Corneal Ulcers

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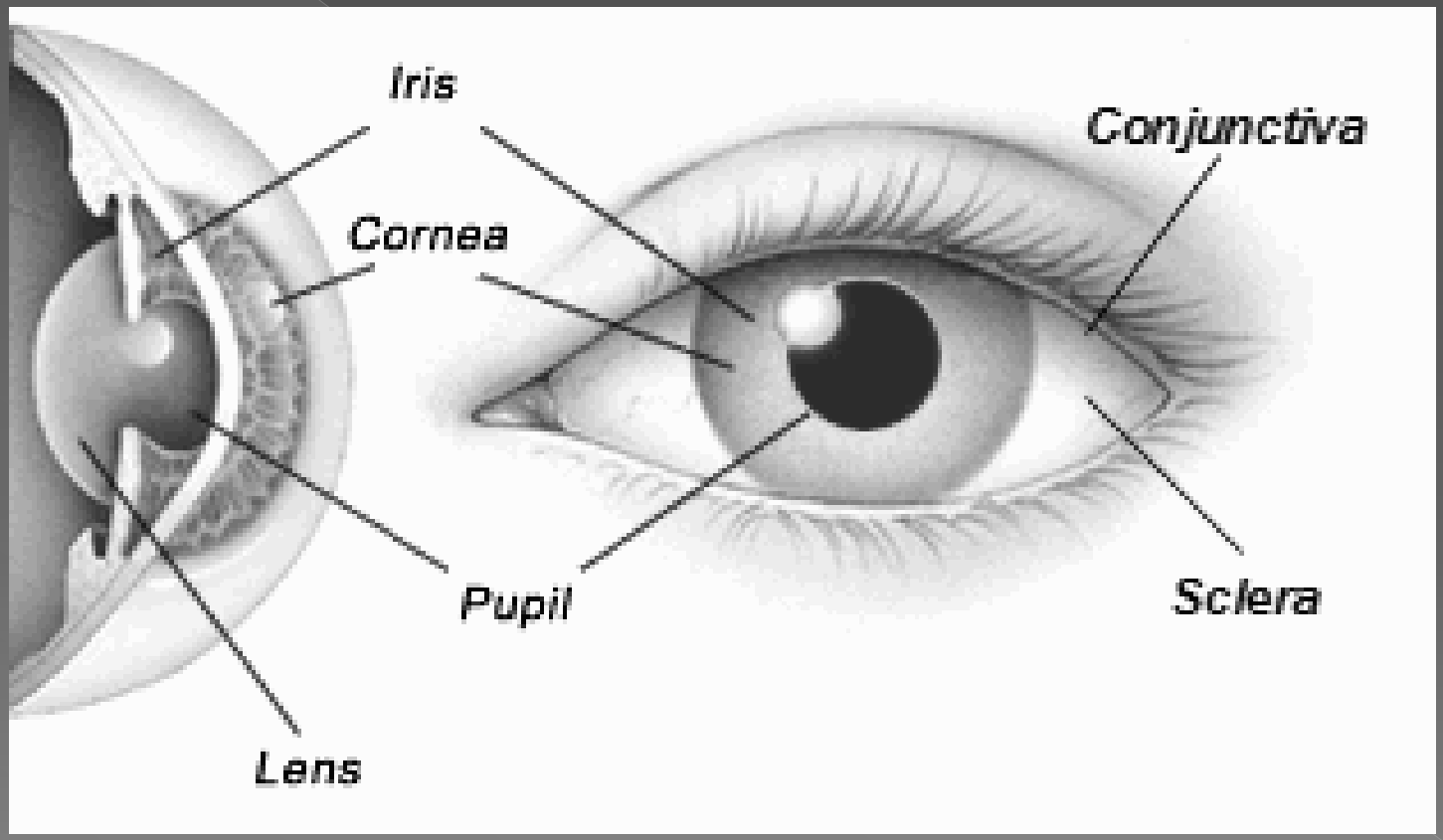
Eye Anatomy

