Eye Problems

the painful red eye

Dry eye

the painful red eye

- Conjunctivitis is one cause of a painful red eye.
- There are other serious causes of painful red eyes and there are several causes of conjunctivitis.
- Accurate diagnosis of these causes is of vital importance and requires specific knowledge and skills.
- Notes on some of the causes of painful red eyes are provided below.

What you should know

Causes of painful red eye

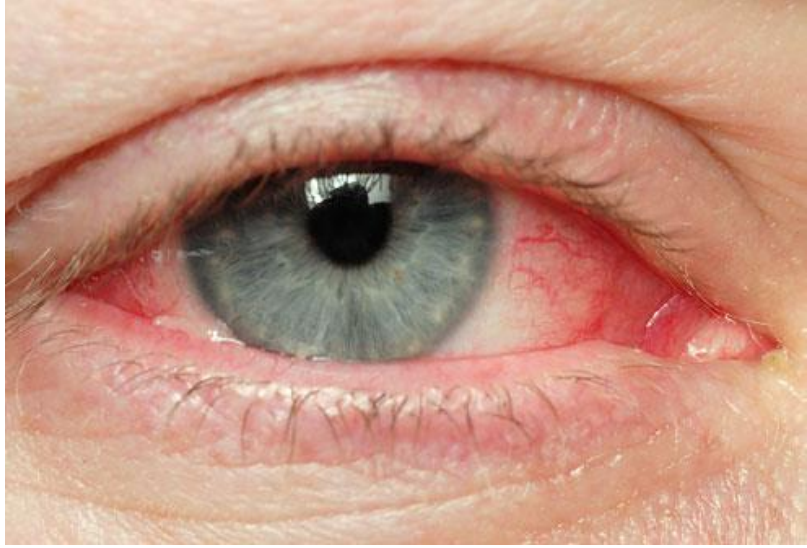
- Conjunctivitis
  - Infective
  - Allergic
- Corneal ulcers
- Keratitis

Other causes

- Iritis/uveitis
- Glaucoma

One or both eyes affected?

- What is the appearance of the eye?
- What are the symptoms – pain, gritty feeling, photophobia?
- Is vision affected?
- Any discharge from the eye(s) – purulent, watery?
- Does the patient wear contact lenses?



- **Conjunctivitis**
- The term *conjunctivitis* implies inflammation of the conjunctiva, which is a transparent surface covering the white of the eye. It can become inflamed due to infection, allergy or irritation.

Infective conjunctivitis

- Both bacteria and viruses can cause conjunctivitis.
- The symptoms are a painful gritty sensation and a discharge.
- The discharge is sticky and purulent in bacterial infections and more watery in viral infections.
- It nearly always affects both eyes. Conjunctivitis occurring in only one eye suggests the possible presence of a foreign body or another condition accounting for the red eye.

- *Management*.

- Acute infective conjunctivitis is frequently self limiting.

- A systematic review found that 65% of cases resolved within 2–5 days when treated with placebo.

- Gentle cleansing of the affected eye(s) with cotton wool soaked in water can be recommended regardless of whether treatment is also being suggested.

- There is some evidence that infective conjunctivitis treated with antibacterial eye drops and ointment resolves more quickly.

- *Chloramphenicol eye drops* 0.5% every 2 h for the first 24 h and then four times daily or *chloramphenicol eye ointment* 1% can be used over the counter (OTC) for the treatment of acute bacterial conjunctivitis in adults and children aged 2 years or over.

- People with infective conjunctivitis or those treating someone who is infected should wash their hands regularly and avoid sharing towels and pillows.

- Contact lenses should not be worn until the infection has completely cleared and until 24 h after any treatment has been completed.

- Medical advice is urgently needed if the eye(s)
  - become markedly painful,
  - there is photophobia,
  - marked redness
  - vision is affected.

- NHS Clinical Knowledge Service advises that if symptoms persist for longer than 2 weeks, further investigation is needed.

