

Red eye

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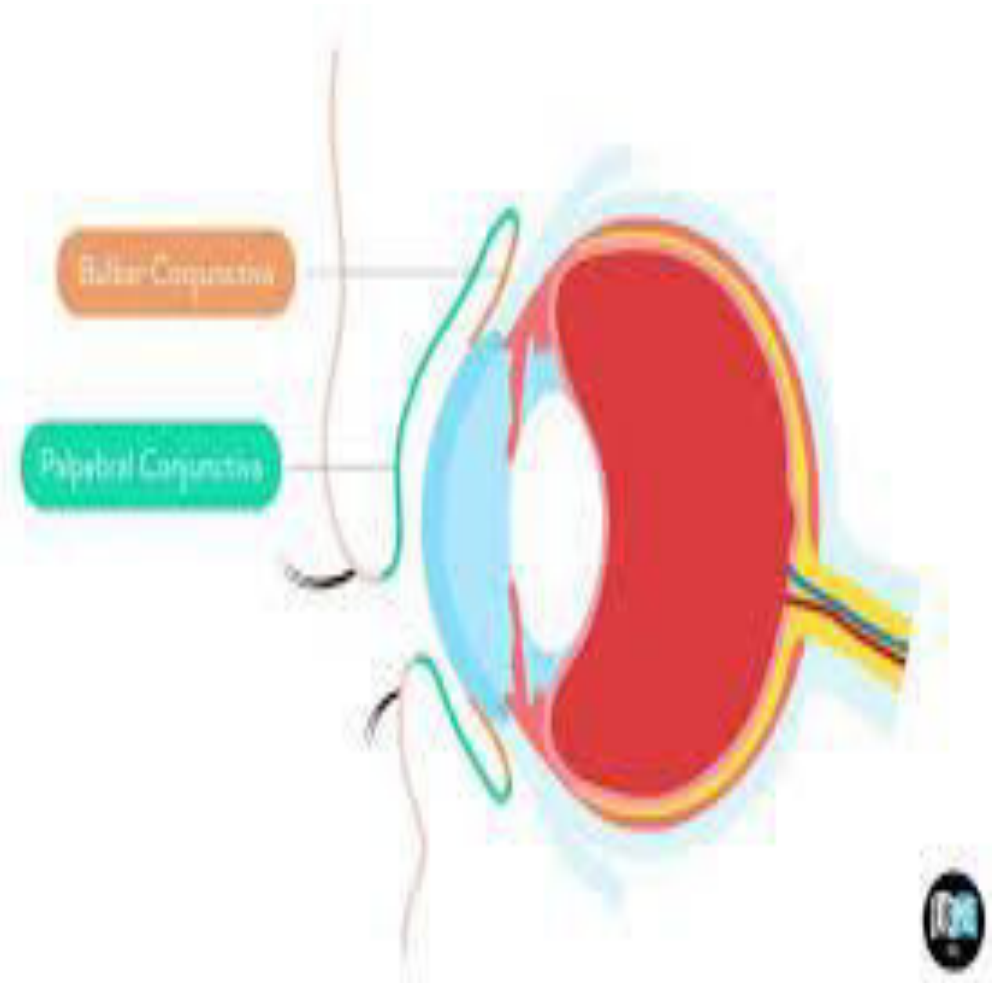
Objectives

- At the end of this session the 4th yr MBB
- student should be able
- Definition
- Enlist Causes / classification
- Clinical features
- Investigation
- Treatment options
- Complications



- A “red eye” is a general term to describe red, irritated and bloodshot eyes.
- The redness happens when tiny conjunctival blood vessels under your eye’s surface get larger or become inflamed. Usually, it’s a reaction to something irritating your eye.
- Redness can affect one or both eyes. It can develop over time or appear suddenly, such as with allergies or an eye injury.

