

Common Eye Problems for the Subspecialist 2020

Claudia U. Richter, M.D.

Ophthalmic Consultants of Boston, Inc.

No financial disclosures

Objectives

- Red Flag Signs and Symptoms
- Red eye
 - Nonvision threatening
 - Vision threatening
- Cataracts
- Glaucoma-What is new
- ARMD

Red Flag Signs and Symptoms

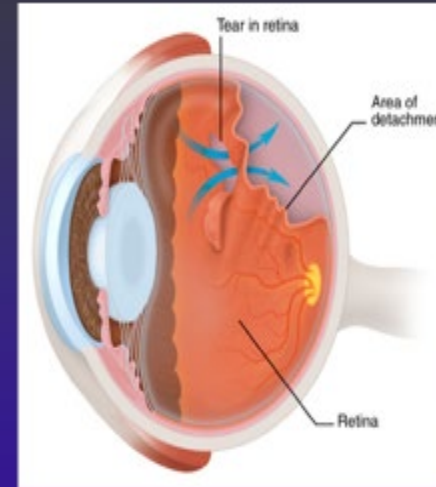
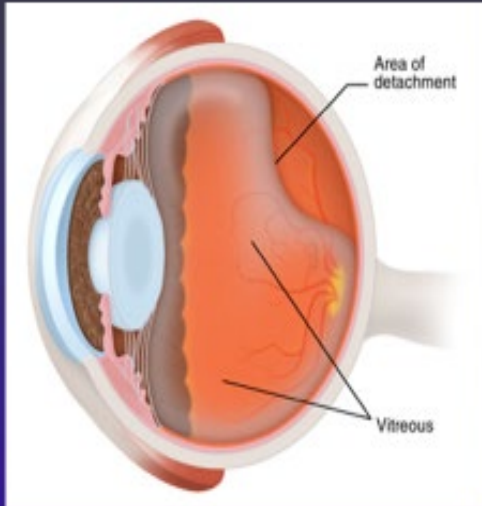
- Require urgent referral
 - Decreased vision
 - Metamorphopsia (distorted vision)
 - Severe eye pain
 - Red eye with light sensitivity
 - Corneal opacity
 - Flashes and floaters
 - Binocular double vision

Flashes and Floaters

- Patients need to be examined to detect and treat retinal holes and detachments.
- Differential diagnosis:
 - Posterior vitreous detachment
 - Retinal hole/detachment
 - Vitreous hemorrhage
 - Posterior segment inflammation
 - Trauma
 - Migraine

Posterior vitreous Detachment

Retinal Detachment



New Onset Diplopia

- Is this a neurologic emergency?
- Diplopia that is not improved by covering one eye requires a neuro-ophthalmic or neurologic evaluation

Diplopia

- Monocular: abnormalities in the refractive media
 - Corneal (high astigmatism)
 - Lenticular—cataract or dislocated lens
 - Retinal (rarely)
- Binocular: misalignment of the visual axis
 - Cranial nerve palsy
 - Giant cell arteritis
 - Demyelinating disease
 - Myasthenia gravis
 - Thyroid orbitopathy
 - Orbital myositis
 - Other causes

Nonvision Threatening Red Eye

- Subconjunctival hemorrhage
- Styel/chalazion
- Blepharitis
- Conjunctivitis
- Dry eye

Vision Threatening Red Eye

- Corneal infections
- Iritis
- Angle-closure glaucoma

Subconjunctival Hemorrhage

- Bright red eye
- Normal vision
- No pain
- Usually no obvious cause
- No treatment



Stye/Chalazion

- Stye (hordeolum): obstruction of the perifollicular glands
- Chalazion: obstruction of the Meibomian glands



