

Red eye differential diagnosis



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Red eye

- „Red eye“ is sign of pathology of anterior or posterior ocular segment, of orbit or of ocular adnexa.

Anamnesis

- **Systemic disease**
- **Eye disease**
- **Development of difficulties**
- **Character of difficulties**

Eyelids - blepharitis

- **Blepharitis - anterior and posterior**
- **Chronic anterior blepharitis**
- **Anterior blepharitis affects the area surrounding the bases of the eyelashes and may be staphylococcal or seborrhoeic**

A close-up photograph of a human eye, looking slightly to the left. The eye is partially obscured by a semi-transparent green overlay that covers the entire image. The eyelids and eyelashes are visible, and the overall tone is soft and clinical.

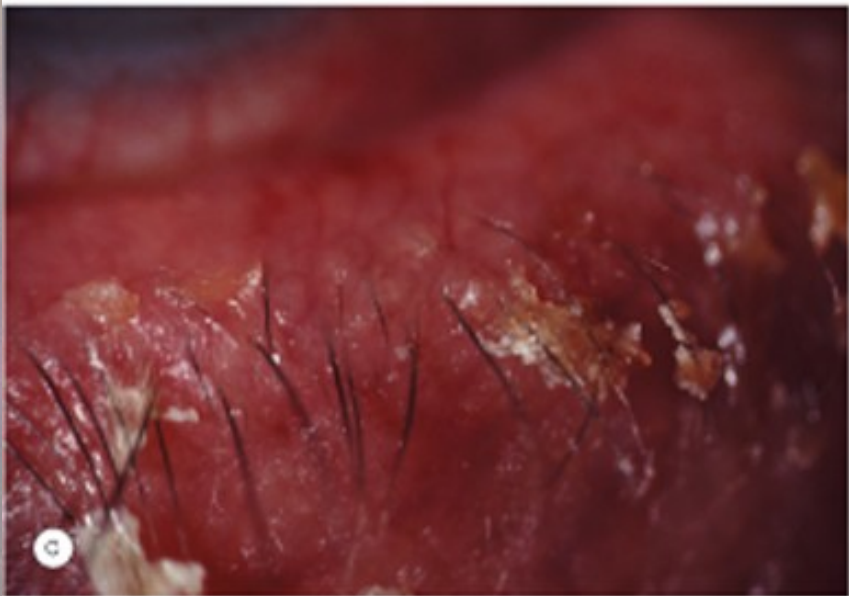
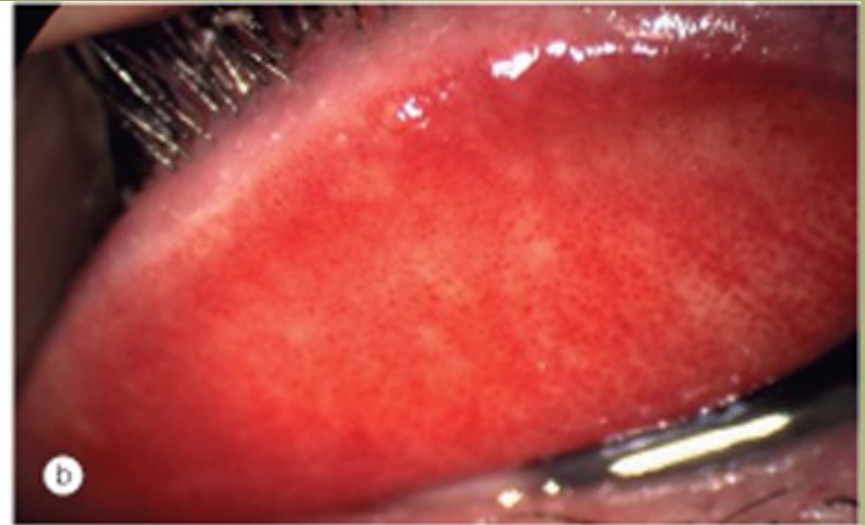
Eyelids - blepharitis

- **Burning, grittiness and mild photophobia with remissions and exacerbations**
- **Symptoms are usually worse in the mornings**

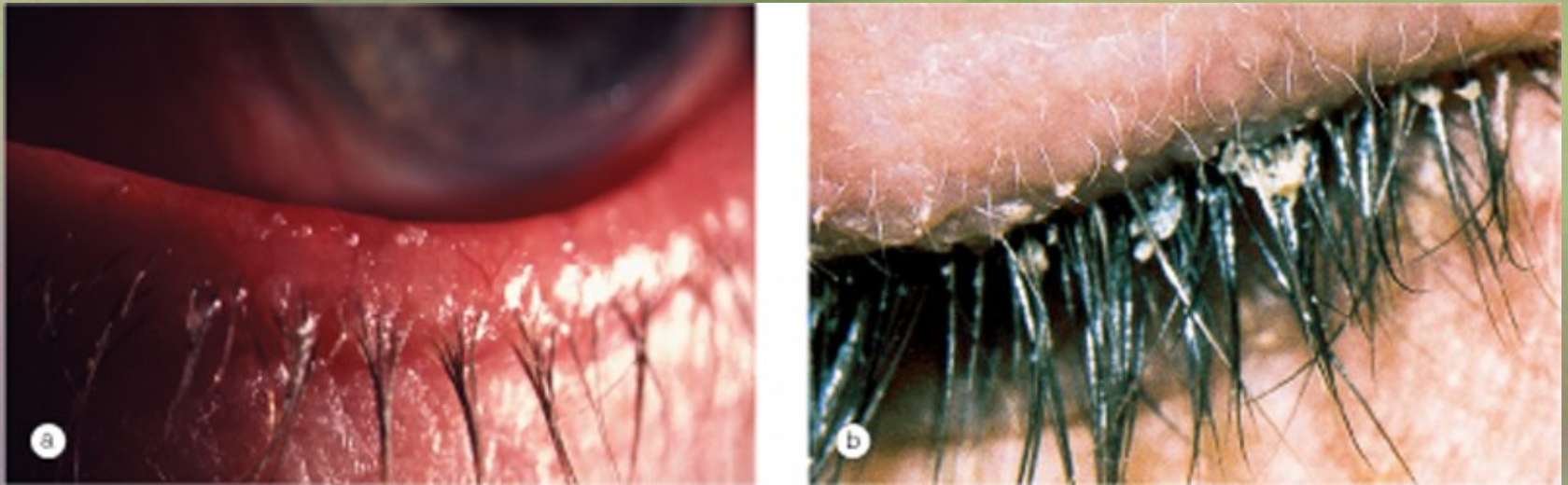
Eyelids – blepharitis anterior

- *Staphylococcal blepharitis*
- Hard scales and crusting mainly located around the bases of the lashes (collarettes) .
- Madarosis, trichiasis and poliosis in severe long-standing cases.

- *Seborrhoeic blepharitis*
- Hyperaemic and greasy anterior lid margins with sticking together of lashes
- The scales are soft and located anywhere on the lid margin and lashes



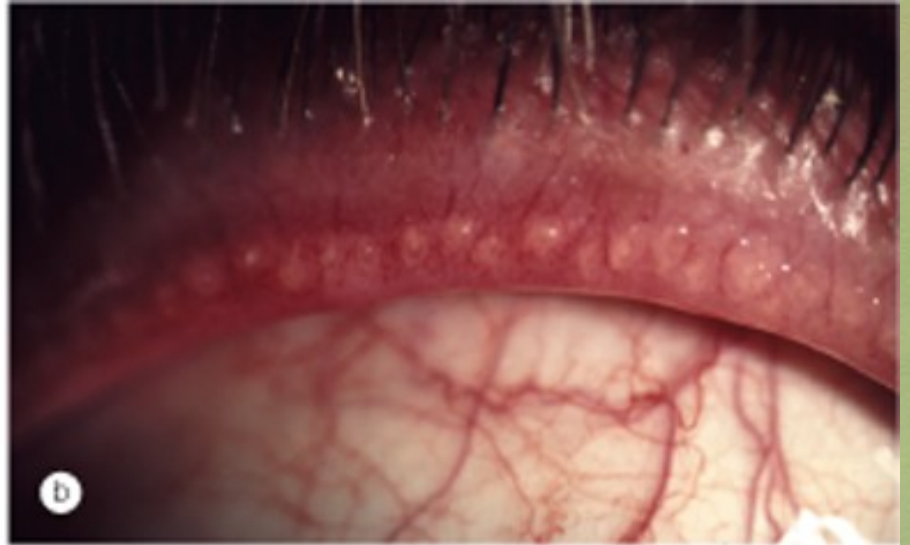
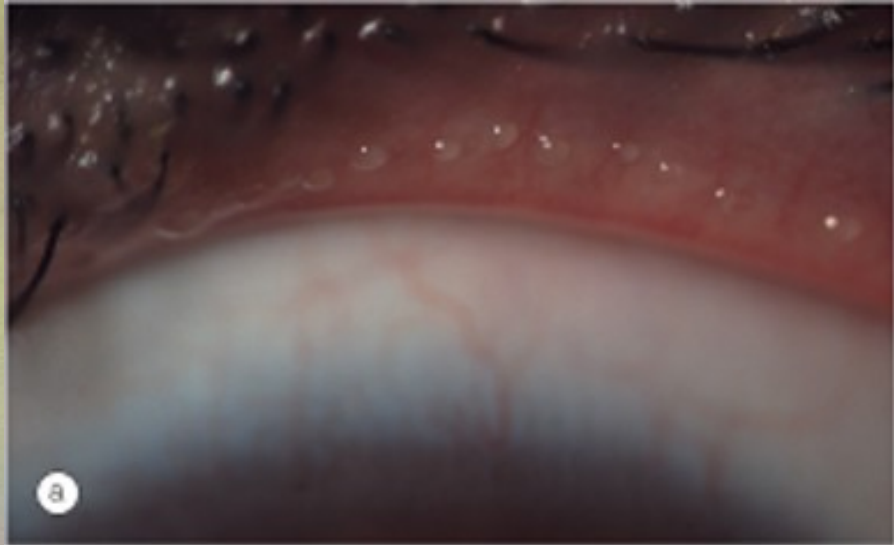
Chronic seborrhoeic blepharitis