- Conjunctiva
- The surface of the eye and the
- inner surface of the eyelids are
- covered with a clear membrane
- called the conjunctiva
- *Palpebral*
- *Bulbar*



Broad division

My division

- Red eye with Normal vision and no pain or mild discomfort
- Red eyes with visual loss and sever pain

Scenario

- A hypertensive patient of 52yrs comes to eye opd. He noticed redness in his Rt eye since last night. His vision is 6/6 Bes. No pain no discharge. There is mild discomfort. What is the most probable cause ,?
- A acute blepharitis
- B acute conjunctivitis
- C acute keratitis
- D sub conj- hemorrhage

Dx D



Syptoms/signs; : Depending on what's going on, your red eye can feel:

- Completely normal. In this case, you don't know it's red till you see it
- Eye pain Itching. Eye discharge. Swollen eyes/Lids.
- Changes in vision, like blurred vision. Severe pain
- Light sensitivity Cold-like symptoms
- Nausea vomiting
- Blood in the AC (the colored part of the eye)

Red eye

Common Causes

18 Reasons You May Have Red and Bloodshot Eyes



Injury



Pink eye



Blepharitis



Uveitis



Episcleritis



Allergies



Computer vision syndrome



Corneal ulcer or infection



Frequent use of eye drops



Contact lens wear



Subconjunctival hemorrhage



Dry eye syndrome



Pregnancy



Alcohol



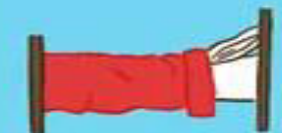
Acute angle-closure glaucoma



Smoking



Swimming



Lack of sleep

Conjunctivitis



s/c hg



Treatment for red eye?

- Remedies for red eye are wide-ranging, and often they're things you can do at home for yourself.
- Many times, the following steps can relieve symptoms:
 - Rest.
 - Cool compresses over closed eyes.
 - Lightly massaging your eyelids.
 - Gently washing your eyelids.
 - Over-the-counter eye drops. OTC med
- Other times, an eye care specialist may recommend and prescribe antibiotics, special eye drops or ointments.

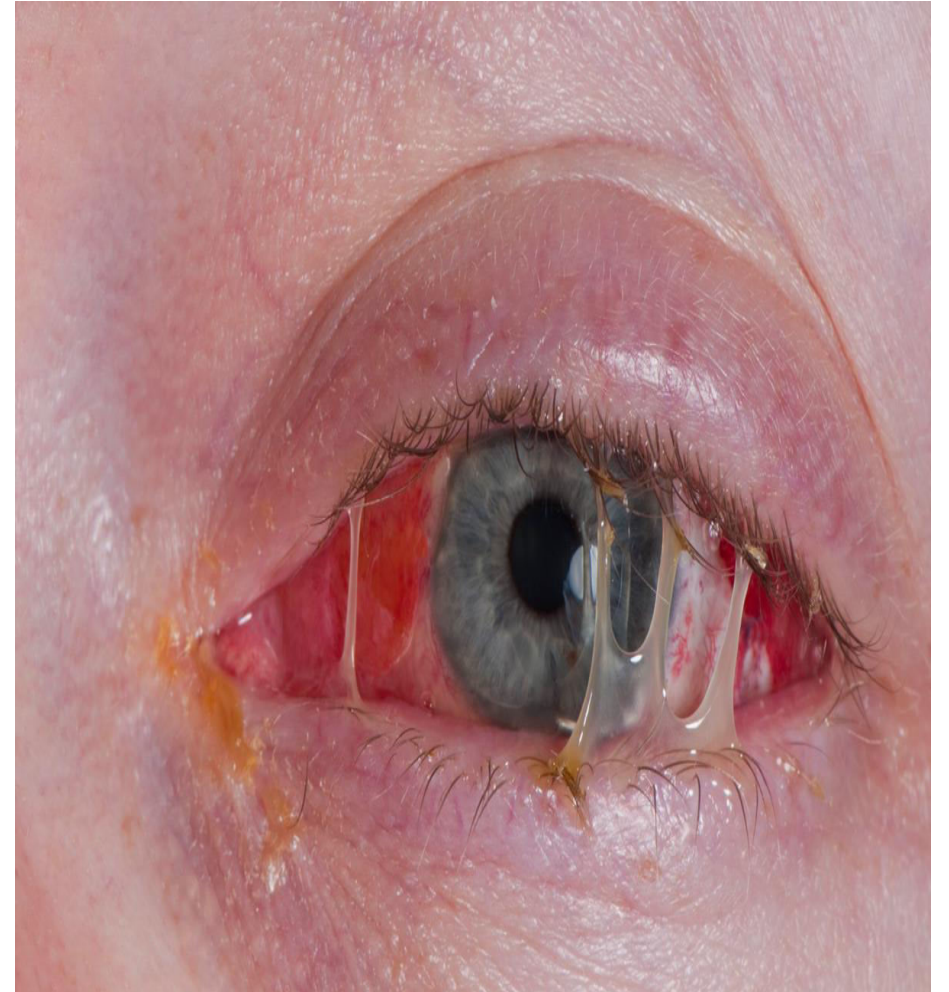
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Specialist opinion

