EXTERNAL EXAMINATION OF THE EYE

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NORMAL EXTERNAL EYE EXAM

- Eyeballs are symmetrical in size and position
- The eyeballs are in the same plane as eyebrow and maxilla
- The upper lid covers upper portion of cornea, when the patient is looking straight
- Eye lashes span outwards
- The edge of the lids are in apposition to eyeballs
- Small lachrymal gland is recognizable
- Hair distribution in eyebrows is in its entire length
EXTERNAL EXAMINATION OF THE EYE

• The purpose of this exam is to provide information about the ocular adnexa, external eye and orbit

• Includes:

 1. Inspection
 2. Palpation
 3. Auscultation
EXTERNAL EXAMINATION
EXTERNAL EYE EXAMINATION

**Inspection**

Observe:

- Patient’s actions and appearance (mental, neurological, medical, dermatological diseases) i.e. extremities = rheumatoid arthritis, gout
- Head: masses or lesions
- Face: symmetry, signs of prior trauma, and motility of facial muscles
EXTERNAL EYE EXAMINATION

• Helpful diagnostic information about a patient by briefly but meticulously exam the external eyes
• Compare one eye with the other
• Look for systemic diseases: hyperthyroidism, cardiac or renal failure, abnormal lipids, rheumatoid arthritis, lupus erythematosus, and scleroderma
• Ptosis, suggests a third nerve paralysis, Homer's syndrome, or myasthenia gravis, or may be congenital
EXTERNAL EXAMINATION OF THE EYE

• If a neurosensory deficit is suspected, check facial nerve function:

Ask the patient to close the eyes forcefully, to smile and to show teeth, and to lift the forehead. Test facial nerve sensation comparing corresponding areas of both sides of the face with cotton wisp.
BELL’S PALSY

- Smoothing of the forehead
- Inability to close eyelid
- Drooping of the mouth corner

Bell's Palsy

Facial Nerve
EXTERNAL EXAMINATION OF THE EYE

• Evaluate the facial skin: color, moisture, tone, texture, and vascular changes
• Look for changes in mouth and nose
• Evaluate anatomic relationship of orbits: measure intercanthanal distance, PD
• Note any apparent sign of proptosis (exophthalmos) or enophthalmos. Use exophthalmometer
EXTERNAL EXAMINATION OF THE EYE

• Evaluate the relative position and symmetry of the eyebrows
• Old photographs are invaluable tool when abnormalities are detected to determine longstanding asymmetry and lesions
• Take pictures if new findings are noted
EXTERNAL EXAMINATION OF THE EYE

**Palpation:**

- Use of tactile, temperature, and proprioceptive senses are important when feeling for abnormalities
- Inform the patient and be gentle
- Thumb and index fingers are used to open the eyelids
- The middle fingers are used to examine the preauricular lymph nodes
- Masses are recorded for shape, size, tenderness, composition, and mobility
EXTERNAL EXAMINATION OF THE EYE

• Patients with sinusitis might complain of tenderness over the maxillary and frontal sinuses that can be elicited on palpation.
EXTERNAL EXAMINATION OF THE EYE

• In elderly patients, the temporal artery is palpated to reveal tenderness and tortuosity when giant cell arteritis is suspected.
EXTERNAL EXAMINATION OF THE EYE

• Lymph nodes are palpated to evaluate signs of enlargement or tenderness: Preauricular, submandibular, superficial cervical, jugular, post-sterrocleidomastoideal, and supraclavicular.
EXTERNAL EXAMINATION OF THE EYE

• When trauma is suspected, the orbital margins are palpated for signs of orbital fracture.
• Start laterally and proceed in a clockwise fashion, palpating along the orbital rim. It is important to be certain that no globe rupture is present before doing so.

Fig. 1: Preoperative Left inferior dystopia, exotropia and ptosis.