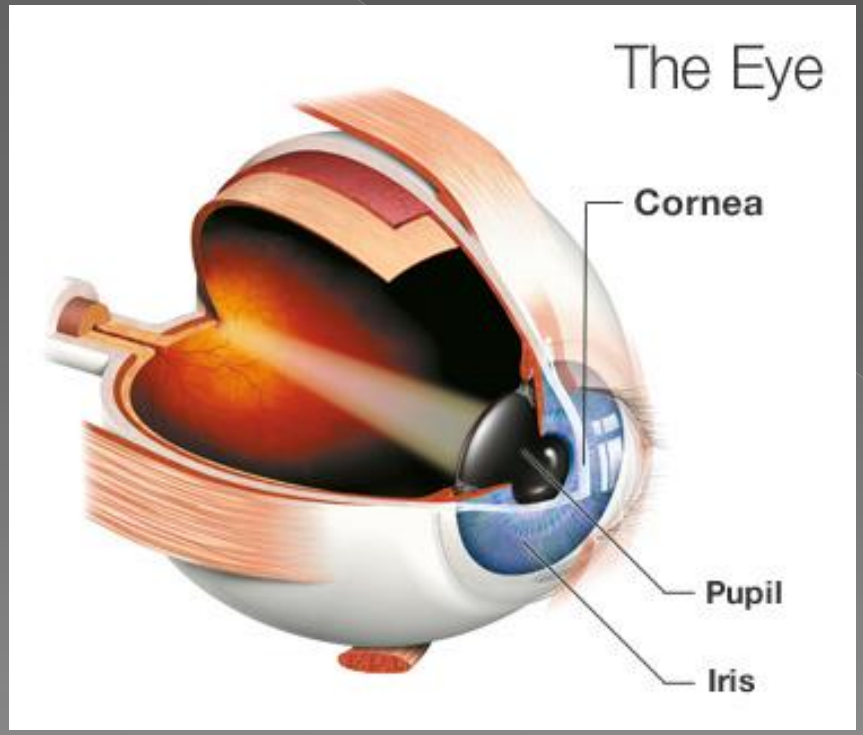


The Cornea

- Transparent, convex, avascular and highly sensitive
- Dimensions: Vertical 10.6mm, horizontal 11.5mm, Thickness 0.6mm centrally, 1.0mm peripherally
- 6 layers: Epithelium, Bowman's Membrane, Stroma, Dua's Layer, Descemets Membrane, Endothelium

Corneal Function

- Refraction of light



Corneal Function

- Protection – the cornea and sclera comprise the outer protective layer of the eyeball.
- The epithelium is an efficient barrier to the entrance of bacteria. Damage to the epithelium leaves the eye vulnerable to opportunist micro organisms and infection

Corneal Ulcers

- Many different types of ulcer –often have very similar presentation

- Goal of treatment :
  - Combat infection
  - Limit corneal scarring
  - Limit or prevent loss of vision

Prevalence

- Increasing in prevalence around the world – most common predisposing risk factor in the developed world:

CONTACT LENSES

Bacterial Infections

- Sight threatening emergency
- 103 cases admitted to hospital in Akld over a 2 year period (reported in 2003) – 88% of cases had at least 1 risk factor: CL wear, previous eye surgery, topical steroid use, ocular trauma
- Symptoms: Pain, FB sensation, redness, photophobia, ocular discharge, variable reduction in vision