- When ?
- Your eyes feel tender.
- Your vision is affected.
- Your eyes become extra sensitive to light.
- You have symptoms that continue for a week or more, or are getting worse and not better.
- Your eye is producing a lot of pus or mucus that dries into crusts.
- You have a fever or aches along with eye discomfort.

Conjunctivitis classification

- On the basis of Aetiology(Infective)
- Bacterial
- Viral
- Chlamydial



Allergic Conjunctivitis(Non-infective)

- Seasonal allergic conjunctivitis
- Perennial allergic conjunctivitis
- Vernal keratoconjunctivitis
- Atopic keratoconjunctivitis
- Giant papillary conjunctivitis
- Keratoconjunctivitis sicca (dry eyes)
- Superior limbic keratoconjunctivitis (SLK)
- Chemical or irritative conjunctivitis

Conjunctivitis



Viral



Bacterial



Allergic

On basis of exudates

- **A. Watery / Serous** , Viral , Allergic , Toxic
- **B. Mucoid** , Chronic Allergic and Keratoconjunctivitis sicca
- **C. Mucopurulent**, Mild Bacterial, Chlamydial infection
- **D. Purulent** , Gonococcal and any severe bacterial infection

On basis of conjunctival reaction

- Follicular conjunctivitis
 - Viral , Adenoviral, HSV common
 - Chlamydial, Trachoma common
 - Topical medicine , Epinephrine & Eserine
- Papillary conjunctivitis
 - Allergic , VKC & Atopic conjunctivitis
 - Autoimmune Disorder Cicatricial pemphigoid
 - Chronic blephritis , Squamous blepharitis
 - Chronic irritation contact lense, prosthesis, nylon suture etc

Follicle with white core



Papillae are red



Papillae

There are two important distinctions that are hallmark signs of papillae:

1.Red Center = Papillae are elevations of the vascular conjunctival tissue so there will be a red central vascular core to the lesions

2.Distinct Elevations = The conjunctival tissue has fibrous connections that limit the size and expanse of swelling. This means distinct, well separated bumps in the papillary reaction. The only time this logic doesn't fully apply is when the inflammation has been around for so long that the bumps begin to coalesce, creating the large cobblestone appearance we associate with [giant papillary conjunctivitis](#).

- **Papillae** are raised areas of inflammation with a central blood vessel, appearing red at the surface and paler at the base. In papillae mainly vessels are involved, inflammation, engorgement due to chronic irritation & exposure.
- **Follicles** are an accumulation of white blood cells without a central vessel, and appear pale at the surface and redder at the base. In follicles the different blood cells are attracted & accumulated at the site of infection

Papillae (giant)



Follicle

While papillae are consistent with a local irritation, follicles are a sign of an immune reaction in the area. This finding is almost always an indication of a **viral infection** of the eye.

Follicles have a larger appearance than papillae, and have a **white central** core since they are really accumulations of cellular level inflammatory agents -- lymphocytes, lymphoblasts, and macrophages if you remember your microbiology. The big tell-tale sign of follicles are:

White Center = look for that inflammatory matter filling the center of the bump

Typical Follicle



Scenario

- A 25yrs male patient come to opd. He is complaining of redness, irritation mucopurulent discharge with mild eye ache for the last few days.. On examination his vision is 6/6 Bes, there is conjunctival congestion with discharge. What can be the most probable cause.?
- A acute allergic conjunctivitis
- B acute bacterial conjunctivitis
- C acute keratitis
- D acute eye trauma
- Dx B

Bacterial Conjunctivitis

- Acute inflammation of the conjunctiva with mucopurulent discharge & redness
- **Common organism** are, Staph-Aureous, Strep-pneumonia & H-influenza
- Less common are Morexella lacunatea, Klebsial & Proteus species