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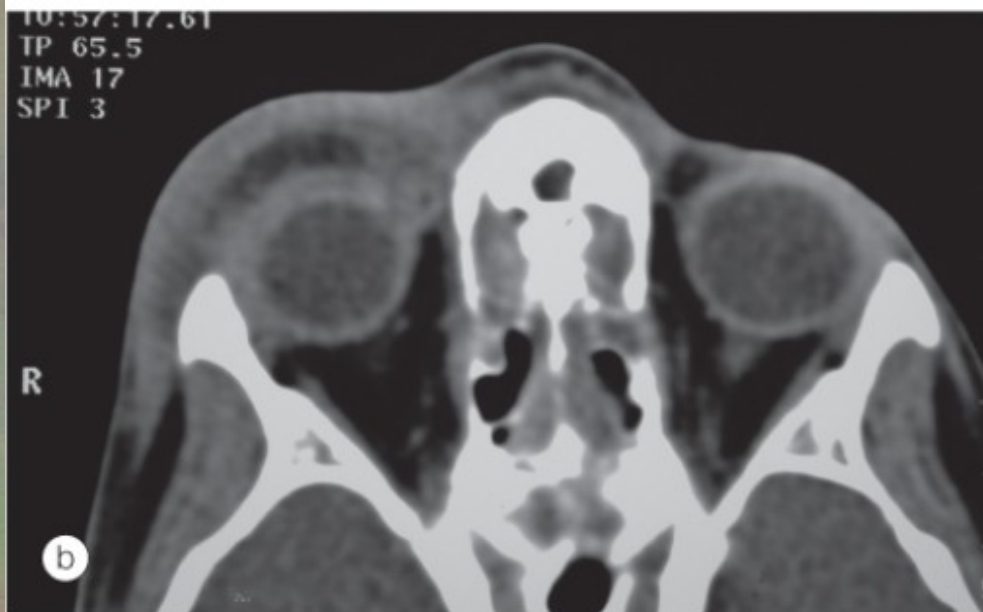
Eyelids – blepharitis posterior

- **Chronic posterior blepharitis**
- **Caused by meibomian gland dysfunction**
- **Signs of meibomian gland dysfunction :**
- **Capping of meibomian gland orifices with oil globules**
- **Pouting, recession, or plugging of the meibomian gland orifices**
- **Hyperaemia and telangiectasis of the posterior lid margin**
- **Pressure on the lid margin results in expression of meibomian fluid that may be turbid or appear like toothpaste**
- **The tear film is oily and foamy and froth may accumulate on the lid margins or inner canthi**



Orbit – preseptal cellulitis

- Infection of the subcutaneous tissues anterior to the orbital septum.
- Causes
 - Skin trauma - laceratio, insect bites (*S. aureus* or *S. pyogenes*)
 - Spread of local infection - from an acute hordeolum or dacryocystitis.
 - From remote infection of the upper respiratory tract or middle ear by haematogenous spread
- Signs - Unilateral, tender and red periorbital oedema



Orbit – bacterial orbital cellulitis

- Life-threatening infection of the soft tissues behind the orbital septum, mainly in children
- The most prevalent causative organisms are *S. pneumoniae*, *S. aureus*, *S. pyogenes* and *H. influenzae*.
- Pathogenesis
- Sinus-related - ethmoidal, typically affects children and young adults.
- Extension of preseptal cellulitis
- Local spread from adjacent dacryocystitis, and mid-facial or dental infection
- Haematogenous spread

Orbit – bacterial orbital cellulitis

- **Presentation** is with a rapid onset of severe malaise, fever, pain and visual impairment
- **Signs**
 - Unilateral, tender, warm and red periorbital oedema
 - Proptosis, lid swelling
 - Painful ophthalmoplegia
 - Optic nerve dysfunction

Orbit – bacterial orbital cellulitis

- **Complications**
- **Ocular complications - exposure keratopathy, raised intraocular pressure, occlusion of the central retinal artery or vein, endophthalmitis and optic neuropathy**
- **Intracranial complications - meningitis, brain abscess and cavernous sinus thrombosis**
- **Subperiosteal abscess - along the medial orbital wall**
- **Orbital abscess in post-traumatic or postoperative cases.**



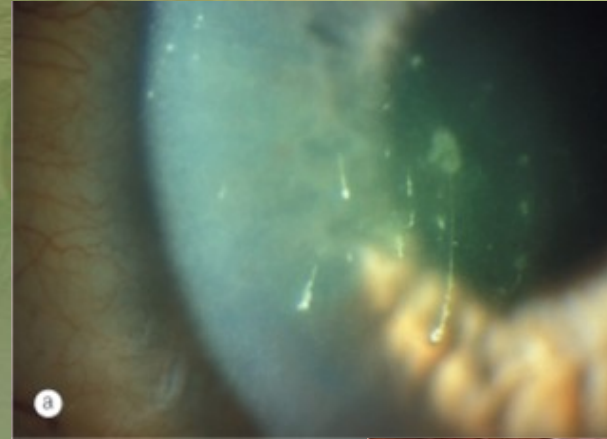


Dry eye disorders

- There is inadequate tear volume or function resulting in an unstable tear film and ocular surface disease.
- **Keratoconjunctivitis sicca** (KCS) refers to any eye with some degree of dryness.
- **Xerophthalmia** describes a dry eye associated with vitamin A deficiency.
- **Xerosis** refers to extreme ocular dryness and keratinization that occurs in eyes with severe conjunctival cicatrization.
- **Sjögren syndrome** is an autoimmune inflammatory disease which is usually associated with dry eyes.

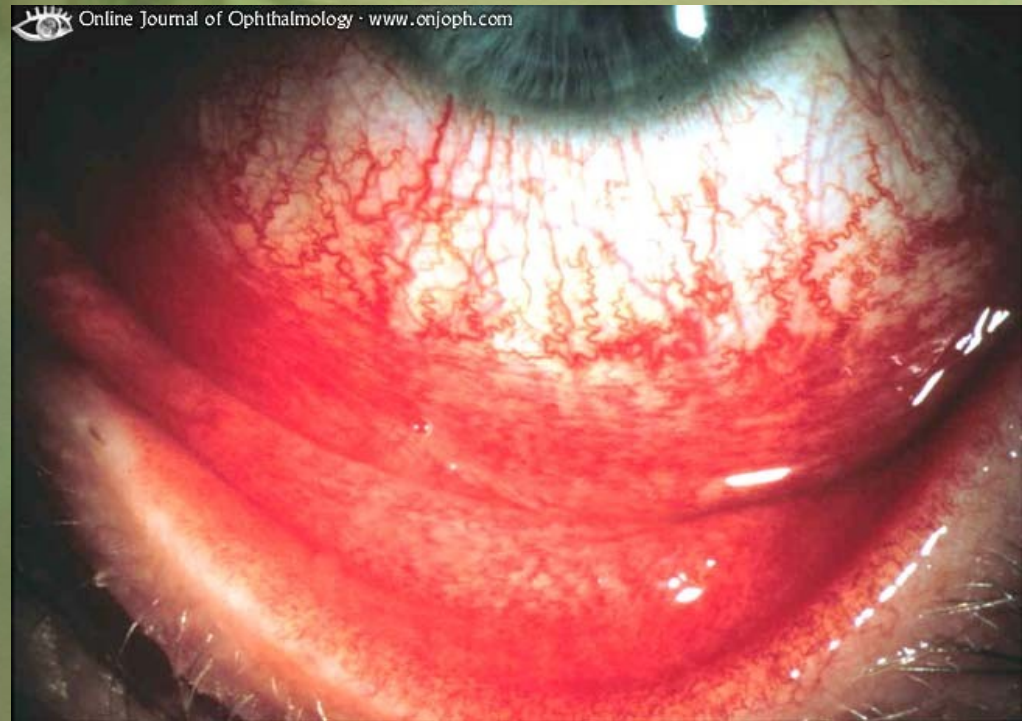
Dry eye disorders

- Symptoms
- feelings of dryness, grittiness and burning - worsen during the day, transient blurring of vision, redness and crusting of the lids



