



The Acute Red Eye

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Case Scenario Links

The Acute Red Eye

- Acute or chronic red eye (Oph01)
- Acute trauma to the eye (Oph02)
- Child with red swelling around one eye (Oph10)



A



B



C



D

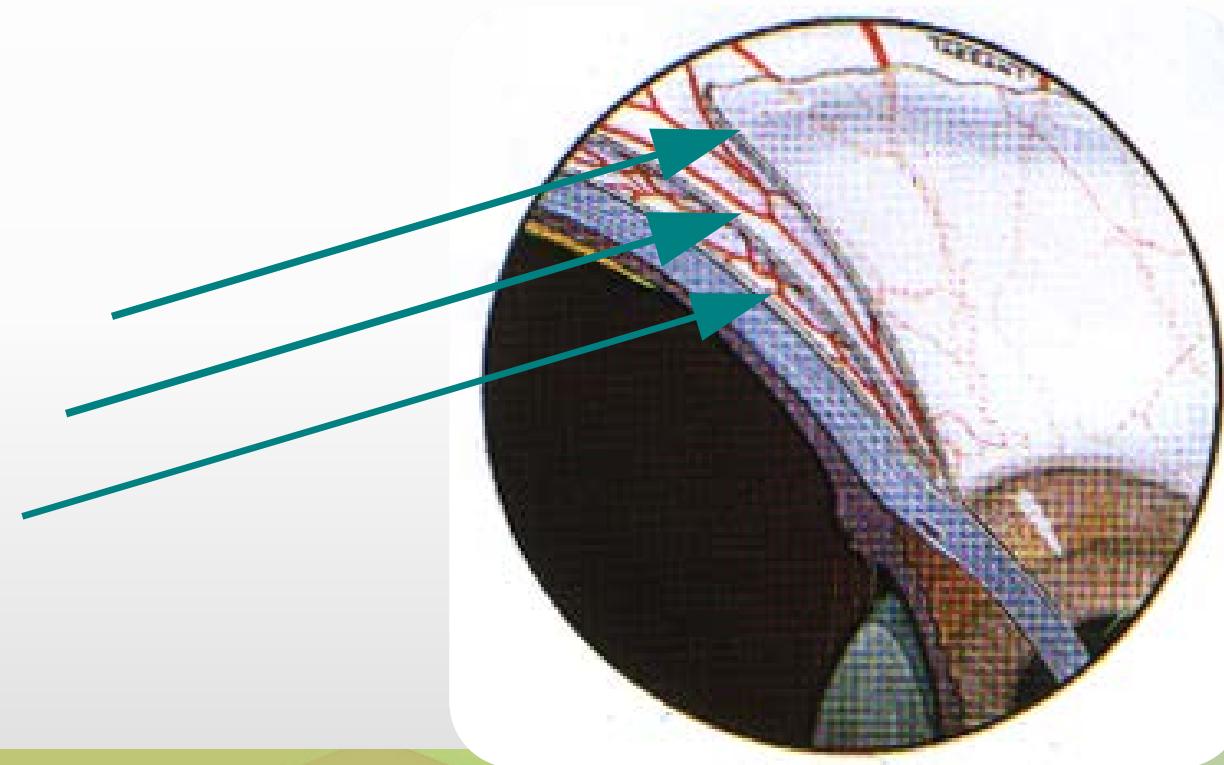


The Acute Red Eye

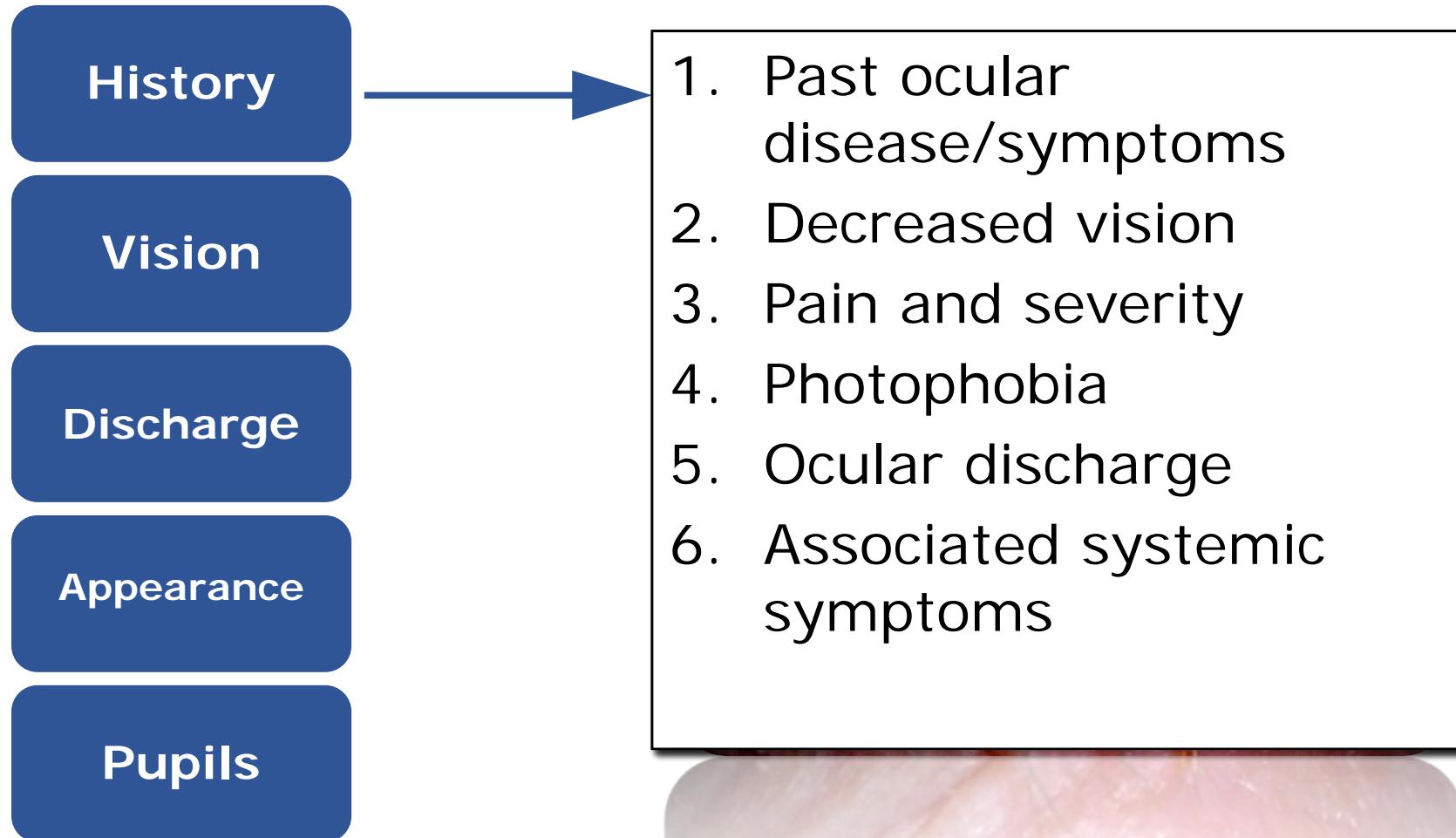


What is a red eye?

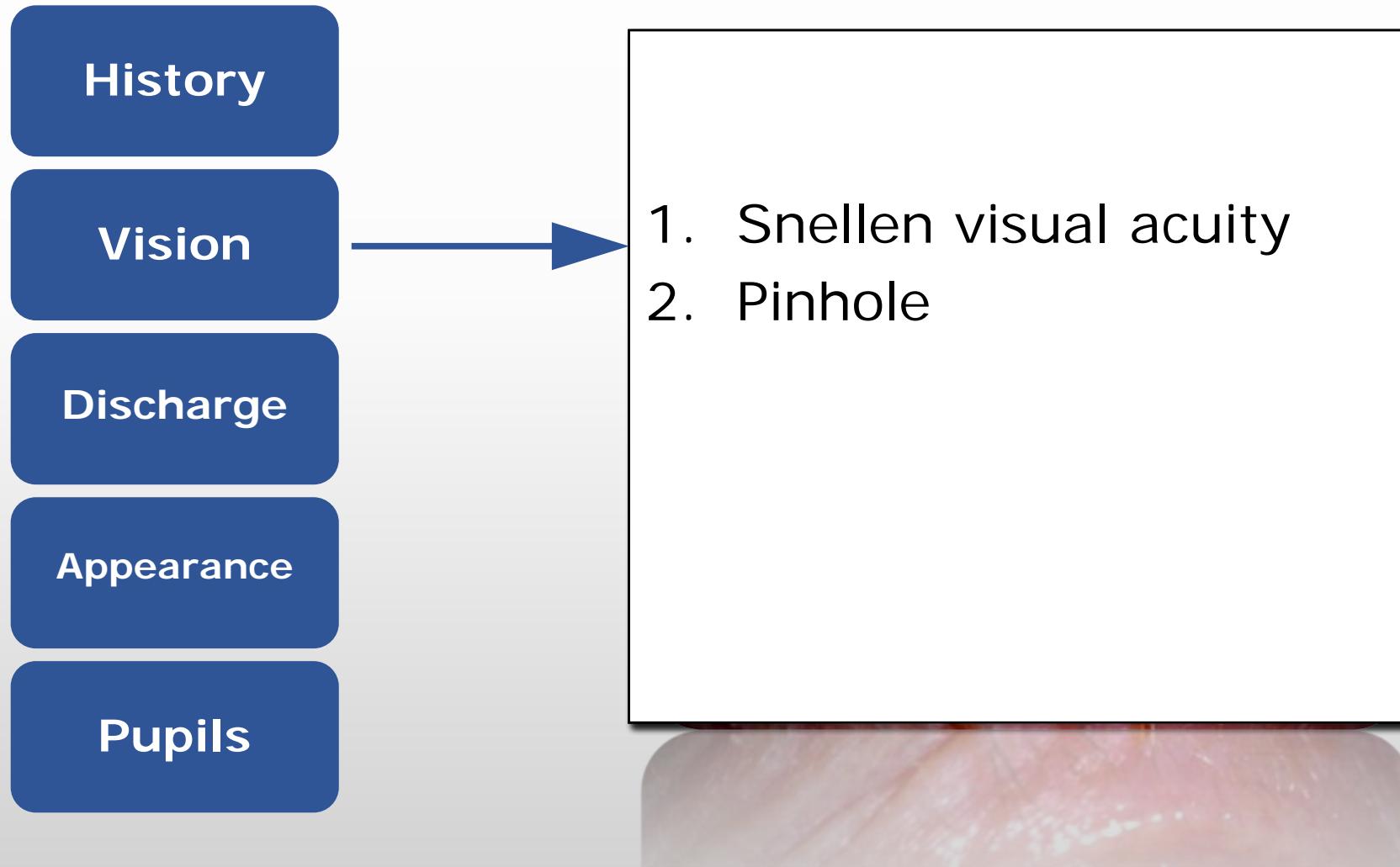
- Dilation of superficial ocular vessels
 - Conjunctiva
 - Episclera
 - Sclera



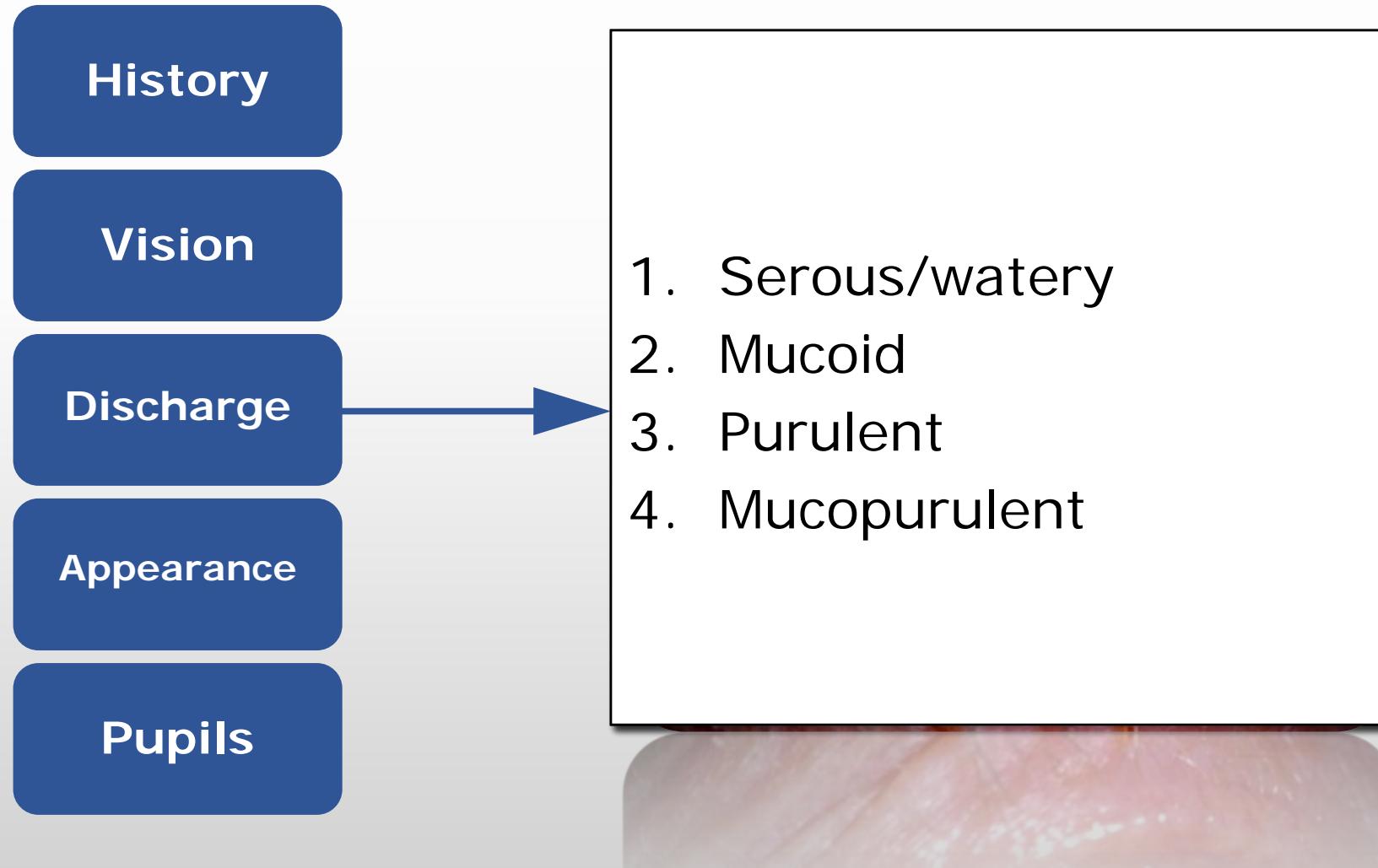
Systematic Approach to Diagnosis



Systematic Approach to Diagnosis



Systematic Approach to Diagnosis



Systematic Approach to Diagnosis

History

Vision

Discharge

Appearance

Pupils



Image © Charles McGhee

Systematic Approach to Diagnosis



- 1. Miosis
- 2. Mid-dilated
- 3. Sluggish/no reaction to light



Common causes of the acute red eye

1. Conjunctivitis
2. Sub-conjunctival haemorrhage
3. Keratitis
4. Episcleritis
5. Scleritis
6. Acute anterior uveitis
7. Acute angle closure crisis
8. Ocular trauma

