

## The Red Eye



Patrick Sibony, MD

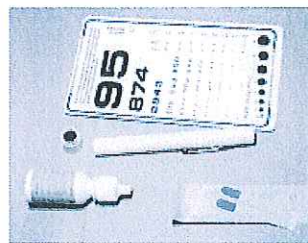
## Goal

- Review the common causes of non traumatic Red Eye (excluding chemical exposure, direct injury to globe)
- Recognize and treat the common form of conjunctivitis.
- Recognize the features of red eye that warrant more caution and referral
- Overview of the some of the more unusual causes of red eye.

## Non Traumatic Red Eye: Etiology

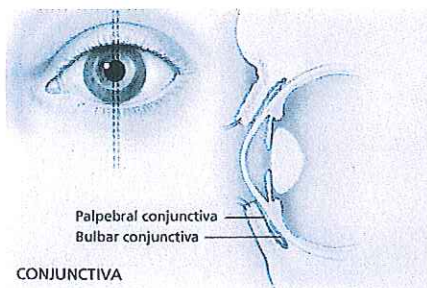
- | Benign (treat)   | Vision Threatening (refer)  |
|--|---|
| <ul style="list-style-type: none"><li>• Conjunctivitis<ul style="list-style-type: none"><li>- Bacterial</li><li>- Allergic</li><li>- Viral</li></ul></li><li>• Minor<ul style="list-style-type: none"><li>- Blepharitis</li><li>- Dry eye</li><li>- Styes</li><li>- Smoke, Irritation,</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Angle closure</li><li>• Keratitis</li><li>• Uveitis</li></ul> |

## Basic Examination

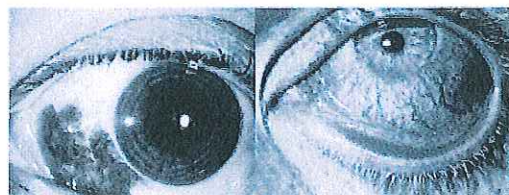


- Vision
- Inspection
  - Conjunctiva
  - Cornea
  - AC
  - Iris
  - Lids
  - Versions
- Pupil

## Conjunctival Anatomy



## Redness



## CONJUNCTIVITIS

- Vision: Normal
- Pupils: Normal
- Cornea: Normal
- Intraocular pressure: Normal.
- NO PAIN ~!!!
- Itchy (allergic); Flu like (viral); discharge (bacterial)

## CONJUNCTIVITIS: DISCHARGE

### Discharge

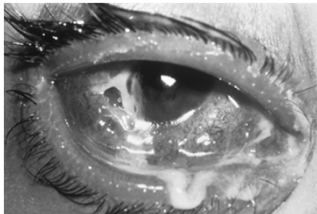
- Purulent
- Clear
- Stringy, white mucus

### Cause

- Bacterial
- Viruses (Preauricular lymphadenopathy signals viral infection)
- Allergies

## BACTERIAL CONJUNCTIVITIS: COMMON CAUSES

- *Staphylococcus*
- *Streptococcus*
- *Haemophilus*



## BACTERIAL CONJUNCTIVITIS: TREATMENT

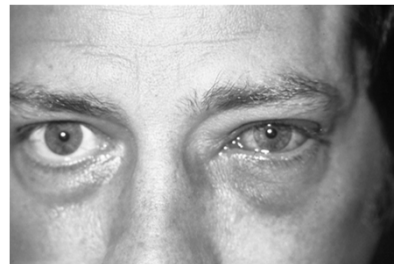
- Topical antibiotic qid x 4 days
- Warm compresses
- Refer if not markedly improved in 4 days

## VIRAL CONJUNCTIVITIS

- Watery discharge
- Highly contagious
- Palpable preauricular lymph node
- URI, sore throat, fever common

If pain, photophobia or decreased vision, refer.

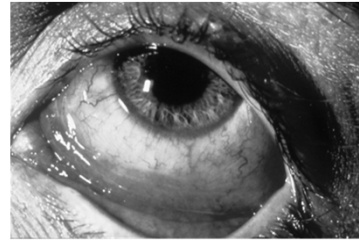
## Viral conjunctivitis



## ALLERGIC CONJUNCTIVITIS

- Associated conditions may have fever, asthma, eczema
- Contact allergy: chemicals, cosmetics
- Treatment: topical antihistamines, tears to relieve itching

Refer refractory cases.



