphema).**

(1) **Description.** Hyphema is hemorrhage into the anterior chamber of the eye. The most common cause is bleeding from the iris blood vessel. Other causes include irritation, infection, inflammation, trauma, tumors, or increased intraocular pressure.

(2) **Signs/symptoms.** Included are:

(a) Fluid level visible with the patient seated.

(b) Blurred vision.

(3) **Treatment.** Treatment consists of absolute bed rest with the body elevated at a 45 degree angle for four to five days. Place a binocular patch over the patient's eyes so that he will not move his eyes. Give analgesics for pain, and evacuate the patient. DO NOT put any medication in the eye.

d. **Superficial Foreign Body.**

(1) **Description.** Foreign bodies in the cornea make up about 25 percent of all eye injuries. These injuries are usually not extensive.

(2) **Symptoms.** Included are the following:

(a) Discomfort.

(b) Blurred vision.

(c) Sensitivity to light.

(3) **Signs.**

(a) Increased tearing.

(b) Redness.
(c) Visible foreign body. Sometimes you can look at the cornea of the patient's eye and see that there is something on the cornea. If the patient complains of feeling something on the eye, but you see nothing try looking at his eye through a magnifying glass.

(4) Treatment. Topical anesthetic (tetracaine 0.5%, 2 drops) is given only for foreign body object removals. NEVER give the patient anesthetic drops to use. One method of removing the foreign object is to irrigate the eye with normal saline in an attempt to wash out the foreign body. Removal may be attempted with a wet swab. NEVER dab with a dry cotton tip because the cotton tip leaves fuzz in the eye. To control infection after the removal of the foreign object, Polysporin® (polymyxin B–bacitracin) or gentamicin drops or ointment may be used. Patch the injured eye for comfort, and examine the eye daily for evidence of infection.

CAUTION: Any object or medication placed in the eye must be sterile and made for ophthalmic use only. Healing should occur within 24 or 25 hours.

e. Abrasions (Corneal). A corneal abrasion is a scratch on the surface of the cornea. This type of scratch can be caused by a foreign body–cinder, piece of dust, dirt, grit–that becomes embedded under the eyelid. The cornea may still be scratched even if tears wash out the foreign body. Other causes of corneal abrasion include scratch by a fingernail or piece of paper. Symptoms of corneal abrasion are the same as for superficial foreign body: increased tearing, redness, etc. Treatment includes topical application of antibiotics such as polymyxin B or gentamicin. Patch the injured eye for a period of 12 to 24 hours. Check the eye each day to see how the abrasion is healing.

f. Burns. Heat, light, or chemicals can cause burns to the eyes. Burns caused by ultraviolet radiation such as sunlamps or sunlight or burns caused by electrical flash are usually self-limiting. A chemical burn, however, is a medical emergency.

(1) Eyelids. Sometimes only the eyelids are burned. Don't try to inspect the eyes to see if they are damaged. Instead, have the patient close his eyelids and cover his eyes with sterile, moist fluff dressings.

(2) Eyes--extremes of light burns. It is possible to suffer burns to the eyes from extended periods of exposure to the brightness of sun reflected from sand or snow or from the flash of an arc welder. Gradually, the patient experiences eye pain and has the sensation that sand has blown in his eyes. Treatment includes placing moist patches over the patient's eyes and keeping at rest in the supine position with his upper torso elevated fifteen to thirty degrees. Meperidine (Demerol®), a narcotic analgesic, can be given as required for pain.
(3) **Eyes--chemical burns.** Chemical burns constitute a medical emergency and require immediate care. If sterile water is available, use it to flush the chemical substance out of the eyes. Use tap water if no sterile water is available. Wash the eyes for at least five minutes. Keep a steady stream of water flowing from the medial to the lateral part of the eye. If the chemical was an alkali, continue to flush the eyes for at least fifteen minutes. Alkali substances continue to burn tissues even when the substance has been diluted. After you have thoroughly flushed the eyes, close the patient's eyelids and apply a loose sterile dressing. Administer narcotic analgesics as needed for pain and evacuate the patient.