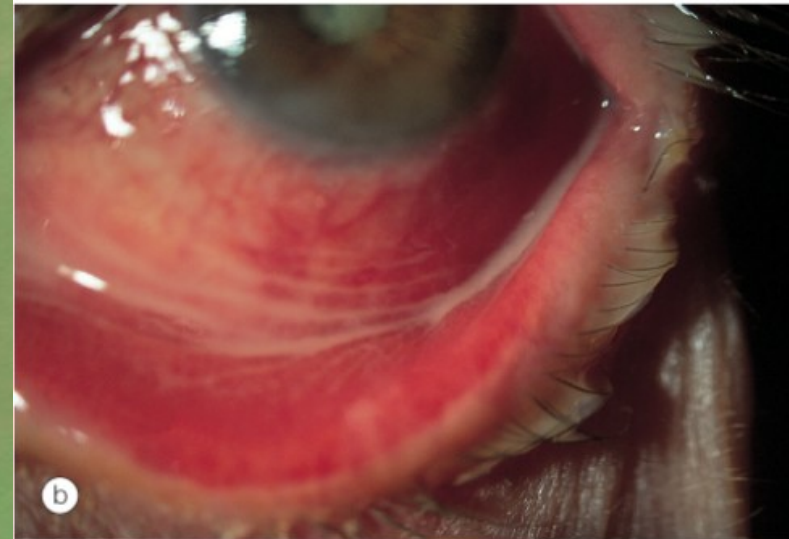
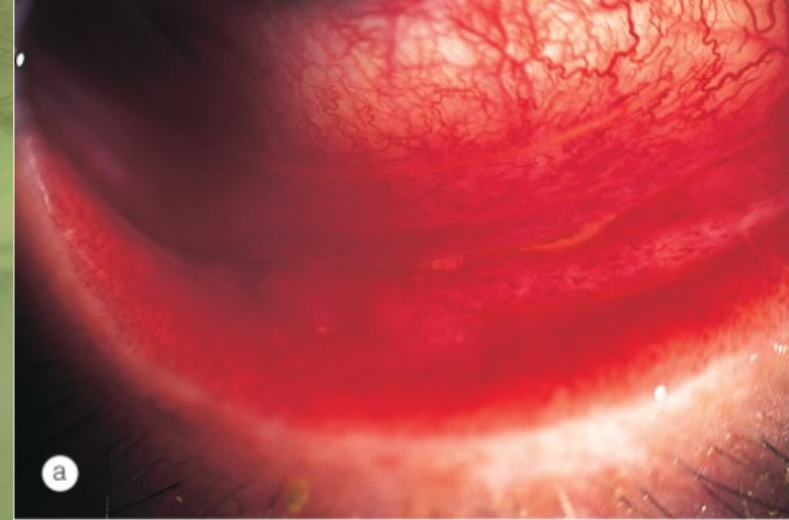
Conjunctiva

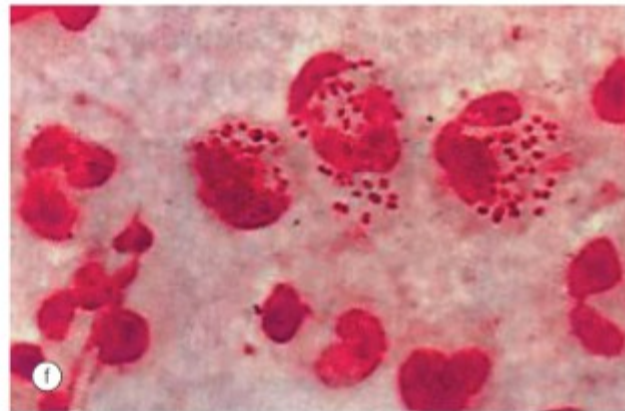
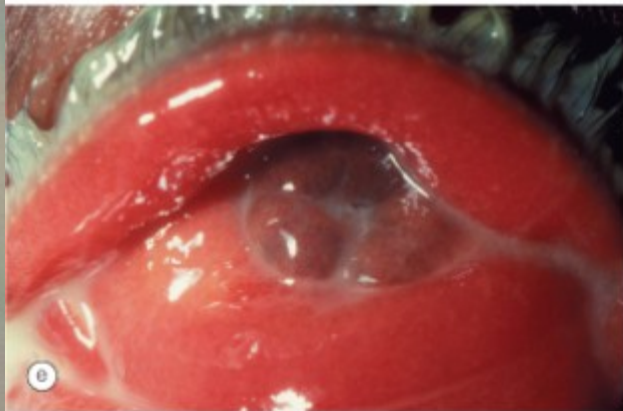
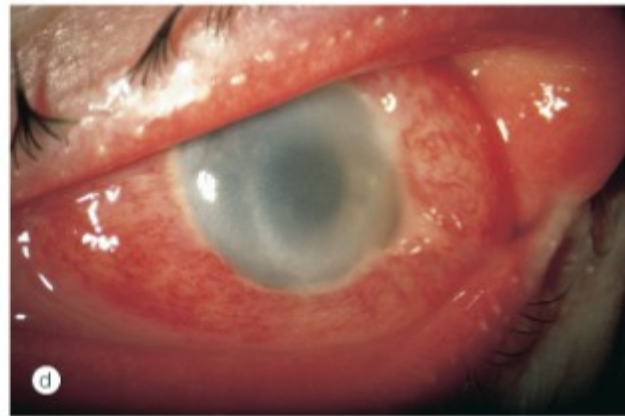
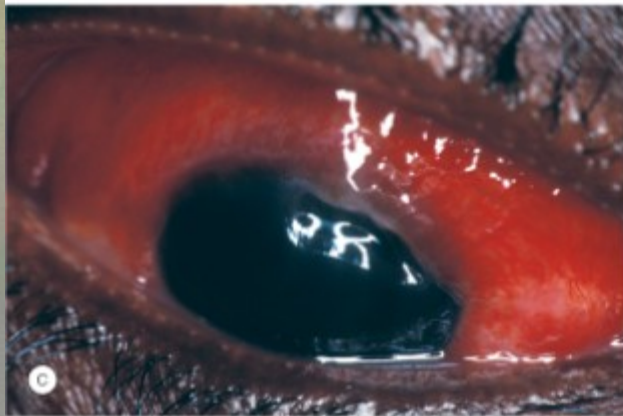
- **Conjunctival injection is diffuse, beefy-red and more intense away from the limbus**
- **Instillation of 10% phenylephrine drops will constrict the conjunctival and superficial episcleral vasculature**



Conjunctivitis

- Bacterial - *H. influenzae*, *S. pneumoniae*, *S. aureus*
- Papillary reaction over the tarsal plates
- Mucopurulent discharge
- Gonococcal keratoconjunctivitis - pseudomembrane formation, Lymphadenopathy, Corneal ulceration





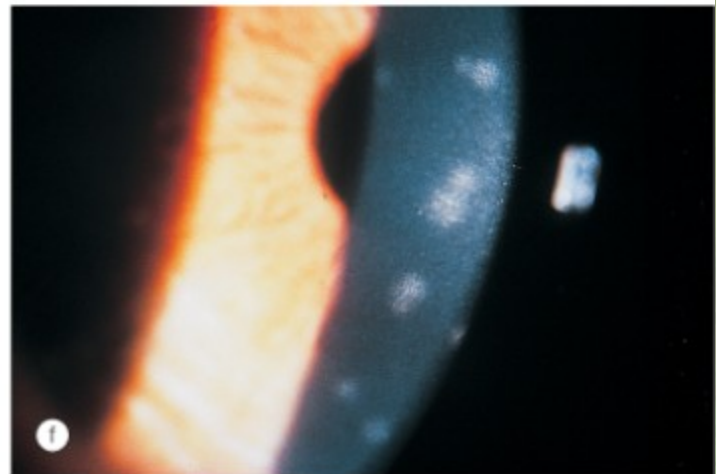
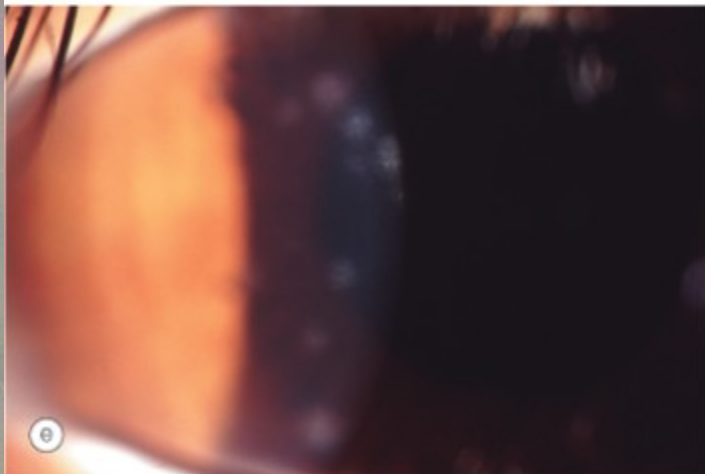
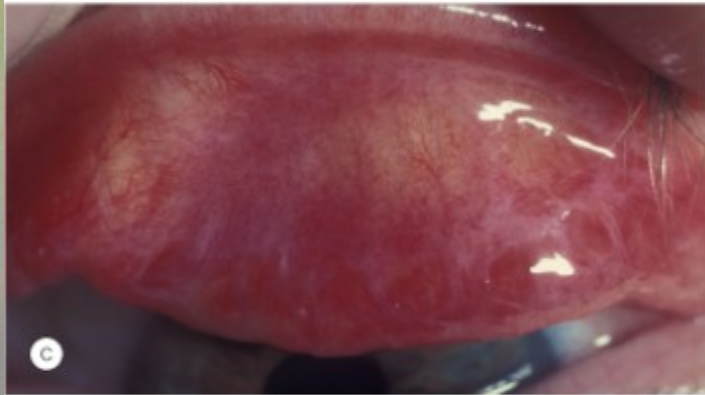
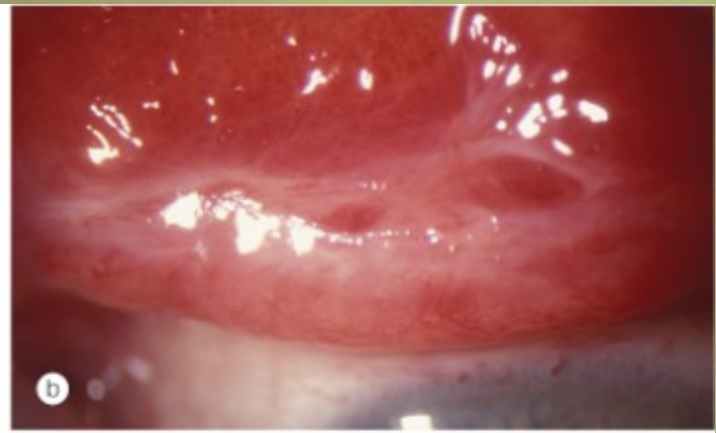
Conjunctivitis

