

Lacrimal and Lid Disorders

429 Ophthalmology Team Notes - F2

Sources: Dr. Adel AlSuhibani's lecture, Toronto Notes 2012, Clinical Ophthalmology - A Systemic Approach 6th ed, OphthoBook 2nd ed. WHO.com **NOTE:** these notes follow the outline of the lecture. Key points about some of the individual conditions were added as a quick revision/introduction. Pictures from the original lecture are included.

By: AlBatool AlAmmari

OBJECTIVES

COURSE OBJECTIVES:

1. Lid Disorders:

- Blepharitis
- Entropion
- Ectropion

2. Lacrimal Disorders:

- Lacrimal Duct obstruction
- Lacrimal Glands Tumors

LECTURE OUTLINES:

1. Lacrimal Apparatus

- Anatomy
- Lacrimal Duct Obstruction
- Lacrimal Gland Masses:
 - Orbital Pseudotumor
 - Lymphoma
 - Pleomorphic adenoma
 - Adenoid cystic carcinoma

2. Eyelid Disorders:

Infections:

- Blepharitis
- Herpes Zoster Ophthalmicus
- Trachoma [Under Trichiasis]

Lesions:

- Hordeolum (Stye)
- Chalazion
- Xantholasma

Tumors:

- Basal Cell Carcinoma
- Squamous Cell Carcinoma
- Sebaceous Adenocarcinoma

Eyelid Malpositions:

- Ectropion
- Entropion
- Trichiasis
- Blepharoptosis
 - Myogenic Ptosis
 - Aponeurotic Ptosis
 - Neurogenic Ptosis
- Pseudoptosis

Abnormal Eyelid Movements:

- Blepharospasm
- Hemifacial Spasm
- 7th Nerve Palsy

Eyelid Trauma

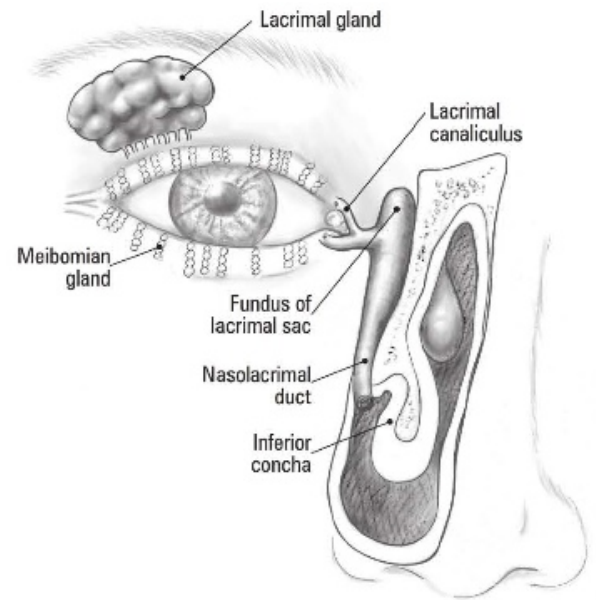
Botox in Ophthalmology

INTRODUCTION

ANATOMY:

LACRIMAL APPARATUS:

1. The **puncta** are located at the posterior edge of the lid margin.
2. The **canaliculi**, the superior and inferior canaliculi most often unite to form the common canaliculus which opens into the lateral wall of the lacrimal sac.
3. The **lacrimal sac** lies in the lacrimal fossa.
4. The **nasolacrimal duct** is the continuation of the lacrimal sac. It descends to open into the inferior nasal meatus, below the inferior turbinate. The opening of the duct is partially covered by a mucosal fold (valve of Hasner).

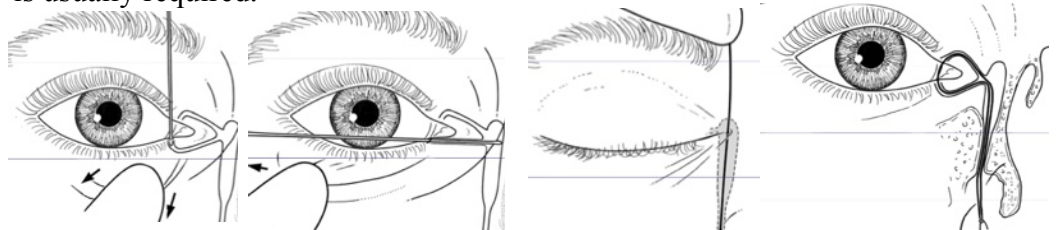
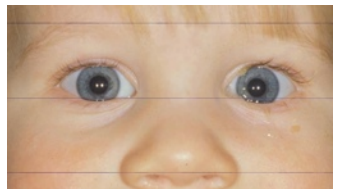