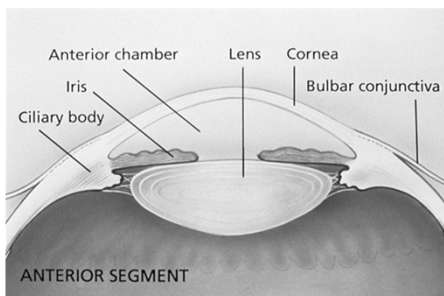
## Non Traumatic Red Eye: Etiology

- | Benign (treat)   | Vision Threatening (refer)  |
|--|---|
| <ul style="list-style-type: none"><li>• Conjunctivitis<ul style="list-style-type: none"><li>– Bacterial</li><li>– Allergic</li><li>– Viral</li></ul></li><li>• Minor<ul style="list-style-type: none"><li>– Blepharitis</li><li>– Dry eye</li><li>– Styes</li><li>– Smoke, Irritation,</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Angle closure</li><li>• Keratitis</li><li>• Uveitis</li></ul> |

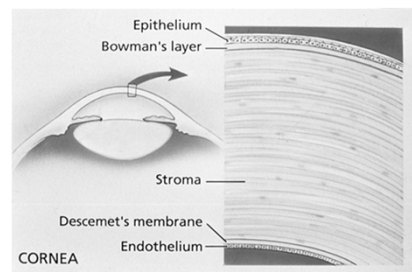
## Warning Signs and Symptoms

- Pain ! Tenderness
- Photophobia
- Decreased vision, loss of vision
- Corneal involvement
- Pupillary involvement
- Elevated Intraocular pressure
- The presence of any of these warrants referral.

## Anterior Segment

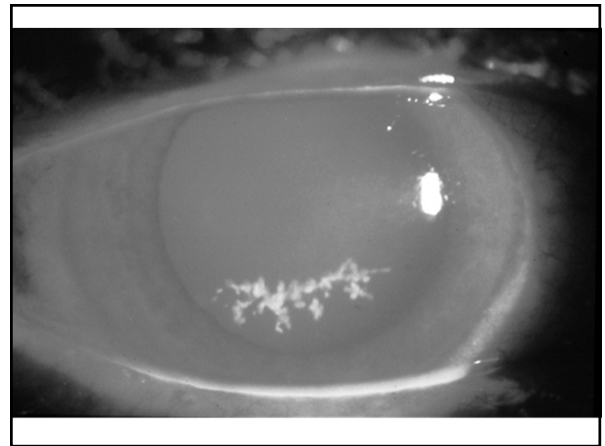
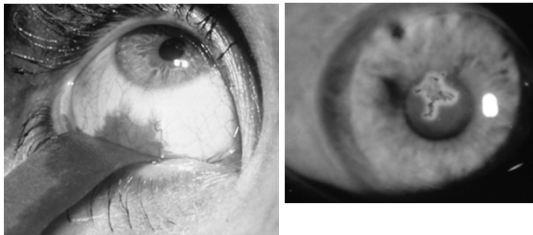
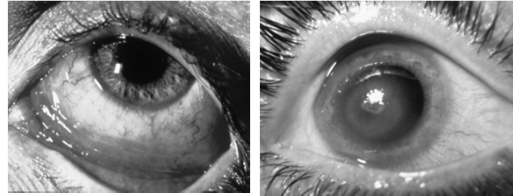


## Corneal Layers

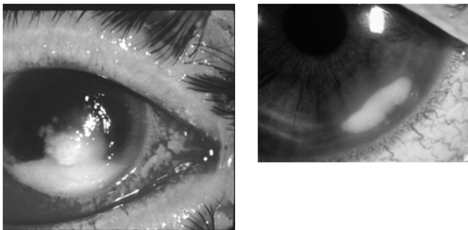


## Keratitis: Symptoms and Signs

- Pain
- Photophobia
- Blurred vision
- Hazy or opacified cornea
- Epithelial defects (Fluorescein positive)



## Corneal Ulcer



**TOPICAL  
STERIODS**

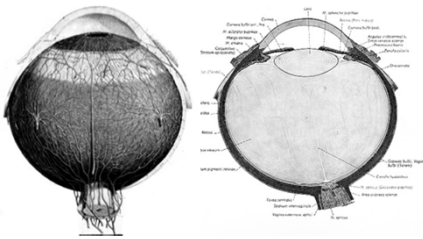
## TOPICAL STEROIDS: SIDE EFFECTS

1. Facilitate corneal penetration of herpesvirus.
2. Elevate IOP (steroid-induced glaucoma).
3. Potentiate fungal corneal ulcers

