



433 Teams

# OPHTHALMOLOGY

## Ocular Emergencies & Red Eye Part II

Color index:

432 Team – **Important** – 433 Notes – Not important

[ophthalmology433team@gmail.com](mailto:ophthalmology433team@gmail.com)

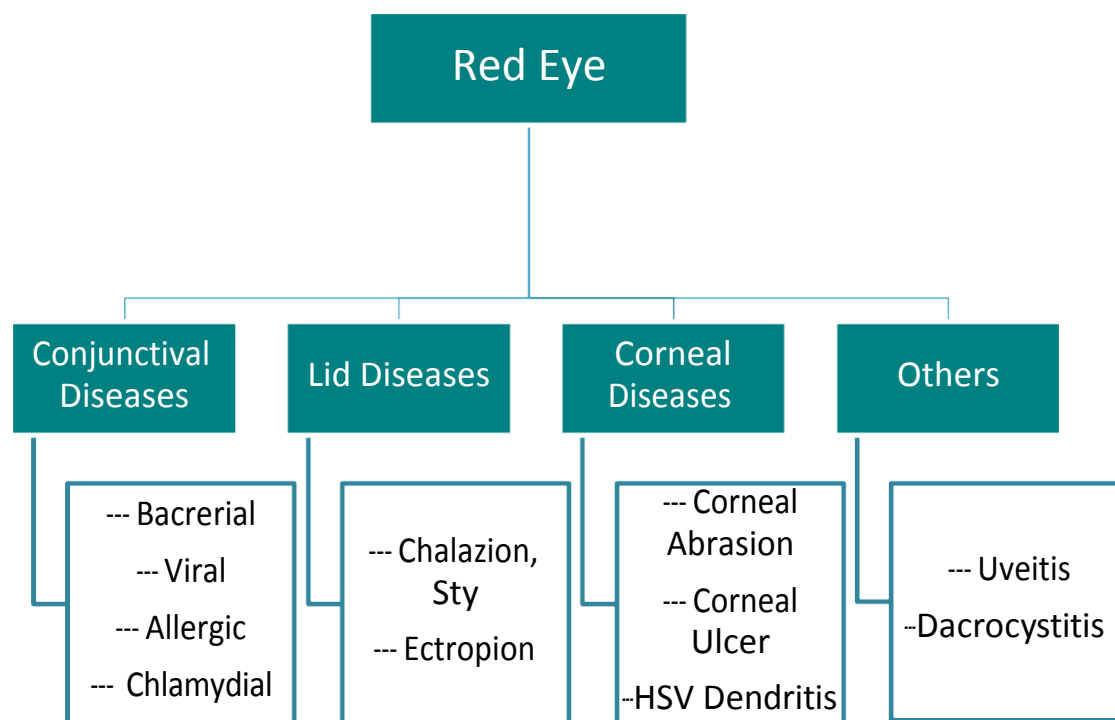


جامعة  
الملك سعود  
King Saud University



## Objectives:

Not given.

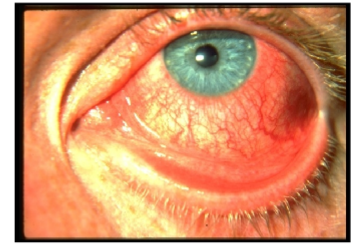


# Red Eye

## Introduction:

### Relevance:

- Frequent presentation to GP
- Must be able to differentiate between serious vision threatening conditions and simple benign conditions



## Basics:

- Red eye refers to **hyperemia** of the superficially visible vessels of the conjunctiva, episclera, or the sclera.
- It is caused by disorders of these structures themselves, or of adjacent structures like the eyelids, cornea, iris, and ciliary body.

## Differential diagnosis of red eye:

---

Conjunctival	Blepharoconjunctivitis	Bacterial conjunctivitis
	Viral conjunctivitis	Chlamydial conjunctivitis
	Allergic conjunctivitis	Toxic/chemical reaction
	Dry eye	Pinguecula/pterygium

---

---

Lid Diseases	Chalazion
	Sty
	Abnormal lid function

---

---

Corneal Diseases	Abrasion
	Ulcer

---

### Foreign Body

---

Others	Dacryoadenitis	Dacryocystitis
	Masquerade syndrome	Carotid and dural fistula
	Acute angle glaucoma	Anterior uveitis
	Episcleritis/scleritis	Subconjunctival hemorrhage
	Factitious	