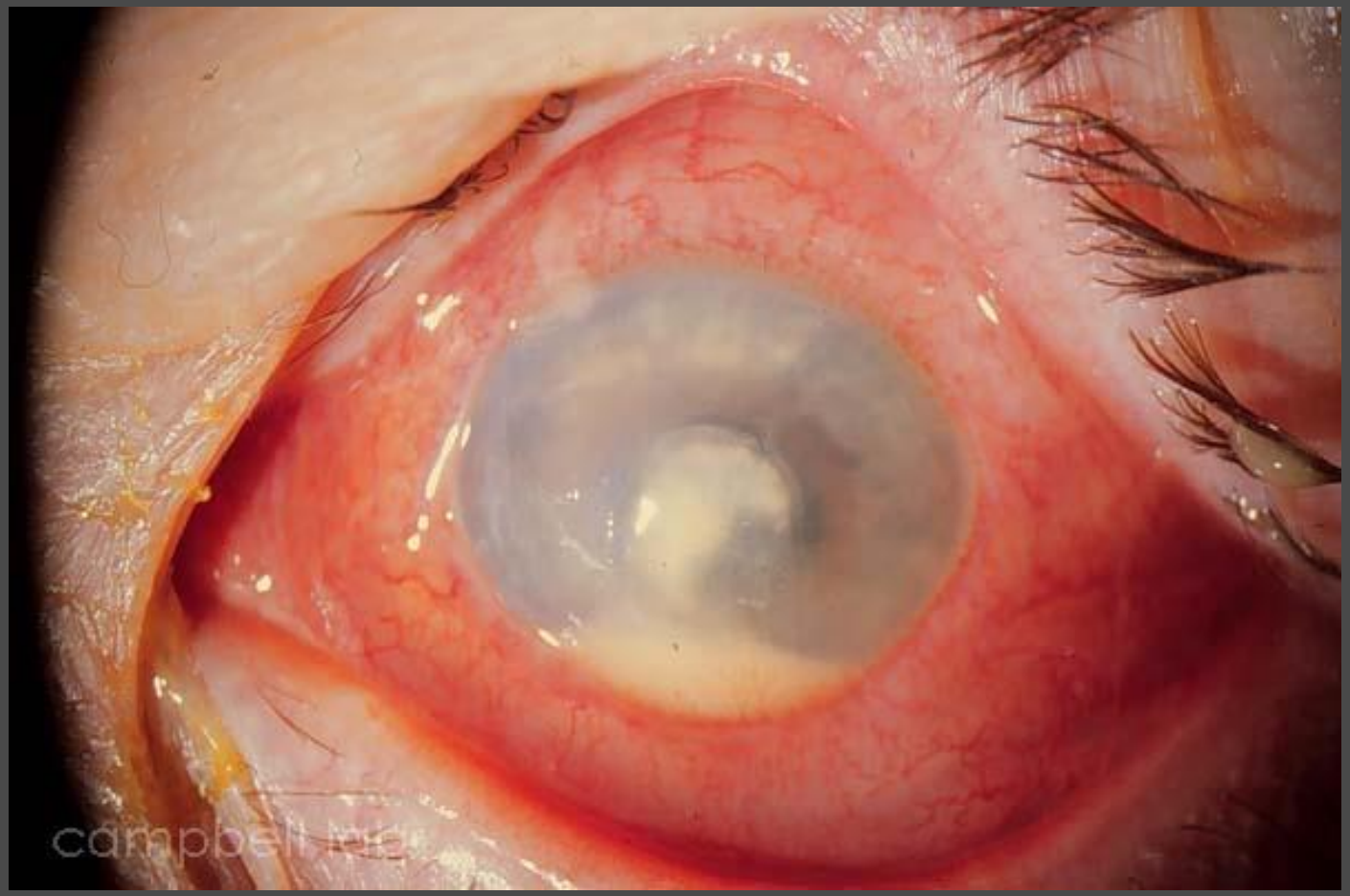
Organisms

- Common organisms isolated are: *Staphlococcus Aureus, Pseudamonas Aeruginosa, Moraxella Liquifaciens, Streptococcus Pneumoniae*