![Chemical Burns](image1)

**Figure 4-1.** Treatment for burns to the eyes.
4-5. PENETRATING EYE INJURIES

a. Description. Penetrating eye injuries may occur with or without the foreign body remaining in the eye. Objects which can penetrate the eye include metallic chips from metal-on-metal blows or from grinding wheel injuries and glass fragments. There is a strong possibility that a foreign body in the eye can cause mechanical damage (problems is moving and focusing the eye) or infection in the eye.

b. Symptoms. Determine whether the patient was in an area where metal was being pounded on metal just before the injury and whether he felt a sharp eye pain while in that area. Pain is variable, sometimes strong and sometimes minor. Strangely enough, a tiny object can penetrate the eye with the patient experiencing almost no pain. He may, however, have double vision.

c. Signs. Included are the following:

(1) Visible foreign body within the eyeball. (Small objects which have penetrated the eyeball are sometimes not visible except with special equipment.)

(2) Visible tear in the globe.

(3) Contents of the eyeball coming out of the eyeball.

(4) The pupil of the eye looks irregular rather than round.

d. Protection. The goal is to provide protection so that the eye is not damaged further. A doctor will need to remove an object that is impaled or imbedded in the eye. Follow this procedure:

(1) DO NOT manipulate the foreign body; leave it in place.

(2) DO NOT put medicines in the eye.

(3) Give the patient narcotic analgesics as required for pain.

(4) Tell the patient that you must bandage both eyes to protect the injured eye.

(5) Wrap a gauze dressing or other suitable material around the affected eye.

(6) Place a crushed cup or cone over the embedded/impaled object. Be sure the object does not touch the top or sides of the cup. (Cut out the top of the cup for an impaled object such as an arrow.)
(7) Use a compress or roller bandage that covers both eyes to hold the cup and dressing in place. (The bandage must cover both eyes to prevent movement of the injured eye.)

(8) DO NOT leave the patient alone. He may become frightened with both eyes bandaged and accidentally move his hand into the impaled object causing more eye damage. Keep in hand contact with the patient so that he will know someone is there.

(9) Put sand bags or large pads around the patient's head so that his head will not move. Transport the patient on his back.
(10) If the patient is unconscious, close his eyes as much as possible before bandaging to keep eye tissues from drying. (Blindness can be caused by drying tissues.) Closed eyes allows moisture from normal tears to keep tissues moist.

(11) Keep the patient at rest in the supine position with his upper torso elevated fifteen to thirty degrees.

(12) Evacuate the patient.

4-6. **ENUCLEATION/EYEBALL KNOCKED OUT OF SOCKET**

Enucleation is the complete surgical removal of the eyeball. Enucleation could also be the eyeball being knocked completely out of the socket so that the eyeball does not rupture. The eyeball will rarely be knocked completely out of the socket. Follow this procedure for an eyeball being knocked partially out of the socket:

a. **DO NOT** try to put the eye back in the socket.

b. Cover the eye with a moist covering and a protective cup. **DO NOT** apply pressure to the eye.

c. Apply a bandage compress or roller bandage to cover both eyes.

d. Position the patient with his face up.

e. Evacuate the patient to a medical treatment facility.

4-7. **EYELID**

a. **Lacerated or Partially Torn Eyelid(s).** Return the eyelids to their normal anatomic position. Cover the injured lid(s) completely with a moist dressing. Make the dressing snug enough to hold any pieces of skin in place. Patch both eyes, reassure the patient, and evacuate him to a medical treatment facility.

b. **Completed Separation of Eyelid(s).**

   (1) **Eyelid separated--half eyelid.** Recover eyelid(s) fragment(s) and put the pieces in the normal anatomic position as much as possible. Lower the lid(s) which was separated. Pull the upper lid down to cover the eye and tape the lid in place. Cover the injured area with moist gauze and evacuate the patient to a medical treatment facility.

   (2) **Eyelid separated--eyelid lost.** If the upper eyelid is lost, cover the eyeball with ophthalmic ointment. Examine the eyeball to be sure there is no penetrating injury. Then, patch both eyes. Reassure the patient and evacuate him to a medical treatment facility. If evacuation cannot be accomplished in twenty-four hours for either eyelid injury, consider giving the patient antibiotics.
Section III. EAR INJURIES/DISORDERS

4-8. GENERAL CONSIDERATIONS

Most ear injuries and disorders are not fatal. Instead, they may cause serious communication problems. Untreated hearing loss or deafness can impair a person’s ability to interact with others. Additionally, ear disorders can disturb an individual’s equilibrium (balance)

![Diagram of the ear structure](image)

Figure 4-3. Structure of the ear.