- Viral conjunctivitis
- **Adenoviral keratoconjunctivitis** - the most common external ocular viral infection
- Sporadic or occur in epidemics in hospitals, schools and factories
- **Transmission** of this highly contagious virus -respiratory or ocular secretions
- Dissemination is by contaminated towels or equipment such as tonometer heads



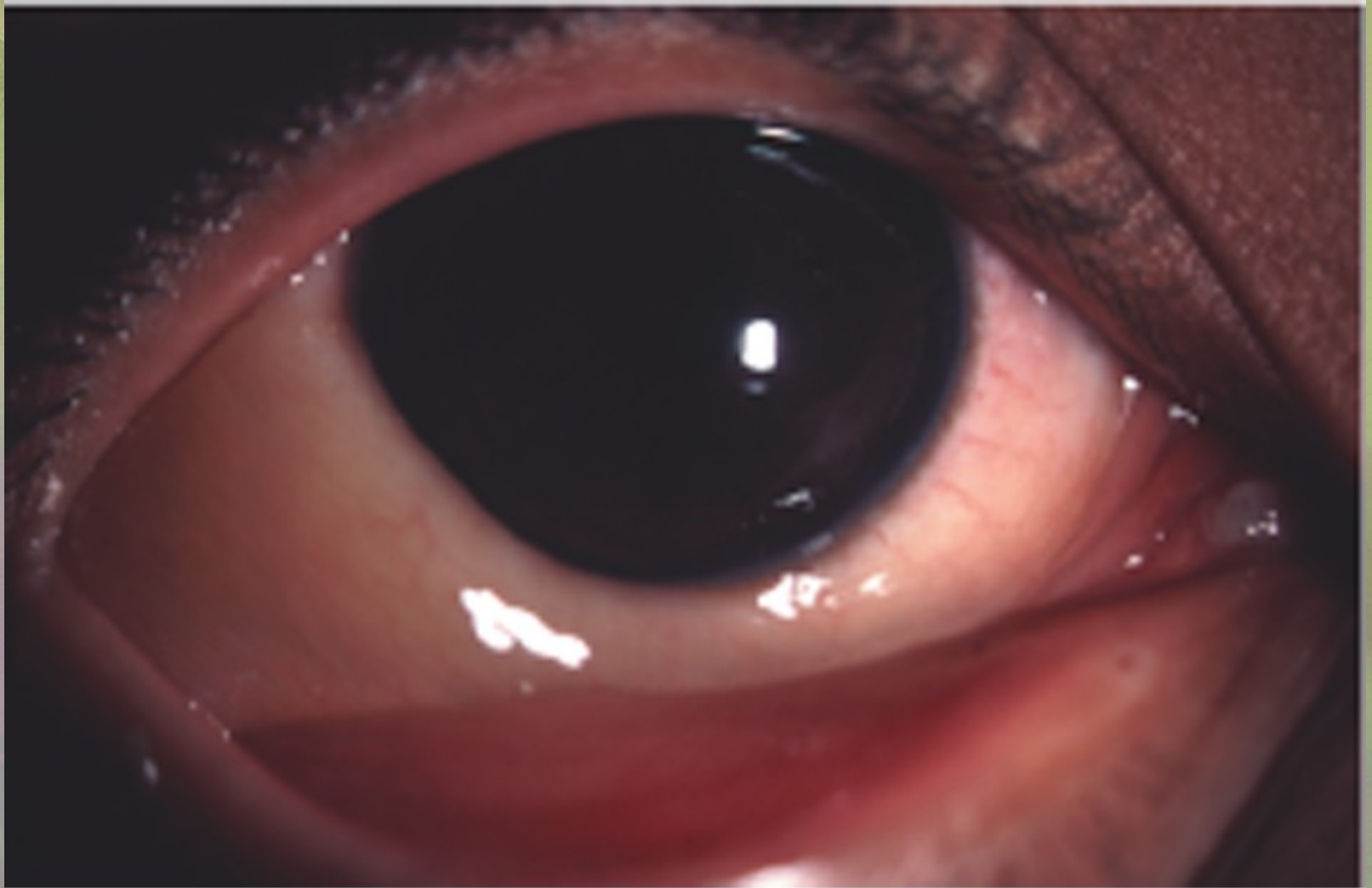
Conjunctivitis

- **Presentation**
- Unilateral watering, redness, discomfort and photophobia
- The contralateral eye is typically affected 1-2 days later, but less severely
- Eyelid oedema and tender pre-auricular lymphadenopathy.
- Follicular conjunctivitis



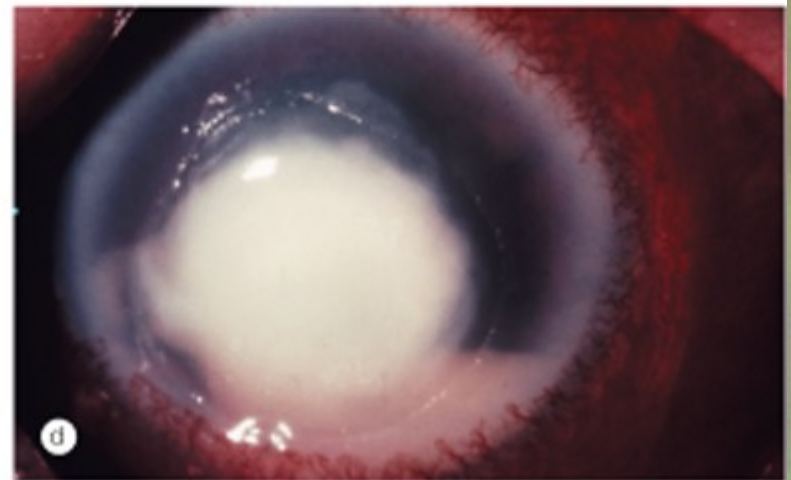
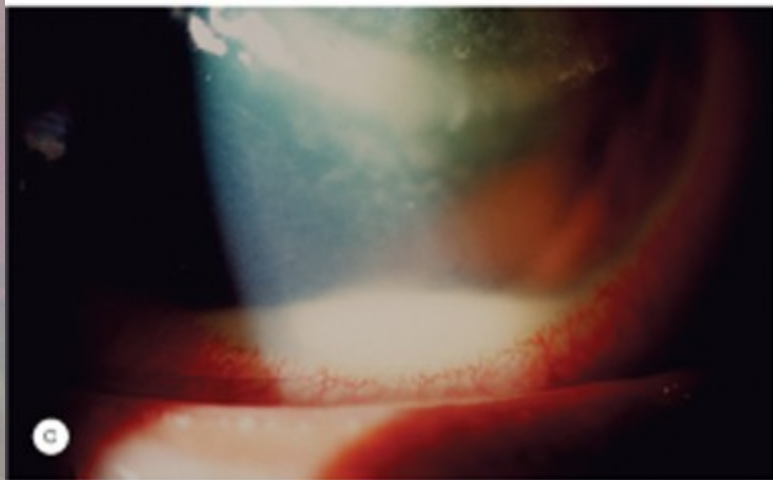
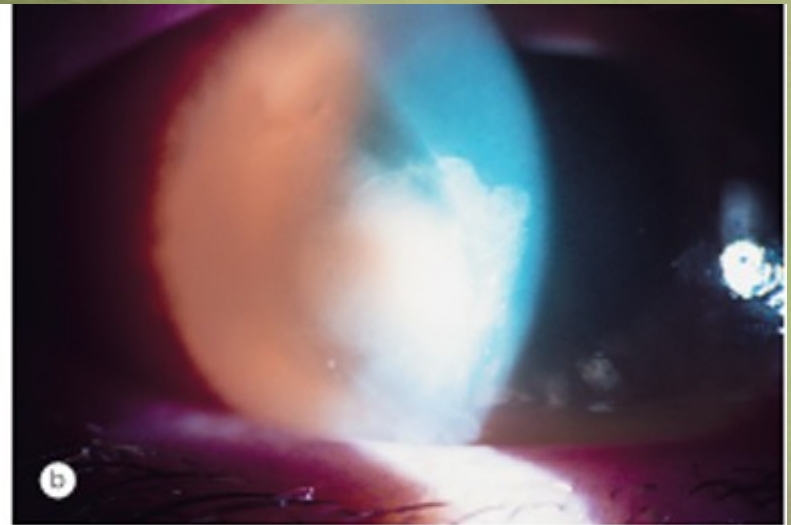
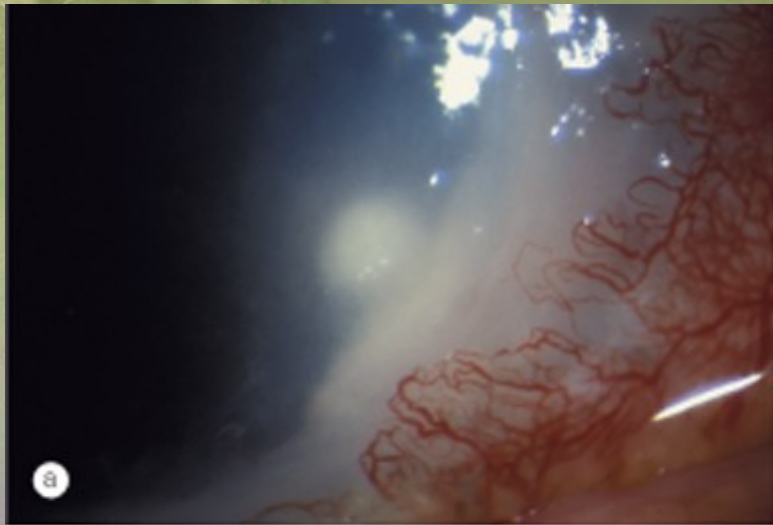
Conjunctivitis