Stye/Chalazion

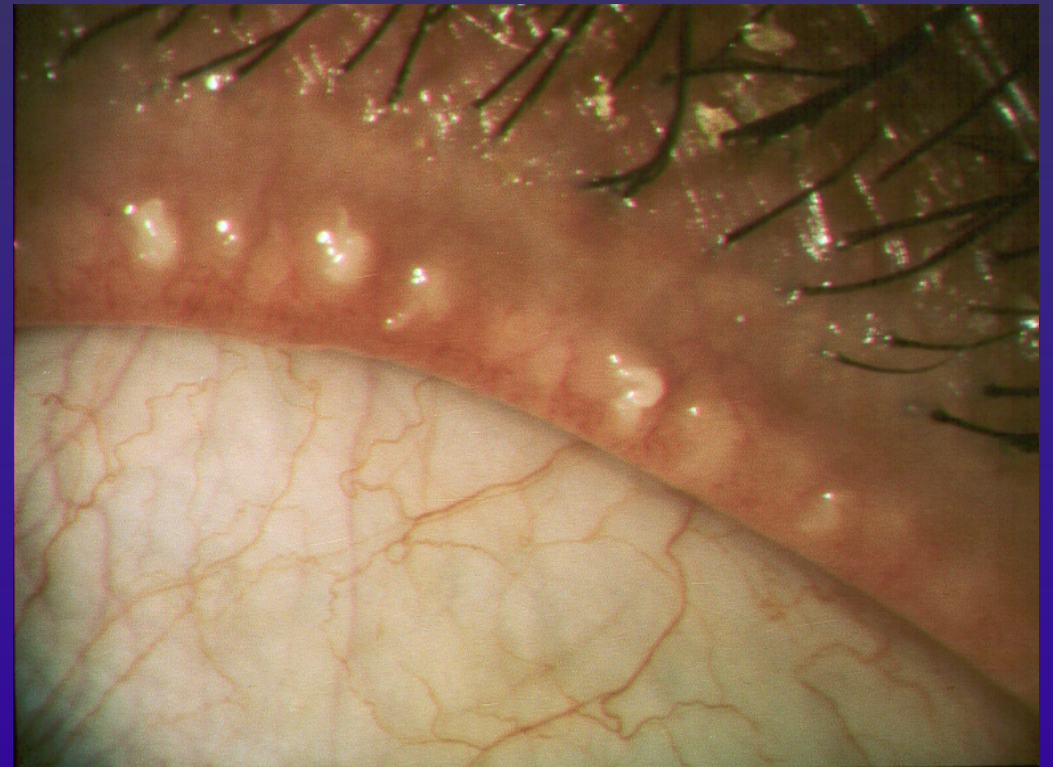


Stye/Chalazion

- Treatment
 - Warm compresses
 - +/- topical antibiotics
 - Systemic antibiotics for associated preseptal cellulitis
 - Incision and curettage for drainage