---

# Conjunctivitis

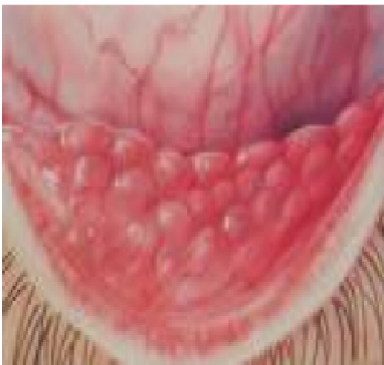
## Bacterial



- Both adults and children. In neonates it is called **ophthalmia neonatorum**.
- Symptoms: Tearing, foreign body sensation, burning, stinging, photophobia and **Mucopurulent or purulent discharge** important to differentiate this and the other types
- Lid and conjunctiva maybe edematous and when averting the lid there will be **papillary reaction**
- Causes: Streptococcus pneumoniae, Haemophilus influenzae, and staphylococcus aureus and epidermidis
- Investigations: Conjunctival swab for culture **Swab is mandatory in neonates, but in adults they usually respond to the topical Abs but If no response →→ swab for culture**
- Treatment: Topical broad spectrum antibiotics **but systemic in neonates**

## Viral

Follicular reaction



- Symptoms: Acute, **watery discharge** red eye with soreness, foreign body sensation and photophobia
  - Conjunctiva is often intensely hyperaemic and there maybe **follicles**, haemorrhages, inflammatory membranes and a **pre-auricular node**
  - The most common cause is an **adenoviral** infection
  - No specific therapy but cold compresses are helpful **Symptomatic treatment for itching and redness**
- It is common in school kids and it is associated with upper respiratory tract infection**

## Allergic

- Encompasses a spectrum of clinical condition
- There is often a history of rhinitis, asthma and family history of atopy “seasonal”
- Signs may include mildly red eyes, **watery discharge**, chemosis, papillary hypertrophy and **giant papillae**
- Treatment consist of cold compresses, antihistamines, NSAIDs, mast cells stabilizers, topical corticosteroids and cyclosporine



If we can't determine the cause →→ give antihistamine and lubricating drops and wait for 2 days.  
If no response →→ most likely bacterial.

## Chlamydial

- Usually occur in sexually active individuals with or without an associated genital infection
- Conjunctivitis usually unilateral with tearing, foreign body sensation, lid crusting, conjunctival discharge and follicles
- There is often non-tender preauricular node
- Treatments requires oral tetracycline or azithromycin **for the patient and the partner**



In summary: “how to differentiate between bacterial, viral and allergic?”

1. Viral and allergic both have **watery** discharge while bacterial has **mucopurelant** discharge. (that may stick the lids together)
2. Bacterial and allergic both present with **papillary** reaction while viral presents with **follicular** reaction.
3. All associated with the hallmark symptom of itching.
4. Lymph nodes and upper respiratory tract infections are more common with viral.

## Dry Eye

### Etiology:

- Idiopathic
- Collagen vascular diseases **Rheumatoid arthritis**
- Conjunctival scarring
- Infiltration of the lacrimal gland
- Vitamin A deficiency
- **Medications: Roacutane for acne, associated with severe dryness**

### Symptoms:

- Burning or foreign body sensation
- Tearing
- Redness
- Usually bilateral

### Treatment:

- Artificial tears.

## Pterygium

- **Fibro-vascular membrane going from the conjunctiva toward the cornea**
- **Has a high recurrence rate “40%”**

### Causes:

- **Idiopathic**
- **Sun exposure**



### Treatment:

- **Conservative and prevent further progression by wearing sunglasses and applying lubricating drops.**
- **Surgery IF:**
  - It is affecting the vision by going to the visual axis.
  - It is causing astigmatism and corneal irregularities.
  - For cosmetics.
  - It mimics squamous cell carcinoma.

## Lid diseases

### Blepharitis:

- Inflammation of the lid margin due to **meibomian gland dysfunction**.
- Adult > children.
- Frequently associated with **styes**. (is an infection of an oil gland in the eyelid)  
Stye has a foreign body sensation with tearing abnormalities
- **Treatment:** Lid hygiene, topical antibiotics, and lubricants.

Dandruff over the eyelashes or blepharitis



### Chalazion:

Chalazion is a closure of one of the **meibomian glands** causing a granuloma within the tarsal plate leading to redness and swelling due to the accumulation of the secretion inside it "sebum, lipid"

#### Treatment:

- Hot compression, the orifice of the gland will open and the sebum will come out.



But if it is left untreated or no response within 6 months, surgical intervention is needed:

- Incision and curettage: elevate the lid, open it and drain the cyst.