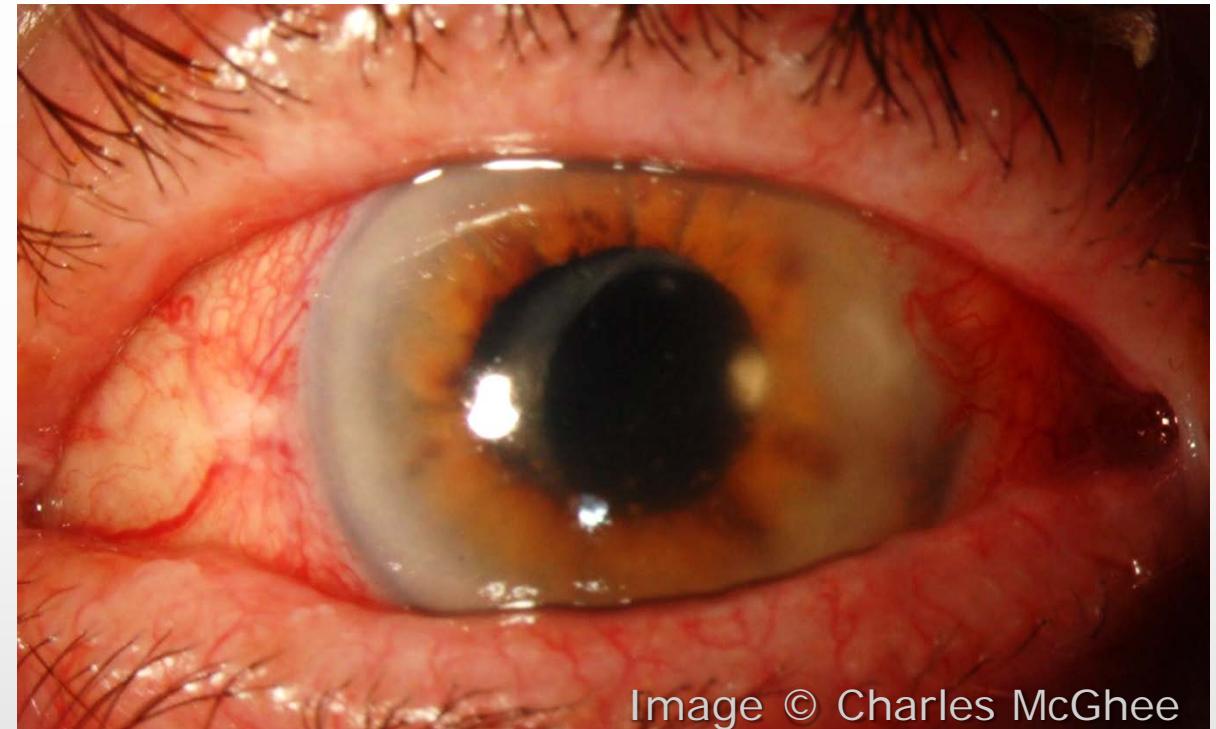


Image © Charles McGhee

Conjunctivitis



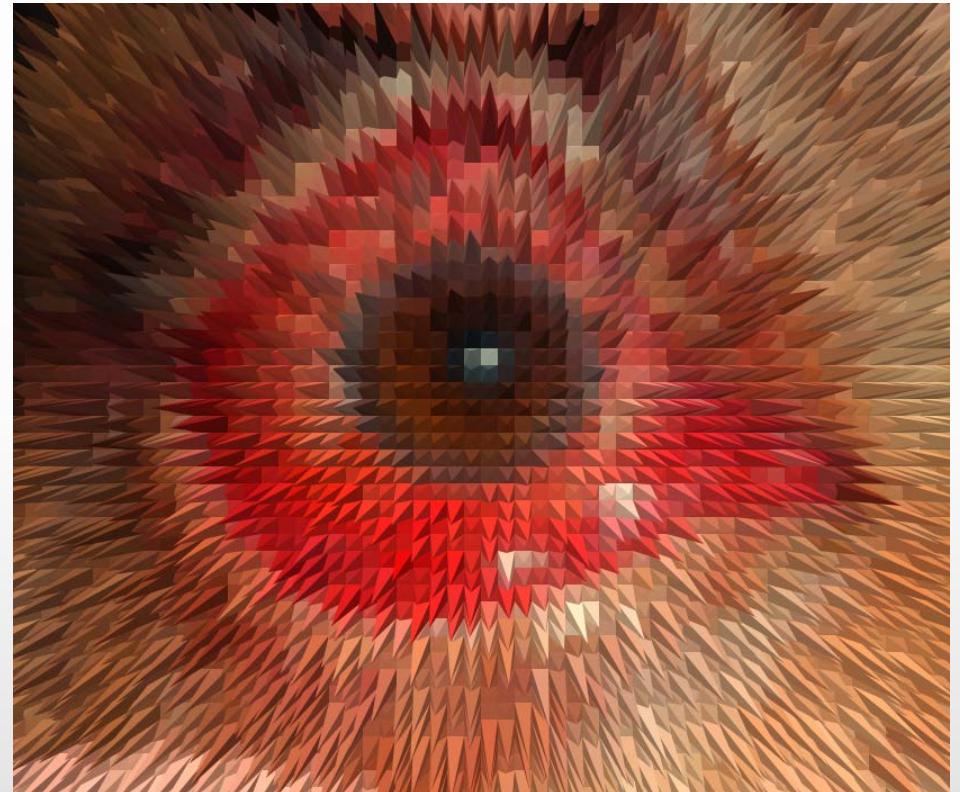
Conjunctivitis - Types

- **Infective**

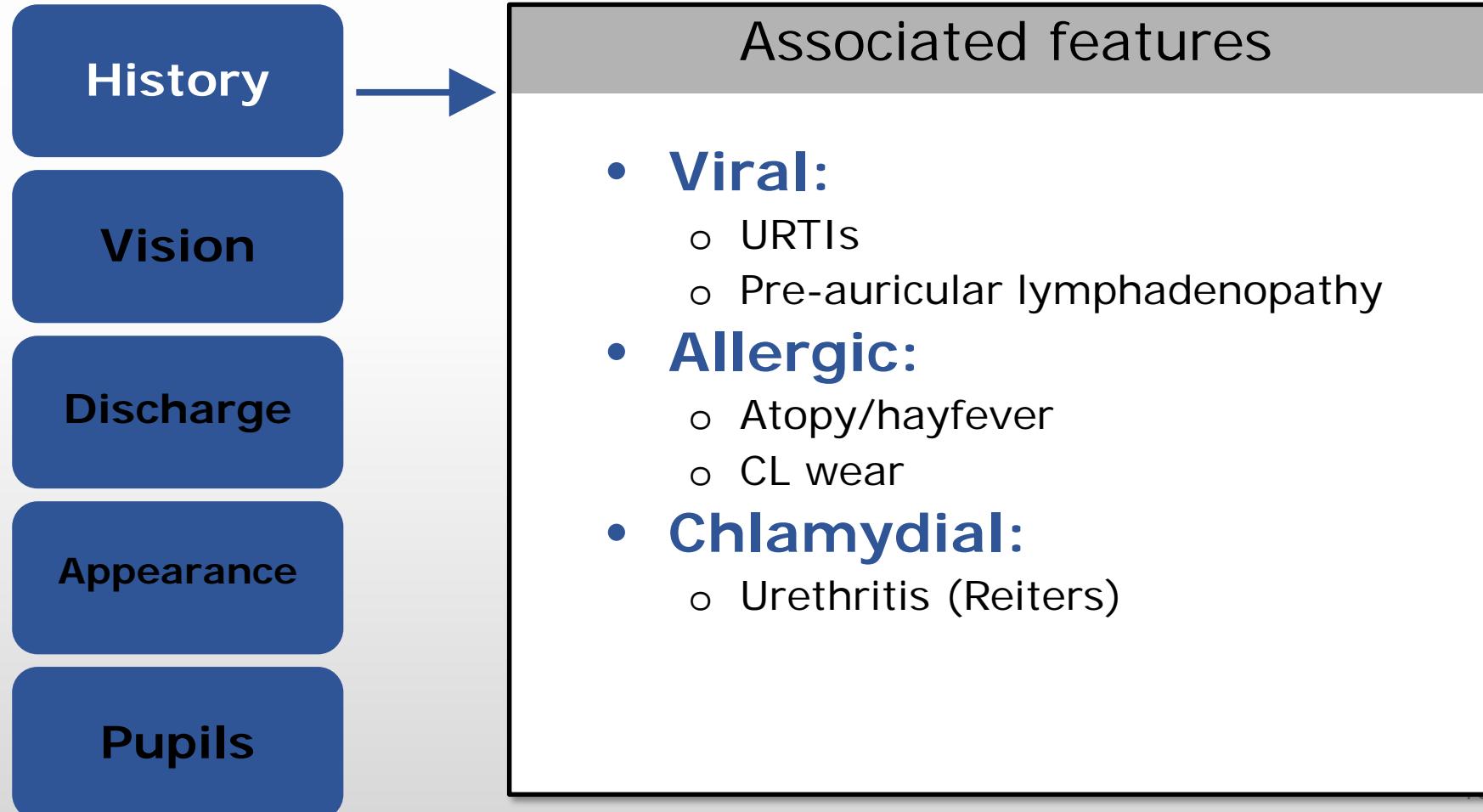
- Viral
- Bacterial
- Chlamydial

- **Allergic**

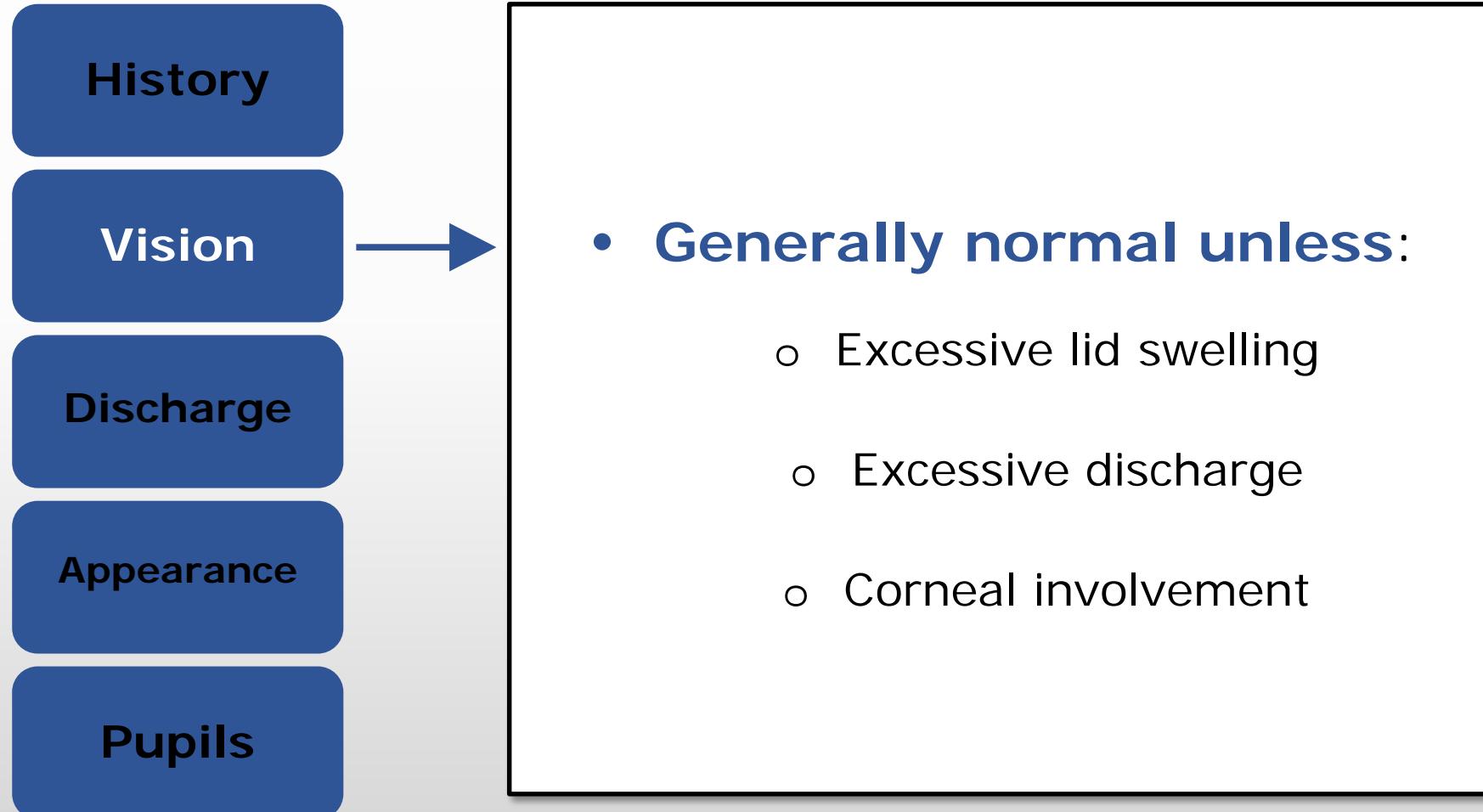
- Seasonal (hayfever)/
Perennial (dust mites)
- Vernal
- Atopic