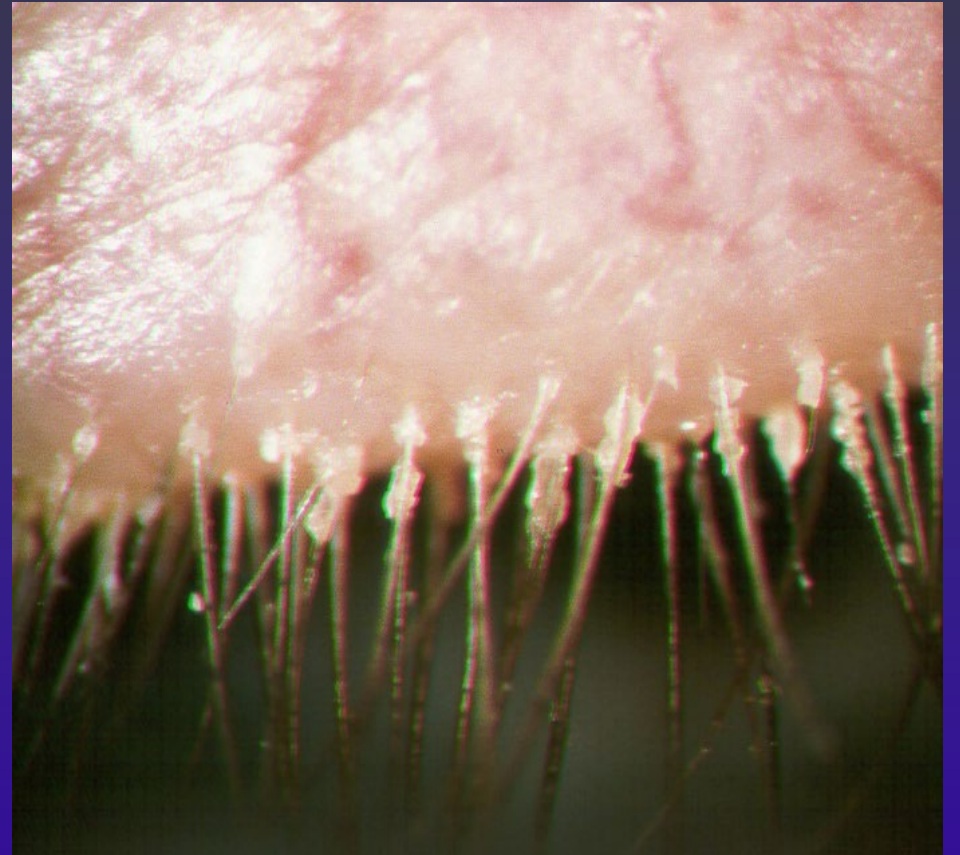
Blepharitis

- Chronic inflammation affecting the lash line
- Dysfunction of the meibomian glands
- Secondary infection
- Associated with acne rosacea



Blepharitis Symptoms

- Foreign body sensation
- Burning
- Mattering of the lashes
- Eyelids sticking together upon waking



Blepharitis Treatment

- Warm compresses
- Lubricant eye drops
- Mechanical cleansing of lids
- Omega-3 fatty acid supplements (flaxseed oil, fish oil)
- Counseling that this may be a recurring or chronic problem

Blepharitis Treatment

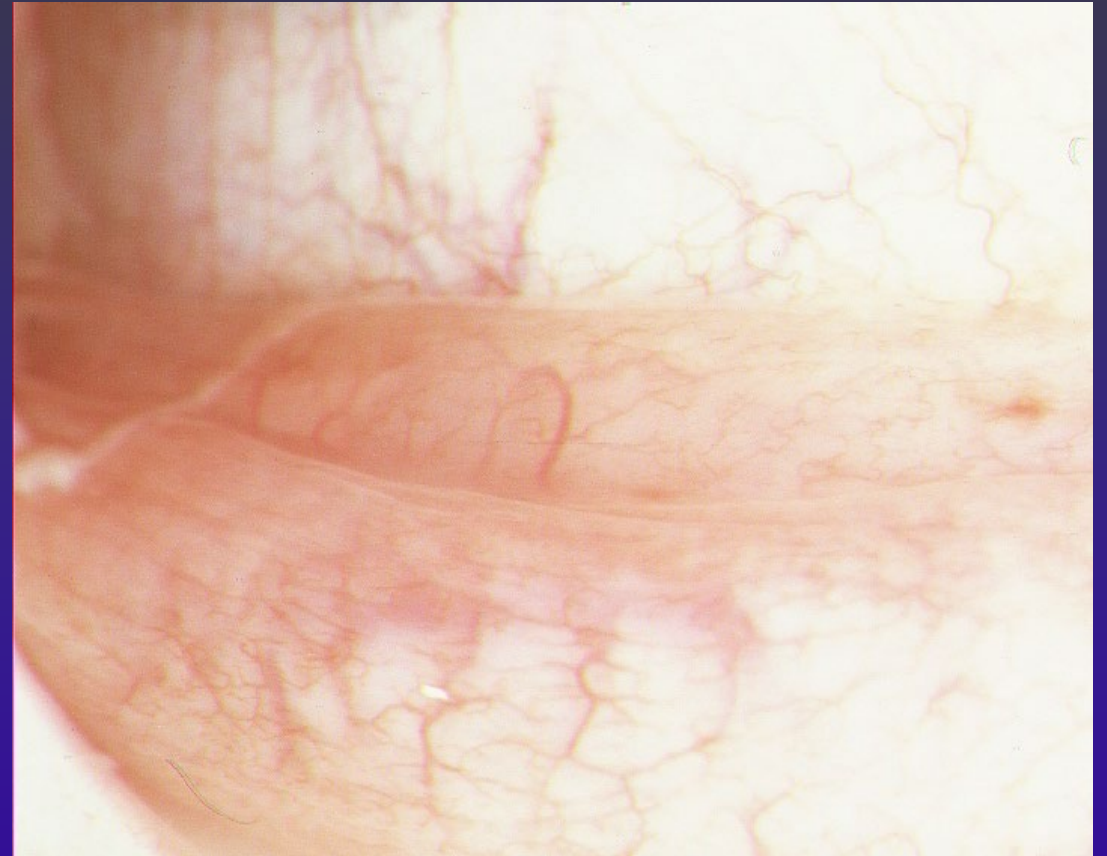
- Topical antibiotics
- Azasite (azithromycin in DuraSite)
- Topical steroids for inflammatory component (only for short duration)
- Restasis (off label)
- Systemic doxycycline for refractory problems
- Lipiflow