LACRIMAL DUCT OBSTRUCTION:

EPIPHORA OR EXCESSIVE TEARING:

• ETIOLOGIES OF EPIPHORA:

1. **Hypersecretion (lacrimation)** secondary to ocular disease. In these cases watering is associated with symptoms of the underlying cause:
 - a. **Dacryocystitis** (infection of the lacrimal sac)
 - In chronic cases tearing is the only symptom.
 - In acute infection tearing is associated with pain, swelling and redness over the lacrimal sac
 - Treated with warm compresses and antibiotics. Once it resolves, consider dacryocystorhinostomy
2. **Defective drainage** due to compromise of the lacrimal drainage system. It may be caused by:
 - a. **Obstruction or congenital failure of canalization** anywhere along the lacrimal drainage system, from the puncta (with no discharge) to the nasolacrimal duct (associated with discharge).
 - Diagnosed and treated by dilating the punctum with a Nettle ship dilator which rarely gives long-term benefit and punctoplasty is usually required.



3. **Lacrimal pump failure**, which may occur secondarily to lower lid laxity or weakness of the orbicularis muscle (e.g. facial nerve palsy).

LACRIMAL GLAND MASSES:

Lacrimal gland masses could be due to:

1. Inflammatory Conditions:

- Sarcoidosis
- Vasculitis
- Orbital Pseudotumor

2. Non-Inflammatory Conditions:

- Lymphoproliferative
- Epithelial neoplasms



Orbital Pseudotumor (Idiopathic orbital inflammatory disease):

Diagnosis:

1. Presentations: Painful, rapidly progressing orbital mass [within days]
2. US reflectivity is low
3. CT-Scan shows localized or diffuse, molds to bone and globe

Treatment: Systemic steroids and radiation therapy.

Lymphoma:

Diagnosis:

1. Signs: Painless mass that progresses through months
2. US reflectivity is low
3. CT-Scan shows homogenous, oblong, molds to globe and bone

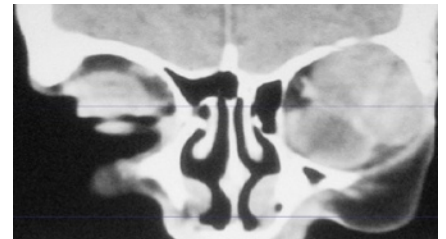
Treatment: Radiation and chemotherapy [systemic disease]

Pleomorphic adenoma (benign mixed tumor):

Diagnosis:

1. Signs: Slowly growing painless mass [Takes years]
2. US reflectivity is medium to high, regular internal structure
3. CT-Scan shows well circumscribed, globular, possible bony expansion or excavation.

Treatment: By complete excision with capsule without biopsy.



Adenoid cystic carcinoma, malignant epithelial tumors:

Diagnosis:

1. Signs: Rapidly growing painful mass [less than a year] with perineural invasion.
2. US reflectivity is medium to high, irregular internal structure
3. CT-Scan shows round to oval mass with bony erosion.

Management: Incisional biopsy, await permanent sections; exenteration.

EYELID DISEASES:

INFECTIONS:

1. Blepharitis **IMP**:

It's a chronic inflammation of the upper and lower eyelids and a very common cause of ocular discomfort and irritation. Involvement is usually **bilateral and symmetrical**.

Blepharitis may be subdivided into anterior and posterior although there is often considerable overlap in symptoms.

[**EXTRA**: Pathogenesis:

- Anterior blepharitis affects the area surrounding the bases of the eyelashes and may be staphylococcal or seborrhoeic.
- Posterior blepharitis is caused by meibomian gland dysfunction and alterations in secretions. Bacterial lipases may result in the formation of free fatty acids.]



Diagnosis:

1. Presentations itching, tearing, foreign body sensation
2. Signs thickened, red lid margins, crusting, discharge with pressure on lids ("toothpaste sign")

Complications [rare]:

- Recurrent chalazia
- Conjunctivitis and keratitis (increased evaporation of the tear film)
- Corneal ulceration and neovascularization

Treatment:

- warm compresses and lid scrubs with diluted "baby shampoo". Topical or systemic antibiotics as needed
- if severe, an ophthalmologist may prescribe a short course of weak topical corticosteroids

2. Herpes Zoster Ophthalmicus:

Herpes zoster ophthalmicus (HZO) is a common, **unilateral infection caused by varicella-zoster virus**.