Chalazion is usually  
painless and internal  
in the gland

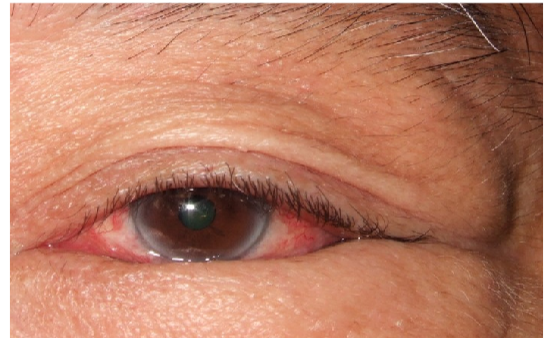
Styes are usually  
painful and  
superficial

## Ectropion, Entropion and Trichiasis

- Ectropion is an eversion of the lid away from the globe
- **Common in elderly** where the orbicularis muscle is weakened
- The malposition of the lids everts the puncta and prevents drainage of the tears, leading to epiphora
- **Treatment:** surgery.



- Entropion is an inturning of the lid margin and lashes, usually of the lower lid, towards the globe
- **Common in elderly with trachoma** “not seen nowadays”
- It is secondary to scarring of the conjunctiva
- **Treatment:** surgery



Trichiasis is a common condition in which aberrant eyelashes are directed backwards towards the globe due to scarring of the conjunctiva

**Treatment:** is by epilation of the offending lashes. Recurrence can be treated with cryotherapy or electrolysis.



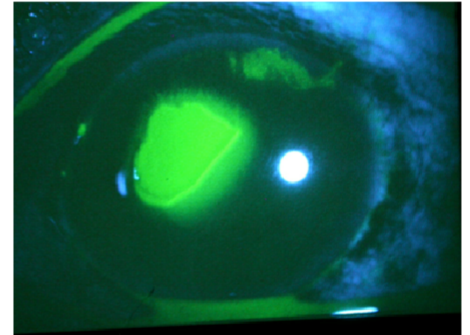
If the scar is big, the whole lid will be turned into the eye “entropion”, but if the scar is small and only involves 1-3 lashes “trichiasis”



## Corneal diseases

### Corneal Abrasion

- It is an extremely painful condition, which normally heals rapidly. It should be treated with antibiotic ointment, with or without an eye pad.
- Prophylaxis against further recurrent corneal erosions is attempted, using a lubricating ointment at night for several weeks after an initial attack.
- It usually leaves a scar after treatment.



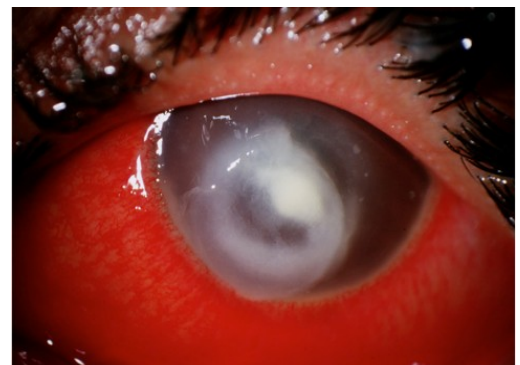
Use of fluorescein: the cornea is clear and the surface epithelial cells have been lost

---

### Infectious keratitis

Corneal ulcer

When using a slit-lamp: opacity of the cornea.

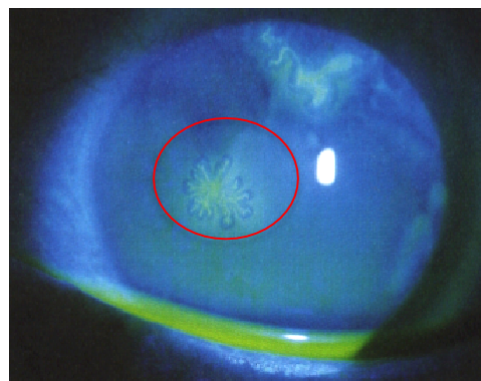


---

### HSV Dendrites

Herpetic keratitis

Treatment: antiviral



## Nasolacrimal Obstruction

### Can lead to Dacrocystitis:

- Pain, redness, and swelling over the innermost aspect of the lower eyelid, tearing, discharge
- **Organisms:**
  - Staphylococci, streptococci, and diphtheroids
- **Treatment:** First treat the infection and then correct the cause with surgery
  - Systemic antibiotics
  - Surgical drainage