4-9. HEMATOMA OF THE EXTERNAL EAR

a. Description. The external ear is in an exposed position; therefore, external ear injuries are very common. Hematoma of the external ear, as accumulation of blood outside the blood vessels, is caused by a blow to the ear by something blunt. The accumulation of blood interrupts the nutrition to underlying cartilage. Treatment is essential not only to restore blood supply to the cartilage but also to avoid deforming and thickening of the ear.

b. Treatment. For an accumulation of blood without swelling, apply cold compresses to limit the spread of edema and discoloration. Give analgesics for pain. If the accumulation of blood is large, aspirate (remove the fluid with a 16-gauge or 18-gauge needle) the hematoma. Apply a pressure dressing and observe the area for recurrence of the hematoma.

CAUTION: Failure to provide proper treatment can result in the patient having a "cauliflower" ear.
4-10. LACERATION OF THE EXTERNAL EAR

a. **Description.** There are two types of ear lacerations: simple and complex. Simple ear lacerations involve a tear in the skin. Complex ear lacerations involve a tear in the ear cartilage also.

b. **Treatment.** Reconstructing an external ear laceration must be done very carefully in order not to cause a physical deformity. For both simple and complex ear lacerations, apply a pressure dressing to stop the bleeding. Bandage the dressing in place, and evacuate the patient to a medical treatment facility. See figure 4-4, 4-5, and 4-6, for types of ear lacerations and methods of repair at medical treatment facilities.

![Figure 4-4. Laceration/repair of the earlobe.](image)

![Figure 4-5. Laceration/natural healing of the ear.](image)

![Figure 4-6. Laceration/accurate alignment repair of external ear.](image)
4-11. PERFORATION OF TYMPANIC MEMBRANE

a. **Description.** The tympanic membrane, the part of the middle ear which is also called the eardrum, is very delicate. This membrane can be injured by violent vibrations of air such as the explosion of a bomb or the firing of a heavy gun. Diving and blows to the head with cupped hands can also cause a perforation (hole or series of holes) in the tympanic membrane.

![Diagram of the ear showing the tympanic membrane](image)

Figure 4-7. Structures of the ear showing the tympanic membrane.

b. **Signs and Symptoms.** Included are the following:

1. Severe pain initially.
2. Tinnitus (ringing, buzzing, or roaring noises in the ear).
3. Hearing loss, sometimes.

c. **Treatment.** DO NOT put medications in the ear. DO NOT put packing in the ear. Put a dressing on the external ear to keep the ear dry and clean. Then, follow this procedure:

1. Restrict the patient from flying, swimming, and contact with loud noises.
2. Advise the patient to keep water out of his ear.
(3) Give systemic antibiotics only if infection occurs.

(4) Analgesics may be given orally but are usually not necessary.

(5) Evacuate the patient. Evacuation is not urgent unless the tympanic membrane is flapping.

d. **Complications.** Included are:

   (1) Failure to heal spontaneously.

   (2) Ear infection.

   (3) Impairment of hearing.

4-12. **CONDUCTIVE DEAFNESS**

   a. **Description.** Hearing loss is caused by a problem in the transmission of sound waves—a mechanical or nervous problem in transmission. One of the major forms of loss of hearing is conductive hearing loss which is the interrupted passage of sound from the external ear to the site where the stapes and the oval window meet. **Conductive deafness** is due to a defect of the sound conducting apparatus.

   ![Ear Structure Diagram](image)

   **Figure 4-8.** Ear structure.
b. **Causes.** Included are the following:

(1) Malformation of the external or middle ear present from birth.

(2) Trauma to the tympanic membrane or the ossicular chain (the three small bones of the ear (malleus, incus, and stapes) which form a bony chain across the middle ear chamber and conduct sound waves from the tympanic membrane (eardrum) to the oval window).

(3) Inflammatory ear diseases.

(4) Otosclerosis (spongy bone forming and growing in the capsule of the middle ear interfering with conduction of sound waves and resulting in gradual hearing loss).

(5) Use gentle pressure when flushing the liquid into the ear canal. Strong pressure of liquid may only force the object deeper into the ear.

c. **Treatment.** Resolve the ear infection if there is one. Surgery can sometimes repair defects the patient is born with or acquired abnormalities of the external ear canal or middle ear structure which interfere with hearing.