Clinical feature

- **Symptoms**; Very common with acute redness, FB sensation, burning sensation & discharge
- It is usually unilateral but may be bilateral within few days
- Photophobia may or may not be there
- **Signs** are the redness is in the fornicial & palpebral conjunctiva.
- In severe the whole conjunctiva is hyperemic with pink coloration. S/C hg may be there.
- Discharge is mucopurulent
- Eyelashes are matted by discharge. Lids may be swollen
- Papillary reaction
- VA is normal



Bacterial conjunctivitis



Diagnosis

- **Clinical evaluation**
- Diagnosis of conjunctivitis and differentiation between [bacterial](#), [viral](#), and [noninfectious conjunctivitis](#) are usually clinical.
- Smears and bacterial cultures should be done in patients with severe symptoms, immunocompromise, ineffective initial therapy, or a vulnerable eye (eg, after a corneal transplant, in exophthalmos due to Graves disease).
- Smears and conjunctival scrapings should be examined microscopically and stained with Gram stain to identify bacteria and stained with Giemsa stain to identify the characteristic epithelial cell basophilic cytoplasmic inclusion bodies of chlamydial conjunctivitis (see [Adult Inclusion Conjunctivitis](#)).

Treatment

- Bacterial conjunctivitis is very contagious, and standard infection control measures should be followed.
- To avoid transmitting infection, **physicians** must
- Use hand sanitizer or wash their hands properly (fully lather hands, scrub hands for at least 20 seconds, rinse well, and turn off the water using a paper towel)
- Disinfect equipment after examining patients
- **Patients** should do the following:
- Use hand sanitizer and/or wash their hands thoroughly after touching their eyes or nasal secretions
- Avoid touching the noninfected eye after touching the infected eye
- Avoid sharing towels or pillows
- Avoid swimming in pools

Treatment Contnd

- **Antibiotics**

- **Topical like gentamycin tobramycin ofloxacin ciprofloxacin. In more sever cases Moxifloxacin 0.5% drops one hrly a day for 7 to 10 days or trimethoprim/polymyxin B 4 times a day. Single therapy or in combination can b used**
- **Ointment at bed time**
- **Systemic. In some cases systemic antibiotic can be given in addition to the topical antibiotics**
- **A poor clinical response after 2 or 3 days indicates that the cause is resistant bacteria, a virus, or an allergy.**
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Complications

- **Are Rare.**
- **include corneal ulceration, abscess, perforation, panophthalmitis, and blindness.**

Ophthalmia neonatorum

Ophthalmia neonatorum (neonatal conjunctivitis) results from a maternal gonococcal and/or chlamydial infection.

Neonatal conjunctivitis occurs in 20 to 40% of neonates delivered through an infected birth canal. Very rare in our society

Other organism such as staphys, strep pneumonia, H Influenza

Virus such as H simplex

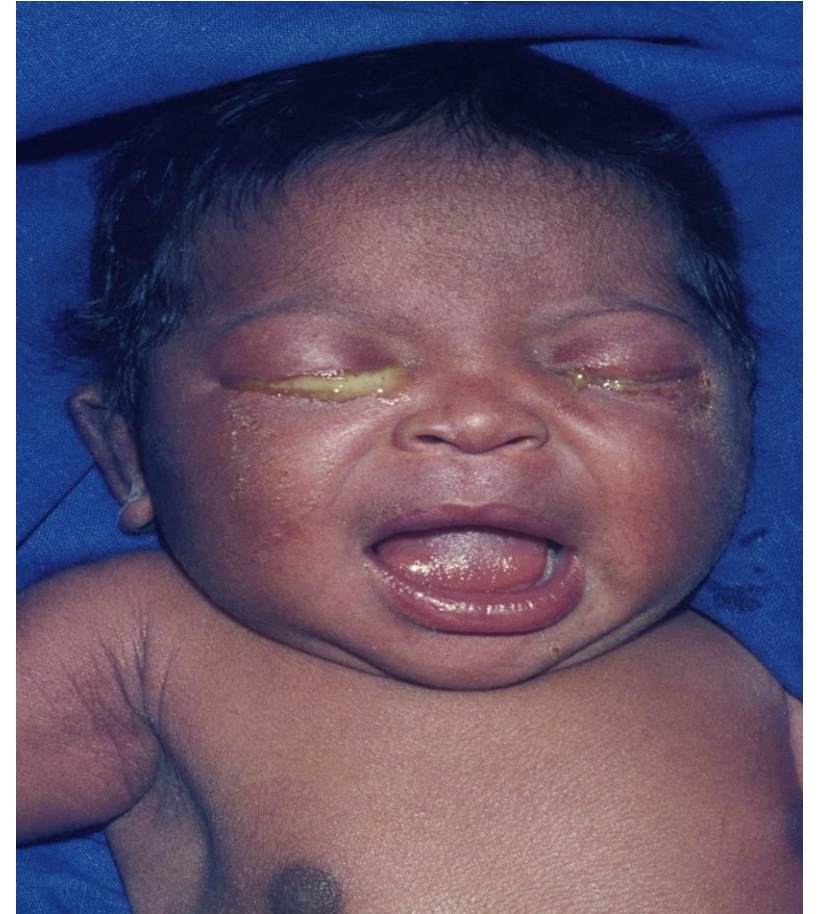
Different chemical such as Silver Nitrate or antibodies used for prophylaxis can cause