Diagnosis of Conjunctivitis

- Stringy white mucus: allergic
- Purulent discharge: bacterial
- Watery: viral

Allergic Conjunctivitis

- Symptoms: **ITCHING**
- Clinical findings
 - Normal exam
 - Lid or conjunctival edema
 - Stringy white discharge



Allergic Conjunctivitis

- Treatment
 - Cold compresses
 - Topical antihistamines (over the counter)
 - Topical mast cell stabilizers
 - Combination topical antihistamines and mast cell stabilizers

Allergic Conjunctivitis Therapy

Antihistamine (OTC,QID)

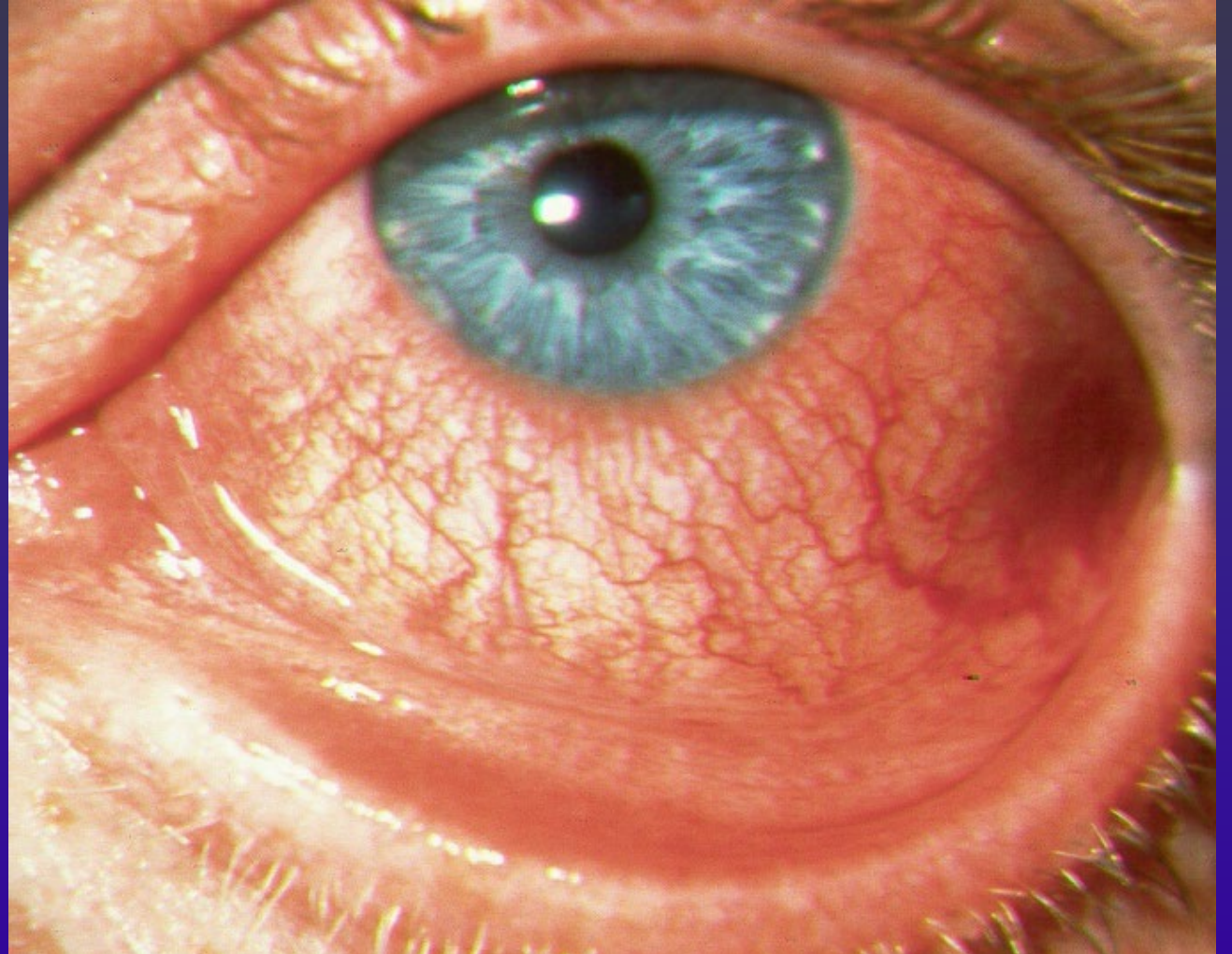
- Vasocon-A
- Naphcon-A
- Visine-A
- Opcon-A