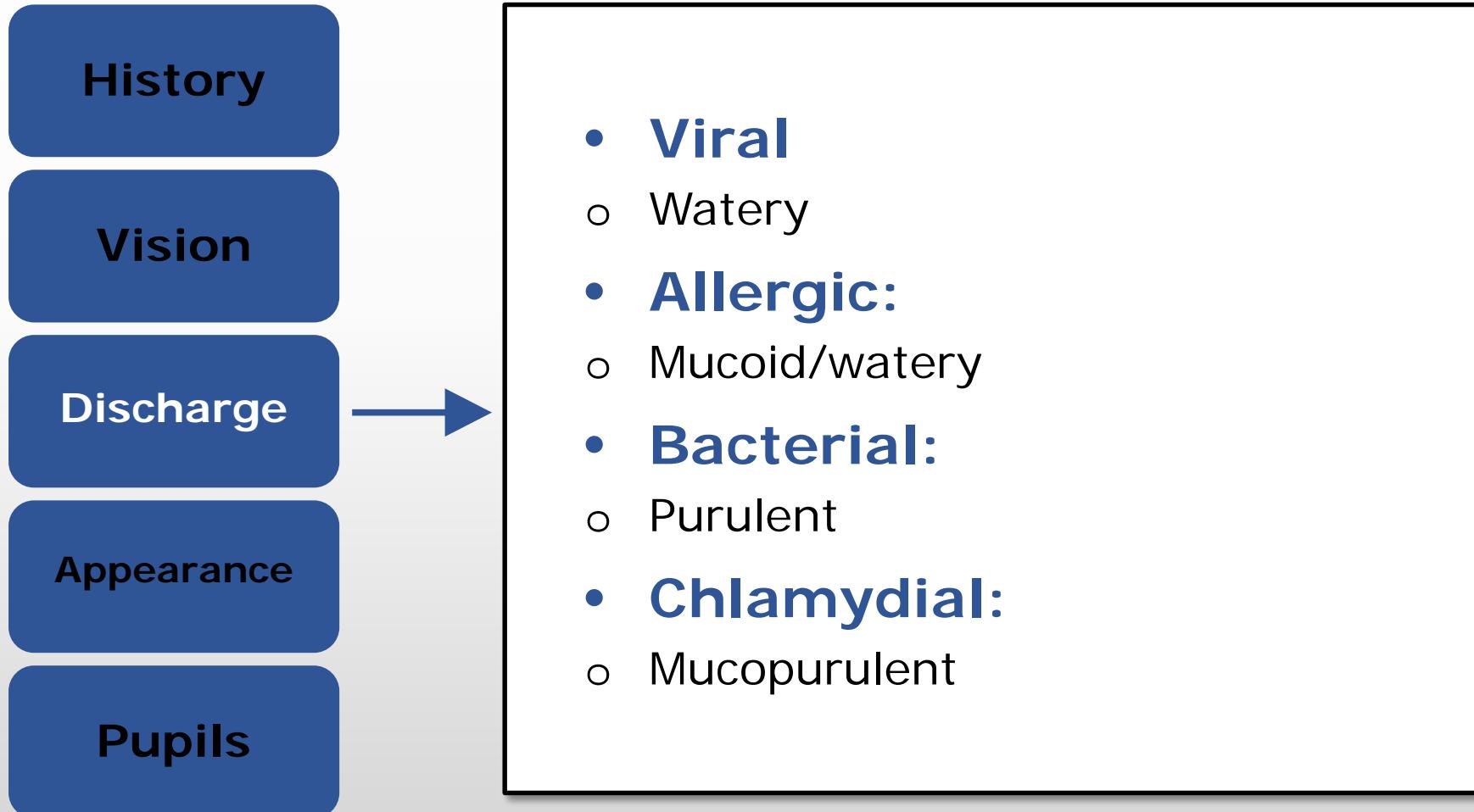
Conjunctivitis



Conjunctivitis



Conjunctivitis



Conjunctivitis

History

Vision

Discharge

Appearance

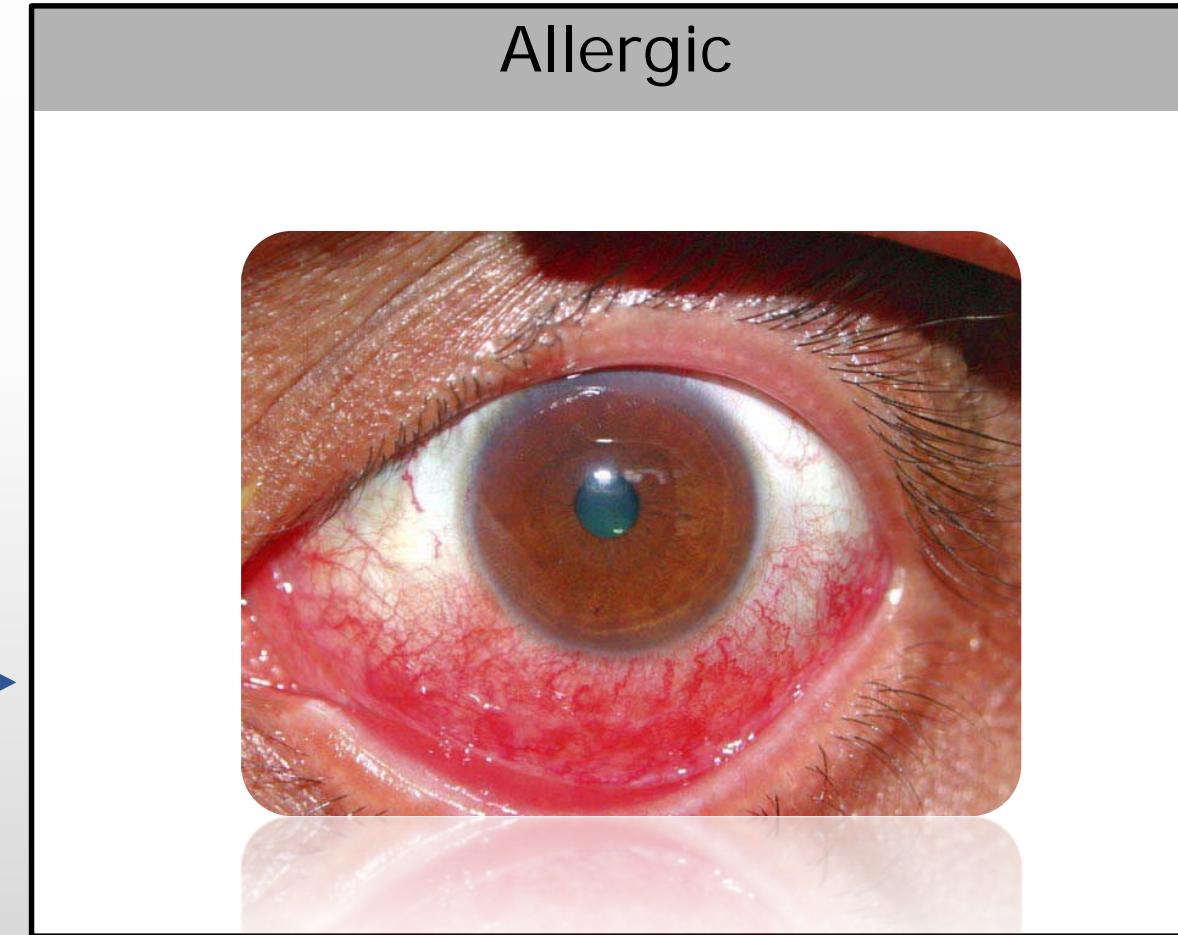
Pupils

Viral



Conjunctivitis

- History
- Vision
- Discharge
- Appearance
- Pupils



Conjunctivitis

History

Vision

Discharge

Appearance

Pupils

Bacterial



Conjunctivitis

History

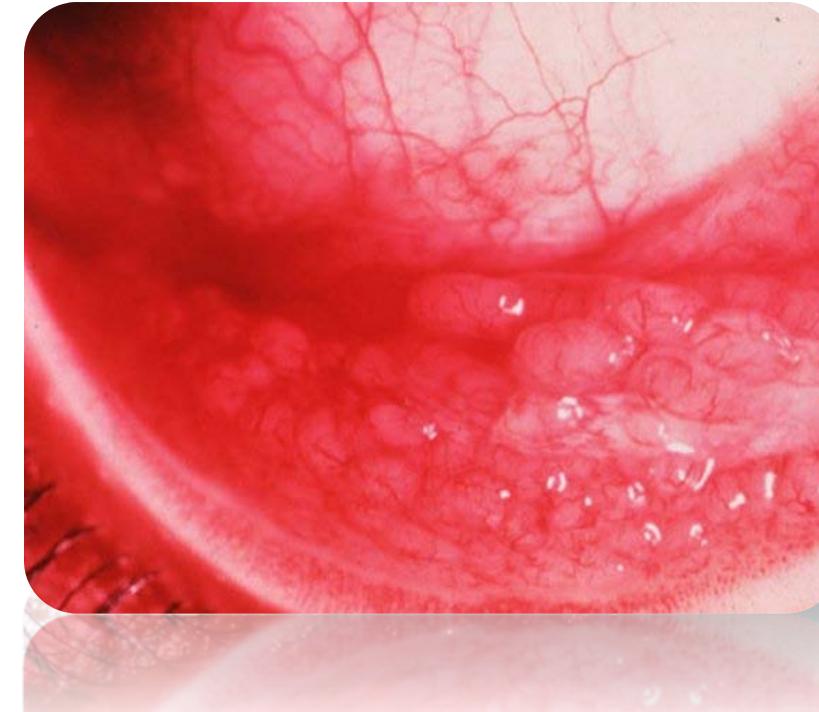
Vision

Discharge

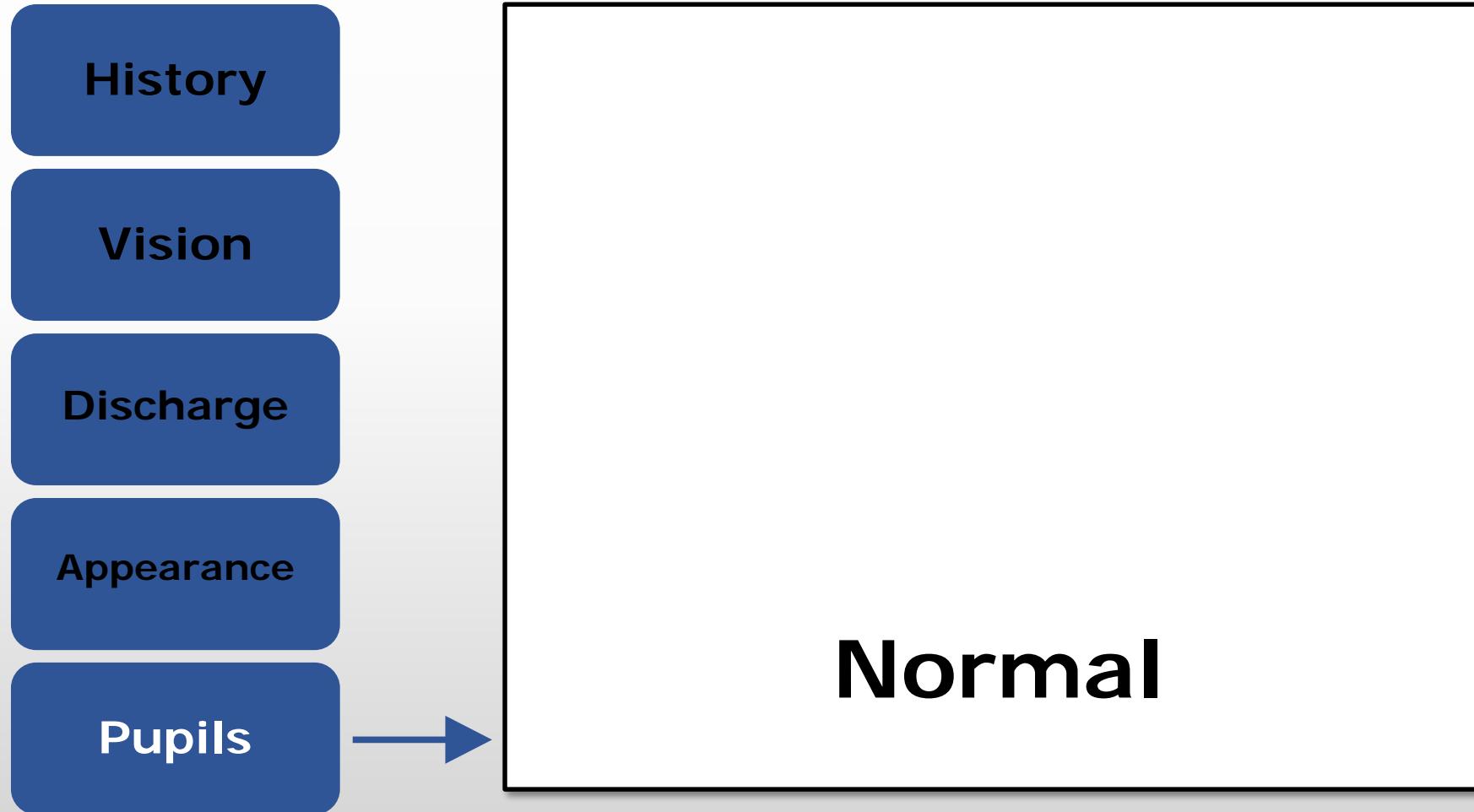
Appearance

Pupils

Follicles/Papillae



Conjunctivitis



Conjunctivitis - Management

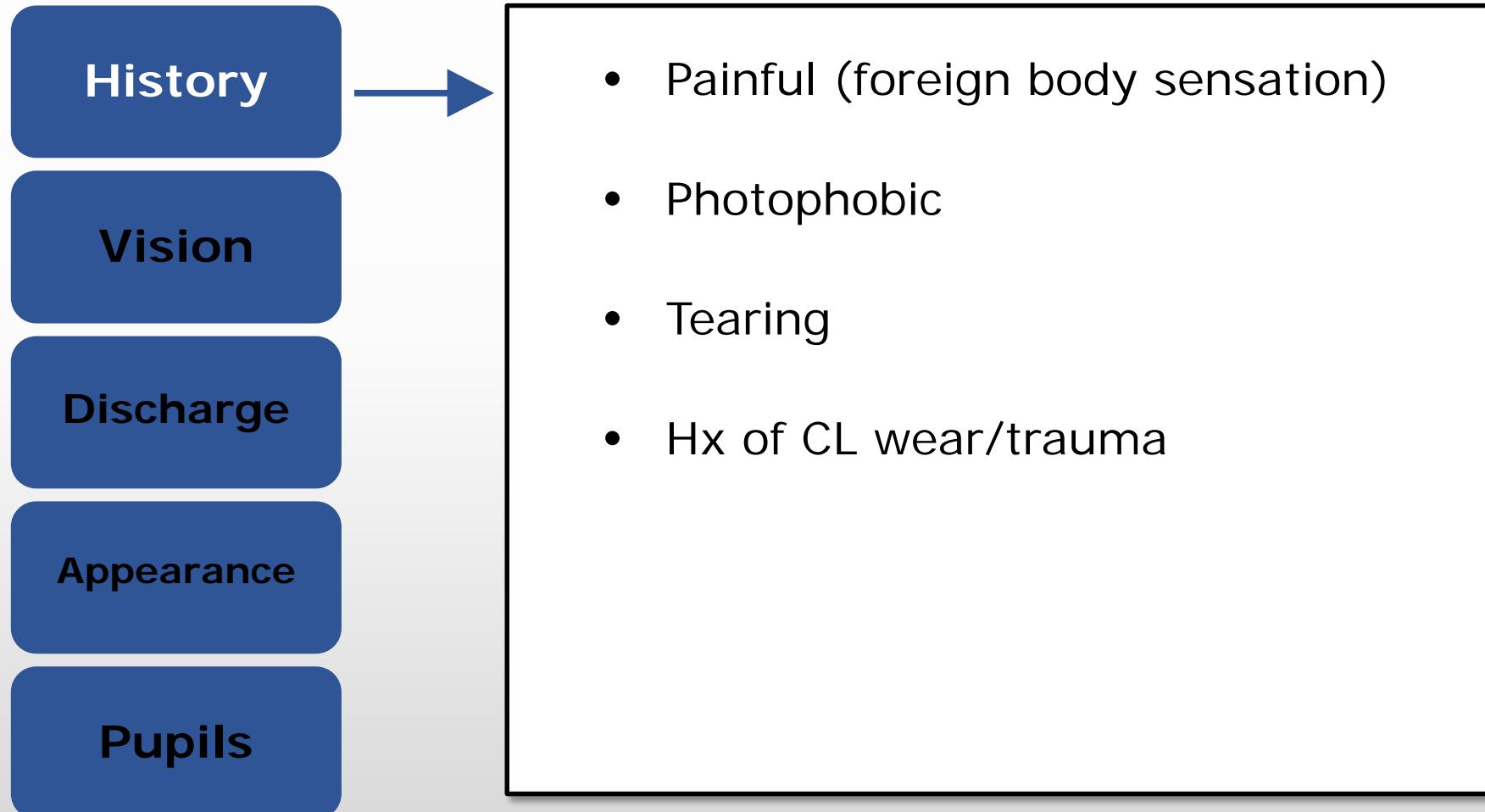
Swab and isolate responsible organism

- Bacterial = Topical Chloramphenicol
- Viral = Supportive Rx (compresses, lubricants)
- Chlamydia = Oral Azithromycin/doxycycline