Other conditions with similar symptoms

- *Allergic conjunctivitis*
- This produces irritation, discomfort and a watery discharge.
- It typically occurs in the hay fever season.
- It is sometimes difficult to differentiate between infection and allergy and therefore referral is important if there is any doubt.

Management

- In seasonal allergic conjunctivitis, decongestant and antihistamine drops can be helpful and *sodium cromoglicate (sodium cromoglycate) eye drops* is an effective, safe treatment.

- Mast cell stabilisers help to prevent the onset of allergic reactions by blocking the attachment of immunoglobulin/allergen complexes to mast cells.

- They do not provide the rapidity of relief associated with topical antihistamines but are effective when used for longer periods of time.

- In recurrent seasonal allergies, it is appropriate to use a mast cell stabilizer for 4 weeks before the start of an allergy season.

- If there is prolonged exposure to allergens in perennial allergic conjunctivitis, then the continued use of a topical antihistamine becomes inappropriate and it is better to recommend drops containing a mast cell stabiliser such as *Sodium cromoglicate.*

- *Sodium cromoglicate* 2% eye drops can be recommended OTC for the treatment of both seasonal and perennial allergic conjunctivitis.

- A number of proprietary brands are available.

- Warn patients that they might experience a mild transient burning or stinging sensation after administering these products.

- A more chronic form of allergic conjunctivitis is called vernal keratoconjunctivitis.
- It usually occurs in atopic individuals.
- It is an important diagnosis to make, as leaving it untreated can lead to corneal scarring.
- It would normally be managed by an ophthalmologist.
- Steroid drops may be used in the management of more severe cases.

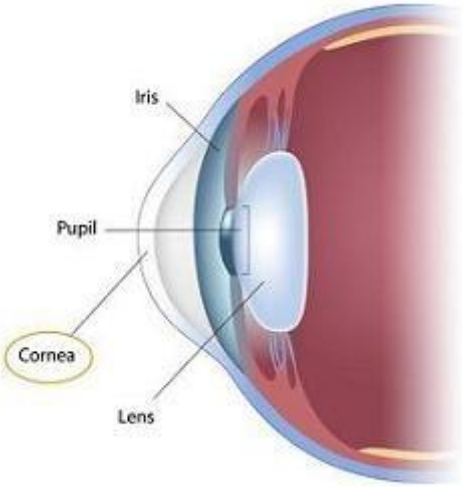
- Blepharitis may present with similar symptoms to allergic conjunctivitis.
- However, it is often the case that pruritus (itching) is less prominent with blepharitis.
- This is also the case with dry eye syndrome (keratoconjunctivitis sicca).
- Blepharitis is an infection along the lid margin.
- Its management usually requires removal of the crusty matter from between the lashes with a cotton wool bud.

- *Corneal ulcers*
- These may be due to an infection or a traumatic abrasion.

- The main symptom is that of pain.

- There may be surrounding conjunctival inflammation.

- An abrasion can be caused by wearing contact lenses.
- Early diagnosis is important as the cornea can become permanently scarred, with loss of sight.
- If a corneal ulcer is suspected, the eye is examined after instilling *fluorescein drops,* which will colour and highlight an otherwise invisible ulcer.
- The cornea is the transparent covering over the front of the eye and early ulcers are not visible.



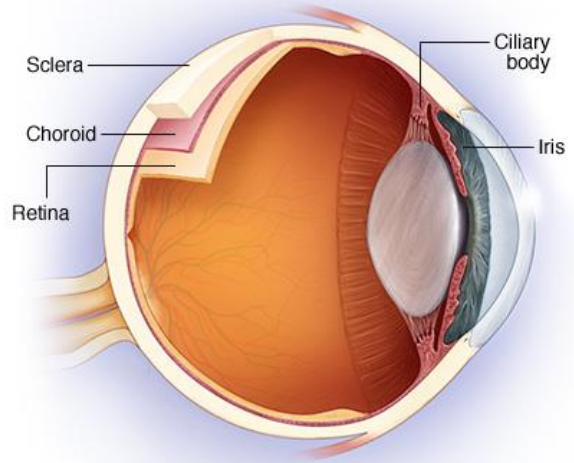
- Keratitis (inflammation or infection of the cornea) often presents with a unilateral, acutely painful red eye and the patient complaining of photophobia.

