

Eye Disorders

Assistant Professor

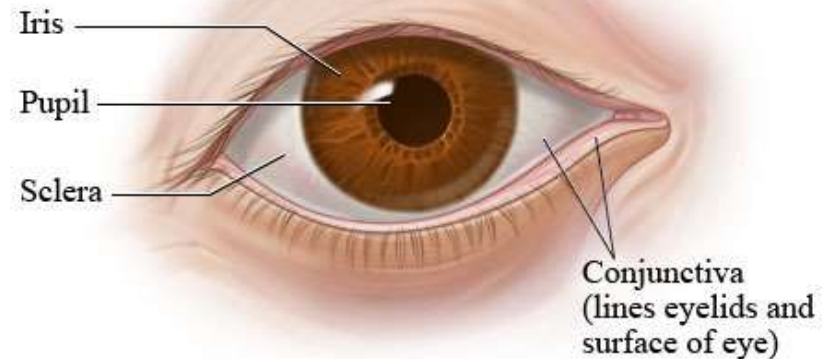
Dr. Qayssar Joudah Fadheel

Ph.D. Pharmacology & Therapeutics

University of Babylon / College of
Pharmacy

Conjunctivitis

- **Redness of the eye** is one of the common ophthalmic problems seen in the community pharmacy and **conjunctivitis (bacterial, viral, or allergic)** may be responsible for most cases of this problem.
- Conjunctivitis is an acute inflammation of the conjunctiva, the transparent surface **covering the white of the eye** and the **inside of the eyelids**.



In the conjunctiva there are tiny blood vessels, which are normally almost invisible .The conjunctiva, can become inflamed due to infection, allergy or irritation. The blood vessels dilate and become more obvious, making the **eye look red or pink** .
Pharmacist should differentiate types of conjunctivitis, and to diagnose the cases that required referral .

Patient Assessment with Red Eye

1-Duration: Minor eye problems are usually self-limiting and resolve within a few days .therefore, any ocular redness (apart from Subconjunctival hemorrhage, and allergic conjunctivitis) that **last more than 1 week requires referral** .

2-Discharge: Most commonly seen in conjunctivitis. It can vary from watery to mucopurulent depending on the form · (See the table 1)

Mucopurulent discharge is more suggestive of bacterial conjunctivitis especially if the eyes are **glued together** ·

3-Associated rhinitis: Sign and symptoms of an upper respiratory tract infection points towards viral cause of conjunctivitis · (See the table 1)

4-Visual changes: Any loss of vision, photophobia, or haloes around the objects -----referral ·

**5-Pain/discomfort/itch : True pain-----
referral ·**

Pain associated with conjunctivitis is often described as a gritty/ foreign-body type pain · (see the table 1)

6-Location of redness: Redness localized near or around the pupil (colored part of the eye) -----
-referral · Generalized redness or redness towards the corners of the eye is more indicative of conjunctivitis
· (See the table1)



TRIGGER POINTS indicative of referral: Red eye

Symptoms/signs

Clouding of the cornea
Associated vomiting

Redness caused by a foreign
body

Irregular shaped pupil or
abnormal pupil reaction
to light

Photophobia

True eye pain

Distortion of vision

Redness localised around
the pupil

Possible danger/reason for referral

Suggests glaucoma

Requires removal of body
– outside remit of
community pharmacist

All suggest sinister
pathology

Symptoms help to distinguish the different type of conjunctivitis

Table(1)

	Bacterial	Viral	Allergic
Eyes affected	Both , but one eye affected a day or so before the other	Both	Both
Discharge	Purulent	Watery	Watery
Pain	Gritty feeling	Gritty feeling	itching
Distribution of redness	Generalized and diffuse	Generalized	Generalized
Associated symptoms	None commonly	Cough and cold symptoms	Rhinitis (may also have family history of atopy)

Management

A-Bacterial conjunctivitis.

Nonpharmacological advices .

1-Bathe the eyelids with lukewarm water to remove any discharge.

2-Tissues should be used to wipe the eyes and thrown away immediately.

3-Avoid wearing contact lenses until symptoms have resolved.

5-Regular hand washing and avoid sharing pillows and towels.

Pharmacological therapy:

Chloramphenicol Eye Drop and ointment:

Note: The use of antibiotics is associated with **marginal benefits** as in most cases the **infection is self-limiting** (the chances that an individual will benefit from treatment are very small).

Anti-infectives should not be routinely recommended and patients told that the condition is self-limiting but **if symptoms persist for more than 7 days** then they should be **re-assessed**

❖ In 2005, chloramphenicol eye **drops** and in 2007 chloramphenicol **ointment** became OTC in the UK .

Dosage: The dosage for the OTC product (for adults, And children aged two years and over) is **1 drop every 2 Hours for the first 48 hours, then 1 drop every 4 hours for a further 3 days.** Patients can be advised that **(Sleep Need not be interrupted** in order to administer Eye drops). The course should be **completed even if symptoms improve** .

