

Just Hanging Around: When Your Eyelids Get In The Way !



Purpose of the Eyelids

- a. protect the eye (**globe**):
- b. eyelashes (**cilia**)
- c. secretions of the eyelids
- d. glands
- e. movement of the eyelids:
 - a. open
 - b. close

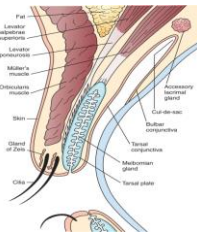


Layers Of The Eyelids

AIR

1. **Skin**: thinnest skin of the body
Loose & elastic
Allows extreme swelling

2. **Superficial fascia**



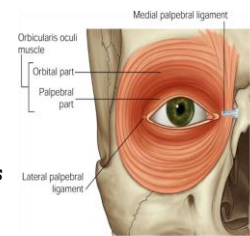
health-7.com

3. **Orbicularis oculi**:

Innervation: **CN VII**

Function:

- a. **closes** the eyelids
- b. when eye closes, causes lacrimal secretions to be pumped from the lacrimal gland

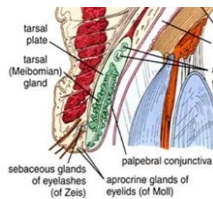


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4. **tarsal plate**:

- * dense, fibrous tissue often mistaken as cartilage.
- a. made of collagen
- b. lined posteriorly by conjunctiva
- c. upper lid: 29mm long, 10-12mm wide, 1mm thick
lower lid: 29mm long, 5-6 wide, 1mm thick

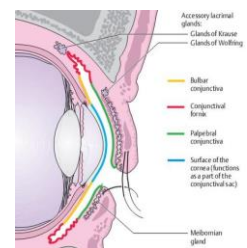
- * each tarsus has **meibomian (sebaceous)** glands
upper: 30 - 40
lower: 20 - 30



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5. **Conjunctiva**

- * **Palpebral (tarsal conjunctiva)**: Lines the eyelids
- * **Bulbar (ocular conjunctiva)**: Covers the eye; over the anterior sclera. This conjunctiva is wrapped tightly to the sclera by Tenon's capsule and moves with the eye.
- * **Fornix conjunctiva**: Forms the junction between the bulbar and palpebral conjunctivas. Very loose and flexible, allowing the eye to freely move.



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6. Levator palpebrae:

Innervation: CN III

Function: opens the eye with help from Muller's Muscle



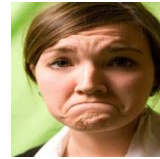
exacte-1fh.org.uk

Frontalis Muscle

Also known as the "**eyebrow muscle**". It lifts the eyebrow out of the way and allows for facial animation. It starts at the top of the head and attaches to the eyebrow skin.

There is one for each brow. It can lift the eyelid in a secondary fashion and can compensate for eyelid muscles to a certain degree.

With aging, the brow begins to lower with gravity. This pair of muscles *may* have to work "overtime" to keep redundant skin off the eyelid.



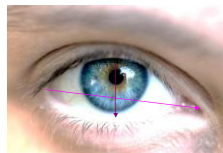
Palpebral Fissure

Normal Adult:

27 - 30 mm long

8 - 11mm wide

- * Edge of the upper lid covers the limbus from 10- 2
- * Widening of the fissure causes **retraction** of the lids making the eye look **exophthalmic**... as in **Graves Disease**.



You can measure one eye, or both eyes, to see if they are

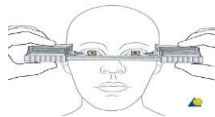
proptotic by using an **exophthalmeter**.



The eyelids get their shape from the **tarsal plates**.



lasereyegear.net



- The exophthalmeter allows measurement of the forward distance of the lateral orbital rim to the front of the cornea.
- Measurement is taken from the **bony lateral orbital rim to the corneal apex**. It is **NOT** measured from the lateral canthus !
- The normal range is 12-21 mm.
- A difference greater than 2 mm between the eyes is significant

www2.aof.foundation.org

Cranial Nerves

- I Olfactory
- II Optic
- III Oculomotor
- IV Trochlear
- V Trigeminal
- VI Abducens
- VII Facial
- VIII Vestibulocochlear
- IX Glossopharyngeal
- X Vagus
- XI Accessory
- XII Hypoglossal