Keratitis

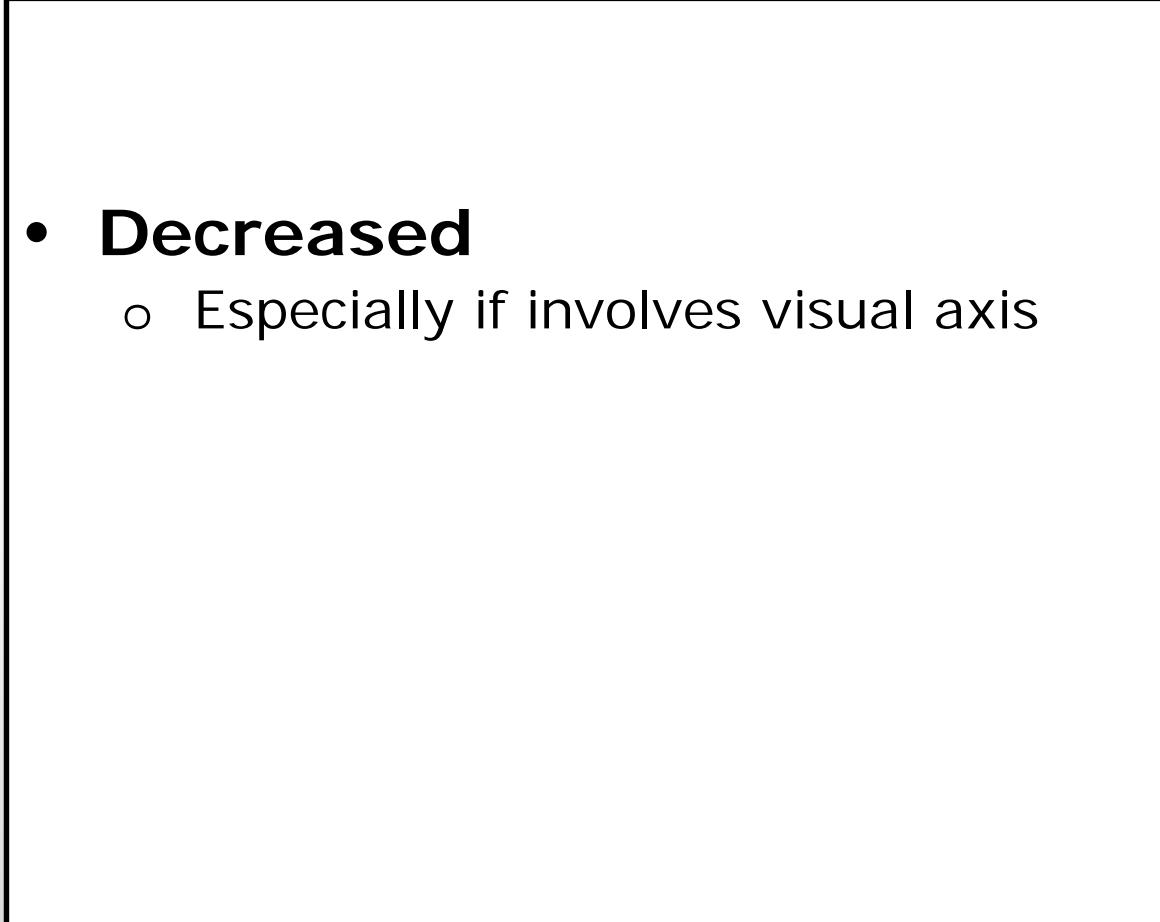


Keratitis



Keratitis



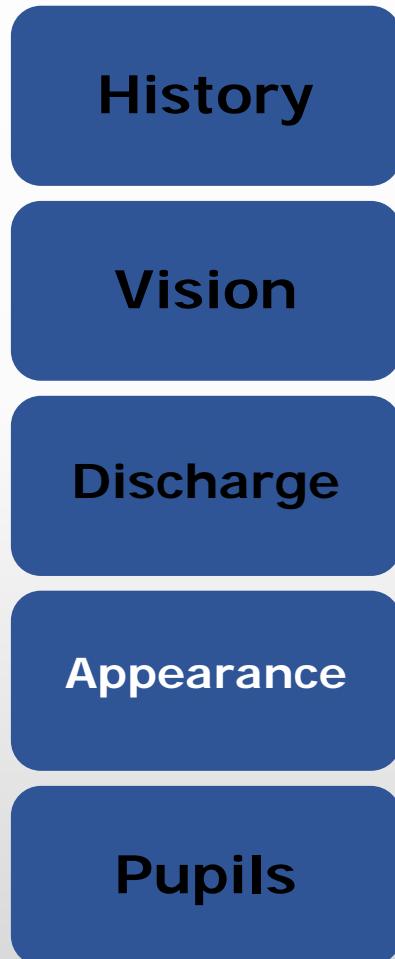
- 
- **Decreased**
 - Especially if involves visual axis

Keratitis



- **Watery, purulent**
 - (depends on cause)

Keratitis



- Circumcorneal injection
- Corneal infiltrate/hazy cornea
- Overlying epithelial defect

Keratitis

History

Vision

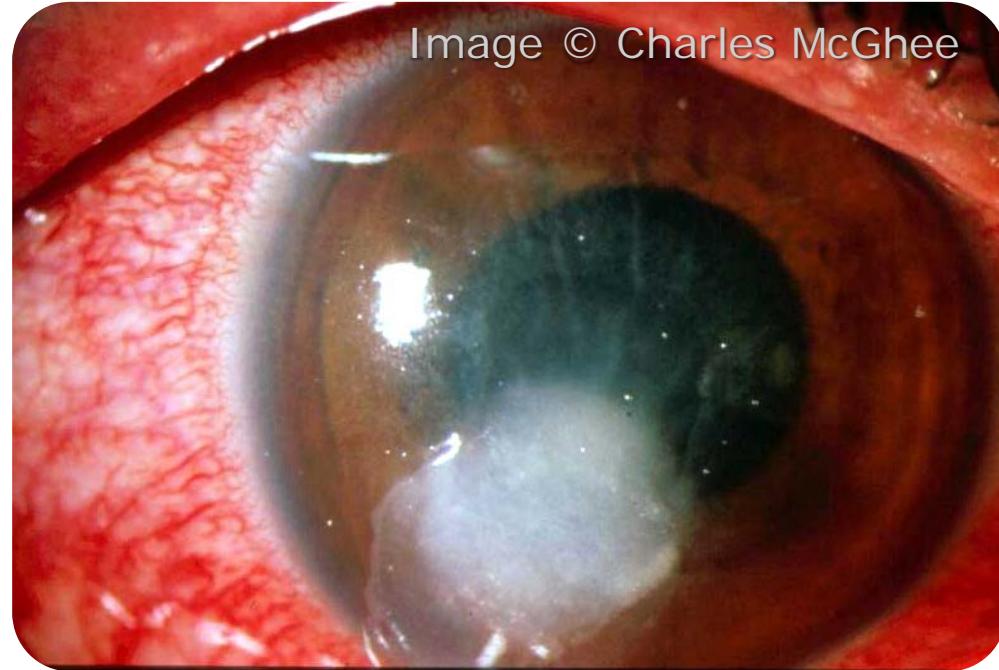
Discharge

Appearance

Pupils

Bacterial

Image © Charles McGhee



Keratitis

History

Vision

Discharge

Appearance

Pupils

Bacterial

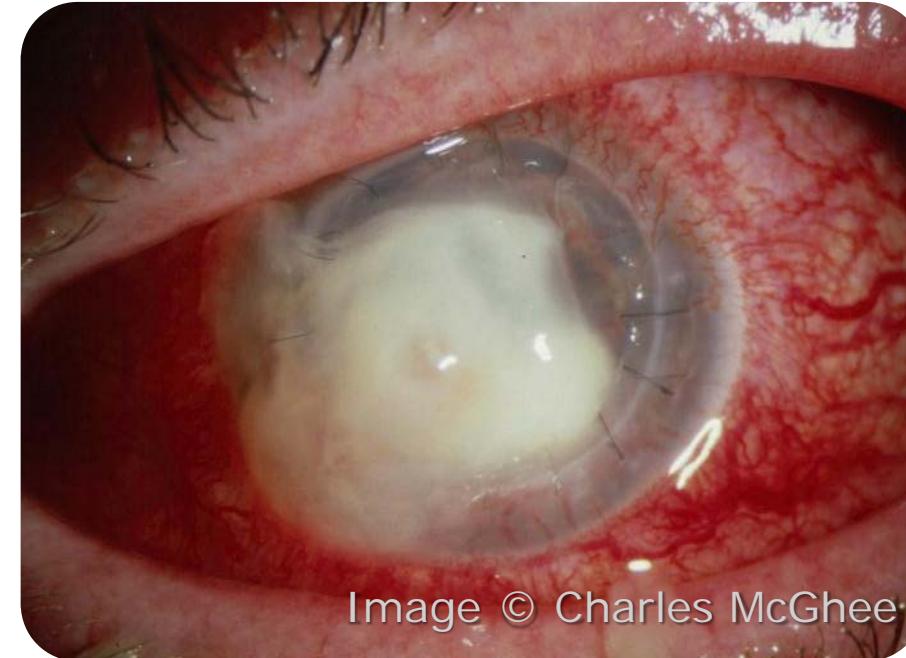


Image © Charles McGhee

Keratitis

History

Vision

Discharge

Appearance

Pupils

Fungal

Image © Charles McGhee



Keratitis

History

Vision

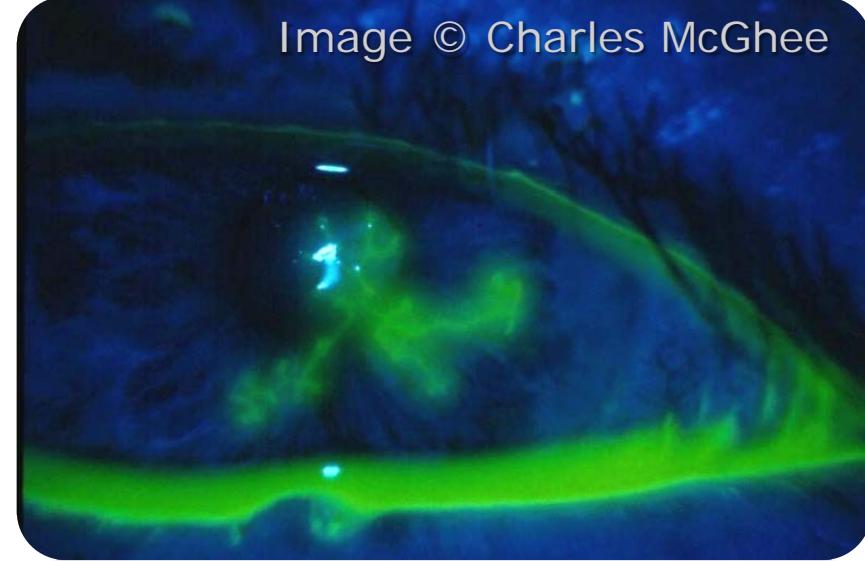
Discharge

Appearance

Pupils

Viral

Image © Charles McGhee



Keratitis

History

Vision

Discharge

Appearance

Pupils

Viral

Image © Charles McGhee



Keratitis



Keratitis- Management

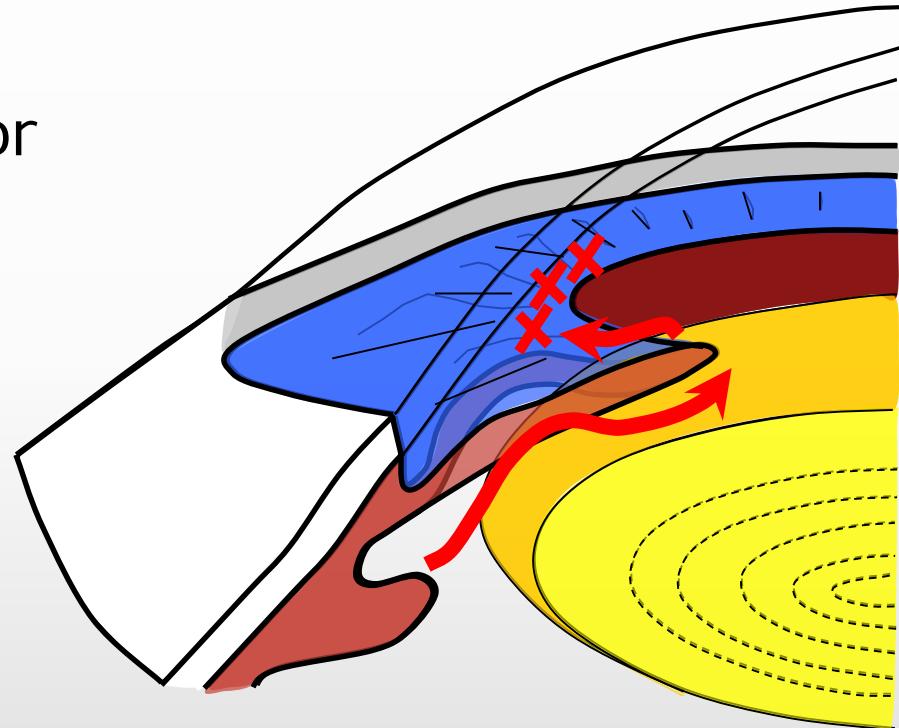
- **Isolate responsible organism**
 - Corneal scrape
 - Gram stain
 - Culture and sensitivity
- **Intensive treatment and close follow-up**

Acute Angle Closure Crisis



Acute angle closure crisis

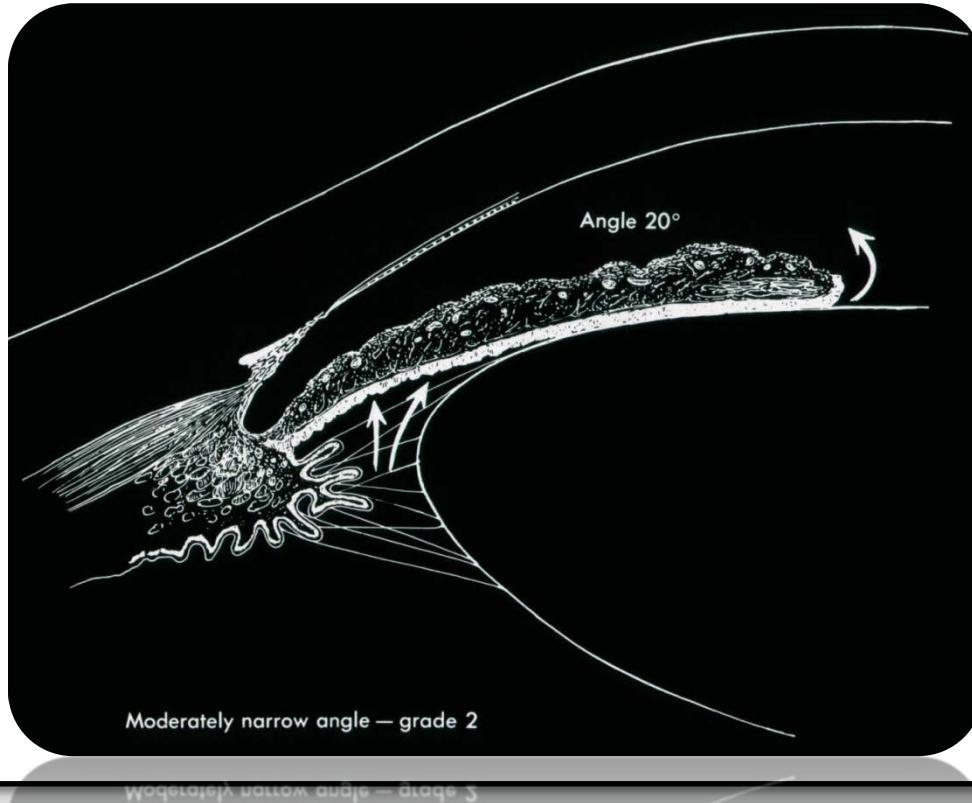
- ↑ in IOP due to obstruction of aqueous outflow by complete or partial closure of the angle by peripheral iris
- Incidence
 - 1/1000 in > 40 y.o.
- Female: Male
 - 4:1