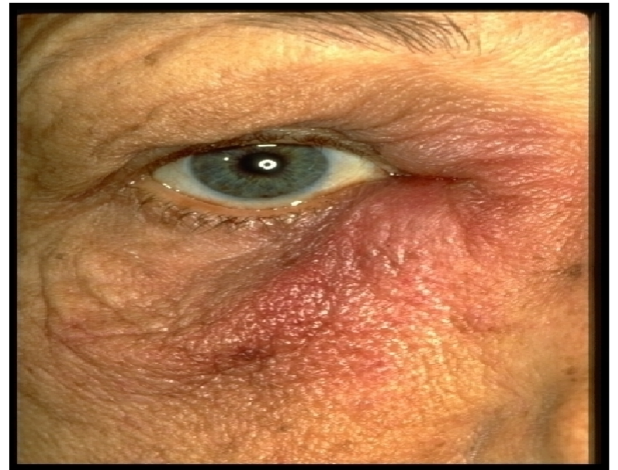
In kids: congenital nasolacrimal duct obstruction, treatment is massage cause it has a high chance to open by itself "90%"

If there is a block between the eye and the nasal cavity →→ nasolacrimal duct obstruction

If it is causing infection of the lacrimal sac →→ dacrocystitis

If the inflammation is in the lacrimal sac "duct" →→ Dacrocystitis

If it is in the Lacrimal gland →→ Dacroadenitis

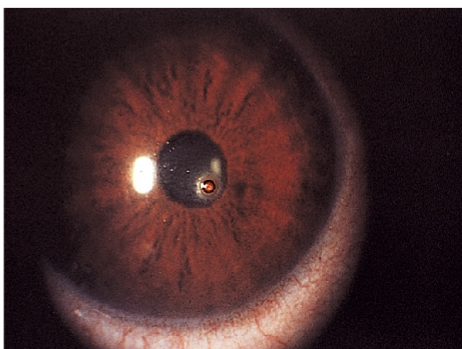


## Conjunctival Tumor

Conjunctival melanoma, treatment: surgery and chemo



## Foreign Body

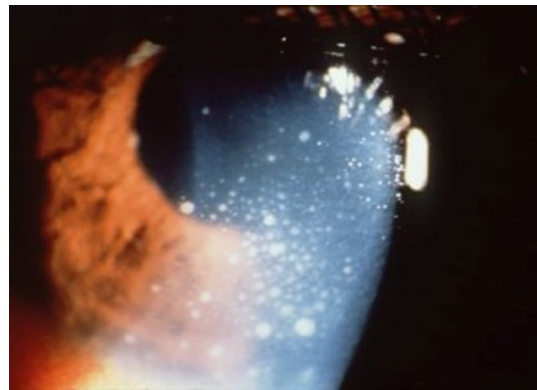


## Uveitis

- Inflammation of the uveal tract (the iris, ciliary body and choroid)
- Presents with Keratic precipitates and hypopyon.

### Classifications:

- Based on keratic precipitates:
  1. Small KPs →→ non-granulomatous
  2. Large KPs “mutton fat KPs” →→ granulomatous, we have to rule out TB and sarcoidosis
- Based on the part inflamed:
  1. Anterior or iritis: inflammation of the iris, accompanied by increased vascular permeability.
  2. Intermediate or cyclitis: inflammation of the ciliary body.
  3. Posterior: inflammation of the posterior uvea and may involve the choroid (choroiditis), the retina (retinitis) or both (chorioretinitis).
  4. Panuveitis: inflammatory changes affect the anterior chamber, vitreous and retina and/or the choroid.



## Episcleritis

- Can be localized (sectorial) or diffuse redness
- Often asymptomatic
- Usually self-limited
- Treatment is topical or systemic NSAIDs



Usually idiopathic but sometimes patient should be investigated for uric acid, gout can cause it