Fig. 2: X-ray Orbits showing fracture of left orbital floor with haziness of maxillary antrum.
EXTERNAL EXAMINATION OF THE EYE

• To evaluate eyelid masses, the closed eye lid is palpated gently by sliding the index fingers over the eyelid skin. Even when a mass cannot be seen, it can be felt.
EXTERNAL EXAMINATION OF THE EYE

• Patients with epiphora: evaluation of the lacrimal sac (compression of the sac with the index finger or cotton appl) to assess any refluxed material from the puncta
EXTERNAL EXAMINATION OF THE EYE

3. **Auscultation:**

- To assess the orbit for a bruit (carotid-cavernous fistula or arteriovenous malformation). The bell of the stethoscope is placed over the closed eyelid while the patient holds breath.

- Auscultation of the frontal sinus and the temple is performed to listen around the orbit.
EYELIDS AND PALPEBRAL FISSURES
EYELIDS AND PALPEBRAL FISSIONS

1. **Position**: ptosis, ectropion, entropion

2. **Configuration**: epicanthus, epiblepharon, blefarophimosis, dermatochalasis, blepharochalasis

3. **Function**: VII pair, blepharospasm, normal eyelid movements

4. **Appearance**: masses, swelling, infection, lashes orientation
1. **Position:**
   - Normal eyelid margins should overlie corneal limbus by 1-2mm above and below with no exposure of sclera
   - Voluntary lid closure should be complete with no inferior exposure
   - Involuntary blinking should occur every 3-6 sec with complete closure of the lids
EYELIDS AND PALPEBRAL FISSURES

- Both upper lids should elevate well on upward gaze and drop on downward gaze.
- The space between the upper and lower lid margin ranges normally between 8 - 12 mm.
EYELIDS AND PALPEBRAL FISSURES

• The lids margin should follow the globe synchronously on downward and upward gaze without evidence of lid lag

• The borders should have good anatomic apposition to the globe with the tear puncta
EYELIDS AND PALPEBRAL FISSIONS

- **Ptosis**: malposition of the upper eyelid in which the lid, eye margin is abnormally low because of insufficient eye retraction
• LID EVERSION:

The upper lid may easily be everted for inspection of the palpebral conjunctiva by having the patient look down while the examiner grasps the lashes with the thumb and index finger of one hand, pulling out and down, pressing on the lid with a cotton-tipped applicator stick 1 cm above the edge of the lid margin. In the presence of pain use topical anesthetic
EYELIDS AND PALPEBRAL FISSURES

Twist cotton-tipped

Look downward
EYELIDS AND PALPEBRAL FISSURES

• LID EVERSION

To restore the everted upper lid, ask the patient to look up and simultaneously pulls the lashes down gently. The lower palpebral conjunctiva is easily seen by pressing down over the bony maxilla to pull the lid down with a finger and asking the patient to look up.
2. Configuration:

- **Blepharophimosis and epicanthus**: is a generalised narrowing of the palpebral fissure. Epicanthus is a semilunar fold of skin that crosses the medial canthus.
EYELIDS AND PALPEBRAL FISSURES

• **Dermatochalasis**: is a redundancy of the skin of the eyelids that is often accompanied by herniation of fat through the orbital septum (older or middle-aged people)
EYELIDS AND PALPEBRAL FISSURES

• **Blepharochalasis**: rare condition that result from repeated idiopathic episodes of eyelid edema and inflammation resulting in wrinkling of the skin, atrophy of fat, and ptosis.
EYELIDS AND PALPEBRAL FISSURES

- **Epiblepharon**: common condition in which a prominent skin fold is present in front of the tarsus, usually near the medial margin of the lower lid.
EYELIDS AND PALPEBRAL FISSURES

3. **Function:**

- **Blepharospasm:** unknown disorder that involves involuntary closure of the eyelids. The severity of this closure ranges from mild increased frequency of blinking to severe spasms that completely occlude the eyes.
4. **Appearance:**
Under good lighting conditions the lashes and eyebrows should be inspected for the presence of:

- Inflammation
- scaling
- dandruff
EYELIDS AND PALPEBRAL FISSLURES

and the lashes for orientation:

• Turned in (entropion)
• Turned out (ectropion)
• Misdirected (trichiasis)
• Whitening (poliosis)
• Missing(madarosis)
• Present as more than one row (distichiasis)
ENTROPION
TRICHIASIS
POLIOSIS
MADAROSIS
DISTICHIASIS
EYELID INFLAMMATION AND TUMORS