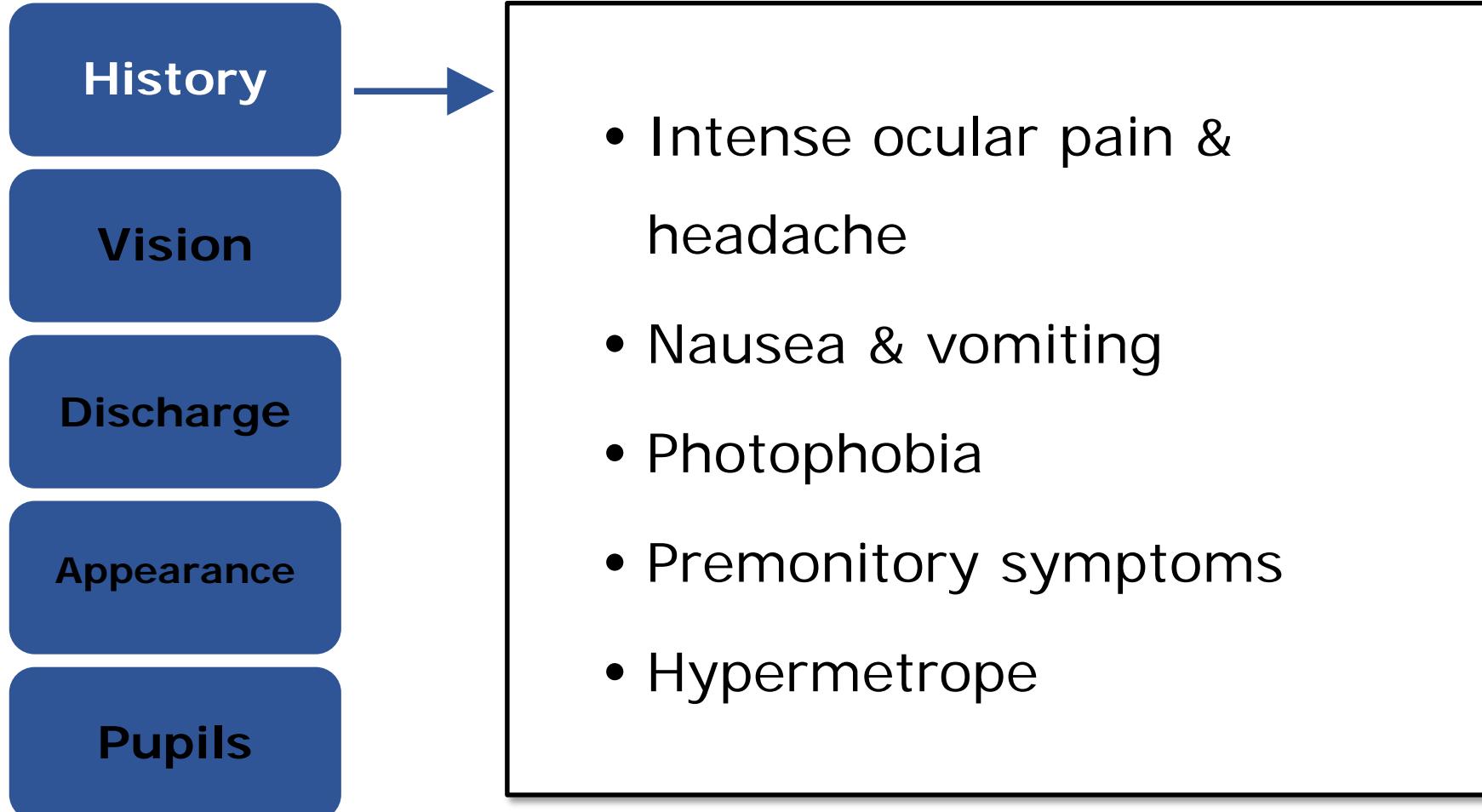
Acute angle closure crisis

Anatomical Predisposition

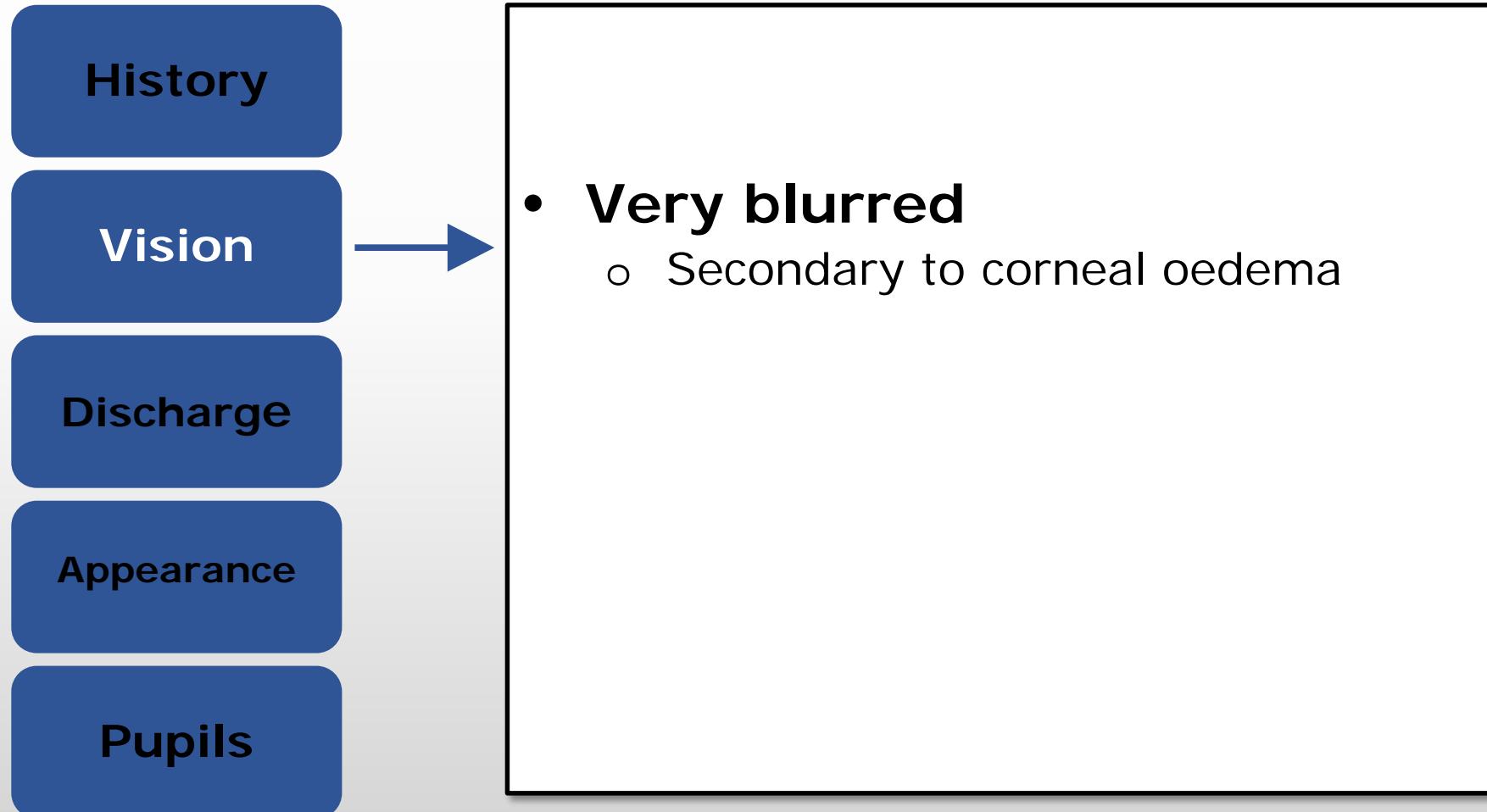
- Short eye
- Narrow angle
- Large lens
- **OLDER HYPERMETROPE**



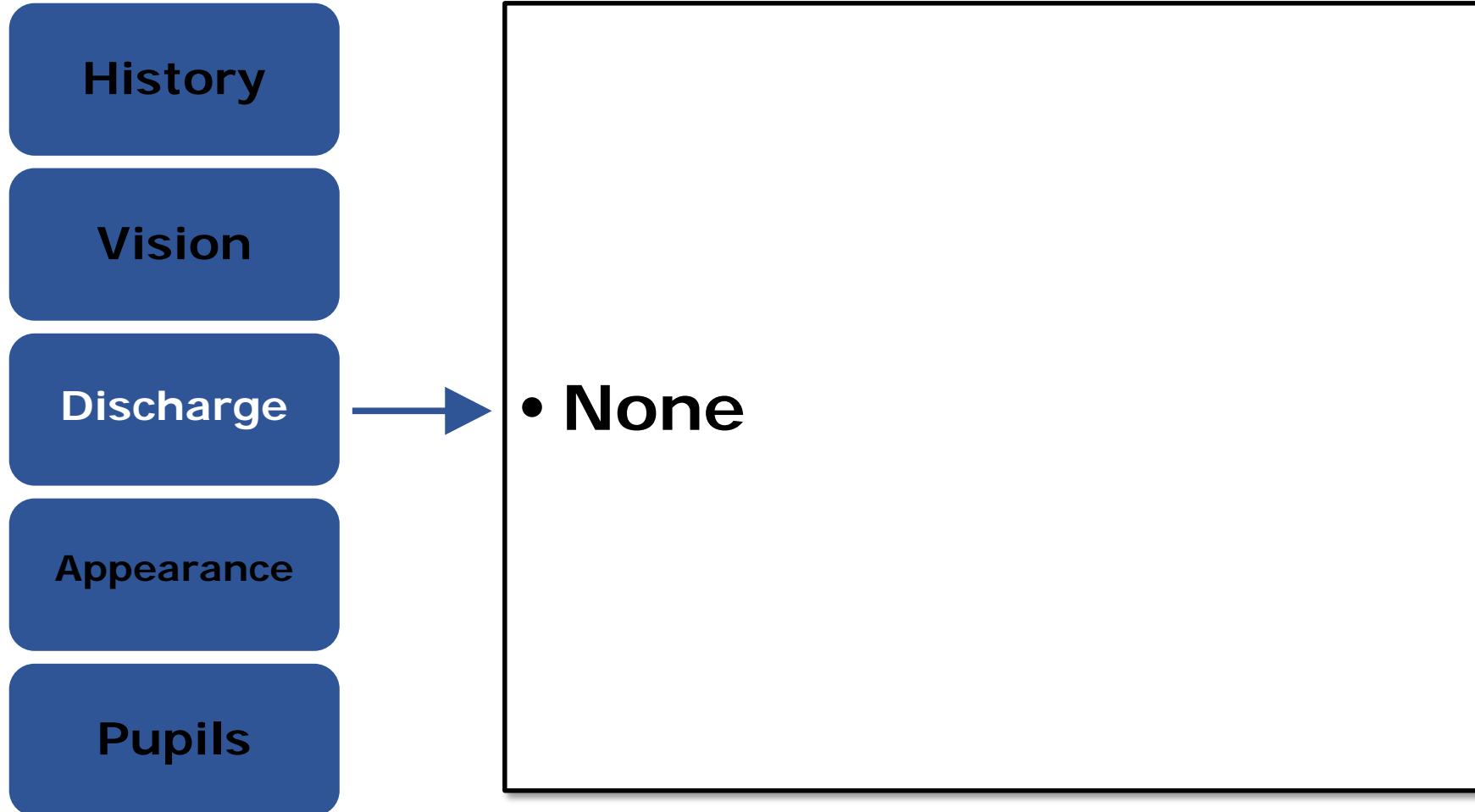
Acute angle closure crisis



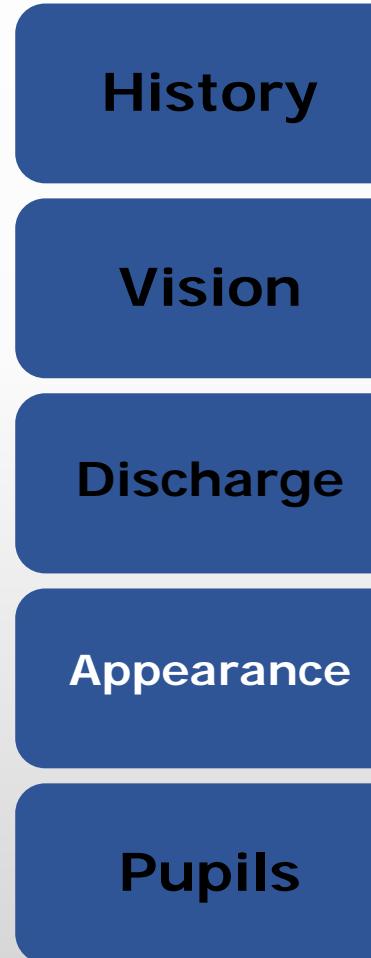
Acute angle closure crisis



Acute angle closure crisis



Acute angle closure crisis



- Circumcorneal injection
- Cloudy cornea
- Optic nerve head swelling
 - If prolonged attack
 - Subsequent ON atrophy