STAPH. AUREUS

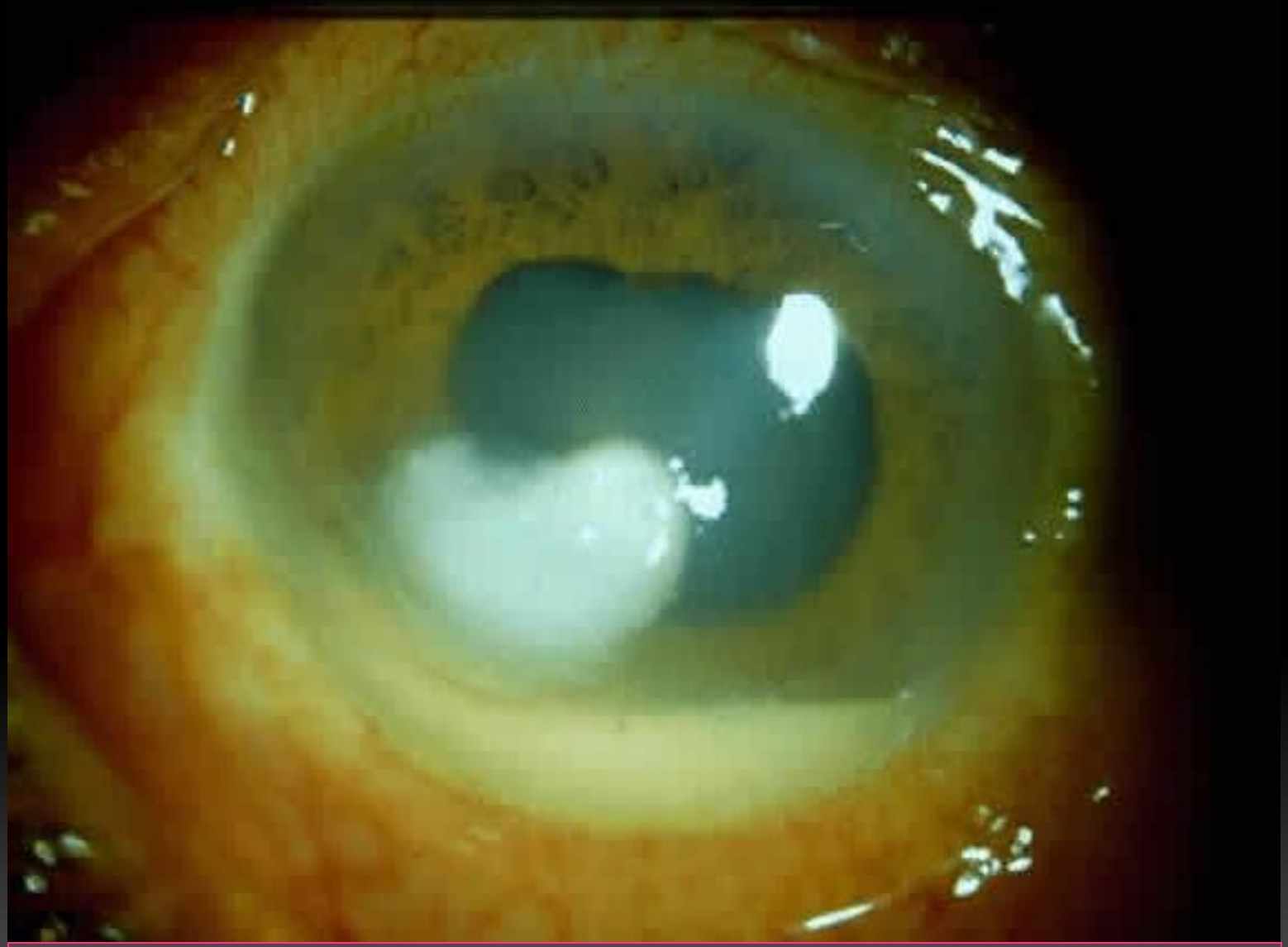
http://eyemicrobiology.upmc.com/PhotoGalleryBacteria.html

PSEUDAMONAS



http://www.medscape.com/viewarticle/718197_2

STREP. PNEUMONIAE



http://www.pumch.net/downaton502/prof/ebook/duanes/pages/v5/ch061/002f.html

Assessment &Treatment

- Slit lamp examination, Corneal scrape
- Likely admission to hospital
- Intensive eye drop regime: treated with fortified Cephazolin & Tobramycin q1 hour (each) day and night, minimum of 48 hours.
- Dilating drops