The ointment, if used **in conjunction with the drops**, Should be only applied **at night**. approximately 1 cm of Ointment should be applied to the inside of the eyelid, after which blinking several times will Spread the ointment . If ointment used alone, then the ointment should be used **3 or 4 times a day** . In pregnancy and Breastfeeding there is a lack of manufacturer data for them to recommend their use. Practically, during pregnancy hygiene measures should be adopted and if absolutely necessary they can be used in breastfeeding women .

Treatment timescale:

If the symptoms do not improve within **two days**,
The patient should be referred .

Adverse effects:

Are usually minor, such as a transient **burning or stinging sensation** in the eye when
applying drops .

B-Allergic conjunctivitis

Nonpharmacological advices :

Applying **cold compresses** to the eye 3-4 times daily will reduce redness and itching. Other measure includes avoiding or reducing the exposure to the causative allergen (if possible).

Pharmacologic-therapy

These include **Mast cell stabilizers** (sodium cromoglycate),

Sympathomimetic e.g. Naphazoline ,**Anti-histamine**

(Antazoline) , and **Decongestants—antihistamine** combination

(Naphazoline Antazoline) .(See table(2.4 and 2))

C-Viral conjunctivitis:

Viral conjunctivitis is usually self-limiting, with symptoms resolving over 1-3 weeks ·

Nonpharmacological advices :

The condition is highly contagious therefore the patient should:

1-Wash the hand after touching the eye.

2-Avoid sharing towels or any other objects that might come in contact with infected eyes.

Pharmacologic-therapy

Viral conjunctivitis is treated by **ophthalmic decongestant** which had been discussed under allergic conjunctivitis ·



Table 2.4

Practical prescribing: Summary of medicines for red eye

Name of medicine	Use in children	Likely side effects	Drug Interactions of note	Patients in which care exercised	Pregnancy & breastfeeding
<i>Allergic conjunctivitis</i> Mast cell stabilisers sodium cromoglicate	>6 years	Local irritation, blurred vision	None	None	OK
<i>Antihistamines</i> Antazoline*	>12 years	Local irritation, bitter taste	Avoid concomitant use with MAOI's and moclobemide due to risk of hypertensive crisis	Avoid in glaucoma	
<i>Sympathomimetics</i> Naphazoline	>12 years	Local irritation	Avoid concomitant use with MAOIs and moclobemide due to risk of hypertensive crisis	None	Not adequately studied but not yet shown to be a risk – probably OK
<i>Bacterial conjunctivitis</i> Chloramphenicol	>2 years	Local burning and stinging	None	Avoid if family history of blood and bone marrow problems	In pregnancy ideally avoid

HINTS AND TIPS BOX 2.1: EYE DROPS

Children and school	The Health Protection Agency recommends (2010) that children with conjunctivitis do not need to be kept away from schools
Contact Lens wearers	Patients who wear soft contact lenses should be advised to stop wearing them while treatment continues and for 48 hours afterwards. This is because preservatives in the eye drops can damage the lenses
Choramphenicol drops	These must be stored in the fridge. If they are put into the eye cold it will be uncomfortable so patients should be told to remove them from the fridge prior to use to allow them to warm up to room temperature
Administration of eye drops	<ol style="list-style-type: none">1. Wash your hands2. Tilt your head backwards, until you can see the ceiling3. Pull down the lower eyelid by pinching outwards to form a small pocket, and look upwards4. Holding the dropper in the other hand, hold it as near as possible to the eyelid without touching it5. Place one drop inside the lower eyelid then close your eye6. Wipe away any excess drops from the eyelid and lashes with the clean tissue7. Repeat steps 2 to 6 if more than one drop needs to be administered
Administration of eye ointment	<ol style="list-style-type: none">1. Repeat eye drop steps 1 and 22. Pull down the lower eyelid3. Place a thin line of ointment along the inside of the lower eyelid4. Close your eye, and move the eyeball from side to side5. Wipe away any excess ointment from the eyelids and lashes using the clean tissue6. After using ointment, your vision may be blurred, but will soon be cleared by blinking

Table 2: Doses of some eye drops used for allergic conjunctivitis

	Dose
Mast cell stabilizers (sodium cromoglicate)	1 drop four times daily
Sympathomimetic : Naphazoline	1 drop 3-4 times daily
Anti-histamine : Antazoline	1 drop 2-3 times daily
Decongestants—antihistamine : (Naphazoline-Antazoline)	1 drop 2-3 times daily

Eyelid Disorders:

A-(Stye and Chalazion):

Styes are caused by bacterial infection and can either be external (outside the surface of the eyelid) or internal (in the inner surface of the eyelid). Internal stye generally has a more prolonged course than external .

Occasionally, internal stye can evolve into **Chalazion** (a granulomatous inflammation that develops into a **painless lump**) .

A chalazion can be confused with a sty. **Stye often has a head of pus** at the lid margin and will **be tender and sore**, whereas a chalazion presents as painless lump .

Although styes are caused by bacterial pathogens the use of antibiotic **therapy is not usually needed**. Topical application of ocular antibiotics does not result in speedier symptom resolution .