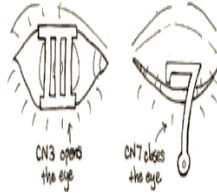


yale.edu

Movements of the Eyelids

A. Elevation:

1. Levator is the chief muscle that opens the eye
2. When eyelids are open it is because of contraction of the levator muscle. Lid can be raised up to 10mm against gravity



B. Closure:

1. (3) distinctive types of closure:
 - a. Blinking:
 1. reflex: strong light, loud noise, touching cornea
 2. spontaneous: occurs normally at frequent intervals

ophthobook.com

Blepharospasm (benign essential blepharospasm):

Extreme squeezing of the eyelids - spasm. Essential means that the cause is unknown. Sometimes the twitching is chronic and persistent. This is relatively rare but the symptoms can be severe enough to result in functional blindness.



People with blepharospasm have a number of issues:

- * cosmetically unappealing
- * can increase IOP
- * very tiring



handanearhospital.com

Additional Movements of the Eyelids

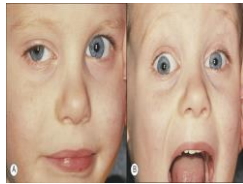
Bell's Phenomenon:

cornea will roll up under the eyelid when asleep to protect the cornea

"Jaw Winking"

Marcus - Gunn.

When a patient chews, they will close the eye on the same side of the face as they are chewing.



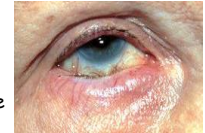
ophthologynetwork.blogspot.com

Eyelid Function Problems: Entropion

Entropion:

Rolling *inward* of the lower eyelid causing the eyelashes to rub on the eye (*trichiasis*). Trichiasis can cause scratching of the eye by the eyelashes.

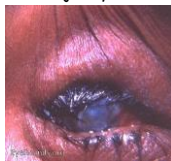
Trichiasis causes watery eyes, corneal irritation and, if severe or prolonged, corneal ulcers. Symptoms also include: crusting of the lashes, increased mucous, and eye irritation. Usually occurs due to aging (common to people over 60 years of age) or trauma.



eyecarelist.com

Causes of Entropion

- Scarring :**Cicatricial Entropion** is the pulling of the upper or lower eyelid away from the eye. Usually caused by **scar formation** or a shortage of the anterior lamella of the eyelid.
- It is easily distinguished from **involutional entropion** by **the inability to temporarily induce a normal eyelid position by rolling the eyelid outward**. The majority of patients with recurrent trichiasis have cicatricial entropion. *Worldwide* the most common cause of cicatricial entropion is **Trachoma**.
- Spasm



webeye.ophth.uiowa.edu

Eyelid Function Problems: Ectropion

Ectropion:

"Sagging" lower eyelid that leaves the eye dry and exposed due to lack of muscle tone in the lid. Increased tearing - but when the patient wipes the tears continually, it causes the lid to sag **MORE**. Most common in people over 60. Patient complains of *gritty* sensation, *burning* and *red eye*.



optometrist.com
stlukeseeye.com

Causes of Ectropion

- Congenital: upper or lower lid(s)
- Aging: Involutional
- Scarring: Cicatricial
- Mechanical : lesion pulling lid down
- Paralytic: VII nerve facial palsy



medicine.medscape.com

What is Ptosis ?

A sagging, or "drooping", of the upper eyelid that can cause a visual field reduction when the eyelid either partially, or completely blocks, the pupil. Patients that have ptosis often have difficulty keeping their eyelid(s) open. To compensate, they will often raise their eyebrows in an effort to raise the drooping eyelids with their **Frontalis** muscle ("forehead muscle").

Children with ptosis can develop amblyopia ("lazy eye") or even a developmental delay from this limitation of their vision.



documentingreality.com

Ptosis Tidbits

- Occurs when the muscles that raise the eyelid (**levator** and/or **Muller's** muscles) are not strong enough.
- * One eye or both eyes
- More common in older patients, but you can be born with a ptosis.
- * Congenital ptosis is *not* always hereditary
- Ptosis may be caused by damage/trauma to the muscle that raises the eyelid, or damage to the **III** cranial nerve (**Oculomotor** nerve) . Such damage could be caused an underlying disease like DM, brain tumor, or diseases that cause weakness in the muscles, like **myasthenia gravis**.