## IRITIS: Symptoms and Signs

- Circumcorneal redness
- Pain
- Photophobia
- Floaters
- Decreased vision
- Miotic pupil; irregular or misshapen pupil
- Associated systemic disease

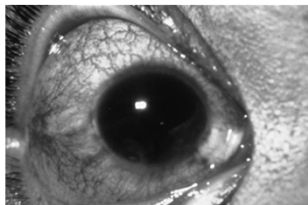
## Uvea: iris, ciliary body, choroid



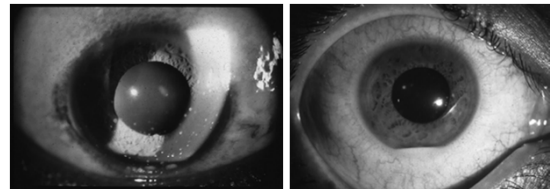
## Cells and flare



## Iritis



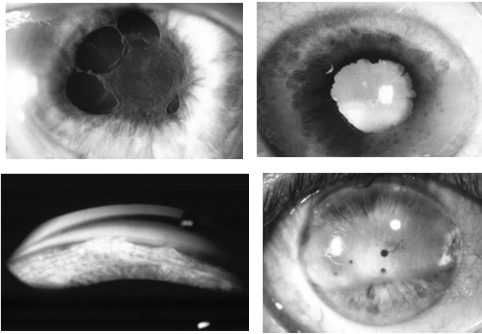
## Iritis



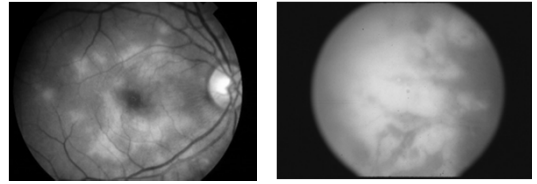
Keratic precipitates

Hypopyon

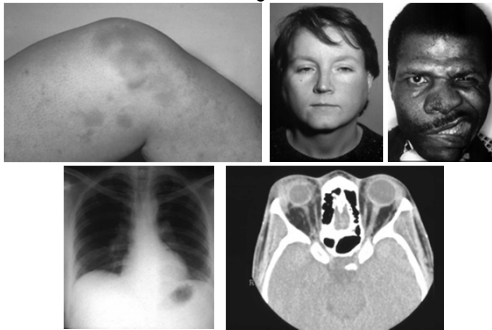
## Complications of Uveitis



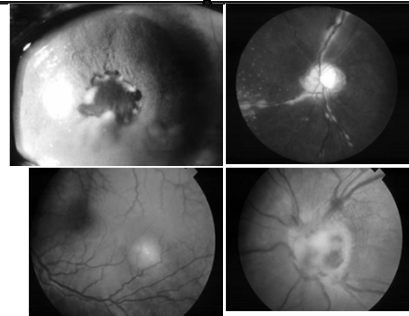
## Posterior Uveitis



## Sarcoidosis



## Sarcoidosis

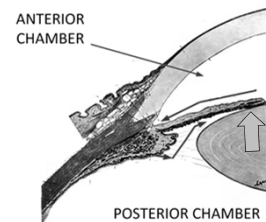


## Uveitis

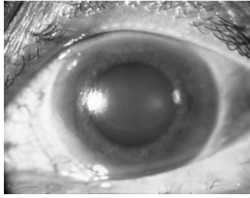
- Infectious
  - Toxoplasmosis
  - Syphilis
  - Lyme
  - Viral
  - TB
  - Herpes zoster
  - Nematodes
  - CMV
  - Toxocara canis (dog roundworm)
- Autoimmune
  - Ankylosing spondylitis
  - Reiters syndrome
  - MS
  - Inflammatory bowel disease
  - Sarcoidosis
  - Vogt Koyanagi Harada
  - Vasculitis
  - Behcets
- Idiopathic
- Masquerade syndrome
  - Lymphoma
  - Ocular ischemia
  - Retinoblastoma

## Angle Closure Glaucoma

- Pupillary block
- Angle obstruction
- Increased pressure
- Pain, headache
- Nausea vomiting
- Corneal edema
- Fixed pupil
- Shallow chamber