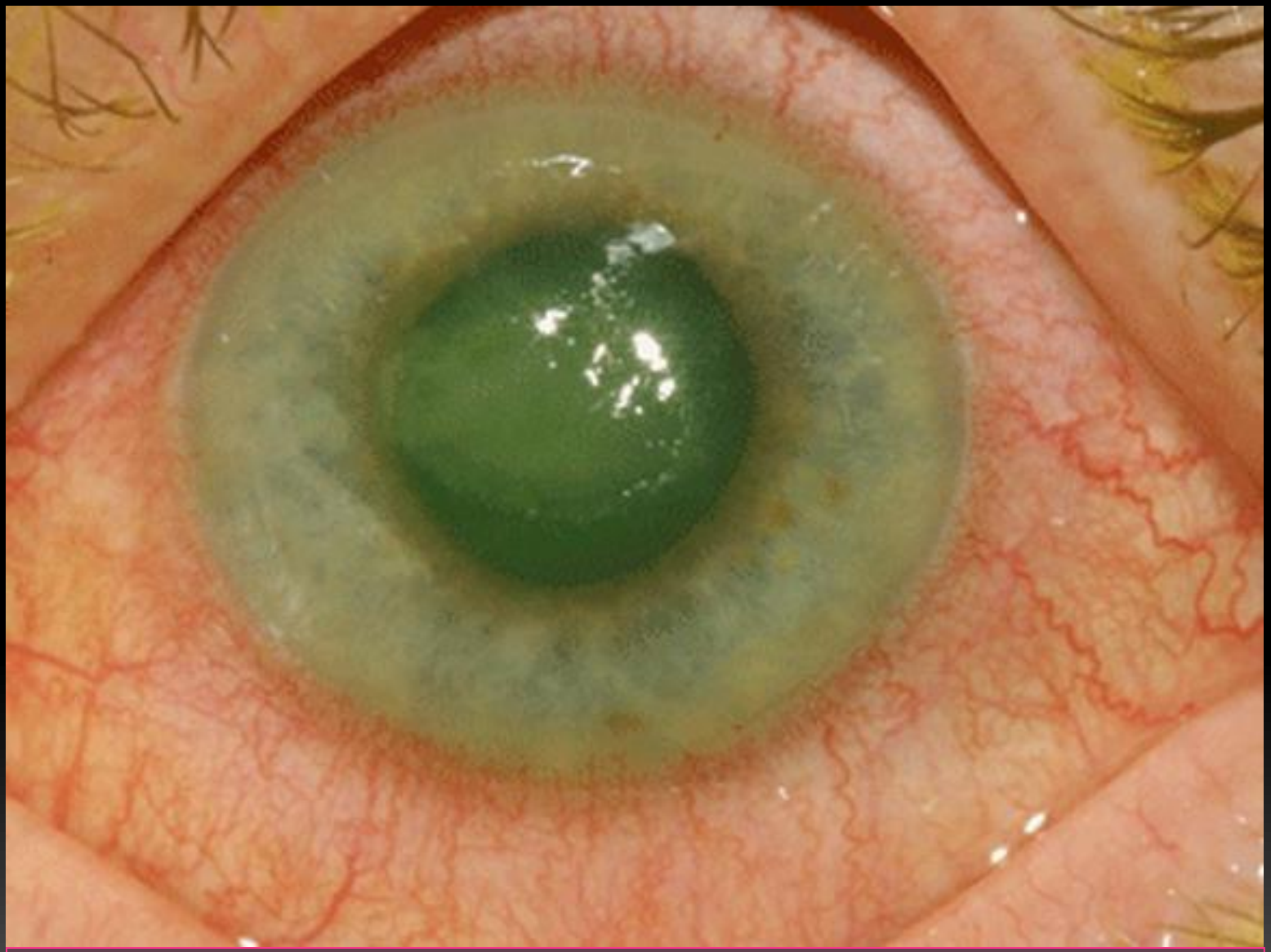
Acanthamoeba

- Acanthamoeba is a free living protozoan, found in soil, dust, sea water, fresh water, chlorinated water
- Used to be rare – has become significantly more common in NZ over last decade
- Risk factors: CL wear / corneal trauma
- Difficult to diagnose / treat. Late diagnosis can lead to profound corneal scarring, ocular inflammation & blindness

Acanthamoeba

- Symptoms: FB sensation, mild reduction in vision, inflammation. Intense pain & photophobia – beyond what expected by clinical signs.