Acute angle closure crisis

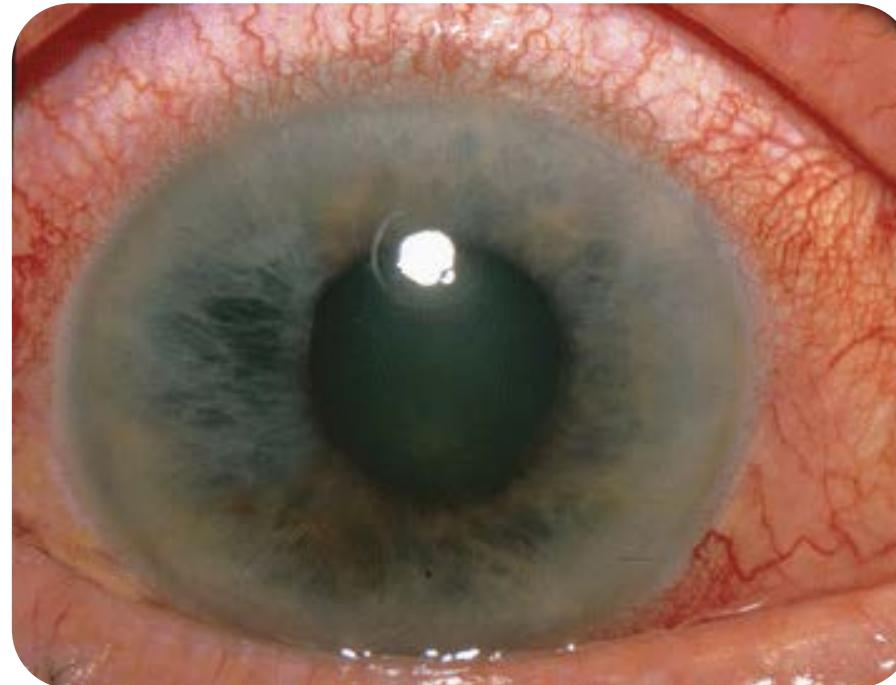
History

Vision

Discharge

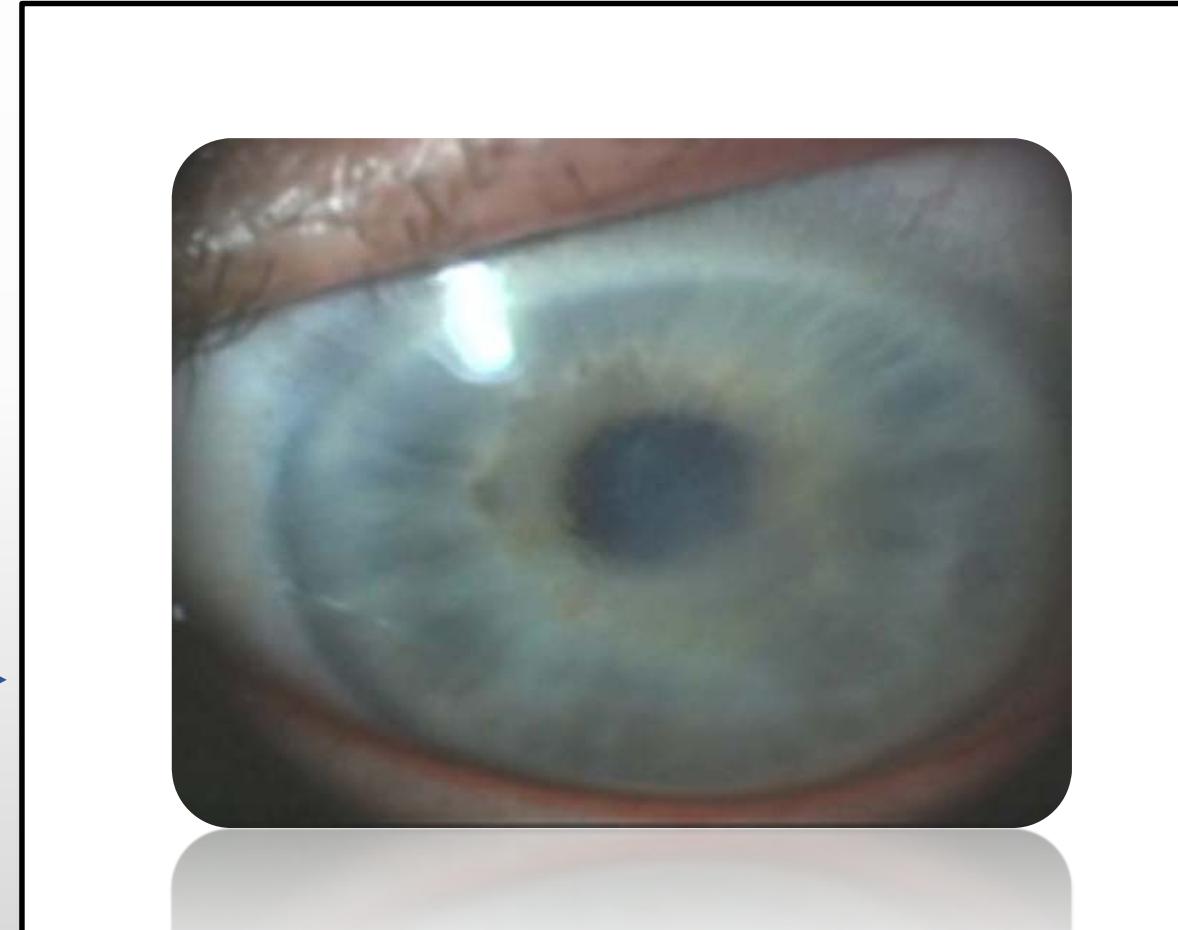
Appearance

Pupils



Acute angle closure crisis

- History
- Vision
- Discharge
- Appearance
- Pupils



Acute angle closure crisis

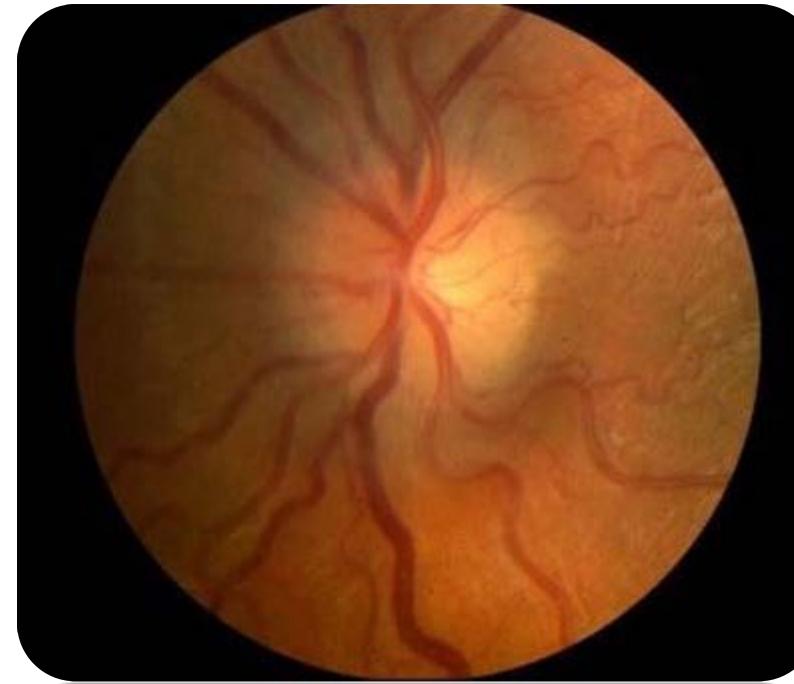
History

Vision

Discharge

Appearance

Pupils



Acute angle closure crisis

History

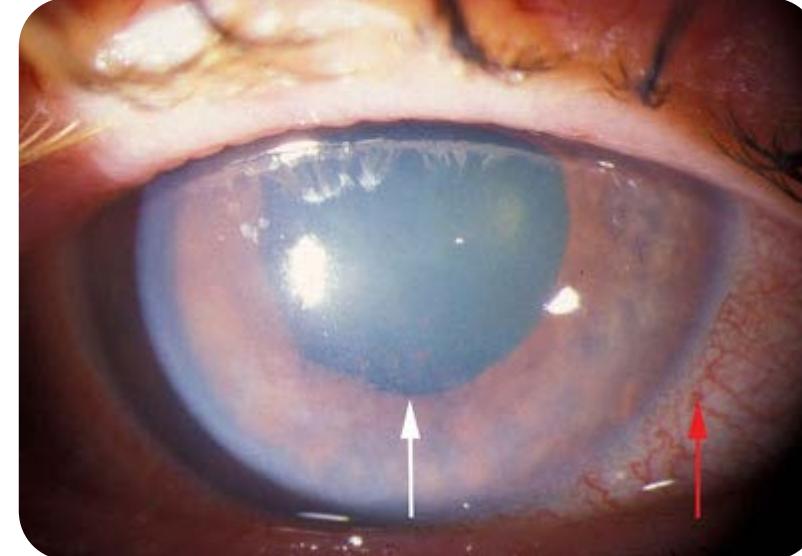
Vision

Discharge

Appearance

Pupils

Mid-fixed, dilated



Acute angle closure crisis

Be on the lookout!
Acute closed angle
glaucoma
masquerading as
systemic illness

Dayan M, Turner B,
McGhee CNJ

Br Med J 1996;
313:413-5



Lesson of the Week

BMJ VOLUME 299 22 JULY 1989

Acute glaucoma presenting with abdominal symptoms

N J Watson, G R Kirkby

The patient with
abdominal pain and a red
eye may have glaucoma

Acute angle closure glaucoma is a rare condition that affects 0·1% of the population aged over 50 years.¹² Patients usually present with sudden onset of severe pain in or over the affected eye and reduced vision. They may have had prodromal attacks of aching, blurred vision, and haloes round lights, particularly at night. The eye is red, with oedema of the cornea and a fixed semidilated pupil, and is hard when palpated.

Rarely patients present not with severe eye pain but with abdominal symptoms predominating that result from effects of an appreciable rise in intraocular pressure. The symptoms are prostration, nausea, vomiting, and pain.¹ Patients and their doctors may therefore ignore serious eye disease.

We describe two patients who illustrate this unusual presentation of the disease.

frequency of micturition. Urinary tract infection was diagnosed at her day hospital and by her general practitioner. Her right eye was uncomfortable and conjunctivitis suspected. She was prescribed systemic antibiotics and chloramphenicol eye drops. Two days later the left eye became red, and it was assumed that the conjunctivitis had spread. Chloramphenicol was then prescribed for both eyes. A midstream urine specimen contained no cells and grew no organisms.

Two days later she fell and broke her arm, and it was established that this was the result of poor eyesight. An opinion was sought from an ophthalmologist. Her visual acuities were hand movements right and count fingers left. She had oedema of the cornea with fixed semidilated pupils in both eyes. The intraocular pressures were 9·6 kPa right and 7·9 kPa left. The fundus was not visible. Bilateral acute angle closure glaucoma was diagnosed.

AACC - Management

Reduce IOP (often starts > 50 mmHg)

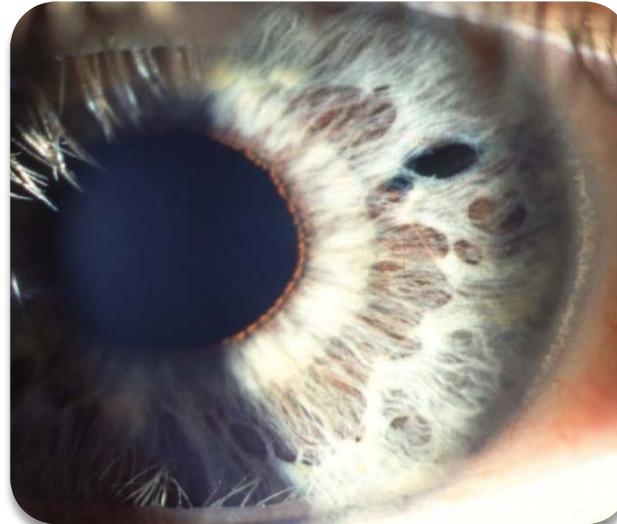
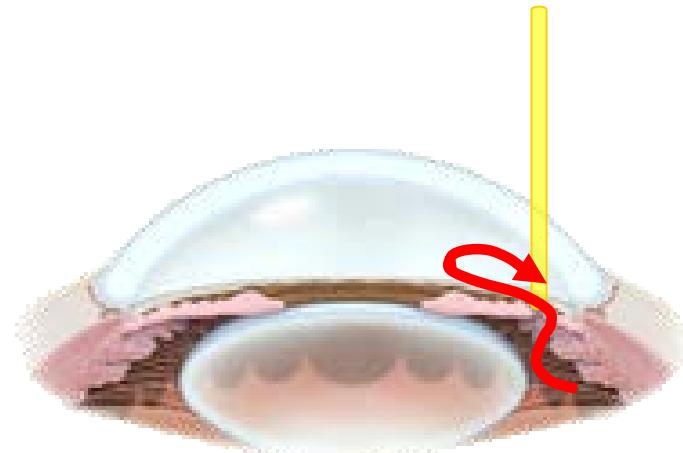
Medical

- o Topical:
 - Alpha-agonist, Beta-blockers, Mitotics (Pilocarpine)
- o Systemic:
 - Carbonic anhydrase inhibitors (Diamox), Osmotics (Mannitol)

Surgical

- o Peripheral iridotomy
- o Clear lens extraction/trabeculectomy

Peripheral Iridotomy



Acute Anterior Uveitis/ Iritis



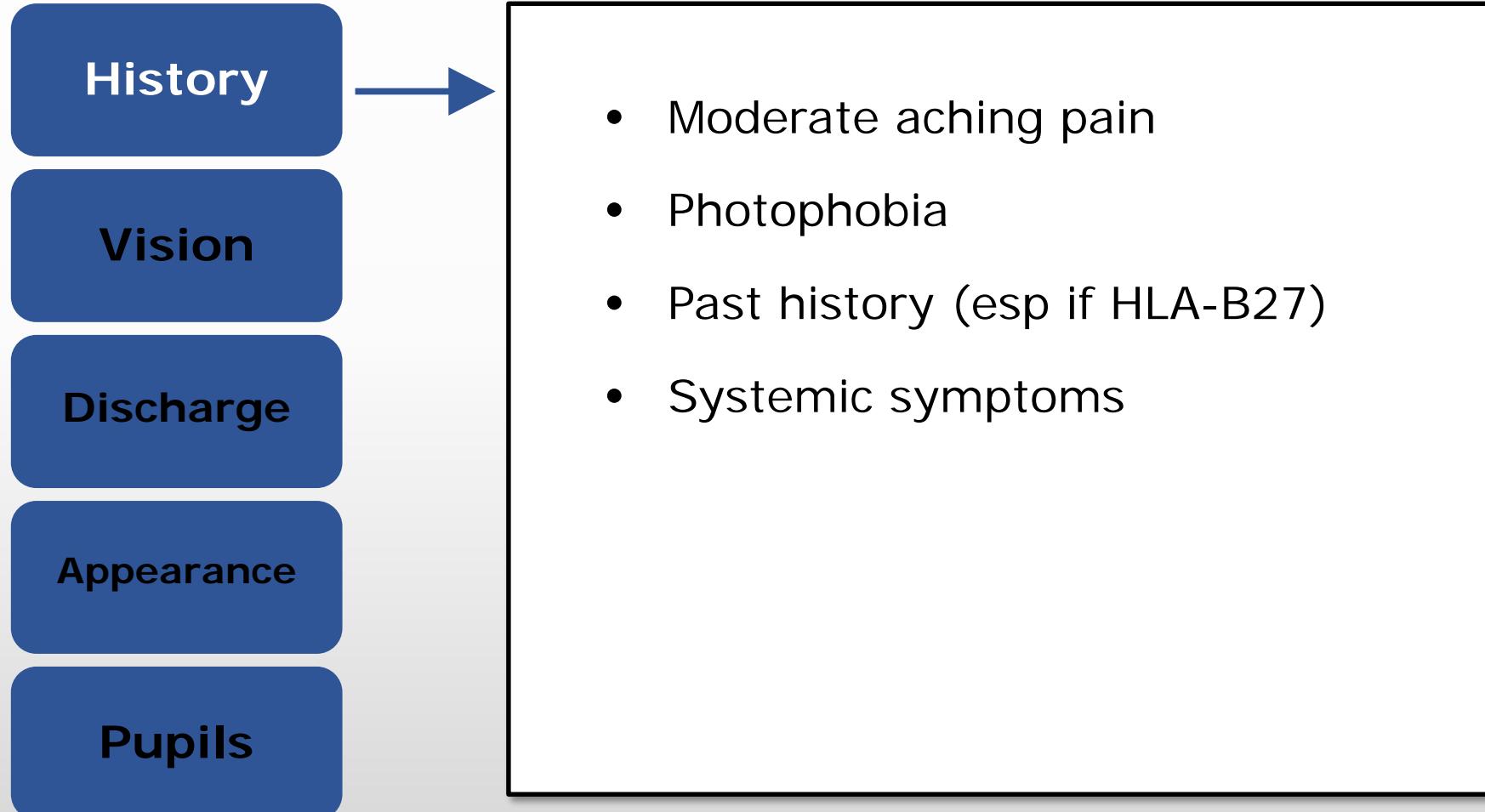
Acute anterior uveitis - aetiology

- Idiopathic
- Ankylosing spondylitis
- Reiter's syndrome
- Juvenile arthritis
- Psoriatic arthropathy
- Sarcoidosis