Mast cell stabilizer and antihistamine

- Azelastine (Optivar)
- Emadastine (Emadine) (QID)
- Epinastine (Elestat) (QID)
- Ketotifen (Alaway)
- Ketotifen (Zaditor --OTC)
- Nedocromil (Alocril)
- Olopatadine (Patanol)
- Pemirolast (Alamast)
- Olopatadine (Pataday,Pazeo) (QD)
- Alcaftadine (Lastacraft) (QD)

Viral Conjunctivitis

- Adenovirus
- Highly contagious



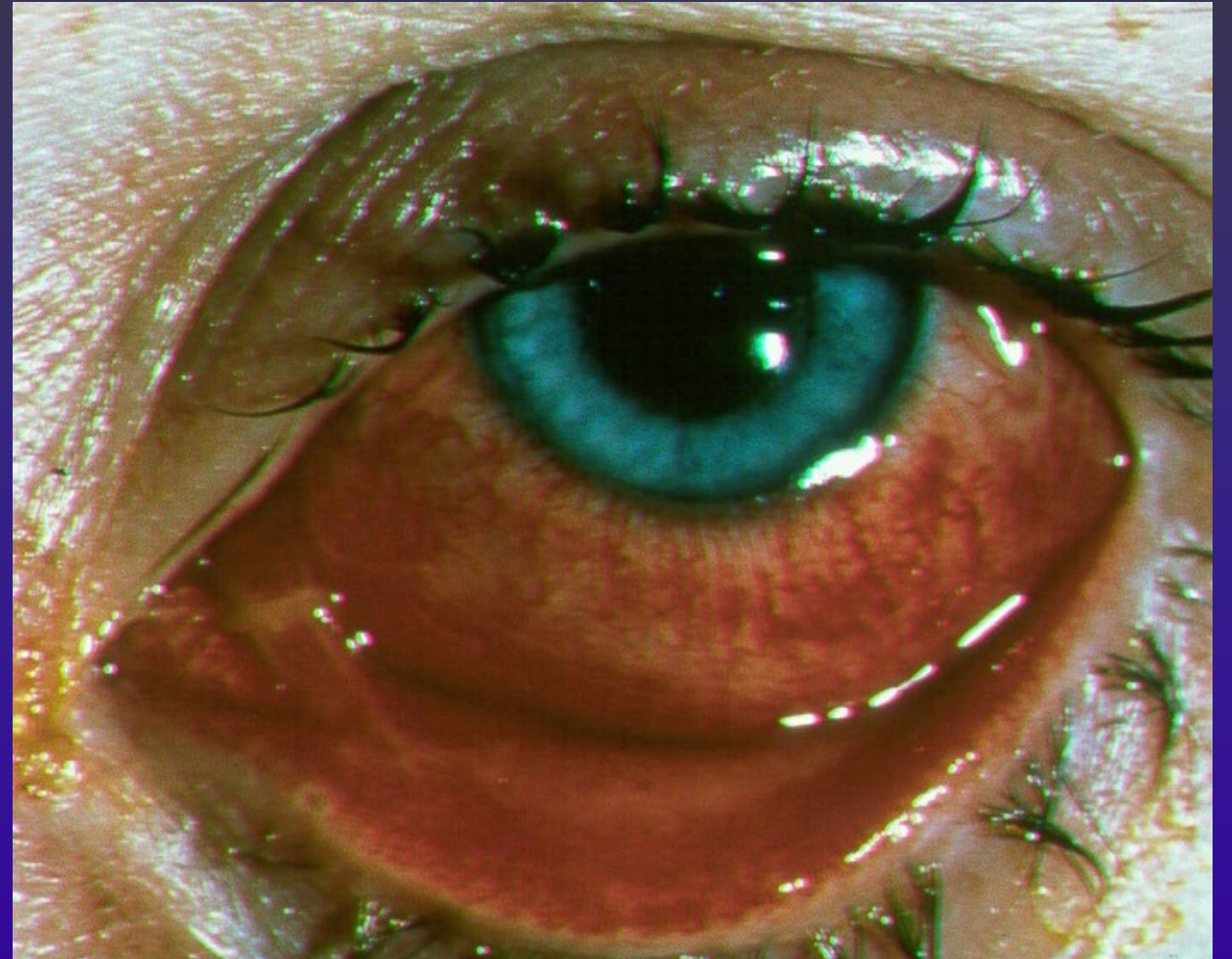
Viral Conjunctivitis

- Symptoms
 - Burning discomfort
 - Associated systemic symptoms: sore throat, fever, malaise
- Clinical findings
 - Redness
 - Watery discharge
 - Palpable preauricular lymph node

Viral Conjunctivitis Diagnosis

- AdenoPlus is immunoassay to detect adenoviral antigens
- 90% sensitivity, 96% specificity compared to cell culture
- Cost \$15-\$25 per test, reimbursable
- Accurate diagnosis reduces treatment with unnecessary and ineffective antibiotics