- Acute allergic rhinoconjunctivitis
- **Seasonal allergic conjunctivitis** (hay fever) - onset during the spring and summer
- The most frequent allergens are tree and grass pollens
- **Perennial allergic conjunctivitis** causes symptoms throughout the year with exacerbation in the autumn when exposure to house dust mites, animal dander and fungal allergens is greatest
- **Presentation** - redness, watering and itching, associated with sneezing and nasal discharge



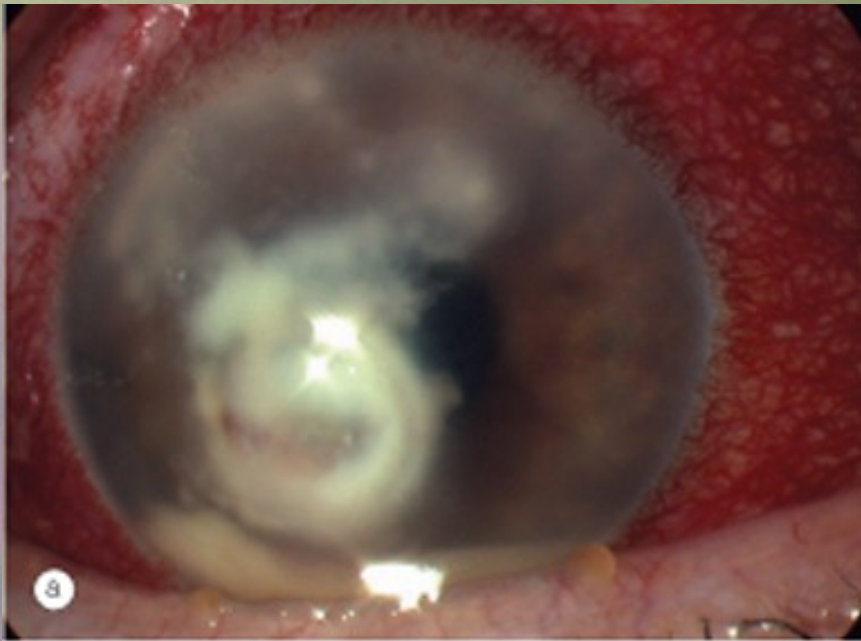
Cornae – infectious keratitis

- Keratitis – bacterial (*P. aeruginosa*, *S. aureus*, *S. pyogenes*)
- Risk factors - Contact lens wear, trauma
- **Presenting symptoms** - pain, photophobia, blurred vision and discharge
- **Signs**
- An epithelial defect, infiltrate around the margin, circumcorneal injection
- Stromal oedema and small hypopyon
- Progressive ulceration may lead to corneal perforation and endophthalmitis.



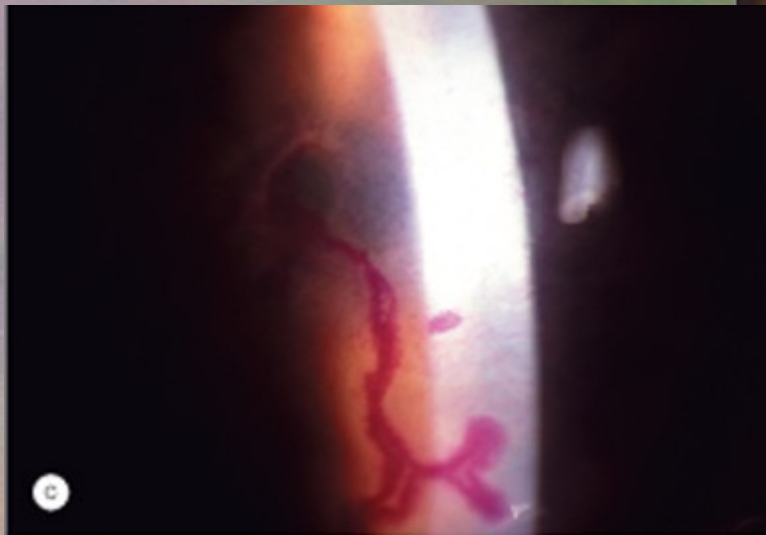
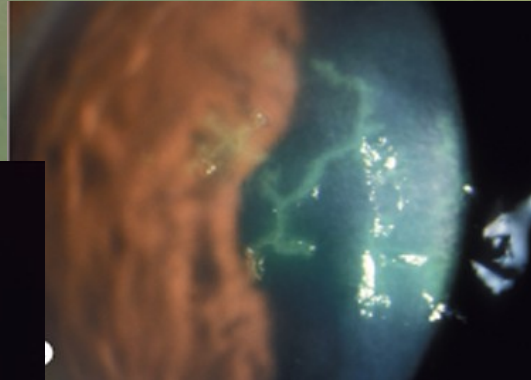
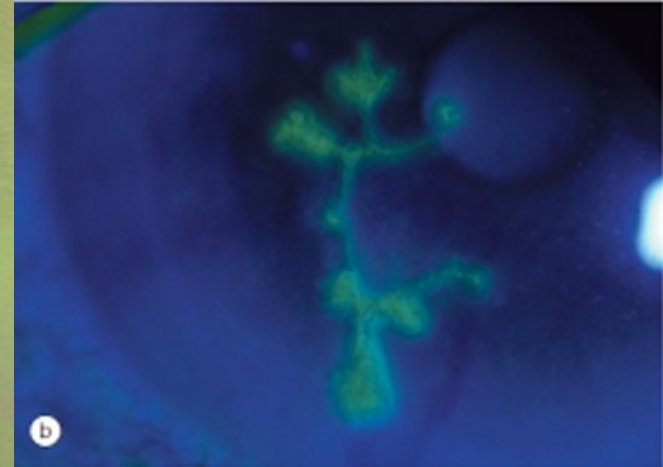
Cornae – infectious keratitis

- Keratitis – fungal (stromal infiltrate with indistinct margins, surrounded by satellite lesions, hypopyon)