- It may be caused by herpes simplex virus or, occasionally, a bacterial infection.

- *Acanthamoeba keratitis* is commoner in soft contact lens wearers and is associated with
  - poor lens hygiene,
  - extended wear
  - swimming whilst wearing lenses.

- Both these conditions need to be referred.

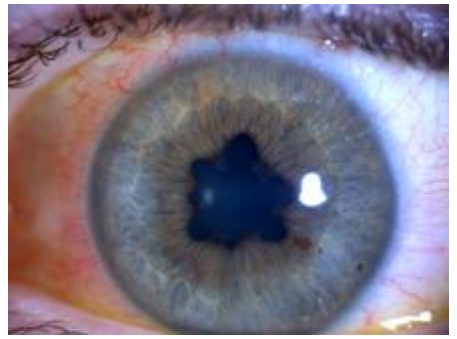
Other causes



- *Iritis/uveitis*
- Iritis is inflammation of the iris and surrounding structures.

- It may occur in association with some forms of arthritis, sarcoidosis or tuberculosis.

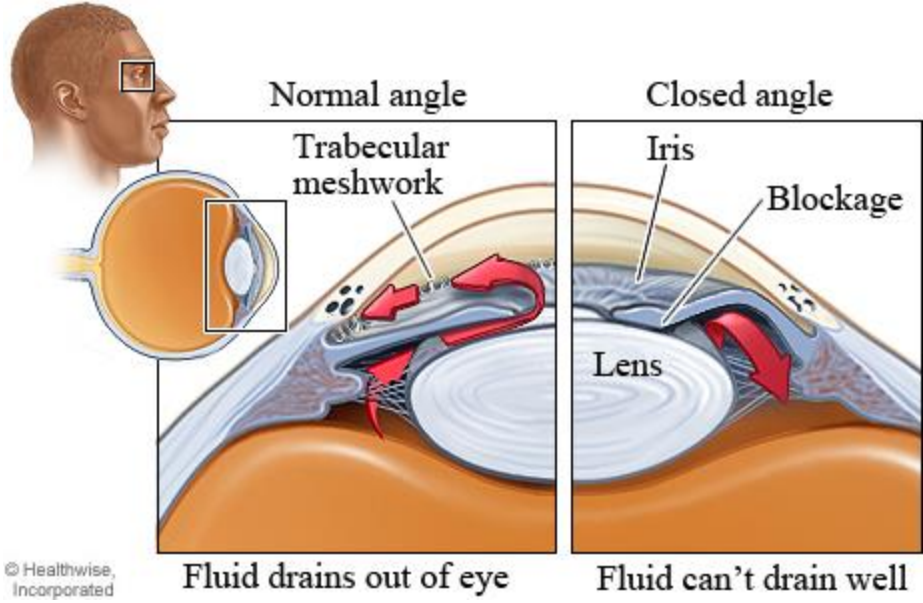
- It may occur as an isolated event with no obvious cause.



- The inflammation causes pain, which is felt more within the eye than is the superficial gritty pain of conjunctivitis, and there is no discharge.
- The affected eye is red and the pupil is small and possibly irregular.
- Urgent specialist referral is necessary for accurate diagnosis.
- Treatment is with topical steroids to reduce inflammation.

Glaucoma

- Glaucoma occurs when the pressure of the fluids within the eye becomes abnormally high.
- This may either happen suddenly or develop slowly and insidiously; two different abnormalities are involved.
- It is the sudden onset type (acute closed-angle glaucoma) that causes a painful red eye.
- Emergency hospital referral is necessary in order to prevent permanent loss of sight.



- The pain of acute glaucoma is severe and may be felt in and around the eye.
- There may be associated vomiting.
- As the pressure builds up, the cornea swells, becoming hazy, causing impaired vision and a halo appearance around lights.
- Treatment involves an operation (Iridectomy) to lower the pressure to prevent it from developing again.