Patient with stye should avoid **touching the eyes and wash the hands** after any contact with infected eye . Without treatment, a stye will usually resolve within seven to 14 days . A stye typically responds well to **hot compress** applied 3-4 times daily for 5-10 minutes each time. Gentle pressure, applied by rolling the compress gently around the affected area is recommended. A fresh, clean compress should be used with each treatment. Clearing usually occurs with 1 week . External stye usually drains spontaneously, but warm compress will hasten resolution which usually occurs within 48 hours. Internal stye generally resolves within 1-2 weeks . If either stye does not **drain within one week** --referral .

A chalazion is self-limiting, although it might take a **few weeks to resolve completely**. Initial treatment for chalazion is similar to that of stye especially for small chalazion (warm compress applied several times a day. About 25-50% resolves with this treatment. If the lesion does not begin to resolve within few days -- --referral .

If the patient complains that it is particularly **bothersome** and is affecting **vision** or associated with eye **pain**. Referral in these circumstances is needed for surgical removal .

Subconjunctival hemorrhage

The rupture of a blood vessel under the conjunctiva causes Subconjunctival hemorrhage. A segment or even the whole eye will appear **bright red**. Most subconjunctival hemorrhages are **idiopathic** (It occurs **spontaneously**) but can be precipitated by coughing, straining or lifting · The patient will wake up with the hemorrhage, which is not noticed until he or she looks in a mirror ·

The condition appears alarming but is usually harmless . There is no pain and the patient should be reassured that **symptoms will resolve in 10 -14 days without treatment**. However, a patient with **history of trauma should be referred** to exclude ocular injury ·

Hypertension is also a possible cause so pharmacists can advise patients to have their **blood pressure checked**. Anticoagulant or antiplatelet drugs (e.g. warfarin, aspirin, clopidogrel) can also cause a hemorrhage so patients should **be asked about their medicines** and those taking warfarin should have their international normalized ratio (INR) measured .

Dry Eye

Dry eye is among the most common disorders affecting the anterior eye · The condition **is chronic with no cure** · Essentially, a reduction in the tear volume (caused by ↑ drainage or ↓ production) or alteration in the tear composition cause dry eye ·

Patient Assessment with Dry Eye

1-Age: Dry eye is most often associated with **aging process**, especially postmenopausal women · **Dry eye is rare in children and required referral** ·

2-Symptoms: symptoms that are frequently reported are eyes that **burn, feel tired , itchy, irritated** (decreased tear production results in irritation and burning) **or gritty** and **feel as if something is in the eyes** ·

3-Clarifying questions: Have you had daily, persistent, troublesome **dry eyes for more than 3 months**? Do you have a **recurrent sensation of sand or gravel in the eyes**?

A positive response to at least one of these questions would indicate dry eye syndrome ·

4-Associated Symptoms: normally no other symptoms are present in dry eye. If patients complain of a **dry mouth** check for medications that can cause dry mouth (Diuretics, isotretinoin, drugs with anticholinergic effects (TCA, Antihistamines,....), Hormone replacement Therapy). If medication is not implicated then this could be due to an autoimmune disease Referral ·

Sometimes the lower eyelid turns outward (a condition called **Ectropion**) .This will over expose the conjunctiva to atmosphere eye dryness Referral ·

Management:

Dry eye are managed by instillation of **artificial tear preparations**.

They act by stabilizing the tear film (by increasing the viscosity of tear decrease evaporation).



TRIGGER POINTS indicative of referral: Dry eye

- Associated dryness of mouth and other mucous membranes
- Outward turning lower eyelid

Drops can be divided into those which contain a **preservative and those which do not(i.e. preservative free)**. The preservative is nearly always **benzalkonium chloride**, usually present at 0.01 per cent. **Preservatives can damage the corneal epithelium**. If a patient is likely to be using artificial **tears for a long time**, a preservative-free preparation should be considered. **Examples** of the compound used are:

1-Hypromellose (hydroxypropylmethylcellulose):

(Tears Naturale ® eye drop)

2-Polyvinyl alcohol (Liquifilm Tears® eye drop)

Patients with **mild** dry eye may benefit from instillation of one of these artificial tear drops up to **four times** a day. However, in **moderate to severe** cases, these preparations need to be instilled more frequently .

3-Carbomers: (Liquivisc ® Gel : Viscotears ® gel): To overcome the problem of frequent instillation , preparations containing **a longer-acting polymer**, known as **carbomer** , have been introduced. Such preparations have a much longer retention time in the eye and symptom relief is obtained with **significantly fewer instillations** .

4-Lubricating ointments: Ophthalmic lubricating ointments contain white **soft paraffin** (Lubri-Tears® Eye ointment), **lanolin and liquid paraffin**. These preparations **melt at the temperature of the ocular tissue** and are retained longer than other ophthalmic vehicles. They are not generally recommended as tear substitutes during **the day because the vision is blurred after instillation**. They are, however, a useful adjunct to artificial tears **if used at bedtime** .

Thank You