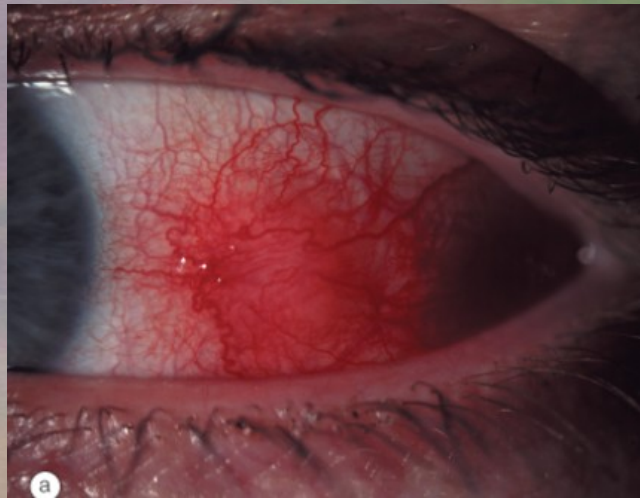
Cornae – infectious keratitis

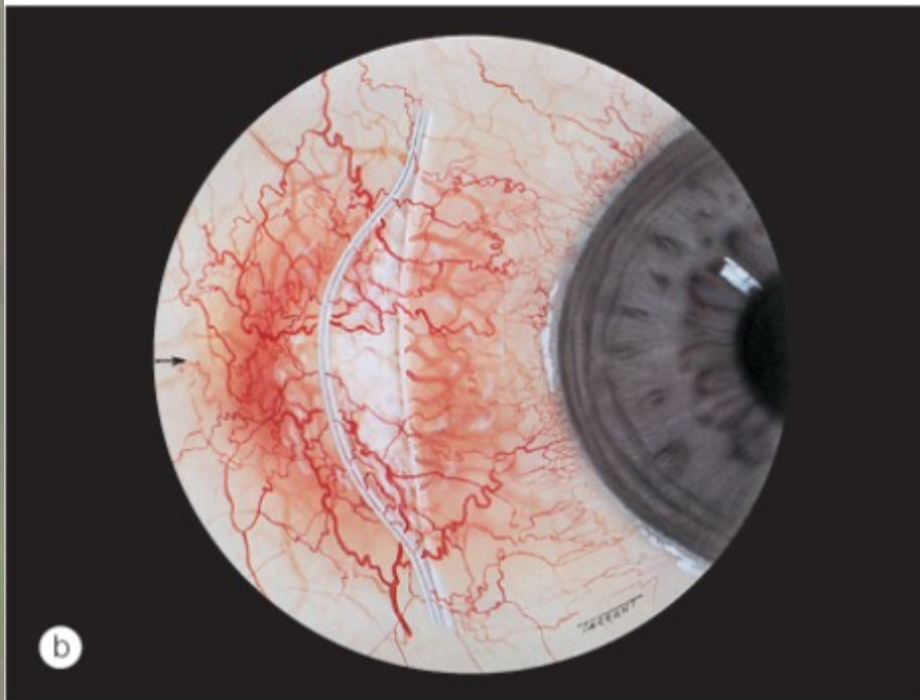
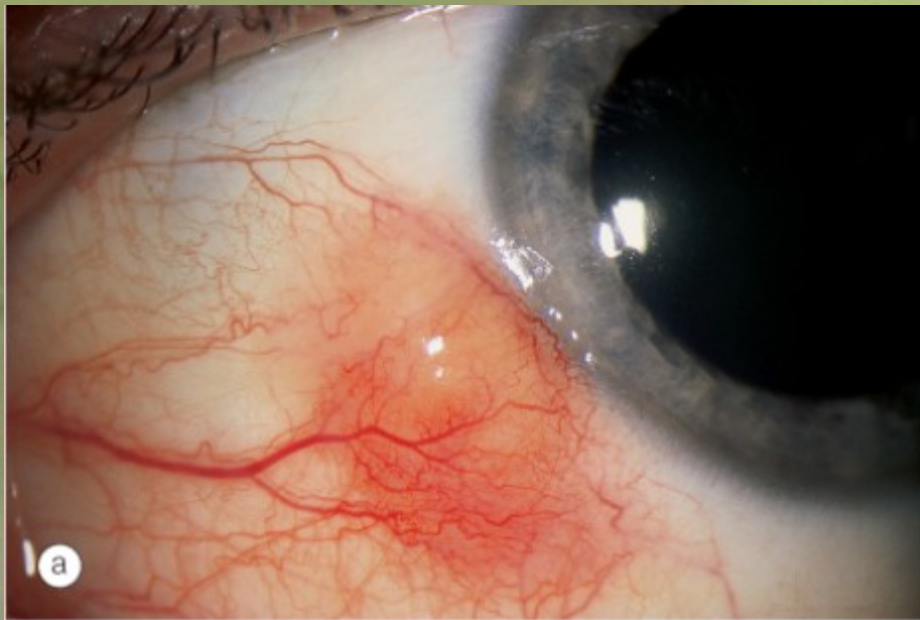
- Keratitis viral – herpes simplex virus
- linear-branching (dendritic) ulcer, corneal sensation is reduced



Episclera

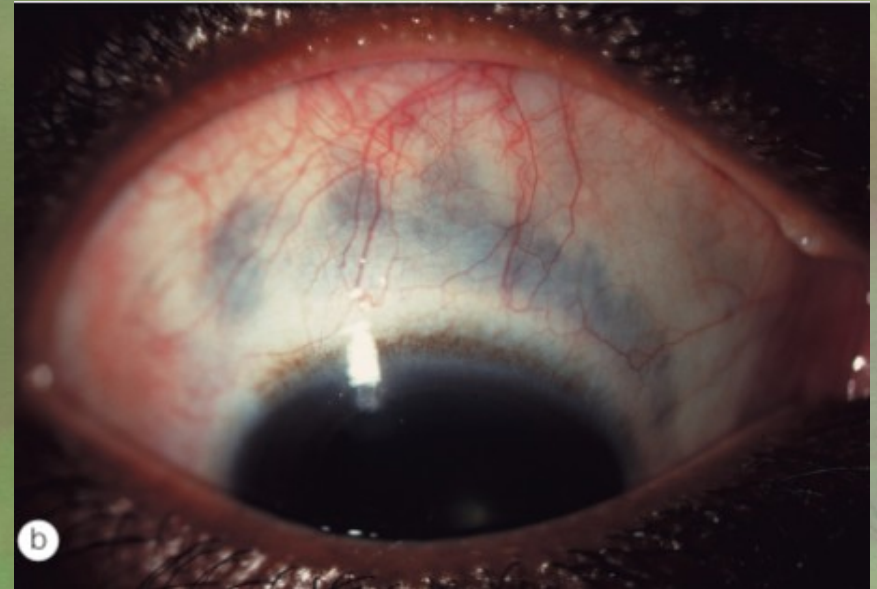
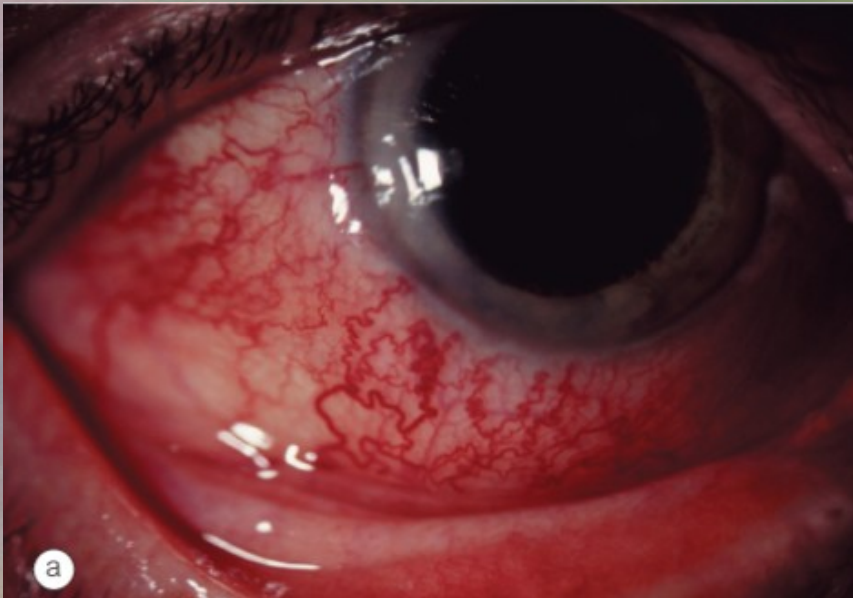
- Episcleritis – simple (sectoral or diffuse) , nodular – young, female
- **Presentation** - always sudden
- The eye becoming red and uncomfortable within an hour of the start of an attack - hotness, pricking or generalized discomfort
- Without systemic associations