ACANTHAMOEBA



http://mddk.com/acanthamoeba-keratitis.html

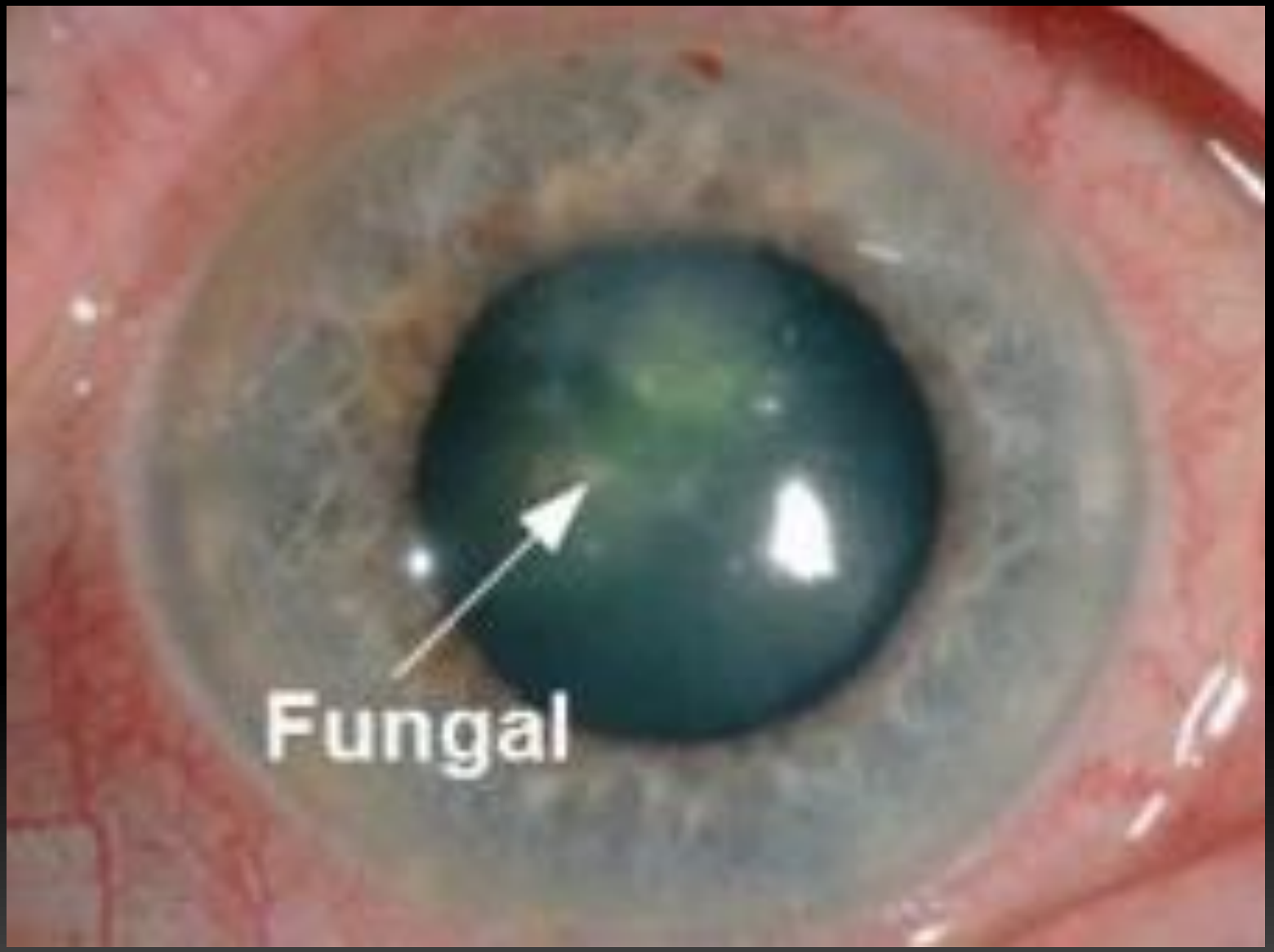
Assessment / Treatment

- Slit lamp examination
- Gold standard: Confocal microscopy (only 1 in NZ, owned by UOA located GCC)
- Admission
- Treatment: Hourly Brolene together with hourly Chlorhexidine or Polyhexamethylene Biguanide (PHMB) – may continue for months
- Pain management

Fungal Infections

- Relatively uncommon - Risk factors: trauma with contamination from organic matter, immunosuppression
- Symptoms: Redness, pain, photophobia, reduced vision. Onset varies from insipid to rapid
- Common organisms: *Candida, Fusarium, Aspergillus*