Viral Conjunctivitis



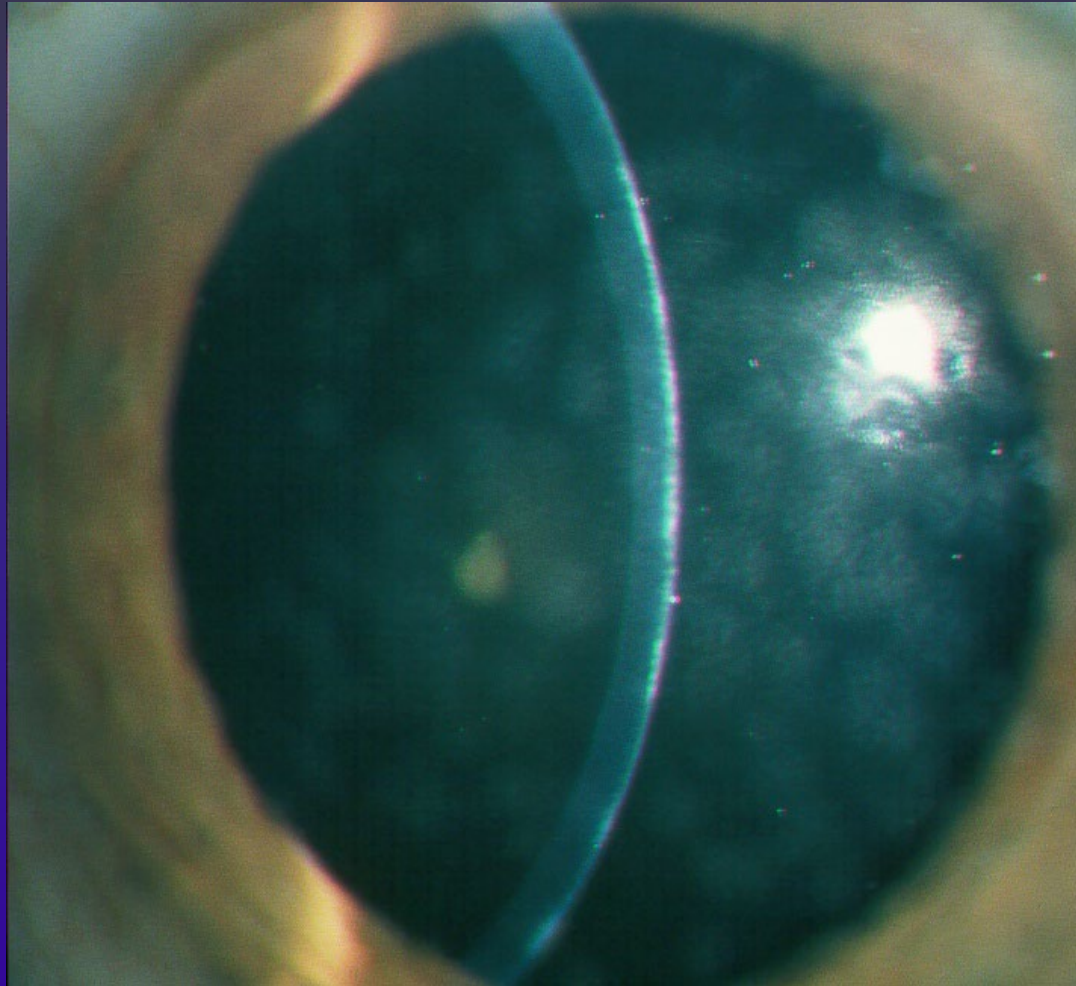
Viral Conjunctivitis

- Treatment: symptomatic
 - Cold compresses
 - Iced artificial tears
 - Acetaminophen
 - Topical betadine

Viral Conjunctivitis

- Duration is 1-3 weeks
- Contagious period is for 1 week after onset of symptoms
- Keratitis with specific viral serotypes may cause decreased vision, light sensitivity
- Postconjunctivitis dry eye syndrome may persist for several months

Viral Conjunctivitis--Keratitis