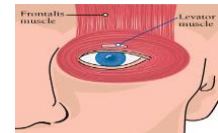
eyepptosis.com

What Can Cause Ptosis ?

There are many causes including age related weakening of the muscle, congenital weakness, trauma, or sometimes neurologic disease. As we age, the tendon that attaches the levator muscle can stretch and cause the eyelid to fall. Ptosis can also happen after routine LASIK or cataract surgery due to stretching of the muscle or tendon during the surgery.



Medscope.com



mda.org

Anatomical Causes of Ptosis

Ptosis can be classified as:

- **Neurogenic ptosis**: when the nerves attached to the muscle are affected
- **Myogenic ptosis**: sagging of the lid because of a problem with the levator muscle
- **Aponeurotic ptosis**: the stretching and weakening of the tendon responsible for raising the eyelid
- **Mechanical ptosis**: the weight of the eyelid(s) is too much for the muscles to lift



Types of Ptosis


- **Neurogenic ptosis**: III nerve palsy, Horner's Syndrome, Marcus Gunn jaw winking
- **Myogenic ptosis**: myasthenia gravis, myotonic dystrophy, ocular myopathy, simple congenital ptosis
- **Aponeurotic ptosis** can be involutional (dehiscence of the tendon of the levator muscle or post-operative).
- **Mechanical ptosis** occurs due to edema or tumors of the upper lid



neurofibromatosis

1. eyesbybrown.com


2. aapos.org



- **Pseudoptosis:** "false blepharoptosis"
- **Hypotropia**
Eyelid lowering because the other eye's muscles not working well
- **Dermatochalasis**
thinning and stretching of upper eyelid skin causing redundant upper eyelid skin

Natural Causes (Getting Older)


Anyone can get droopy eyelids, but it's more common in older adults because of the aging process. A tendon attaches the levator muscle .



As you age, that muscle can stretch and, as a result, cause the eyelid(s) begin to fall. Sometimes the exact cause is unknown, but other times it may be due to **trauma**.

Factors That Increase Chances for Ptosis


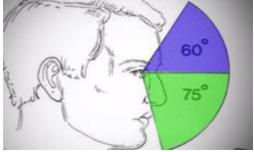
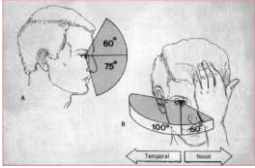
- Aging
- Family history of ptosis
- Birth injury
- Eye surgery such as cataract surgery
- Paralysis of nerve fibers in eyelids
- Diabetes



Cranial nerve III controls the movement of four of the six eye muscles. These muscles move the eye in, up and down, and also rotate the eye. Cranial nerve III also controls constriction of the pupil, and the position of the upper eyelid. A complete third nerve palsy causes a totally closed eyelid and an eye muscle defect with the eye pointing out and down.

Asaps.org

Lid Fields

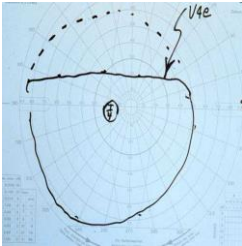




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ssc.education.ed.ac.uk

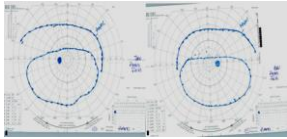
Taped/Untaped Fields

As you can see here, the patient's normal visual field is very restricted in the superior range. When the upper lid is taped up, patient's field of vision appreciably improves. This alerts the doctor that if the redundant skin was removed, or the ptosis was adjusted, the patient's field of vision would greatly improve.