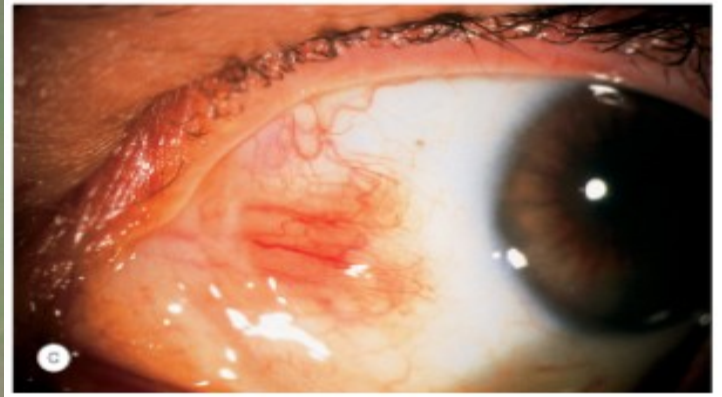
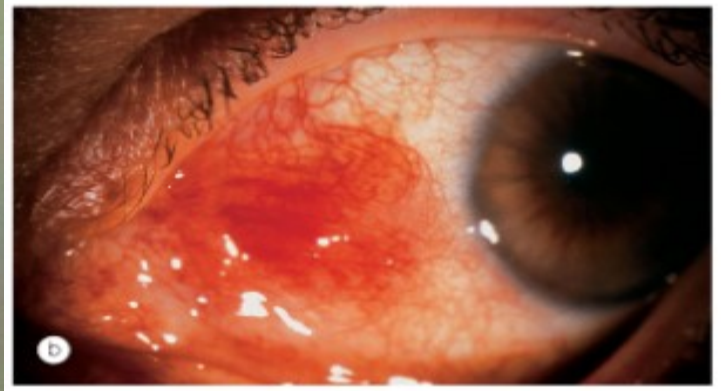
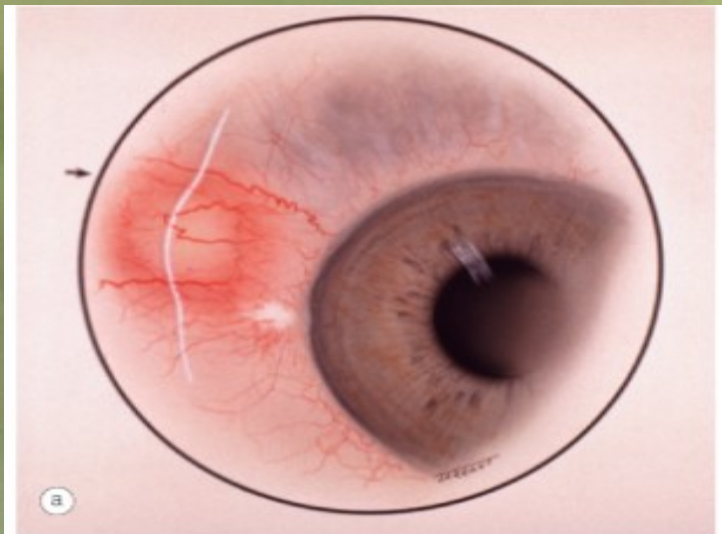




Sclera

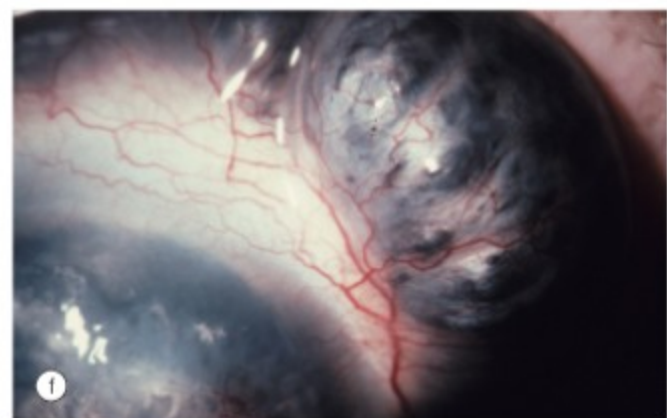
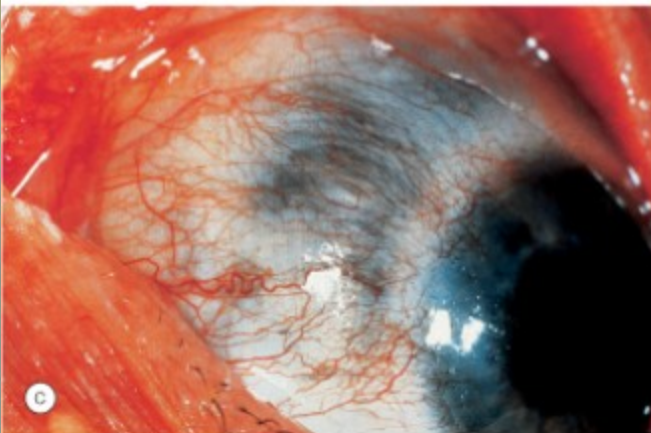
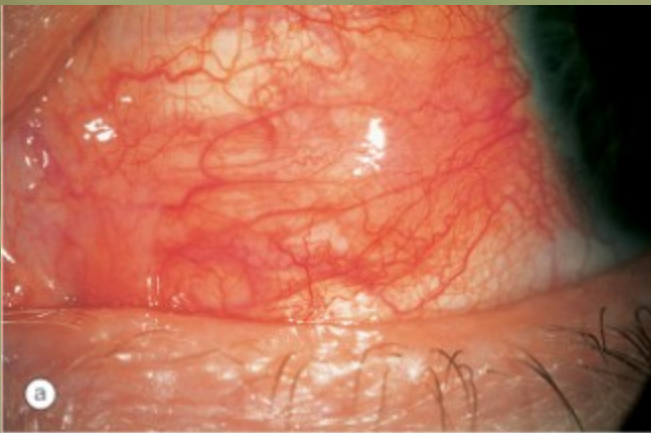
- Scleritis - oedema and cellular infiltration of the entire thickness of the sclera
- *Anterior non-necrotizing scleritis* – diffuse or nodular
- Redness, pain which may spread to the face and temple





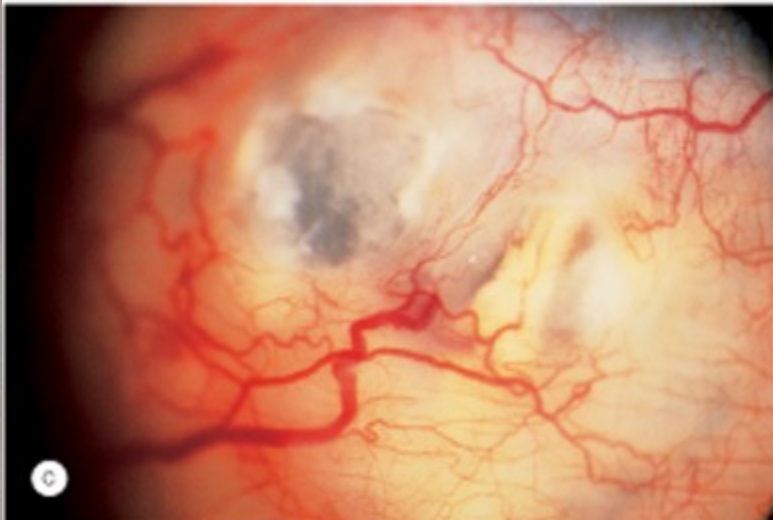
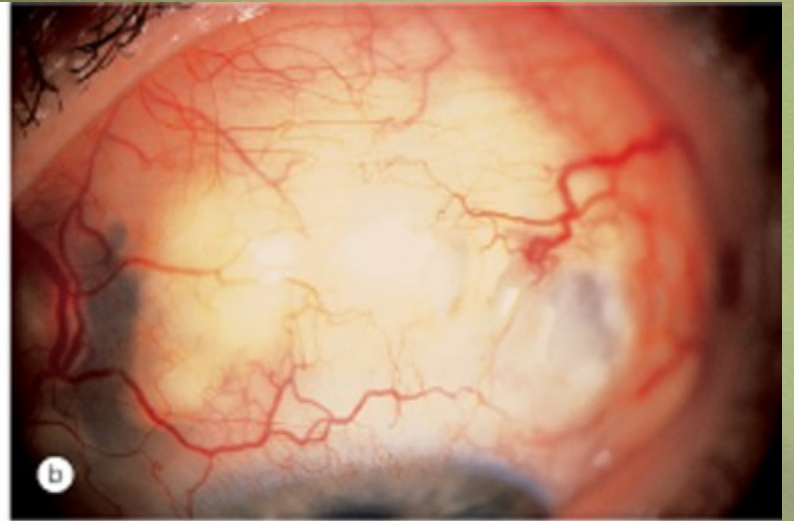
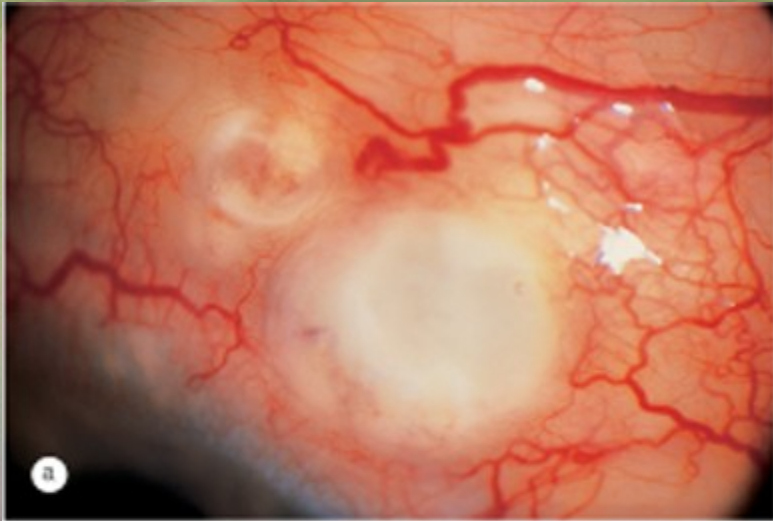
Sclera

- *Necrotizing anterior scleritis with inflammation*
- pain - severe and persistent
- Scleral thinning due to necrosis allows the blue choroid to show through the translucent hydrated scar tissue that has replaced normal sclera