It typically affects the elderly.

Diagnosis:

1. Presentation pain in the distribution of the first division of the trigeminal nerve i.g dermatitis of the forehead.
2. Signs: **Hutchinson's sign**: if tip of nose is involved (nasociliary branch of V1) then eye will be involved in approximately 75% of cases.



Treatment: Oral antivirals immediately.

EYELID LESIONS:

1. Hordeolum (Stye):

Acute inflammation of eyelid gland - either Meibomian glands (internal lid) or glands of Zeis (modified sweat gland) or Moll (modified sebaceous gland in external lid). **Usually caused by S. aureus**.

Diagnosis:

1. Presentation tender, red swelling in the lid margin [pimple-like eyelid bump].

Treatment: Warm compresses, lid scrubs, gentle massage and topical antibiotics.

Usually resolves in 2-5 days



EYELID DISEASES:

2. Chalazion:

A chalazion (meibomian cyst) is a chronic, **sterile**, granulomatous inflammatory lesion **caused by retained sebaceous secretion leaking from the meibomian glands**.

A chalazion secondarily infected with S.aureus is referred to as internal hordeolum.

Diagnosis:

1. Presentation Non-tender swelling in the lid margin. [No signs of acute inflammation]

Treatment: warm compresses if shows no improvement after 1 month, consider incision and curettage.



3. Xantholasma:

Eyelid xanthoma (lipid deposits in dermis of lids) appears as pale, slightly elevated yellowish plaques or streaks.

Associated with hyperlipidemia and common in the elderly.

Treatment: Excision for cosmesis only, recurrences common.



EYELID TUMORS:

EYELID LESIONS:

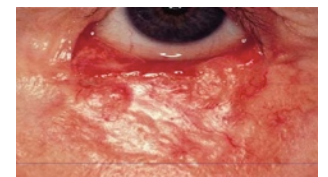
1. Basal Cell Carcinoma:

BCC is by far the most prevalent malignant eyelid tumor, accounting for 90% of all cases. The majority arise from the lower eyelid, followed in relative frequency by the medial canthus.

Medial canthus lesions can be problematic. There's a 3% risk of mortality.

Clinical types:

1. Nodular BCC
2. Noduloulcerative (rodent ulcer).
3. Sclerosing BCC (morphoeic).



2. Squamous Cell Carcinoma:

SCC is **40x less common**, but potentially more aggressive tumor than BCC. The tumor may also exhibit perineural spread to the intracranial cavity via the orbit.

SCC accounts for 5-10% of eyelid malignancies and most **commonly arises from pre-existing lesions**.

The clinical types are variable and there are no pathognomonic characteristics.



3. Sebaceous Adenocarcinoma:

Highly malignant and 2x more common in upper lid

- Multicentric
- Separate upper and lower lid lesions in 6- 8%
- Pagetoid (upward) spread.



EYELID MALPOSITIONS:

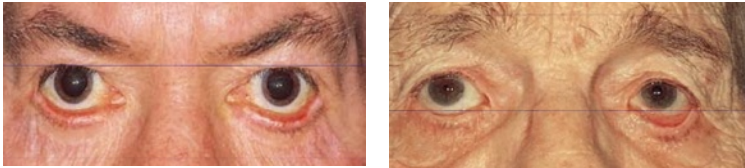
ECTROPION **IMP:**

The lid margin turns outward from globe causing tearing and possibly exposure keratitis.

Types or etiologies:

- Congenital
- Involutional → Age-related. It's the most common type of ectropion
- Paralytic → Caused by ipsilateral facial nerve palsy
- Cicatricial → Caused by scarring or contracture of the skin which pulls the eyelid away from the globe. This is due to burns, trauma or surgical scarring.
- Mechanical → Caused by fat herniation and tumors on or near the lid margin which evert the lid.

Treatment: topical lubrication, surgery.



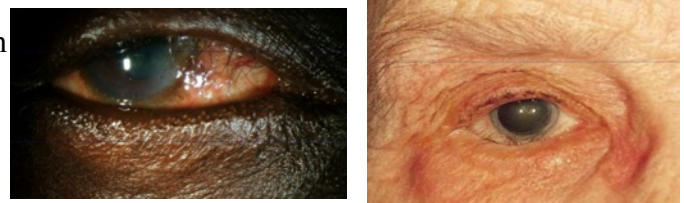
ENTROPION **IMP:**

The **lid margin turns in** towards globe causing tearing, foreign body sensation, and red eye. Most commonly affects lower lid and may cause abrasions with 2° corneal scarring.

