UNIT 11
Special Senses: Eyes and Ears
Pathological Conditions
Eye
Achromatopsia

- Congenital deficiency in color perception; also called color blindness.
  - Achromatopsia is more common in men.
ASTIGMATISM

- Defective curvature of the cornea and lens, which causes light rays to focus unevenly over the retina rather than being focused on a single point, resulting in a distorted image.
CATARACT

- Degenerative disease in which the lens of the eye becomes progressively cloudy, causing decreased vision.

- Cataracts are usually a result of the aging process, caused by protein deposits on the surface of the lens that slowly build up until vision is lost. Treatment includes surgical intervention to remove the cataract.
CONJUNCTIVITIS

- Inflammation of the conjunctiva that can be caused by bacteria, allergy, irritation, or a foreign body; also called pinkeye.
DIABETIC RETINOPATHY

- Retinal damage marked by aneurysmal dilation and bleeding of blood vessels or the formation of new blood vessels, causing visual changes.
  - Diabetic retinopathy occurs in people with diabetes, manifested by small hemorrhages, edema, and formation of new vessels leading to scarring and eventual loss of vision.
GLAUCOMA

- Condition in which aqueous humor fails to drain properly and accumulates in the anterior chamber of the eye, causing elevated intraocular pressure (IOP).

- **Glaucoma eventually leads to the loss of vision and, commonly, blindness.** Treatment for glaucoma includes miotics (eyedrops) that cause the pupils to constrict, permitting aqueous humor to escape from the eye, thereby relieving pressure. If miotics are ineffective, surgery may be necessary.
OPEN-ANGLE GLAUCOMA

- Most common form of glaucoma that results from degenerative changes that cause congestion and reduce flow of aqueous humor through the canal of Schlemm.
  - Open-angle glaucoma is painless but destroys peripheral vision, causing tunnel vision.
CLOSED-ANGLE GLAUCOMA

- Type of glaucoma caused by an anatomically narrow angle between the iris and the cornea, which prevents outflow of aqueous humor from the eye into the lymphatic system, causing a sudden increase in IOP.

- Closed-angle glaucoma constitutes an emergency situation. Symptoms include severe pain, blurred vision, and photophobia.
HORDEOLUM

- Small, purulent inflammatory infection of a sebaceous gland of the eyelid; also called sty.
MACULAR DEGENERATION

- Breakdown of the tissues in the macula, resulting in loss of central vision.
  - Macular degeneration is the most common cause of visual impairment in person over age 50.
Unusual intolerance and sensitivity to light.

Photophobia occurs in such disorders as meningitis, eye inflammation, measles, and rubella.
Separation of the retina from the choroid, which disrupts vision and results in blindness if not repaired.

- Retinal detachment may follow trauma, choroidal hemorrhages, or tumors and may be associated with diabetes mellitus.
STRABISMUS

- Muscular eye disorder in which the eyes turn from the normal position so that they deviate in different directions.
  - Various forms of strabismus are referred to as tropias, their direction being indicated by the appropriate prefix, such as esotropia and exotropia.
ESOTROPIA

- Strabismus in which there is deviation of the visual axis of one eye toward that of the other eye, resulting in diplopia; also called cross-eye and convergent strabismus.
EXOTROPIA

- Strabismus in which there is deviation of the visual axis of one eye away from that of the other eye, resulting in diplopia; also called wall-eye and divergent strabismus.
TONOMETRY

- Procedure used to detect glaucoma that measures intraocular pressure by determining the resistance of the eyeball to indentation by an applied force.
VISUAL ACUITY TEST

- Standard eye examination to determine the smallest letters a person can read on a Snellman chart, or E chart, at a distance of 20 feet.
  - Visual acuity is expressed as a ratio. The first number is the distance at which a person reads the chart, the second is the distance at which a person with normal vision can read the same chart. For example 20/20 indicates that the person correctly reads letters at 20 feet that could be read by a person with normal vision at 20 feet. Normal vision is 20/20.
Excision of a lens affected by a cataract.