4-13. **FOREIGN BODIES IN THE EAR**

a. **Description.** Foreign objects are sometimes blown into the ear by explosions, etc. Such objects must be removed or damage to the ear parts or loss of hearing can occur.

b. **Signs/Symptoms.** Included are:

(1) Pain.

(2) Itching.

(3) Conductive hearing loss.

(4) Fullness sensation.

(5) Foreign object in the ear can be seen.
c. **Treatment.** If you are sure the object has not perforated the eardrum, follow this procedure:

1. Fill a bulb syringe with alcohol.
2. Have the patient lie down with the ear with the foreign object over a basin.
3. Put the syringe tip near the top part of the entrance to the external ear.
4. Flush liquid rapidly into the ear canal.
5. Evacuate the patient if the object cannot be flushed out of the ear.

**Section IV. NOSE INJURIES**

4-14. **EPISTAXIS (NOSE BLEED)**

a. **Description.** Epistaxis, bleeding from the nose, may be either a primary disorder or a problem caused by another health condition. Nose bleeds in adults usually originate in the posterior septum and can be severe. Usually, a nose bleed occurs as a result of external or internal trauma; for example, a blow to the nose, nose picking, or insertion of foreign objects. Nose bleeds can also be caused by polyps (growths in the nasal cavity), acute or chronic infections such as sinusitis or rhinitis, or inhalation of chemicals that irritate the nasal mucosa. Factors which increase the possibility of nose bleeds include:

1. Anticoagulant therapy (patient is taking medication which prevents blood from clotting rapidly).
2. Chronic use of aspirin.
3. High altitudes and dry climates.
4. Scurvy.
5. Vitamin K deficiency.
6. Arterial hypertension (HTN) and hemorrhage diseases.
7. Leukemia.
b. **Signs and Symptoms.** Blood oozes from the nostrils. The blood may be bright red if it comes from the anterior nose. Blood from the back of the throat may be dark or bright red. The amount of blood may be great or small; there may or may not be pain. Ninety percent of all nose bleeds occur at the anterior of the septum. Ten percent occur in the posterior portion of the nose. A person having a moderate nose bleed may feel light-headed, dizzy, and have slight respiratory difficulty. A person having a severe hemorrhage may experience a sudden drop in blood pressure, rapid and bounding pulse, dyspnea pallor, and other indications of progressive shock.

c. **Evaluation.** Begin by questioning the patient. Ask how long the bleeding has been taking place and if he has a history of vascular disease. Then, estimate how much blood the patient has lost. Check the patient's vital signs: temperature, pulse, respiration, and blood pressure. Determine the location of the bleeding in this manner: for anterior bleeding, inspect the nasal cavity closely. Clean the nasal cavity with clean cotton tipped applicators dipped in sterile water. Use an otoscope or nasal speculum to inspect the nasal cavity gently. For posterior bleeding, have the patient in a sitting position. Be sure your light source is adequate. Have the patient hold his tongue or you use a tongue depressor to hold his tongue down. Visually inspect. If the patient has vomited, he may have swallowed large amounts of blood.

d. **Treatment.** Follow this procedure:

(1) **Position the patient.** A patient with no other signs or symptoms of injuries should be in a seated position, leaning slightly forward. Then, blood and mucus can drain well. If the patient cannot sit because of other injuries, have him lay back with his head elevated slightly or have him turn his head to one side. For an unconscious or possible spinal damage patient, immobilize the neck and spine before you position him. If possible, all patients should have the head and upper torso elevated.

(2) **Apply local pressure.** Apply pressure to the affected nostril. For anterior bleeding, pack the affected area with petrolatum strips sprayed with epinephrine. For posterior bleeding, use nasogastric tubes to control the bleeding.

(3) **Medication.** Vasoconstrictor drugs may be administered (drugs which narrow the blood vessels).

(4) **Bleeding.** Cauterize if the bleeding does not stop.