Types or etiologies:

- Congenital
- Involutional → Age-related
- Cicatricial → Caused by severe scarring of the palpebral conjunctiva due to herpes zoster infection, surgery, trauma, burns
- Acute-spastic → Orbicularis oculi muscle spasm

Treatment: lubricants, evert lid with tape, surgery



TRICHIASIS:

Eyelashes turned inwards, may result from chronic inflammatory lid diseases (e.g. blepharitis), trauma, or burns

Patient complains of red eye, foreign body sensation, tearing. It may result in corneal ulceration and scarring

Treatment: Topical lubrication, eyelash plucking, electrolysis, cryotherapy



TRACHOMA:

Trachoma is the result of infection of the eye with Chlamydia trachomatis. It's acquired during childhood and if untreated properly it may lead to scarring of the conjunctiva from inside the eyelid. This will cause entropion and corneal scarring and opacity.

Trachoma is the most common cause of entropion in Saudi Arabia.

Grades of trachoma:



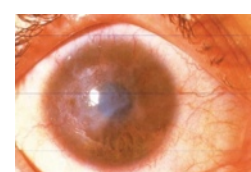
Trachomatous inflammation – Follicular



Trachomatous inflammation – Intense



Trachomatous Scarring



Trachomatous Trichiasis

EYELID MALPOSITIONS:

BLEPHAROPTOSIS:

Drooping or inferior displacement of the upper lid

Classification:

- Congenital vs acquired
- Myogenic, aponeurotic, neurogenic, mechanical, or traumatic

Evaluation

1. Myogenic Ptosis:

Congenital

- Dysgenesis of levator

Acquired

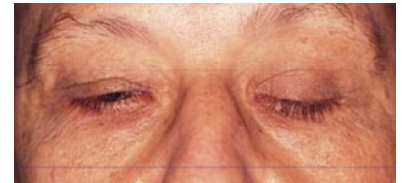
- Localized or diffuse disease
- Muscular dystrophy
- Chronic progressive external ophthalmoplegia (CPEO)
- Myasthenia Gravis (MG)
- Oculopharyngeal dystrophy

If not treated may lead to amblyopia



2. Aponeurotic Ptosis:

- Most common form of ptosis.
- Caused by a defect in the levator aponeurosis.
- High lid crease with normal levator function.



3. Neurogenic Ptosis:

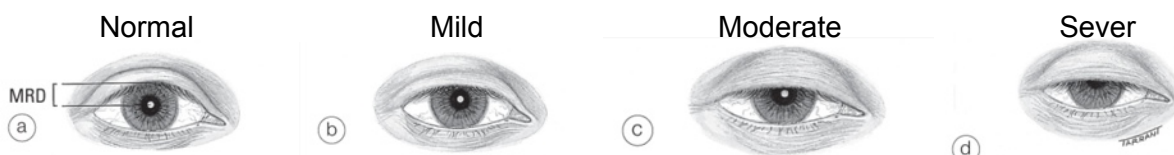
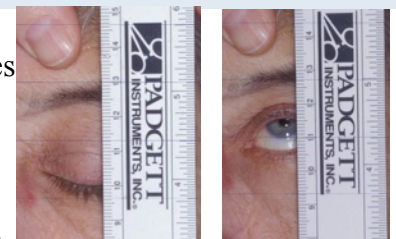
Acquired and congenital forms

Acquired: – 3rd nerve palsy** – Horner syndrome – Myasthenia gravis



MEASUREMENTS:

1. **Levator function** is measured by placing a thumb firmly against the patient's brow to negate the action of the frontalis muscle, with the eyes in down-gaze. The patient then looks up as far as possible and the amount of excursion is measured with a rule. Levator function is graded as normal (15mm or more).
2. **Margin-reflex distance** is the distance between the upper lid margin and the corneal reflection of a pen torch held by the examiner, at which the patient is directly looking. Normal is 4-4.5mm. Done to assess the severity of ptosis.