- Acute closed-angle glaucoma is rare, whereas 2% of people over 40 years suffer from primary open-angle glaucoma (chronic simple glaucoma).

- This condition starts slowly and insidiously, without warning symptoms.

- As the intraocular pressure builds up, the optic nerve is damaged, which leads to loss of visual field and blindness if not treated.

- Chronic glaucoma can be detected by an examination at the optician.

- Regular check-ups are advised if there is a family history of glaucoma, especially in those over 40 years of age.

Contact lenses

- There are two main types of lens: hard (gas-permeable) and soft (hydrogel).
- Soft lenses are the most popular because of their comfort.
- One-day disposable lenses, which are worn once and require no maintenance or storage, are becoming increasingly popular.
- However, this can lead to patients keeping lenses in for longer periods of time.

- Extended wear involves much greater risks and increases the chances of complications such as ulcerative keratitis, *Acanthamoeba keratitis* and papillary conjunctivitis.

- Contact lenses should not be worn if the patient has conjunctivitis or is using eye drops.

- Soft contact lenses can absorb the preservative benzalkonium chloride used in eye drops.

- Consequently, soft lenses should not be worn within 24 h of instilling eye drops containing this preservative.

Dry eye

- Dry eye is a common problem, particularly in older adults.
- Tears are needed to maintain a healthy eye surface and for enabling clear vision and have three layers:
  - oil,
  - water
  - mucus.
- The oily layer helps to prevent evaporation of the water layer, and the mucin layer spreads the tears evenly over the surface of the eye.

- In dry eye, the quantity or the composition of tears changes.
- Tears may evaporate too quickly or they may not spread evenly over the cornea.
- Tear production diminishes with age and is affected by female hormones. Hence the problem is more common in women.

What you should know

Causes of dry eye

- Environment
- Medical conditions
- Medication

What are the symptoms – pain, gritty feeling, photophobia?

Is vision affected?

Does the patient wear contact lenses?

Environment

- windy, dry climates increase tear evaporation.

- Long periods of time spent working at a computer screen are associated with dry eye because blinking tends to be less frequent thus redistribution of the tear film happens less often.

- *Medical conditions* – patients with
  - rheumatoid arthritis,
  - diabetes or
  - thyroid problems
- are more likely to experience dry eyes.

- *Medication* –
  - antihistamines,
  - beta-blockers,
  - chemotherapy,
  - diuretics,
  - HRT,
  - oral contraceptives,
  - selective serotonin reuptake inhibitors (SSRIs),
  - tricyclic antidepressants (TCAs)
- may affect the quantity and composition of tears.

- Preservatives in topical treatments may also contribute to dry eyes.

- *Symptoms* – people with dry eyes may report irritated, gritty, scratchy or burning eyes, a feeling of something in their eyes, excess watering and blurred vision.

- *Vision* – patients with dry eyes may report experiencing some blurring of vision when they first wake up in the morning.

- *Contact lenses* – individuals who wear contact lenses are more likely
- to experience dry eyes.

When to refer

- Most cases of mild-to-moderate dry eyes can be managed by the patient using self-care.

- Severe symptoms or those that do not improve with selfcare should be referred to the general practitioner (GP) or optometrist.

Management

- Treatments for dry eyes aim to restore or maintain the normal amount of tears in the eye to minimise dryness.
- There are two main treatments: lubricant eye preparations and treatments that replenish the oily layer and reduce the evaporation of tears.
- The former include a range of
- drops, gels and ointments.
- Patients who wear contact lenses should use a preservative-free preparation.
- Preparations to replenish the oily layer include eye drops containing synthetic guar gum or a spray containing liposomes.
- A liposomal eye spray is applied onto the closed eyelids.
- When the eyes open, the liposomes spread across the surface of the eye, creating a new oily film.

- *Practical advice.*
- Using a humidifier at home and work can help
- keep the air moist. Opening windows, even for a short time, will also
- help to refresh and moisten the air. Wearing sunglasses (especially of a
- wraparound style) outside will protect the eyes from the drying effects
- of sun and wind.