4-15. **FRACTURE OF THE NOSE**

a. **Description.** Fracture of the nose is a common injury, usually the result of a blunt blow. The direction, type, and force of the blow to the nose determine the severity of the fracture. Adequate and immediate treatment is necessary to prevent permanent problems such as nasal displacement, septal deviation, or nasal obstruction.
b. **Signs/Symptoms.** Included are the following:

1. Position of the nose (appears abnormal; possible deformity of septal deviation).
2. Pain and edema (swelling).
3. Epistaxis (nose bleed).


c. **Treatment.**

1. **Control hemorrhage.** Apply cold compresses for mild bleeding and edema. For **anterior bleeding,** have the patient press the affected nostril closed with his fingers and hold the nostril closed for five minutes at a time. Be sure the entire nostril is pressed closed. Cauterize with electrocautery (cauterizing instrument with platinum wire, heated by electrical current). If this instrument is not available, cauterize with silver nitrate. Pack the affected nasal passage with one-half Vaseline impregnated gauze or antibiotic ointment on gauze. Use antibiotics on gauze if the pack is to remain in place for forty hours or more. Gauze with antibiotics may be left in place for as long as five to six days if necessary. For **posterior bleeding,** anesthetize the area with a solution of four percent cocaine. Perform posterior packing: a Red Robinson catheter and nasogastric tube as well as tonsil packing. The patient must be hospitalized and on complete bed rest. Antibiotics should be given as needed. A patient experiencing **uncontrolled bleeding** should be medically evacuated for further electrocautery or artificial ligation (surgical tying of a blood vessel).

2. **Bone displacement.** Determine whether a bone has been moved out of its proper place by x-ray.

3. **Bone realignment.** A bone which is out of its proper position may be realigned if the patient is given local anesthetic. At a later time, rhinoplasty (plastic surgery/surgical reconstruction of the nose) can be used to correct an out of place bone.

4. **Bilateral nasal packing.**
   
   (a) Insert a catheter in the nostrils.
   
   (b) Draw the catheters through the mouth.
   
   (c) Tie a suture from the pack to each catheter securing the pack in place. See figure 4-9(A).
   
   (d) Draw the catheters back through the nostrils as shown in figure 4-9(B).
   
   (e) Hold the sutures tightly and insert packing into the anterior nose.
(f) Secure the sutures around a dental roll. The middle suture, extending through the mouth, should be secured on the cheek. See figure 4-9(C).

Figure 4-9. Insertion of anterior-posterior nasal pack (continued).

Figure 4-9. Insertion of anterior-posterior nasal pack (continued).
(5) **External splint.** Follow this procedure to splint a nose:

(a) Place one or two thicknesses of soft cotton roll over the nose.

(b) Cut four thicknesses of fast-setting ordinary plaster of Paris. (The plaster of Paris will relieve the pressure over the inner canthus of each eye.)

(c) Gently mold the wet plaster to the shape of the glabella (smooth area of frontal bone between the eyebrows) and the nasal bones.

(d) Turn the edges of the cotton upward to protect the skin from the edges of the plaster.

(e) Two small plaster strips may be placed along each side of the nose for extra strength.

(f) Using your fingers, hold the plaster in position against the bridge of the nose until the plaster becomes firm.

(g) Secure the plaster splint to the cheeks and the forehead with adhesive tape.

(h) Place removable gauze lightly taped across the end of the nose to control secretions from nasal packing.

(i) Leave the splint in place for about five days.
4-16. FOREIGN BODIES OF THE NOSE

a. **Description.** Through a variety of circumstances, foreign objects sometimes get in the nose. These objects can cause difficulties.

b. **Signs and Symptoms.** Signs and symptoms depend on the size, shape, location, and length of time the object has been in the nose. Included are the following:

   (1) Watery nasal discharge.
   (2) Ulcer formation.
   (3) Foul smelling discharge coming from one nostril.
   (4) Nose bleed.
   (5) Nasal obstruction.
(6) Sneezing.

(7) Fever.

(8) Headache.

c. **Treatment.** Vasoconstrictors (drug to narrow blood vessels) can be given. The foreign object may be removed with nasal or bayonet forceps. If an ulceration has formed, treat with Furacin® or bacitracin.

**Section V. THROAT INJURIES**

**4-17. OROPHARYNX FOREIGN BODIES**

a. **Description.** The oropharynx is the central part of the pharynx and is located directly behind the oral cavity. The oropharynx extends from the inferior border of the soft palate to the lingual surface of the epiglottis, the palatine tonsils, and the posterior faucial pillars.