FUNGAL



http://www.improveeyesighthq.com/fungal-keratitis.html

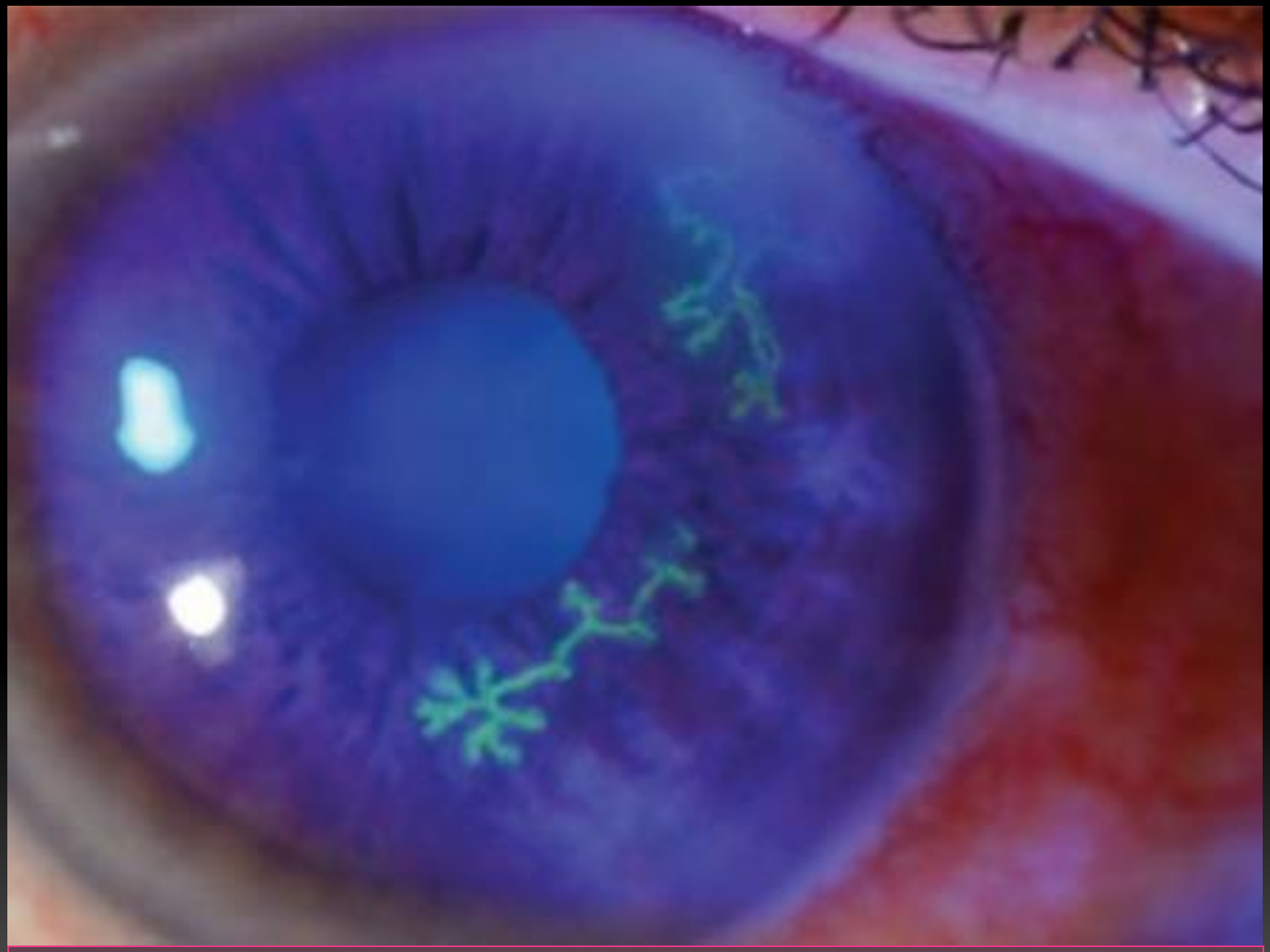
Assessment / Treatment

- Corneal scrape
- Commence appropriate treatment: Natamycin, Amphotericin, Fluconazole, Itraconazole – Q ½ - 1 hourly day + night
- NB patients often on treatment for many months with very close management

Viral Infections

- Commonly caused by either Herpes Simplex or Herpes Zoster virus
- 70 -90% of adult population sero positive for HSV
- Both virus can remain dormant until reactiviated.
- Symptoms: varying degrees of discomfort / loss of vision, rash or blisters 1-2/52 prior (HZV)