- Extracapsular cataract extraction (ECCE) and phacoemulsification are the two primary ways to remove a cataract. In both surgeries, the central part of the lens is removed and replaced with an artificial intraocular lens (IOL) implant.
Excision of the anterior segment of the lens capsule along with the lens, allowing for the insertion of an intraocular lens implant.
Excision of the lens by ultrasonic vibrations that break the lens into tiny particles, which are suctioned out of the eye; also called *small incision cataract surgery* (SICS).
CORNEAL TRANSPLANT

- Surgical transplantation of a donor cornea (from a cadaver) into the eye of a recipient; also called keratoplasty.
IRIDECTOMY

- Excision of a portion of the iris used to relieve intraocular pressure in patients with glaucoma.
  - *Iridectomy is usually performed to create an opening through which aqueous humor can drain.*
Ear
ACOUSTIC NEUROMA

- Benign tumor that develops from the eighth cranial (vestibulocochlear) nerve and grows within the auditory canal.
  - Depending on the location and size of the tumor, progressive hearing loss, headache, facial numbness, dizziness, and an unsteady gait may result.
HEARING LOSS

- Decreased ability to perceive sounds compared to what the individual or examiner would regard as normal.
ANACUSIS

- Total deafness (complete hearing loss).
CONDUCTIVE

- Hearing loss due to an impairment in the transmission of sound because of an obstruction of the ear canal or damage to the eardrum or ossicles.
**MENIERE DISEASE**

- Rare disorder of unknown etiology within the labyrinth of the inner ear that can lead to a progressive loss of hearing.

  - Symptoms of Meniere disease include vertigo, hearing loss, tinnitus, and a sensation of pressure in the ear.
OTITIS MEDIA

- Inflammation of the middle ear, which is commonly the result of an upper respiratory infection (URI).
SEROUS OTITIS MEDIA

- Noninfectious inflammation of the middle ear with accumulation of serum (clear fluid).
  - Treatment for serous OM may include myringotomy to aspirate fluid and the surgical insertion of pressure equalizing (PE) tubes.
SUPPURATIVE OTITIS MEDIA

- Inflammation of the middle ear with pus formation.
  - Suppurative OM is a common affliction in infants and young children, due to the horizontal orientation and small diameter of the eustachian tube in such patients, which predisposes them to infection. If left untreated, complications include ruptured tympanic membrane, mastoiditis, labyrinthitis, hearing loss, and meningitis.
OTOCLEROSIS

- Progressive deafness due to ossification in the bony labyrinth of the inner ear.
  
  - Treatment for otosclerosis includes stapedectomy or stapedotomy, which is usually successful in restoring hearing.
PRESBYCUSIS

- Impairment of hearing that results from the aging process.
TINNITUS

- Ringing or tinkling noise heard constantly or intermittently in one or both ears, even in a quiet environment.

  - Tinnitus may be a sign of injury to the ear, some disease process, or toxic levels of some medications (such as aspirin).
**VERTIGO**

- Sensation of moving around in space or a feeling of spinning or dizziness.
  - Vertigo *usually results from inner ear structure damage associated with balance and equilibrium.*
Test that measures hearing acuity at various sound frequencies.

In audiometry, an instrument called an audiometer delivers acoustic stimuli at different frequencies, and results are plotted on a graph called an audiogram.
Visual examination of the external auditory canal and the tympanic membrane using an otoscope.
Otoscopic procedure that assesses the ability of the tympanic membrane to move in response to a change in air pressure.

- In pneumatic otoscopy, the increase and decrease in pressure causes the health tympanic membrane to move in and out. Lack of movement indicates increased impedance or eardrum perforation.
RINNE TEST

- Hearing acuity test performed with a vibrating tuning fork that is first placed on the mastoid process and then in front of the external auditory canal to test bone and air conduction.
  - The Rinne test is useful for differentiating between conducting and sensorineural hearing loss.
COCHLEAR IMPLANT

- Electronic transmitter surgically implanted into the cochlea of a deaf person to restore hearing.
**Myringoplasty**

- Surgical repair of a perforated eardrum with a tissue graft; also called tympanoplasty.
  - Myringoplasty is performed to correct hearing loss.
MYRINGOTOMY

- Incision of the eardrum to relieve pressure and release pus or serous fluid from the middle ear or to insert PE tubes (tympanostomy tubes) in the eardrum via surgery.
  - Tympanostomy tubes provide ventilation and drainage of the middle ear when repeated ear infections do not respond to antibiotic treatment. They are used when persistent, severely negative middle ear pressure is present.