Bacterial Conjunctivitis

- Caused by all common bacteria
- Symptoms: purulent discharge
- Clinical findings
 - Conjunctival injection
 - Purulent discharge

Bacterial Conjunctivitis

- Treatment: topical antibiotics
QID for 7-10 days



Ophthalmic Antibiotics

Ointments

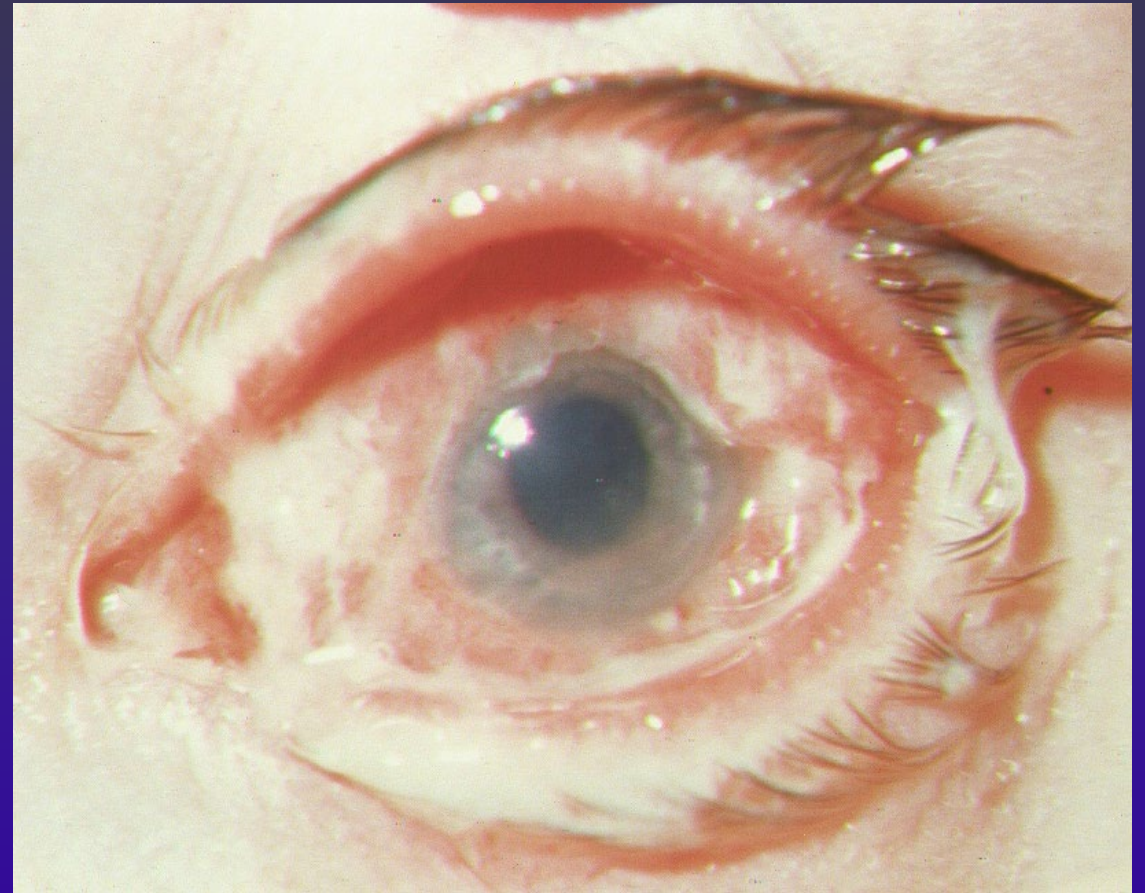
- Erythromycin
- Bacitracin
- Sulfacetamide sodium
- Gentamicin
- Tobramycin
- Ciprofloxacin
- Polymixin B/Bacitracin
- Polymixin B/Neomycin/Bacitracin