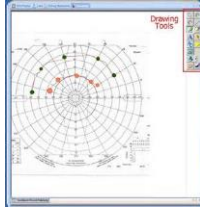
eugs.org

Taped/untaped fields are done one eye at a time, without correction, and always before dilation. The Neosynephrine eyedrop will cause the eyelid to slightly rise after it is instilled, thereby giving a false reading on the true visual field.



webeye.com

What the patient might see with ptosis.....



slideshare.net

Congenital Ptosis

Ptosis is a real problem in babies and children. If a child's droopy eyelid is left untreated, and is severe enough, he/she may develop amblyopia ("lazy eye").



pediatricophthalmologypa.com

Congenital Ptosis Treatment

In most cases, the treatment for childhood ptosis is surgery. If amblyopia is present, treatment with eyeglasses, or eye drops, may be necessary as well. Other factors that also should be considered are:

- The child's age
- Whether one or both eyelids are involved
- The eyelid height and obstruction potential
- The eyelid's lifting and closing muscle strength
- The eye's movements

Guidelines From Aao.org



Repair Surgically

During ptosis surgery, the levator is tightened. In severe ptosis, where the levator is extremely weak, the lid can be attached, or suspended, from under the eyebrow so that the forehead muscles can do the lifting.

Mild or moderate ptosis usually does not require surgery early in life.

Children that have ptosis, whether they have had surgery or not, need to be examined regularly by an ophthalmologist for amblyopia, refractive disorders and other eye concerns conditions.



Other Causes Of Ptosis

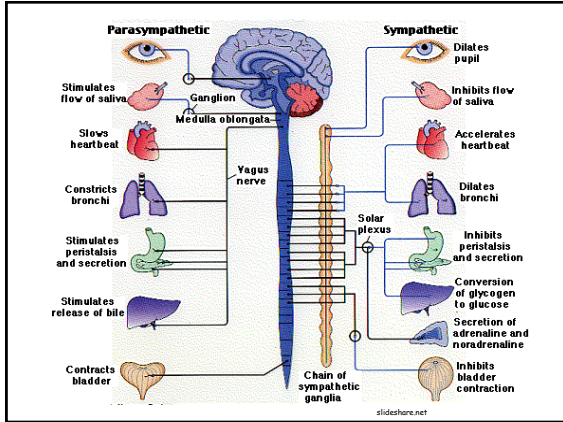
- Stroke
- Horner's Syndrome
- Head or eyelid trauma
- Brain tumor
- Muscular dystrophy
- Myasthenia Gravis



Horner's Syndrome

Horner's Syndrome is a condition that affects the Sympathetic nervous system. It causes a triad of **ptosis**, **miosis** and **anhidrosis**. It can occur due to by injury, strokes, tumors, disruption of the *main artery of the neck*, or as an accidental complication of surgery. Rarely it may be congenital.





Myasthenia Gravis

Myasthenia Gravis is an autoimmune, neurological disorder that affects the eyes, or the body, or the eyes & body together. It causes diplopia, ptosis, and muscle weakness. Medications can be used to treat generalized myasthenia gravis, but it is not clear whether they are effective in treating ocular symptoms. Myasthenia can affect various muscle groups in the body as well, including muscles in the face, the neck, and the extremities causing weakness, immobility and difficulty with breathing.

Symptoms of myasthenia gravis can include:

- Muscle fatigue, to the point of immobility
- Double Vision
- Ptosis
- Fatigue
- Voice changes

Ocular Myasthenia Gravis

In approximately 15% of people with myasthenia gravis, the only muscles affected are those in the eyes. Some of the first signs of ocular myasthenia gravis include a drooping eyelid and double vision.

Benign Eyelid Lesions

Hordeolum: "sty" painful..essentially an abscess

Chalazion: non painful..swelling..meibomian or Zeis gland inflammation.

Blepharitis : "dandruff of the eyelids"
Itching, burning, irritation of the lash lines

Staph = rosettes
Seborrheic = "scurf"

Benign Tumors of the Eyelids

- "horns": skin tags. Squamous papillomas
- xanthelasma: cholesterol accumulation commonly in the medial canthal area. If cholesterol checked - in most cases it is normal!
- Nevus : "freckle"
- Veruccae: "warts" caused by viruses. Molluscum: usually associated with the eyelid margin

- **Nevus of Ota:** a blue spot that occurs on the face or the sclera of the eye
- **Nevus:** sharply circumscribed and chronic lesions of the skin. Commonly called *birthmarks* or *moles*. By definition, nevi are benign.




studyblue.com


Primary Malignant Tumors

a. Carcinoma:

Basal cell and squamous cell are most common with 95% of lid carcinomas being basal cell.