Ophthalmia neonatorum

Ophthalmia neonatorum caused by gonococcal infection appears 2 to 5 days after delivery.

With ophthalmia neonatorum caused by a chlamydial infection, symptoms appear within 5 to 14 days.

Symptoms of both are bilateral, intense papillary conjunctivitis with eyelid edema, chemosis, and mucopurulent discharge.



Treatment /Prevention

- **Topical** antibiotics drops like gentamycin, Tobramycin and Quinolones one hrly is recommended. Single or combination.
- Ointment at bed/sleeping time
- **Systemic** For gonococcal infection, ceftriaxone 25 to 50 mg/kg IV or IM (not exceeding 125 mg) is given as a single dose.
- Chlamydial infection is treated with erythromycin 12.5 mg/kg orally or IV 4 times a day for 14 days. The parents should also be treated.
- Ophthalmia neonatorum is prevented by the routine use of silver nitrate eye drops or erythromycin ointment at birth.

Treatment(Parents)

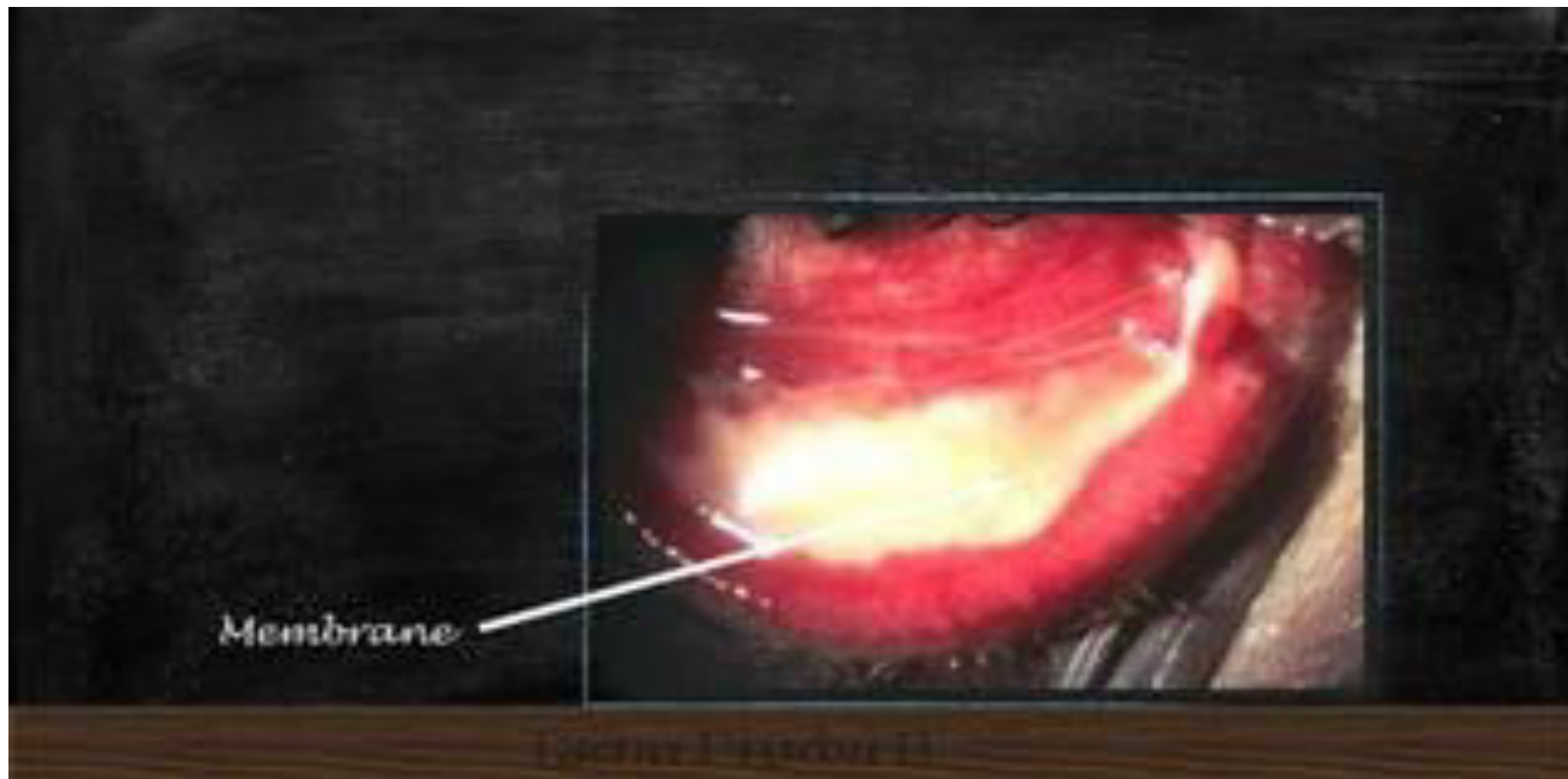
- Sex partners should also be treated. Patients need to be evaluated for other sexually transmitted infections and the local public health authorities need to be notified.
- Because of chlamydial genital infection is often present in patients with gonorrhea, adult gonococcal conjunctivitis requires dual therapy with a
- single dose of ceftriaxone 1 g IM plus azithromycin 1 g orally once (with azithromycin allergy or to treat expected chlamydial co-infection use doxycycline 100 mg orally twice a day for 7 days). Azithromycin
- Topical Quinolones recommended but because resistance is now widespread.
- Bacitracin 500 U/g or gentamicin 0.3% ophthalmic ointment instilled into the affected eye every 2 hours may be used in addition to systemic treatment.