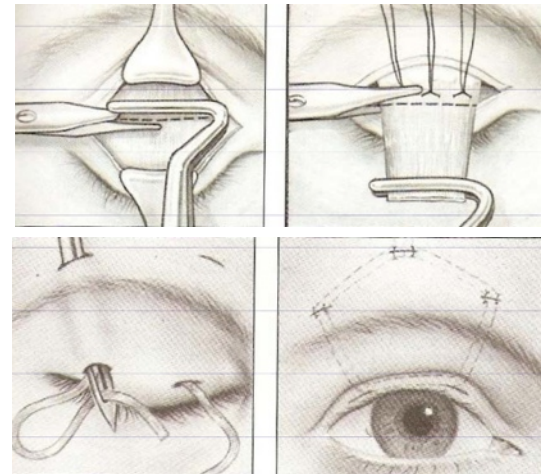


EYELID MALPOSITIONS:

TREATMENT OF PTOSIS:

- **Mild ptosis**, good levator function: Mullerectomy.
- **Any ptosis**, **reasonable levator function**: Levator resection.
- **Severe ptosis**, **poor levator function**: Frontalis suspension.

Mullerectomy



Ptosis

IN SHORT

- drooping of upper eyelid

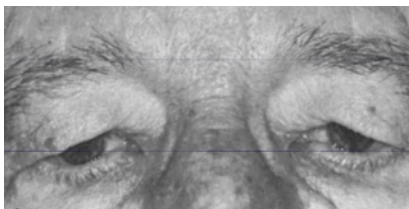
Etiology

- aponeurotic: disinsertion or dehiscence of levator aponeurosis (most common)
 - associated with advancing age, trauma, surgery, pregnancy, chronic lid swelling
- mechanical
 - incomplete opening of eyelid due to mass or scarring
- neuromuscular
 - myasthenia gravis (neuromuscular palsy), myotonic dystrophy
 - CN III palsy
 - Horner's syndrome
- congenital
- pseudoptosis (e.g. dermatochalasis, enophthalmos, contralateral exophthalmos)

Treatment

- surgery

PSEUDOPTOSIS:



Dermatochalasis
[Baggy lids]



Brow ptosis



Brow ptosis



Pre-Operative Dermatochalasis

Post-Operative

ABNORMAL EYELID MOVEMENTS:

1.BLEPHAROSPASM

Involuntary tonic, spasmodic contraction of orbicularis.

- Dermatochalasis- rubbing
- Brow ptosis- frontalis spasm
- Blepharoptosis- levator dehiscence
- Ectropion/entropion dry eye



2.HEMIFACIAL SPASM

Intermittent contractions of the entire side of face

Present during sleep

Compression of 7th nerve at the level of the brain stem

MRI evaluation

3.7TH NERVE PALSY

Location of lesion:

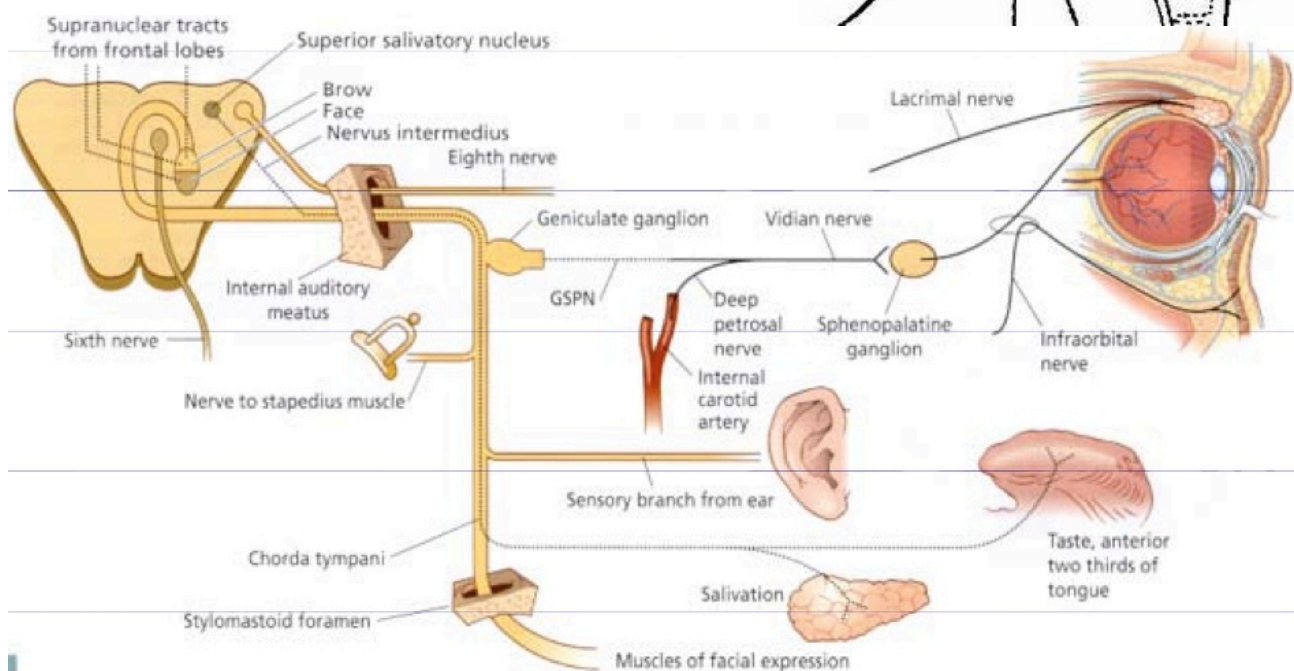
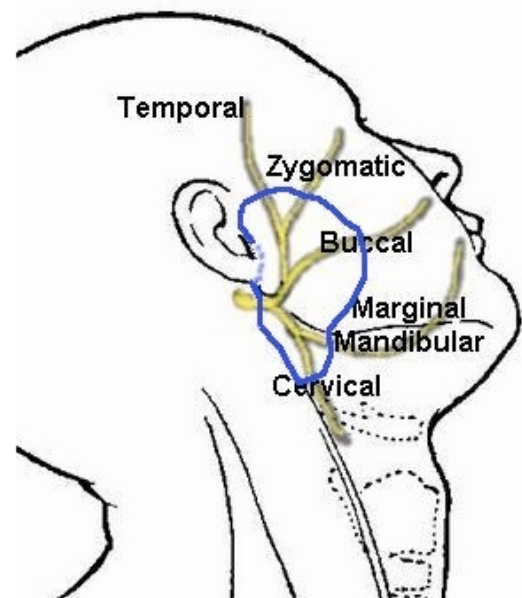
- Supranuclear, brain stem, peripheral