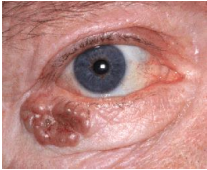
Basal cell grows slowly and are *locally* invasive. Does not spread to lymph glands.

Squamous cell spreads through the lymphatic system. Slow moving and painless *in the beginning*. As the tumor grows, invades the sensory nerves and can become very painful.




Squamous cell carcinoma Basal cell carcinoma

schoolworkhelper.net



Basal Cell

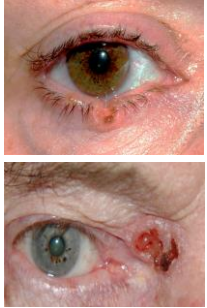


Squamous Cell

Diabeticretinopathy.org.uk

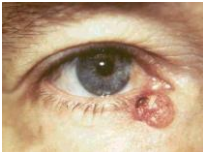
Basal Cell Carcinoma

- * Most common malignant tumor of the eyelids.
- * Usually involves the lower lid and medial canthal area.
- * Exposure to sunlight is thought to be an important factor



picatbox.biz chrismclean.co.uk

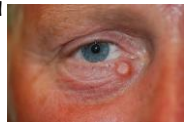
- Accounts for over 90% of all cancerous lid lesions.
- Often, tumor is discovered during routine slit lamp evaluation.
- Usually no associated pain or discomfort.
- More common in older, fair-skinned individuals
- Lower lid = 50% of the time
- Medial Canthus = 25% of the time
- Locally invasive , slow growing - almost never metastasizes



bombayoculoplastics.com

Squamous Cell Carcinoma

- Second most common **malignant** eyelid neoplasm
- Seen mostly in elderly, fair skinned people with a history of chronic sun exposure. Patients present with a **rough, scaly patch of tissue** on or near the lid margin or in the canthal region.
- The area is usually red, elevated and nodular, crusted and/or bloody margins. Often, patients describe this lesion as "a non-healing scab."
- In its early stages is easily confused with a number of other eyelid lesions, both malignant and benign.



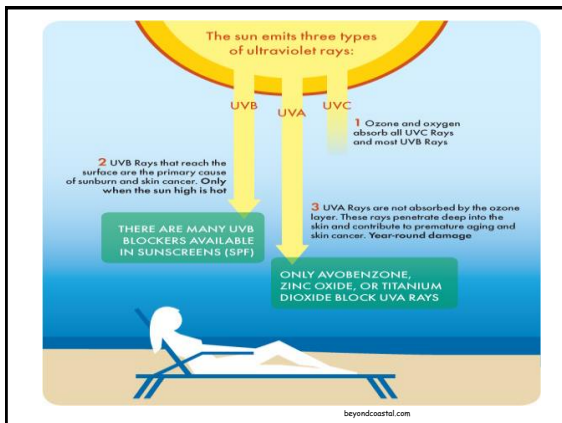
chiagneyelids.com

Potentially **invasive** tumor derived from epithelium skin. In the early stages, the normal epithelial cells are replaced by atypical squamous cells throughout the epidermis, resulting in a loss of normal growth. Lower eyelid moreso than the upper lid



guidelines.management.cutaneous.org

- **UV radiation** is a substantial risk factor. This is supported by the fact that the majority of squamous cell tumors occur on the lower lid margin and medial canthus, the two periocular areas most susceptible to sunlight exposure.
- Aging and northern European descent are two other commonly associated factors in patients with squamous cell carcinoma.

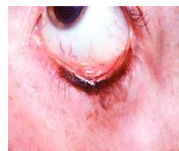


- Squamous cell carcinoma = 5 % of all eyelid malignancies.
- Will invade local tissues and metastasize to other systems, but is not a particularly aggressive tumor. Rate of development is quite slow, and metastasis is exceedingly rare.
- **Early biopsy is often the key to diagnosis.** Suspicious lid lesions, showing irregular growth, changes in color or appearance, or discharge should be biopsied to rule out cancerous entities.

eyedefects.tumblr.com

Malignant Melanoma

- Rare cancer of the eyelid = 1% of all eyelid malignancies.
- A **cutaneous** melanoma that appears pigmented, shows growth and has changes in borders with time. Growth of atypical melanocytes in the epithelium



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