HERPES SIMPLEX



https://coreem.net/core/herpes-keratitis/

HERPES ZOSTER

http://c2-preview.prosites.com/126055/wy/images/zoster%20eye.jpg

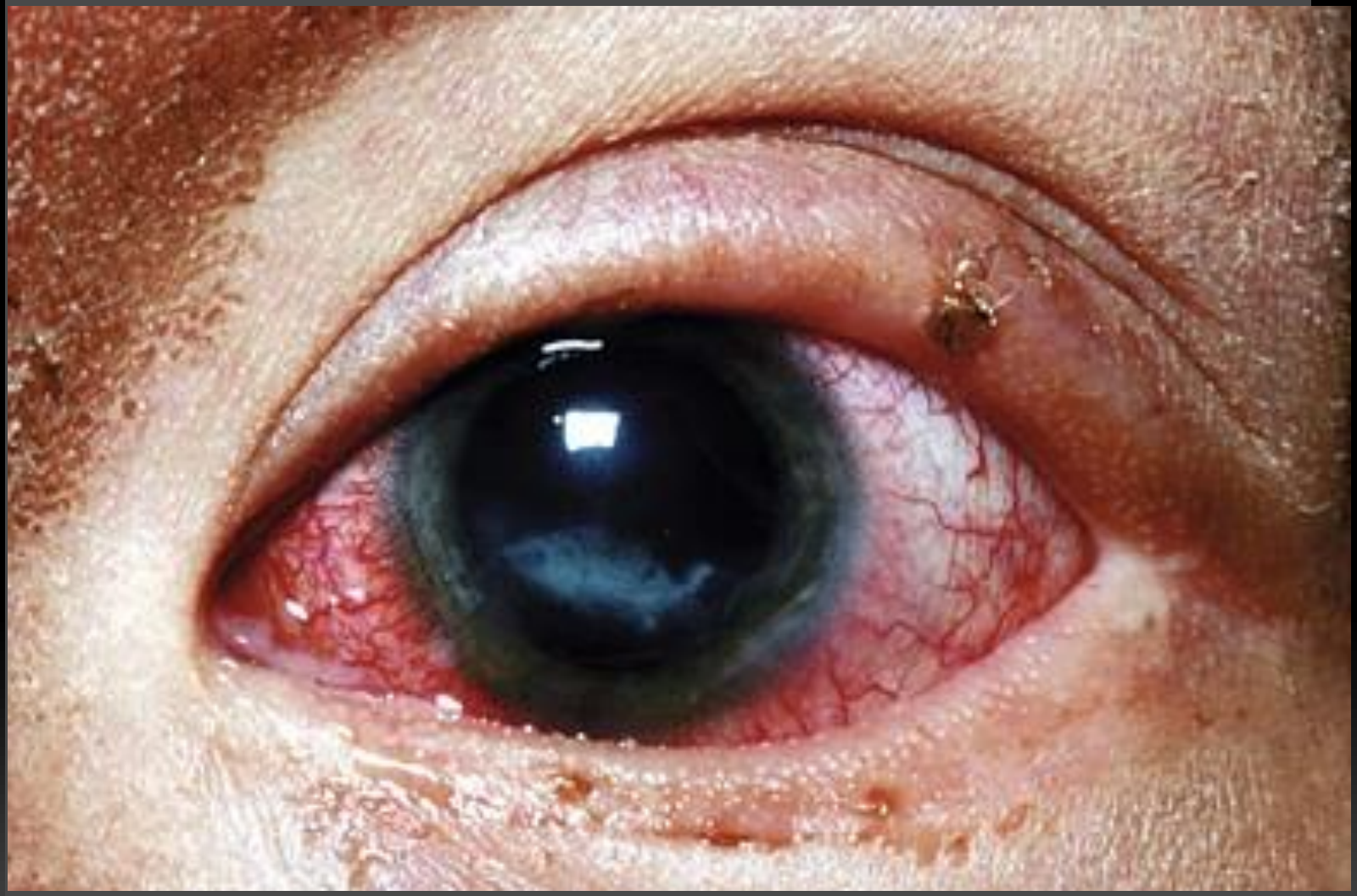
Assessment / Treatment

- Slit lamp exam
- HSV: treat with Aciclovir PO + ointment 5x day
- HZV: PO Aciclovir if diagnosed within a few days of rash development. Not for topicl Aciclovir. Topical steroids
- Warn pt may reoccur

Exposure Keratopathy

- Causes are: nocturnal lagophthalmos (incomplete closure of the eyelids at night), incomplete blink, lid abnormalities, seventh nerve palsy
- Symptoms: irritable, sore, dry eyes, possibly worse in the AM

EXPOSURE



http://diseasepdf.com/a/asaloptic.es1.html

Management

- Copious lubrication of the eye – frequent artificial tears and ointment at night
- If bacterial infection present treat as appropriate
- Lid abnormalities may require intervention – surgery, botox or tarrsoraphy

General nursing management

- Prepare pt for examination / tests required
- Medication – drop regime
- Pain management
- Relief of symptoms: photophobia, tearing
- Eye hygiene – eye wash prn
- Address sleep deprivation

Nursing Management Cont..

- Assess psychological needs – involve MDT as appropriate : SW, Physio
- Education: hand hygiene, CL hygiene, drop instillation technique
- Keep pt informed: management plan, medication regime

Thank You