1. Blepharitis:
   • Anterior blepharitis
   • Posterior blepharitis
2. Hordeolum
3. Chalazion
4. Eyelid tumors: Malignant melanoma, carcinomas (basal cell, squamous cell, sebaceous cell)
• **Blepharitis**: most common inflammation of the eyelid and may present as anterior, posterior or both forms
BLEPHARITIS

- **Anterior blepharitis (AB):** involves the lashes and anterior lid margin (seborrheic, eczematous, bacterial). The meibomian glands and tarsus are not primary involved
BLEPHARITIS

- **Posterior blepharitis**: associated with acne rosacea. Malar and nasal bridge skin findings are tiny telangiectasia and often slightly raised, rough macules. Meibomitis.

*FIGURE 2* Posterior blepharitis results in thick, opaque meibomian gland secretions.
HORDEOLUM

• Focal acute infection arising within the meibomian glands or other glands at the eyelid margins
CHALAZION

• Focal chronic inflammation of a meibomian gland
• Nasolacrimal duct obstruction: usually among old individuals as a result of mucosal degeneration with stenosis
LACRIMAL SYSTEM

- **Dacryocystitis**: infection of the lacrimal sac that usually result from obstruction of the nasolacrimal duct
LACRIMAL SYSTEM

- **Dacryoadenitis**: inflammation of the main lacrimal gland in the upper outer orbit. Viral or bacterial infection.
# ORBITAL ABNORMALITIES

**Among children**

1. Orbital cellulitis  
2. Idiopathic inflammation  
   (‘pseudotumor’)  
3. Dermoid & epidermoid cyst  
4. Capillary hemangioma  
5. Lymphangyoma  
6. Rhabdomyosarcoma  
7. Optic nerve glioma  
8. Neurofibroma  
9. Leukemia  
10. Metastatic neuroblastoma

**Among adults**

1. Thyroid eye disease  
2. Idiopathic inflammation  
   (‘pseudotumor’)  
3. Metastatic neoplasms  
4. Secondary neoplasms  
5. Cavernous hemangioma  
6. Lymphangioma  
7. Lacrimal gland tumors  
8. Lymphoma  
9. Meningioma  
10. Dermoid & epidermoid cyst
ORBITAL ABNORMALITIES

Exophthalmos:

• Is one of the most common clinical manifestations of an orbital abnormality

• Defined as an abnormal prominence of one or both eyes, usually resulting for a mass, a vascular abnormality, or an inflammatory process
EXOPHTHALMOS

- In adults the usual distance from the lateral orbital rim to the corneal apex is approx. 16mm; it is uncommon for a cornea to protrude more than 22mm beyond the orbital rim.
EXOPHTHALMOMETRY

• Exophthalmometer (Hertel) used to determine the degree of anterior projection or prominence of the eyes
• Helpful in diagnosing and in following the course of exophthalmos and enophthalmos
EXOPHTHALMOMETRY

Technique:
1. Patient holds the head straight and looks directly at the examiner’s eyes
2. Two small concave attachments of the exophthalmometer are placed against the orbital lateral margins, and the distance between these two points is recorded from the central bar. This distance must be constant for all successive examinations to accurately judge the status of ocular protrusion
EXOPHTHALMOMETRY

3. The examiner views the cornea of the patient’s RE with his/her LE in the mirror.

4. Simultaneously, the cornea is lined up in the mirror with the scale, which reads directly in mm the distance from the lateral orbital rim to the corneal apex.

5. A similar reading is taken from the LE with the patient fixing on the examiner’s RE.

6. The bar reading is recorded in mm (i.e. a bar reading of 100 might have RE 17mm LE 18mm).
Interpretation:

• Normal readings: 12 – 20 mm (17mm)
• Within 2 mm of each other
• Exophthalmos > 20 mm in one eye
• ≠ ≥ a 3 mm indication for further investigation, even though both readings may fall within the normal range
SIGHT FOR ALL
A SHARED VISION