![Figure 4-11. Foreign bodies in the oropharynx.](image)

b. **Signs and Symptoms.** The patient has a feeling of "something present" in the oropharynx area. Sometimes there is a feeling of constant irritation in the area. Usually, the irritation is felt when the patient swallows.

c. **Treatment.** The foreign object can be removed using tonsil hemostats. Antibiotics may or may not be indicated.
4-18. ESOPHAGEAL FOREIGN BODIES

a. Description. Foreign objects--fish bones, peanuts, etc.--sometimes become lodged in the esophagus.

b. Signs and Symptoms. Included are the following:

(1) Immediate coughing and gagging.

(2) Pain in the neck at the level of the thyroid cartilage. Most esophageal foreign bodies lodge in the esophageal inlet.

(3) Patient complaint of, "Something stuck in my throat," but his voice is normal.

(4) Difficulty in swallowing or inability to swallow.

(5) Saliva pools in the pyriform sinuses.

Figure 4-12. Foreign bodies in the esophagus.
c. **Treatment.** An endoscopist should remove the foreign object with the aid of an esophagoscope (instrument used to examine the esophagus). Blind probing, in an effort to dislodge a foreign body, is extremely **hazardous.** Usually, a foreign body in the esophagus is NOT an emergency, and a delay for proper medical treatment is not hazardous to the patient. Evacuate the patient to a medical treatment facility where soft tissue x-rays of the neck, chest, and ear-nose-throat areas can be obtained.

### 4-19. CLOSING

The structures of the eyes, ears, nose, and throat are delicate. Loss of such structures can be detrimental to one’s appearance. When treating a trauma patient, always revert back to your ABCs first. After you are sure you have taken needed initial lifesaving measures, you can be concerned with more detailed work.

**Continue with Exercises**

**Return to Table of Contents**
EXERCISES, LESSON 4

INSTRUCTIONS. The following exercises are to be answered by writing the answer in the space provided. After you have completed all the exercises, turn to the solutions located at the end of the exercises and check your answers.

1. A blowout-fracture occurs at ________________________________ of the eye.

2. List two steps included in treating a patient with a blowout fracture.
   a. ________________________________.
   b. ________________________________.

3. A tripod fracture is ________________________________________________.

4. List three signs/symptoms of a mandibular fracture.
   a. ________________________________.
   b. ________________________________.
   c. ________________________________.

5. Malocclusion may be a sign of either a mandibular fracture or a maxillary fracture. Malocclusion is ____________________________________________.

6. List four general considerations for all eye injuries.
   a. ________________________________.
   b. ________________________________.
   c. ________________________________.
   d. ________________________________.
7. ___________________________is another term for a black eye.

8. Signs of a black eye include ___________________________ and discoloration of ___________________________.

9. Subjunctival hemorrhage may occur spontaneously or after a bout of sneezing, vomiting, or ___________________________.

10. A ___________________________ is a hemorrhage in the anterior chamber of the eye.

11. List three steps in treating a hemorrhage of the anterior chamber of the eye.
   a. ___________________________.
   b. ___________________________.
   c. ___________________________.

12. A superficial foreign body on the cornea of the eye can be detected by using ___________________________.

13. NEVER try to remove a foreign object on the surface of the cornea of the eye with a dry cotton swab because ___________________________.

14. List two treatments for a corneal abrasion.
   a. ___________________________.
   b. ___________________________.


15. Include the following when treating a patient with chemical burns to the eyes.
   a. ________________________________.
   b. ________________________________.
   c. ________________________________.
   d. ________________________________.

16. Extremes of light, such as reflection of light from snow or from ____________, can cause burns to the eyes.

17. Blurred vision and some pain may both be symptoms of ______________ eye injuries.

18. If there is a foreign object in the eye, leave it in place, put on a ______________ dressing, and patch both eyes.

19. Enucleation is ________________________________

20. List three steps to take if the eyelid is lacerated or partially torn.
   a. ________________________________.
   b. ________________________________.
   c. ________________________________.

21. Write three steps to take if the eyelid has come off completely.
   a. ________________________________.
   b. ________________________________.
   c. ________________________________.
22. List two treatments for a hematoma of the ear.
   a. ____________________________________.
   b. ____________________________________.

23. Write three signs/symptoms of perforation of the tympanic membrane.
   a. ____________________________________.
   b. ____________________________________.
   c. ____________________________________.

24. Conductive deafness is ____________________________________.

25. Two signs/symptoms of foreign bodies in the ear are:
   a. ____________________________________.
   b. ____________________________________.