Cause of paralysis:

- Bell's
- Infection
- Infarct
- Demyelination
- Neoplasm
- Trauma or miscellaneous

Clinical Presentations:

- Decreased vision, lid retraction, brow ptosis
- Tearing and exposure keratitis
- Paralytic ectropion



EYELID TRAUMA **IMP**

Types of Trauma:

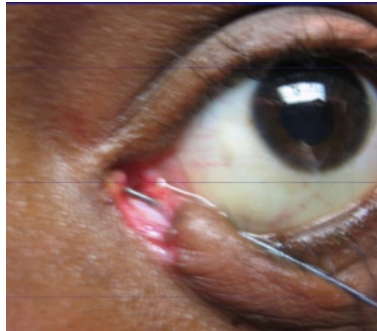
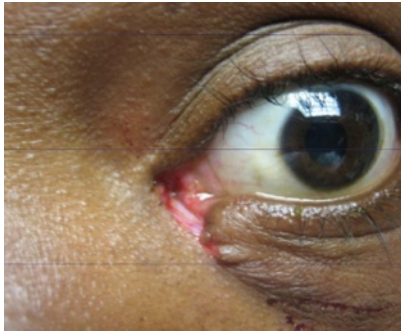
Blunt: A haematoma (black eye) is the most common result of blunt injury to the eyelid.

Sharp: The extent of the injury is determined by the size of the object, its speed at the time of impact and its composition.

Classifications/Extent of Trauma:

- Superficial lacerations parallel to the lid margin without gaping
- Lid margin lacerations invariably gape and must therefore be very carefully sutured
- Canthal lacerations can be mild or extensive
- Canalicular lacerations should be repaired within 24 hours. It is bridged by silicone tubing

If the trauma involves the lid margin and beyond refer for an ophthalmologist!



Canalicular lacerations

BOTOX IN OPHTHALMOLOGY:

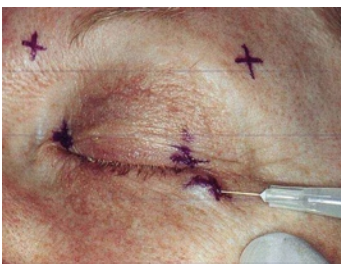
BOTULINUM TOXIN

Clostridium Botulinum

- Neurotoxin types A,B,C1,D,E,F,G
- Botox = Botulinum Toxin A
- Blocks the release of acetylcholine
- Onset 3 days Peak effect 1-2 weeks Duration 6-12 weeks

Uses:

1. Blepharospasm



2. Strabismus



3. Botox for Crow's-Feet



4. Glabellar Botox