Treatment (Chlamydial)

- Systemic Erythromycin 50mg/kg body weight divided doses for 2weeks. Azithromycin is given now a days
- Topical Sulphonamide drops 10%
- Tetracyclin oint for 4weeks
- Other bacterial
- Topical antibiotics
- Systemic antibiotic

- Paed's specialist opinion

Membranous conjunctivitis



Clinical features

- There is severe conjunctival inflammation associated with deposition of fibrinous exudates forming a whitish membrane over the conjunctival surface
- Removal of this membrane is difficult & causes ulceration & bleeding
- Periocular lymph nodes are enlarged

- Is one of the serious infection in which a membrane is formed on the surface of the conjunctiva due to thick exudates
- Is caused by Mycobacterium Diphtheria
- Rare nowadays
- Very serious conjunctivitis
- Very red congested eyes with copious discharge
- Usually child age are affected
- May be fever
- With lymphadenopathy

- Bacteria such as
- Corynebacterium diphtheria, Nisseria gonorrhoea, Strep pneumonia, Staph Aureus,
- Viral,
- Chemical & thermal burns

Can lead to membrane formation

Complications

- **Conjunctiva** ; ulceration & cicaterization
- Xerophthalmia, Symblepharon, Entropion & trichiasis
- **Cornea** ; ulceration, Perforation, Blindness
- **Ciliary body**; accommodation paralysis due to toxic effect

Membranous



Pseudomembranous



Membrane is made of fibrinous exudates that may or may not be firmly adherent to conjunctival epithelium. If adhered tightly means membranous and vice-versa

True membrane

Inflammatory membrane interdigitates with superficial layer of the inflamed conjunctival Surface