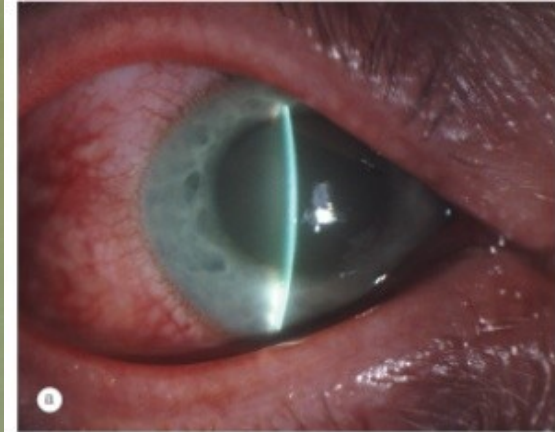


Sclera

- ***Scleromalacia perforans***
- **Specific type of necrotizing scleritis without inflammation that typically affects elderly women with long-standing rheumatoid arthritis**
- **Yellow scleral necrotic plaques near the limbus without vascular congestion**



Glaucoma - Acute congestive angle closure

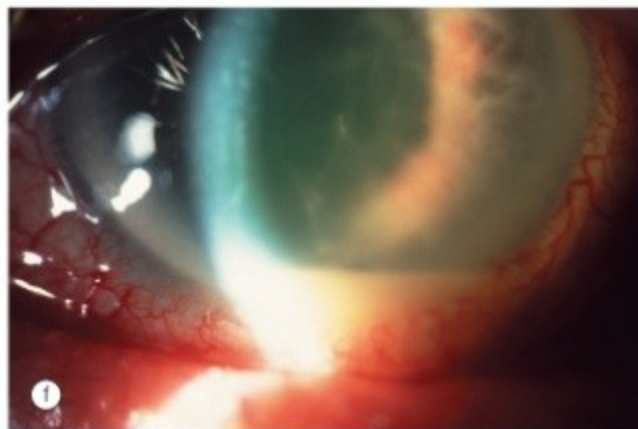
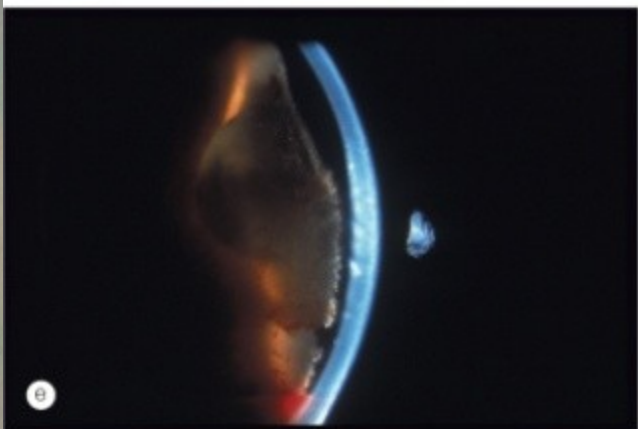
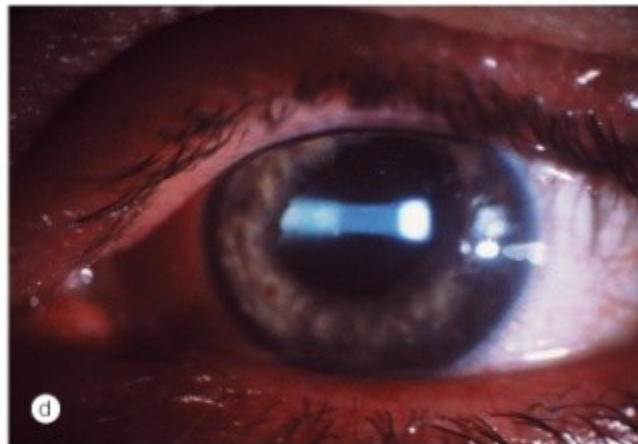
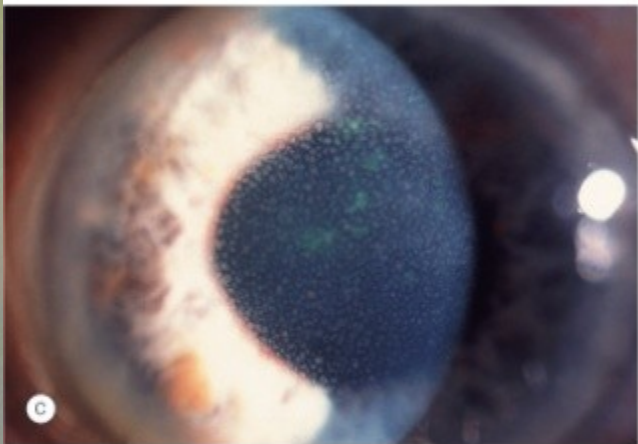
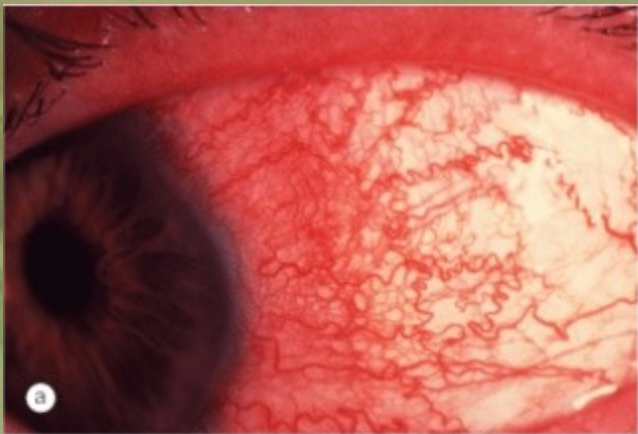


Uveitis

- **Anterior uveitis may be subdivided into:**
- **Iritis in which the inflammation primarily involves the iris.**
- **Iridocyclitis in which both the iris and ciliary body are involved**
- **Ciliary injection - peripheral hyperemia of the anterior ciliary vessels which produces a deep red or rose color of the corneal stroma, and must be distinguished from hyperemia of the conjunctival vessels. May spread to the perilimbic corneal tissue. Called also ciliary flush.**

Anterior uveitis

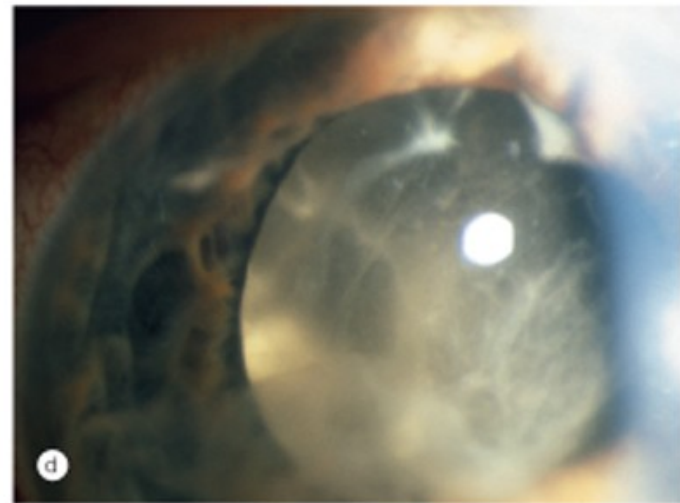
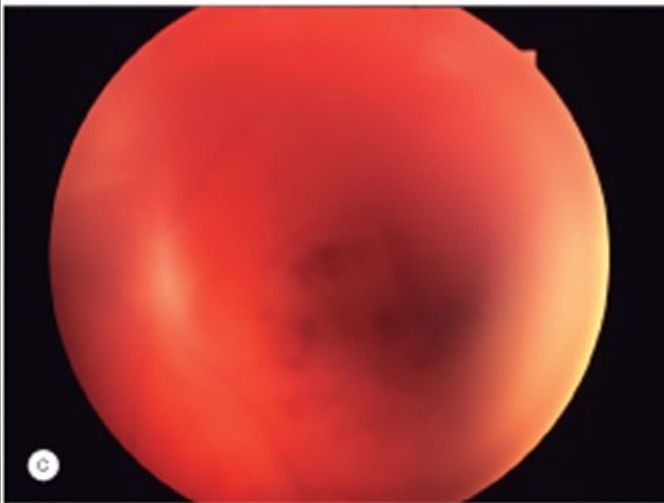
- **Ciliary (circumcorneal) injection**
- **Miosis due to sphincter spasm Endothelial dusting by myriad of cells is present early and gives rise to a 'dirty' appearance**
- **Aqueous cells**
- **Aqueous flare reflects the presence of protein due to a breakdown of the blood-aqueous barrier**
- **Aqueous fibrinous exudate**
- **Hypopyon**
- **Posterior synechiae may develop quite quickly and must be broken down before they become permanent**



Acute endophthalmitis

- **Acute inflammation of all ocular structure**
- **Endogenous or exogenous (surgery, trauma)**
- **Signs - chemosis, corneal injection, relative afferent pupil defect, corneal haze, fibrinous exudate and hypopyon, vitritis with impaired view of the fundus**

Acute endophthalmitis



Thank you for
attention

