ASSESSING THE EYES

Structures
  - External
  - Eyelids
  - Extraocular muscles
  - Eyelashes
  - Lacrimal glands: Lacrimal ducts
  - Cornea
  - Conjunctiva
  - Sclera
  - Pupils
  - Iris
Structures

Internal
- Optic disc
- Physiological cup
- Retinal arteries
- Retinal veins
- Retina
- Macula
Characteristics of normal eye

- Symmetrical
- Full lashes/brows
- Distance between eyelids equal (palpebral fissure)
- Lids w/o edema/lag-‘ptosis’
- Conjunctiva pink or clear, w/o swelling, nodules, or drainage

Physical Assessment
- Anatomical Landmarks: visual fields (superior, inferior, nasal, temporal)
- Approach: inspection, palpation, ophthalmoscopy
- Position: sitting
- Tools: visual acuity charts (Snellen), penlight, ophthalmoscope, cotton ball, cotton swab
Assessment of the Eye

• Assess Structure and Function:
• Color Vision
• Visual Acuity
• External Eye structures
• Extraocular Muscles
• Visual Fields
• Internal Eye structures

Visual Acuity

Far vision:
   Snellen eye chart
Near vision:
   read newsprint 13 to 15” from eyes
Color vision:
   identify color bars on Snellen or use color plates, or
tabs by room doors
Inspection of External Structures

- **Lids and lashes:**
  - color, lesions, edema, symmetry, position and distribution of lashes

- **Lacrimal glands and ducts:**
  - color, edema, excessive tearing or drainage

- **Conjunctiva:**
  - color, moisture, lesions, and foreign bodies

- **Sclera:**
  - color, moisture, lesions,

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Inspection of External Structures

- **Cornea:**
  - clarity and abrasions, corneal reflex

- **Iris:**
  - Color, size, shape, and symmetry

- **Pupils:**
  - Size, shape,
  - Reaction to light–direct and consensual
  - Test accommodation (CN III)
PERRLA

normal - both pupils constrict
CN III lesion - loss of consensual pupillary light reflex
CN II lesion - loss of direct pupillary light reflex

Accommodation and Convergence
Palpation of External Structures

Eye ball: consistency and tenderness
Lacrimal glands and ducts: tenderness and excessive tearing
Eyelids: consistency, masses

Muscle movements

- EOM
  - Checking the six cardinal fields of gaze by asking patient to follow your finger with eyes only in a big ‘H’
- Visual fields by confrontation
  - Two methods—when see red pin
  - Wiggle fingers
Tips for Using the Ophthalmoscope

- Darken the room and have the patient look off in the distance
- Switch the ophthalmoscope light and turn the lens disc to the large round beam of white light
- Turn lens disc to the 0 diopter
- Hold the ophthalmoscope in your right hand to examine the patient’s right eye with your right eye; hold it in your left hand to examine the patient’s left eye with your left eye
- Stand directly in front of the patient, 15 inches away, and start at an angle of 15 degrees lateral to the patient’s line of vision
- Shine the beam of light onto the pupil and look for an orange glow; this is the red reflex
- Follow the red reflex and move inward towards the nasal aspect of the visual field

Ophthalmoscopy

- Red reflex: presence, opacities
- Optic disc and physiologic cup:
  - color, size, shape, borders, cup-disc ratio
- Retinal vessels:
  - size ratio of arteries and veins, color, arteriole light reflex, crossings
- Retina:
  - color, texture, exudates, lesions, hemorrhages, and aneurysms
- Macula and fovea:
  - color, size, location, lesions
EYELID DISORDERS

- Entropion
- Ectropion
- Chalazion
- Hordeleum
- Xanthelasma
Abnormalities of the eyelids

- Entropion—eyelids and lashes turn in
- Ectropion—eyelids and lashes turn out
- Chalazion—meibomian gland cyst
- Hordeolum (sty)—inflammation or infection of the eyelid margin
- Xanthelasma—cholesterol deposits
Entropion (lower lid)

Ectropion
Ectropion

Chalazion
Sty--hordeoleum
EXTERNAL EYE DISORDERS

Arcus Senilis
Cataracts
Pterygium
Pinguecula

CHANGES WITH AGING

• Visual acuity decreases
• Presbyopia
• Altered structures
• Arcus senilus—gray or white arc visible above and below the outer part of the cornea
• Cataracts (some are congenital)
• Pupils decrease in size
• EOMs may have upward gaze impairment
Arcus Senilus

Cataract
Congenital Cataract

Pterygium
Pinguecula

EOM disorders

- Strabismus
- Amblyopia
- Exotropia
- Esotropia
- Tests:
  - Cover test
  - Hirschberg test
  - Titmus
Strabismus

• Esotropia—eye(s) turn to nose
• Exotropia—eye(s) turn outward or temporal
• Pediatrics:
  • At birth if fixed esotropia or exotropia—refer
  • If intermittent can hold on referral until 12 months
  • Generally eyes align together by 4 months
• Tests: EOMs
  • Cover/uncover
  • Hirschberg’s/corneal light reflex

Significant strabismus
Ambylopia—Decreased vision in one eye or both eyes—usually due to strabismus or refractive error
Hirschberg’s test

FUNDOSCOPIC EXAM

Papilledema
Cotton wool spots
Retinal hemorrhage
AV nicking
Copper wiring
Macular degeneration
Papilledema
Papilledema

Cotton Wool Spots
Cotton wool spots
- Small areas of yellowish white coloration in the retina
- Occur because the blood supply through the retinal vessels and the nerve fibers are injured resulting in swelling and the appearance of a "cotton wool spot."
- Most common cause diseases that affect retina blood supply
  - Diabetes
  - Hypertension

Microaneurysms
Hemorrhages

Retinal Hemorrhage
Copper wiring  Nicking

Macular Degeneration

Normal Macula
Macular Degener.

Documentation

• Eyelids, lashes, and eyebrows with normal hair distribution and without lesions
• Sclera clear, conjunctiva pink with no lesions exudate or inflammation
• PERRLA, EOMs intact,
• Visual fields by confrontation intact bilaterally
• Cover/Uncover test negative
• Hirschberg test negative
• Fundi with sharp disc margins