## Angle Closure is an Emergency!



Recognize acute glaucoma, "the great masquerader,"

**EMERGENCY !**

## ACUTE GLAUCOMA: INITIAL TREATMENT

- Pilocarpine 2% gtt q 15 min x 2
- Acetazolamide 500 mg po or IV
- Oral glycerine or isosorbide, 1 cc/kg body weight
- IV mannitol 20% 300-500 cc

## RED EYE OVERVIEW

	Conjunctivitis <small>Allergic, bacterial, viral</small>	Keratitis	Angle Closure Glaucoma	Uveitis
Redness	+	+	+	+
Pain <small>(slight irritation if any)</small>	-	++	+++	+
Photophobia	-	+	-	++
Discharge	Purulent = bacterial Serous = viral, allergic	±	-	-
Itchy <small>(only Allergic Conjunctivitis)</small>	Yes	-	-	-
Visual Acuity	Normal	Decreased	Decreased	Normal/Decreased
Pupils	Normal	Normal	Fixed, mid dilated	Irregular, small
Cornea	Clear, no stain	Abnormal	Hazy	Keratic precipitates Severe, late = hazy
Anterior Chamber	Normal	Normal	Shallow	Normal
Iris	Normal	Normal	Normal	Synechiae
Tonometry	Normal	Normal	High	High, normal or low

Other Minor causes of Red Eye

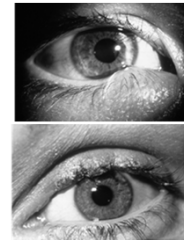
Anne rosacea, Alcohol, Dry eye, Blepharitis, Subconjunctival hemorrhage, Epithelitis, Chemical

Red Eye Gravis.

Dysthyroid orbitopathy, Orbital pseudotumor, Carotid cavernous fistula, scleritis

## RED EYE DISORDERS: NON-VISION-THREATENING

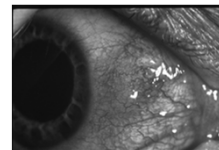
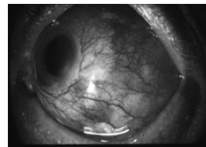
- Subconjunctival hemorrhage
- Hordeolum
- Chalazion
- Blepharitis
- Dry eyes
- Corneal abrasions (most)



## Red Eye Gravis

- Scleritis, Orbital pseudotumor
- Dysthyroid orbitopathy
- Carotid cavernous fistula
- Orbital cellulitis
- Orbital tumors

## Scleritis

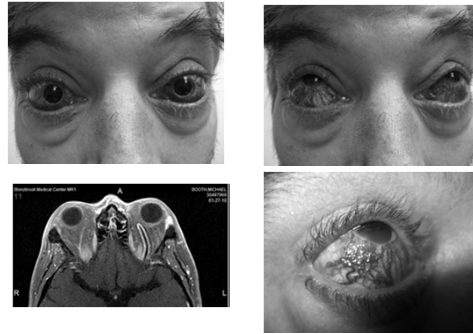


- 50% with systemic disease
- Rheumatoid arthritis
- Wegeners
- Polyarteritis
- Lupus
- Relapsing polychondritis.

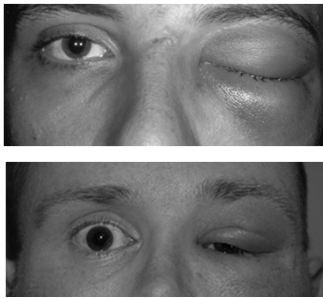
## Thyroid Orbitopathy



## Carotid Cavernous Fistula



## Orbital Cellulitis



## Not Conjunctivitis!

- Pain ! Tenderness
- Photophobia
- Decreased vision, loss of vision
- Corneal involvement (edema, infiltrate)
- Pupillary involvement (fixed, irreg, small)
- Lid swelling, proptosis, fever
- Elevated Intraocular pressure
- The presence of any of these warrants referral.

## Emergent Referrals

- **NO DELAYS**
  - Orbital cellulitis
  - Angle closure glaucoma
  - Corneal ulcers
- **WITHIN 24 HOURS**
  - Iritis
  - Scleritis, Orbital pseudotumor
- Treat, refer if it fails to clear
  - Conjunctivitis, Stye, Blepharitis, Dry Eye