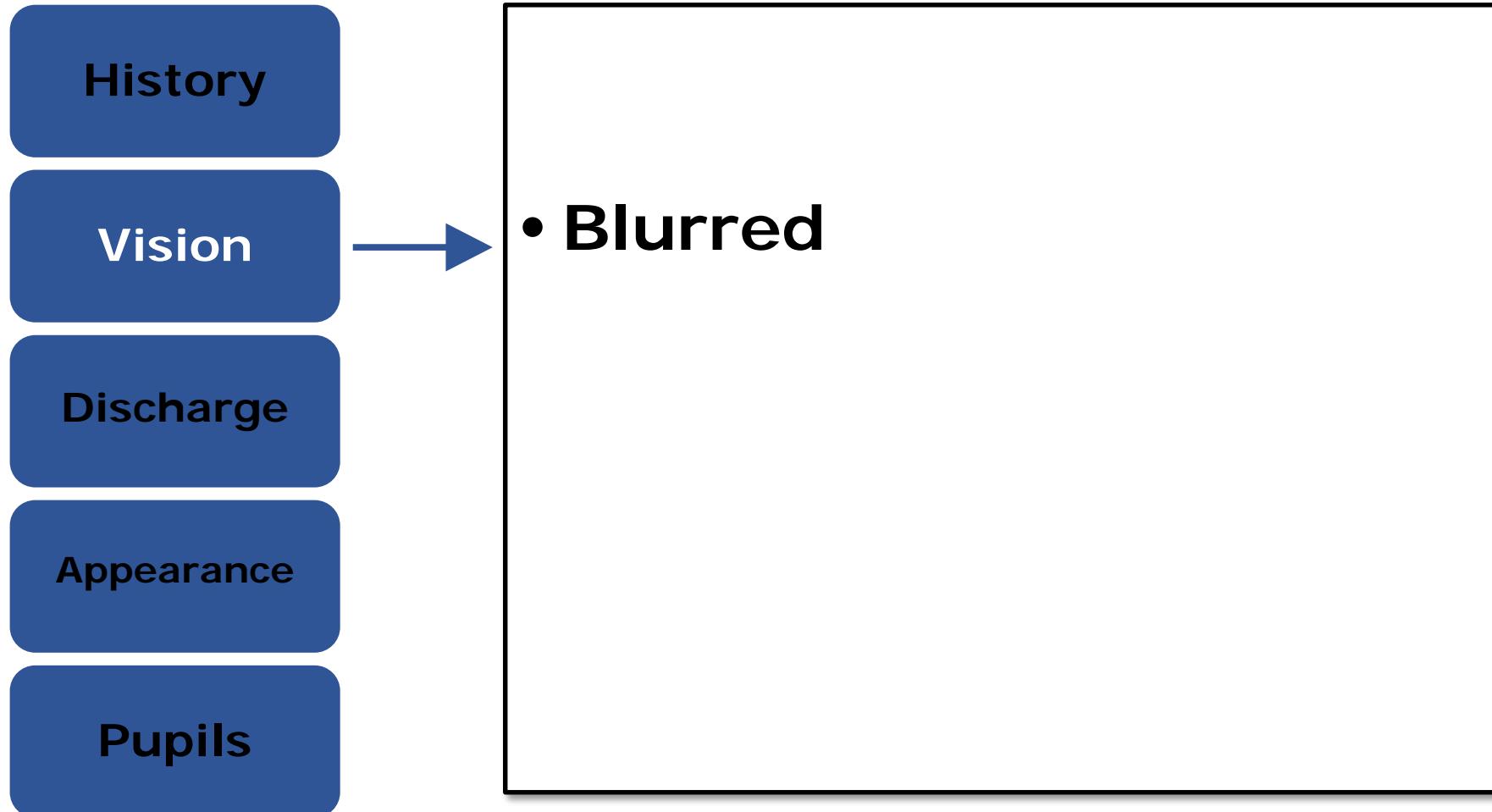


Image © Charles McGhee

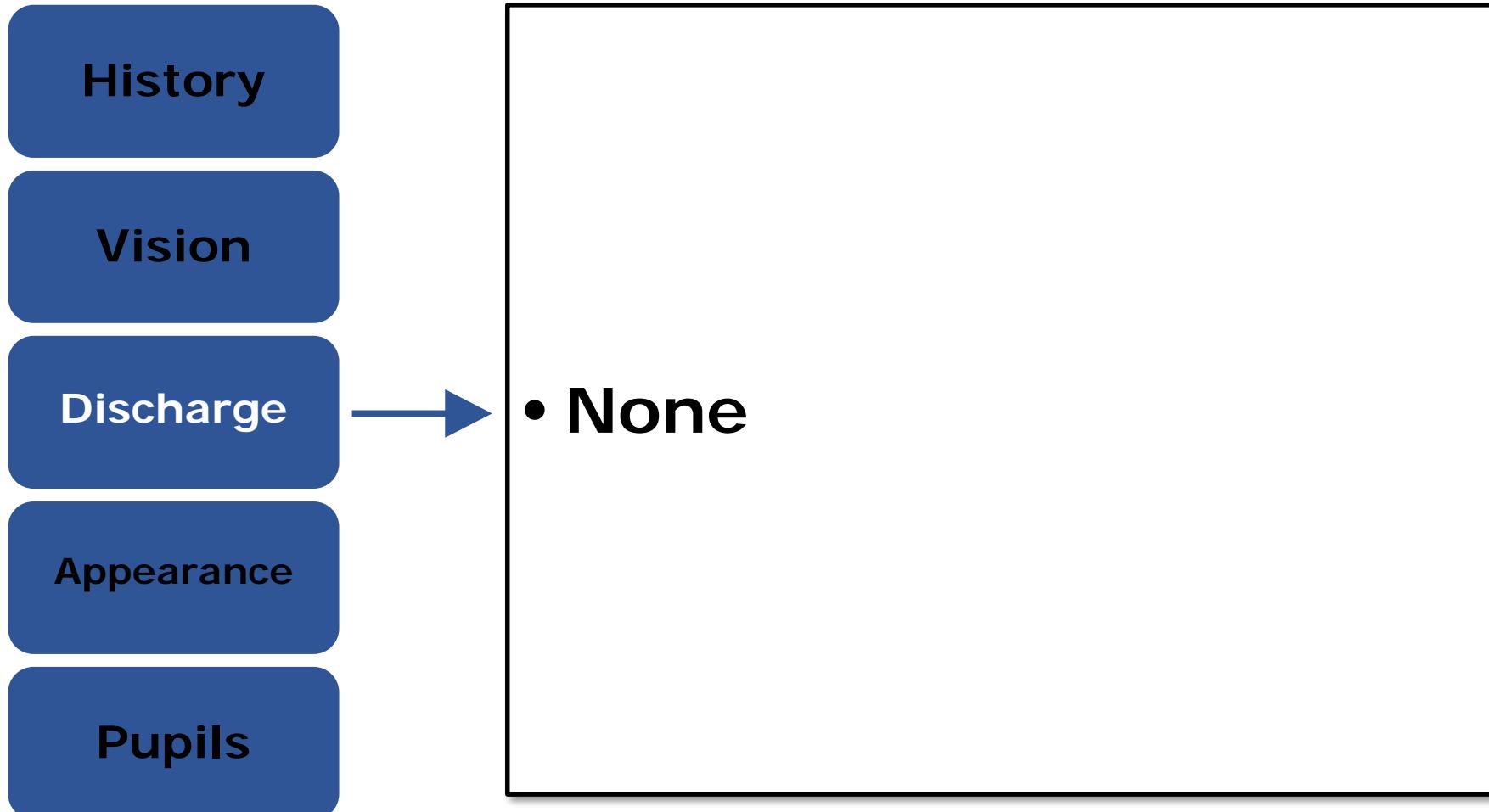
Acute anterior uveitis



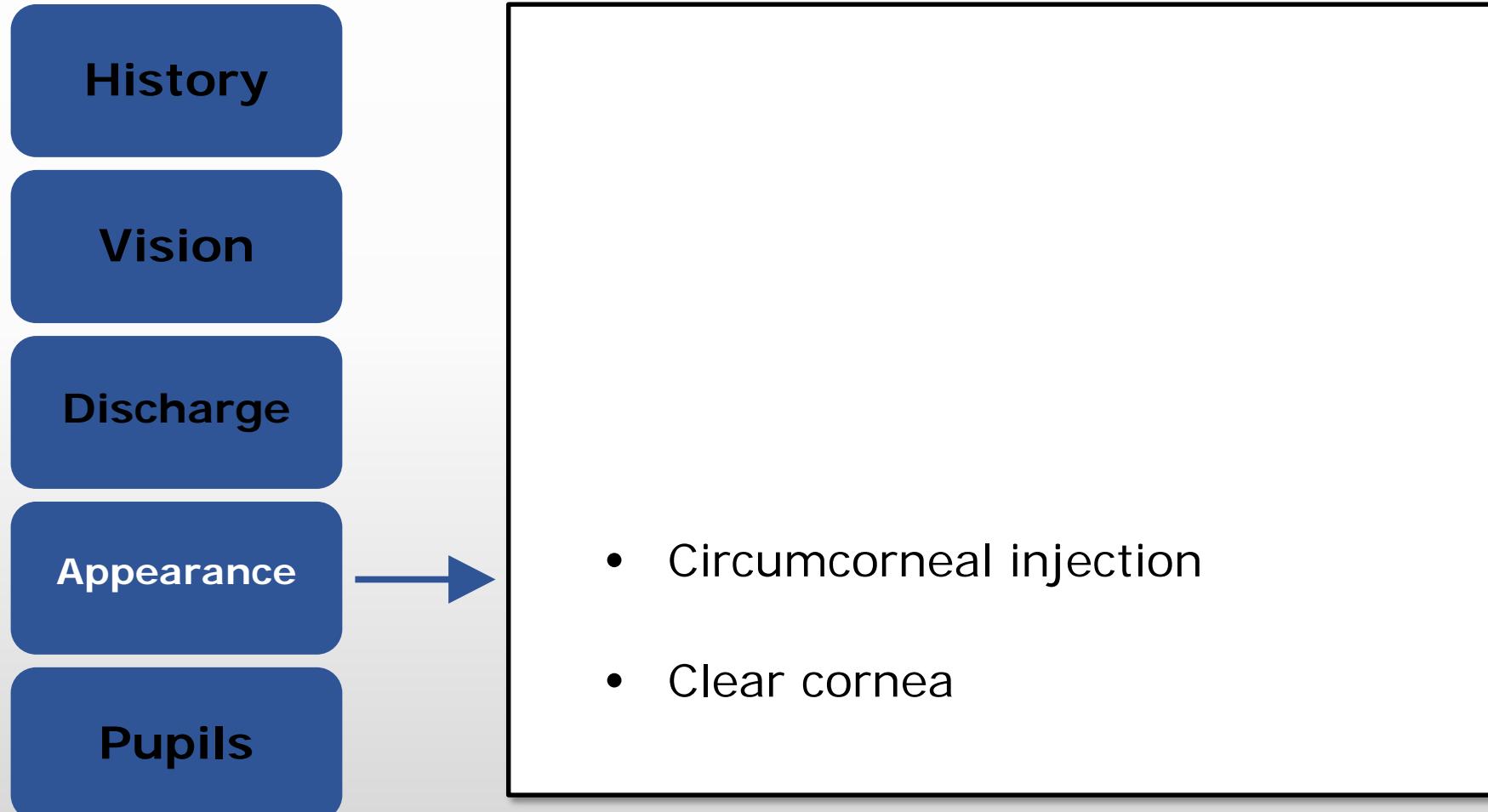
Acute anterior uveitis



Acute anterior uveitis

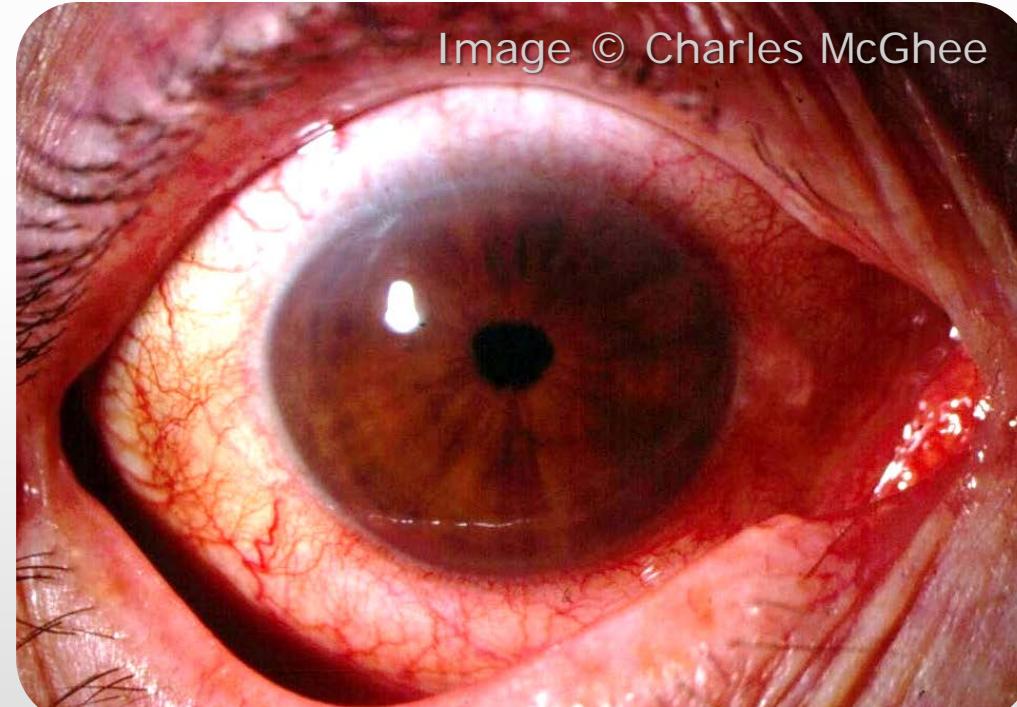


Acute anterior uveitis



Acute anterior uveitis

- History
- Vision
- Discharge
- Appearance
- Pupils



Acute anterior uveitis

History

Vision

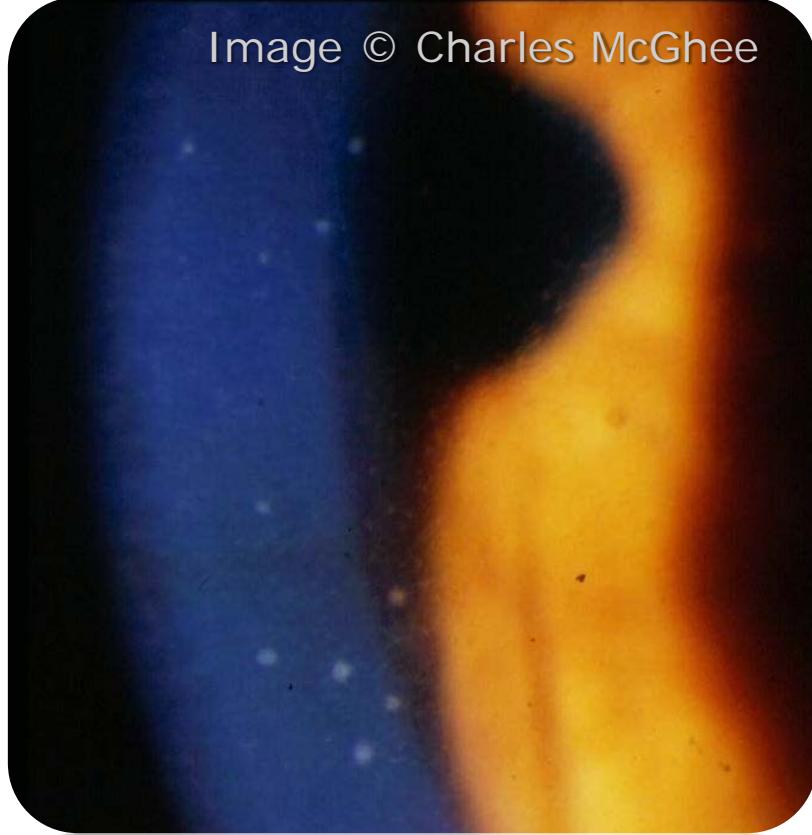
Discharge

Appearance

Pupils



Image © Charles McGhee

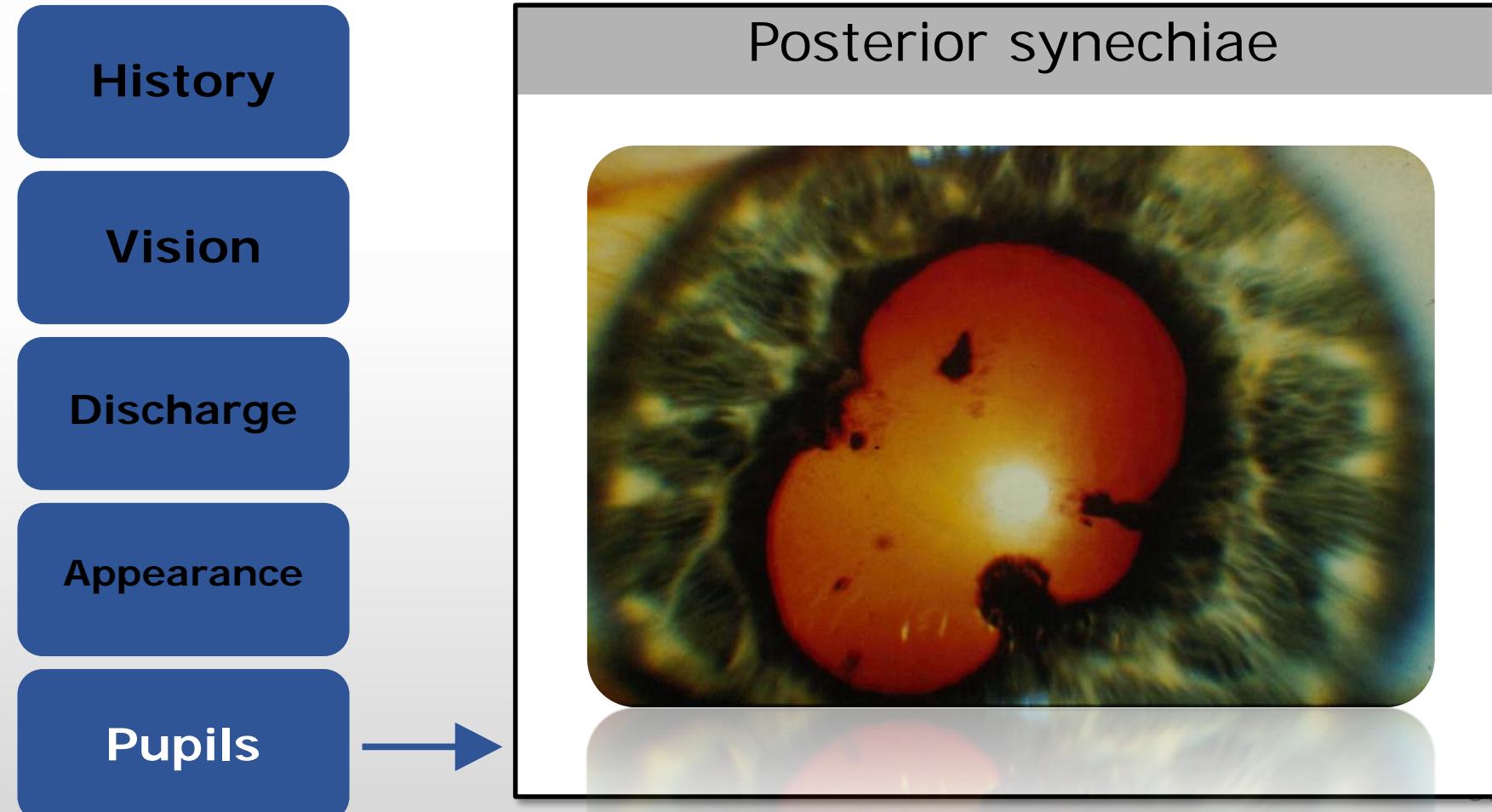


Acute anterior uveitis

- History
- Vision
- Discharge
- Appearance
- Pupils



Acute anterior uveitis



AAU - Management

- **Subdue inflammation**
 - Topical corticosteroids (g. predforte)
- **Prevent posterior synechiae**
 - Mydriatics (g. cyclopentolate)
- **Watch for elevated IOP**
 - Topical ocular hypotensives (g. timolol)

Scleritis / Episcleritis



Scleritis versus episcleritis

Scleritis

- Relatively uncommon
- Severe boring pain
 - “wakes from sleep”

Episcleritis

- Relatively common
- Mild ocular discomfort

Scleritis

- Relatively uncommon
- Severe boring pain
- Focal injection of deep scleral vessels



Episcleritis

- Relatively common
- Mild ocular discomfort
- Focal injection of episcleral vessels



Scleritis

- **Systemic Associations**
 - Herpes Zoster Ophthalmicus
 - Severe Rheumatoid Arthritis
- Can lead to blindness if untreated
 - po. prednisone



Episcleritis