Removal leads to tearing & bleeding

Commonly by

N Gonorrhoea

C Diphtheria

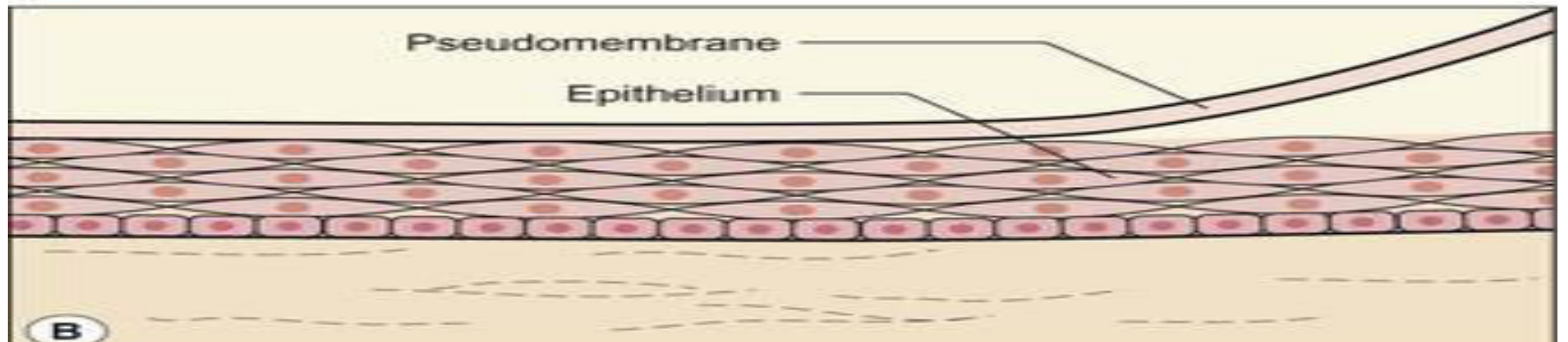
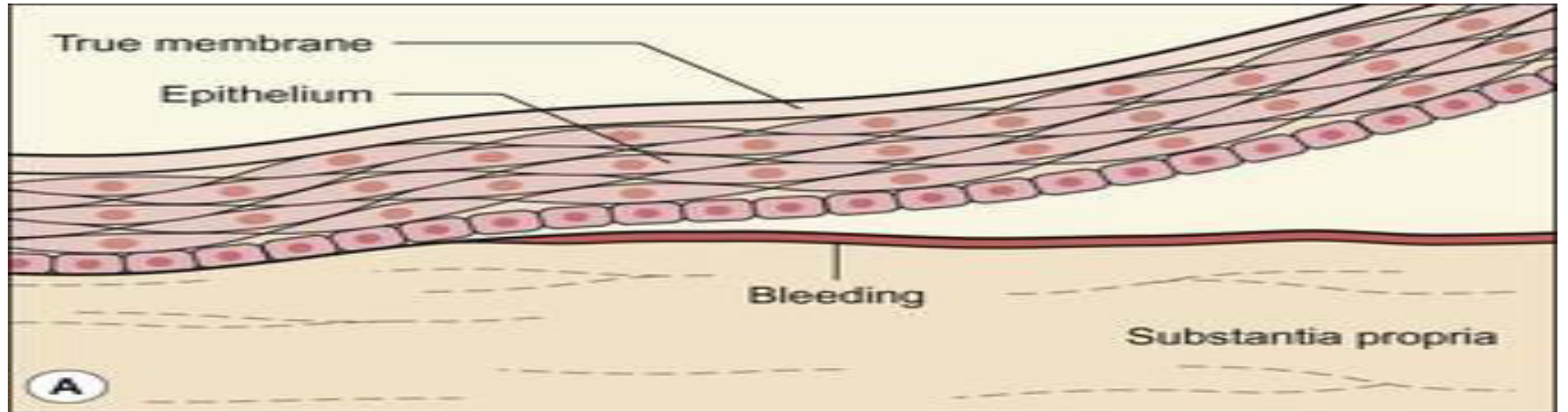
Pseudo membrane