## Scleritis

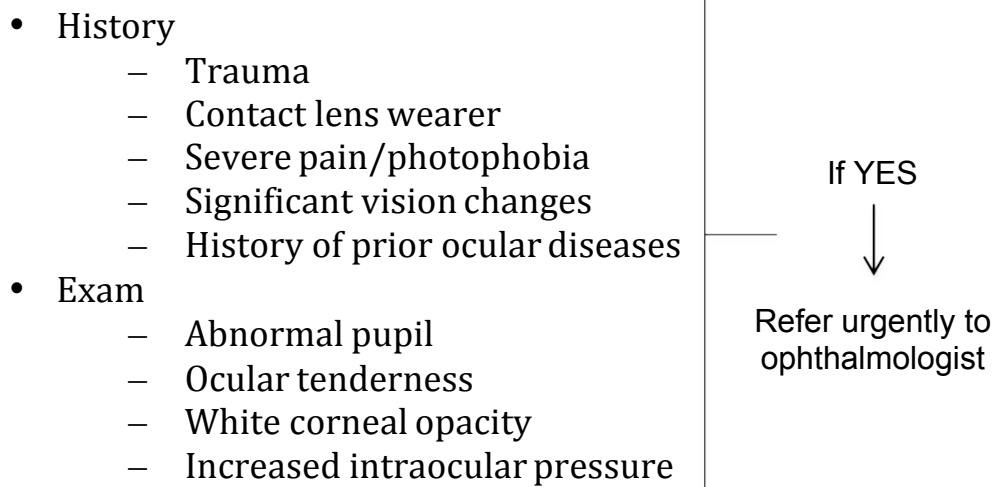
- **Pain which maybe severe** with tenderness, tearing and photophobia
- Maybe localized, diffuse or associated with nodules.
- Can result in scleral necrosis (scleromalacia perforans)
- 30 to 60 % may have an associated systemic diseases
  - RA, **wegener's granulomatosis, infections "herpetic TB"**
- Treatment: may need systemic steroids. **If not severe: methotrexate.**



## Subconjunctival Hemorrhage

- Usually asymptomatic
  - Blood underneath the conjunctiva, often in a sector of the eye
  - Etiology:
    - Valsalva (coughing or straining)
    - Traumatic **most commonly**
    - Hypertension
    - Bleeding disorder **In Leukemia, repeated hemorrhage might be the first sign**
    - Idiopathic
- If idiopathic, do CBC to rule out bleeding diathesis.**

## Red eye treatment algorithm



## Is it conjunctivitis?

### Summary of conjunctivitis signs and symptoms

- History
  - Itching
  - Exposure to person with red eye
  - URTI
  - Past history of conjunctivitis
  - Discharge with morning crusting
  - Exposure to drugs
- Signs
  - Discharge
  - Lid and conjunctival edema
  - Conjunctival redness
  - Preauricular lymph node
  - Facial or eye lid vesicles

## Summary

In conjunctivitis: you have to differentiate between bacterial, viral and allergic:

1. Viral and allergic both have **watery** discharge while bacterial has **mucopurulent** discharge.
2. Bacterial and allergic both present with **papillary** reaction while viral presents with **follicular** reaction.

Blepharitis is the inflammation of the lid margin and it is the cause of styes and chalazions if left untreated.

Chalazion is **painless and internal** in the gland while a sty is **painful and superficial**.

Ectropion is the eversion of the lid away from the globe, entropion is the inward turning of the whole lid and lashes while trichiasis involves only 2-3 lashes. They all require surgery to be corrected.

Nasolacrimal duct obstruction can lead either to Dacrocystitis or Dacryoadenitis.

If the inflammation is in the lacrimal sac "duct" →→ Dacrocystitis

If it is in the Lacrimal gland →→ Dacryoadenitis

Uveitis is the inflammation of the uveal tract that presents with **Keratic precipitates and hypopyon**.

## MCQs:

**Q1: A 20 years old patient presented with painless upper lid swelling of 3 months duration. What is the most common cause?**

- A. Basal Cell Carcinoma.
- B. Chalazion.
- C. Sebaceous Cell Carcinoma.
- D. Dermoid Cyst.

Answer: B

## Red eye: causes and symptoms

<b>Major causes</b>	<b>Trauma</b>	<b>Infection</b>
	<b>Acute glaucoma</b>	<b>Other forms of inflammation</b>
<b>Associated symptoms</b>	<b>Discharge</b>	<b>Pain</b>
	<b>Photophobia</b>	<b>Blurred vision</b>

### Differential diagnosis

<b>Deep red, sclera obscured</b>	Subconjunctival hemorrhage	
<b>Diffuse bulbar and tarsal injection</b>	Infective conjunctivitis	Allergic conjunctivitis
	Angle closure glaucoma	Reaction to topical medications
	Dry eyes	In association with orbital cellulitis
<b>Diffuse / focal bulbar injection</b>	Episcleritis	Chemical injury
	Endophthalmitis	Pingueculae
	Eyelid malposition	blepharitis
	Blepharitis	pterygia
<b>Perilimbal (ciliary) injection</b>	Iritis	Keratitis
	Corneal abrasion	Corneal ulcer
	Corneal foreign body	



## Done By:

Othman Abid
Abdullah Alasmari

## Reviewed By:

Aisha Alraddadi
Sara Habis