26. Ninety percent of all epistaxis take place in the anterior tip of the

27. Symptoms of fracture of the nose include pain, swelling, deformity in the nasal
   septal deviation, and ____________________.

28. List three signs/symptoms of foreign bodies of the nose.
   a. ____________________________________.
   b. ____________________________________.
   c. ____________________________________.
29. Foreign bodies in the oropharynx may be removed by using tonsil
_____________________

30. A foreign body in the esophagus should be removed through an ____________
    by an __________________________.

Check Your Answers on Next Page
SOLUTIONS TO EXERCISES, LESSON 4

1. The base of the bony orbit. (para 4-2a(1))

2. Protect the patient from further injury.
   Evacuate the patient for further evaluation. (para 4-2a(4))

3. A fracture at the junction of the three bones in the cheek. (para 4-2b(1))

4. You are correct if you listed any three of the following:
   - Excessive movement of the maxillary segment.
   - Point tenderness.
   - No feeling over the upper lip.
   - Bruise and swelling (if there is a black eye).
   - Teeth not making proper contact for chewing. (para 4-2c(2))

5. Improper closure of the teeth for chewing. (para 4-2d(2))

6. You are correct if you listed any four of the following:
   - Pain without motion.
   - Tenderness over the site of the fracture.
   - Swelling.
   - Bruise.
   - Malocclusion (teeth do not close properly to chew).
   - Cannot open mouth.
   - Excessive salivation.
   - Facial appearance is abnormal.
   - No feeling in the lower lip. (para 4-2c(2))

7. Periorbital hematoma. (para 4-4a)

8. Swelling of the soft tissue around the eye.
   Discoloration. (para 4-4a(2))

9. Coughing. (para 4-4b(1))

10. Hyphema. (para 4-4c(1))
11. You are correct if you listed any three of the following:

- Put patient on absolute bed rest, upper torso elevated at 45° angle, bed rest for four to five days.
- Binocular patch the eyes.
- DO NOT put medication in the eye.
- Give analgesics as needed.
- Evacuate to a medical treatment facility.  (para 4-4c(3))

12. Fluorescein dye 2% strip.  (para 4-4d(4))

13. The dry cotton swab will leave fuzz in the eye.  (para 4-4d(4))

14. Apply antibiotics topically (Polysporin or Gentamicin).
- Patch the injured eye for twelve to twenty-four hours.  (para 4-4e)

15. Flush the eye immediately with any clean fluid.
- Record the name of the chemical which caused the burn.
- Evacuate the patient to a medical treatment facility immediately.
- Give narcotic analgesics as required.  (para 4-4f(3))

16. Arc welding.  (para 4-4f(2))

17. Penetrating.  (para 4-5(c))

18. Donut.  (para 4-5d)

19. Surgical removal of the eyeball.  (paras 4-6a through e)

20. You are correct if you listed any three of the following:

- Return the eyelid to its correct anatomical position.
- Cover the eyelid completely with a moist dressing.
- Cover the eyelid snugly enough to hold all fragments in place.
- Patch both eyes.
- Reassure the patient.  (para 4-7a)

21. You are correct if you wrote any three of the following:

- Put all eyelid pieces in the correct anatomical place on the eye.
- Cover the injured eyelid/eye with moist gauze.
- Patch both eyes.
- Reassure the patient.  (para 4-7b)
22. You are correct if you listed any two of the following:

- Apply cold compresses.
- Aspirate if the hematoma is large.
- Apply a pressure dressing.  (para 4-9b)

23. Severe pain initially.
- Tinnitus.
- Hearing loss, sometimes.  (para 4-11b)

24. A defect in the sound conducting apparatus.  (para 4-12a)

25. You are correct if you included any two of the following:

- Pain.
- Itching.
- Conductive hearing loss.
- Fullness sensation.
- A foreign object which can be seen in the ear.  (para 4-13b)

26. Septum.  (para 4-14a)

27. Epistaxis.  (para 4-15b)

28. You are correct if you listed any three of the following:

- Watery nasal discharge.
- Ulcer formation.
- Foul smelling unilateral discharge.
- Development of epistaxis.
- Nasal obstruction.  (para 4-16b)

29. Hemostats.  (para 4-17c)

30. Esophagoscope.
- Endoscopist.  (para 4-18c)