Inflammatory membrane adhere to the surface epithelium

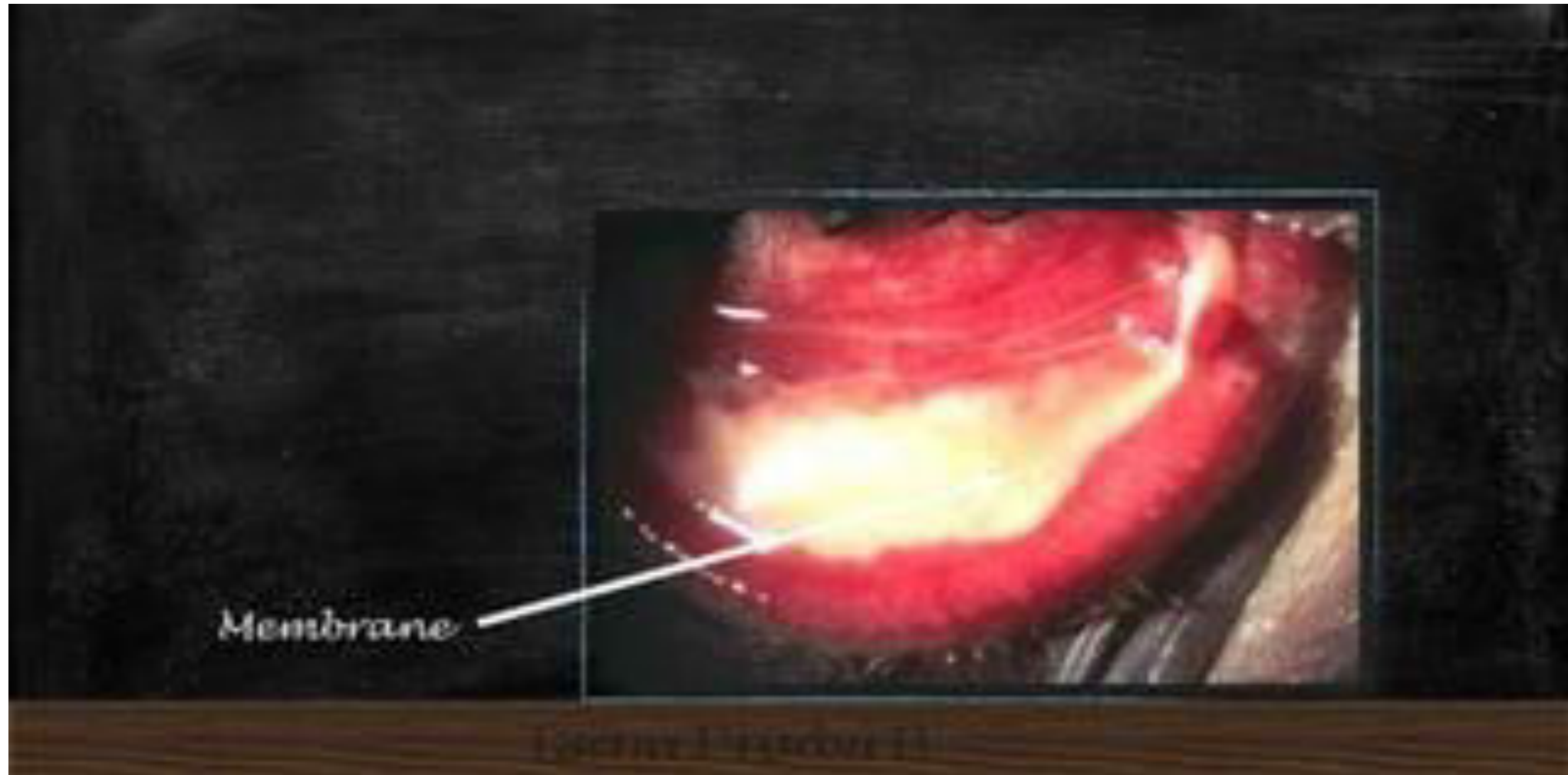
Easily removable. No bleed on peeling

Allergic conjunctivitis, Bacterial conjunctivitis
viral conjunctivitis

Membranous VS Pseudomembranous



Membranous



Treatment

- Every child of membranous conjunctivitis should be treated as diphtheric one otherwise excluded by lab investigations .
Conjunctival irrigation to remove the discharge
- Topical antibiotic; the eye is irrigated with antibiotic drops
Diphtheria anti-toxin serum 4000-10000 unit along with
- Systemic antibiotic with Pencillin
membrane peeling may be tried
- Peads opinion

Thanks