- **Generally no systemic associations**
- Usually requires no treatment other than symptomatic relief
 - g.lubricants/g.voltaren

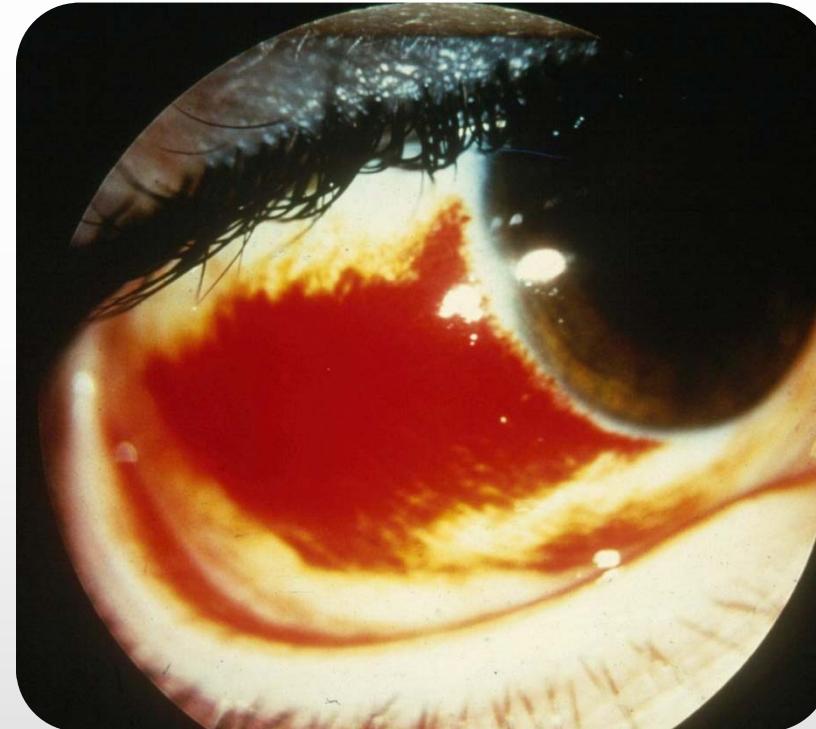


Subconjunctival Haemorrhage



Subconjunctival haemorrhage

- **Unilateral localised sharply extravasated blood**
 - (bleeding under conjunctiva)
- **Associations**
 - Severe coughing
 - Valsalva manoeuvre
 - Anticoagulants
 - Systemic hypertension



Ocular Trauma



Blunt Ocular Trauma

- Orbital fractures



Sharp Ocular Trauma

- Lid laceration



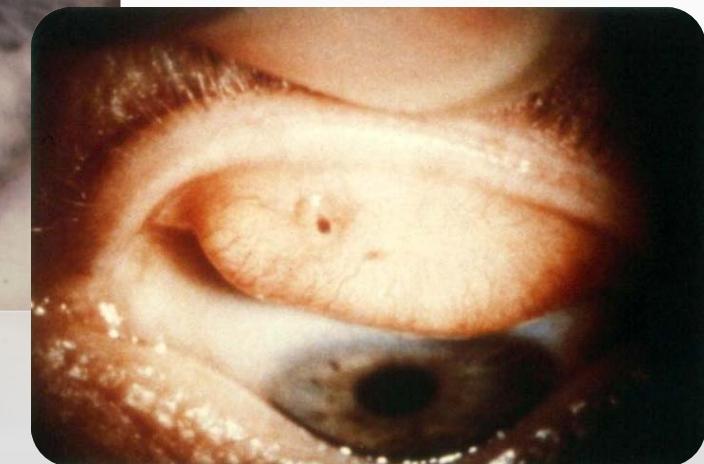
Blunt Ocular Trauma

- Orbital fractures
- Contusion



Sharp Ocular Trauma

- Lid laceration
- Corneal abrasion/FB



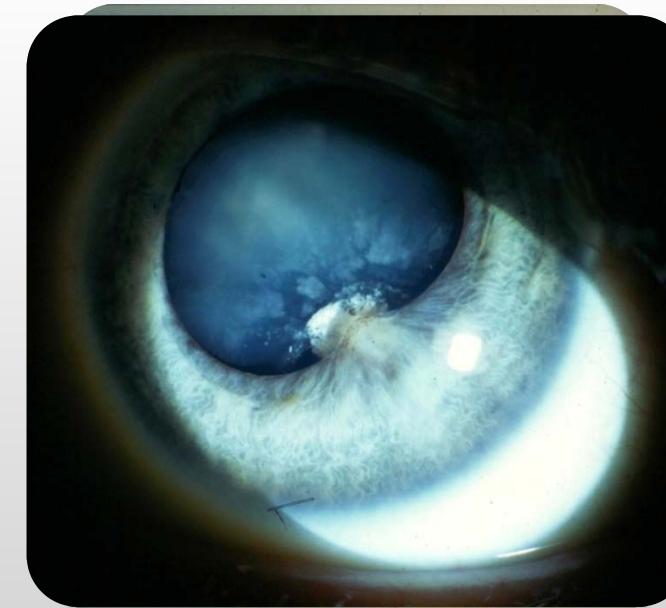
Blunt Ocular Trauma

- Orbital fractures
- Contusion
- Hyphaema
 - Rebleed 20%; Glaucoma 7%



Sharp Ocular Trauma

- Lid laceration
- Corneal abrasion/FB
- Penetrating injury/
intraocular FB



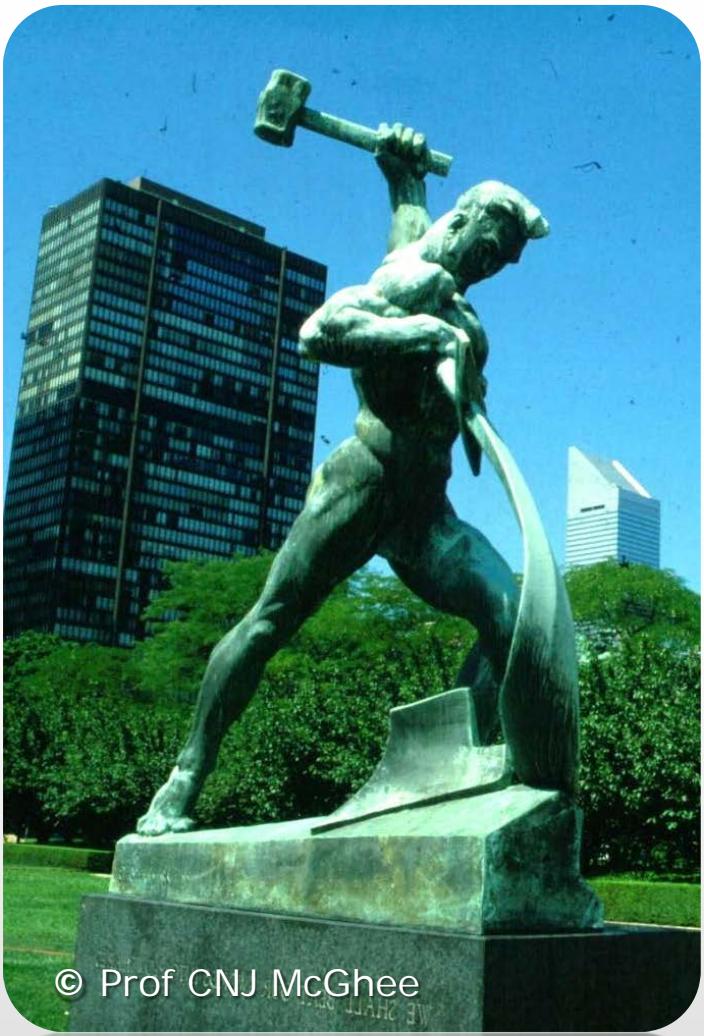


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Sharp Ocular Trauma

- Lid laceration
- Corneal abrasion/FB
- Penetrating injury/
intraocular FB





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Protection is better than cure!



Conclusions

- **Systematic Approach**
 - History
 - Vision
 - Discharge
 - Appearance
 - Pupils
- BE AWARE OF SIGHT THREATENING CONDITIONS!

Translational Vision Research



Department of Ophthalmology

The End

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