Solutions

- Sulfacetamide sodium
- Polytrim (Polymixin B, trimethoprim)
- Gentamicin
- Tobramycin
- Azithromycin
- Ofloxacin
- Ciprofloxacin
- Levofloxacin
- Gatifloxacin
- Moxifloxacin

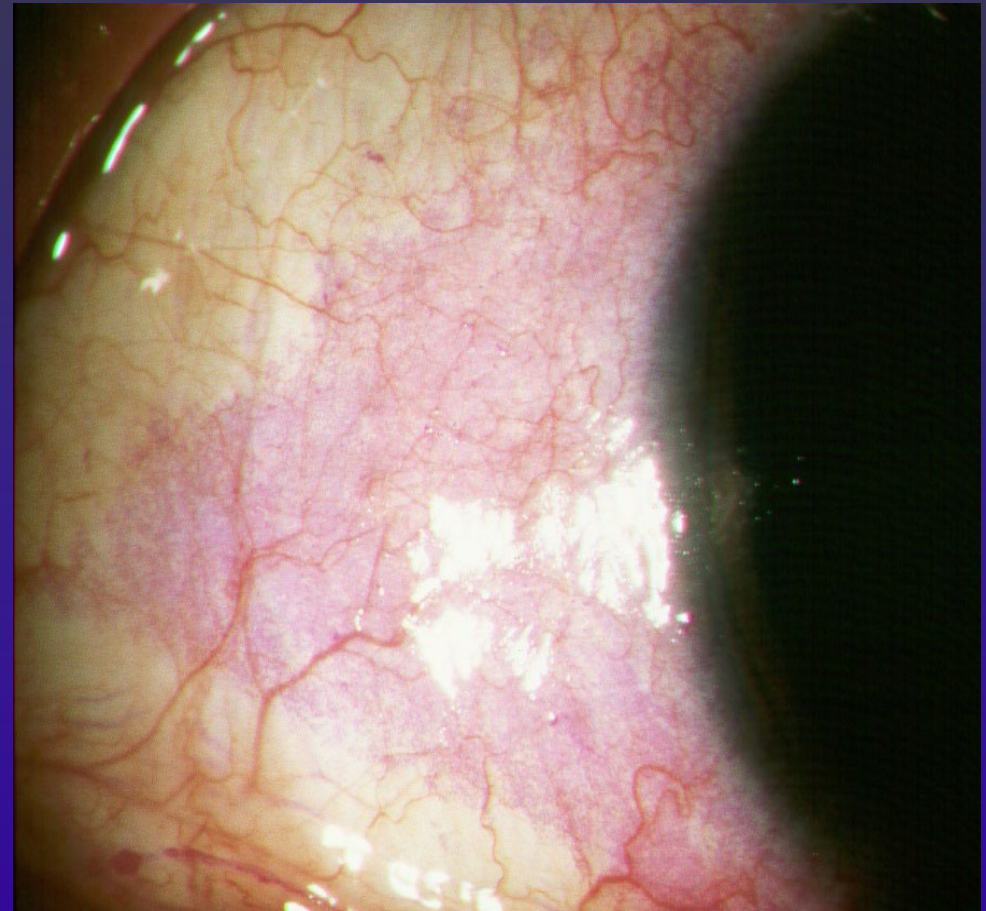
Hyperpurulent Bacterial Conjunctivitis

Copious discharge may indicate infection with *Neisseria gonorrhoeae* or meningitides; requires urgent referral, gram stain and culture



Dry Eyes

- Symptoms
 - Burning
 - Foreign body sensation
 - Grittiness
 - Tearing



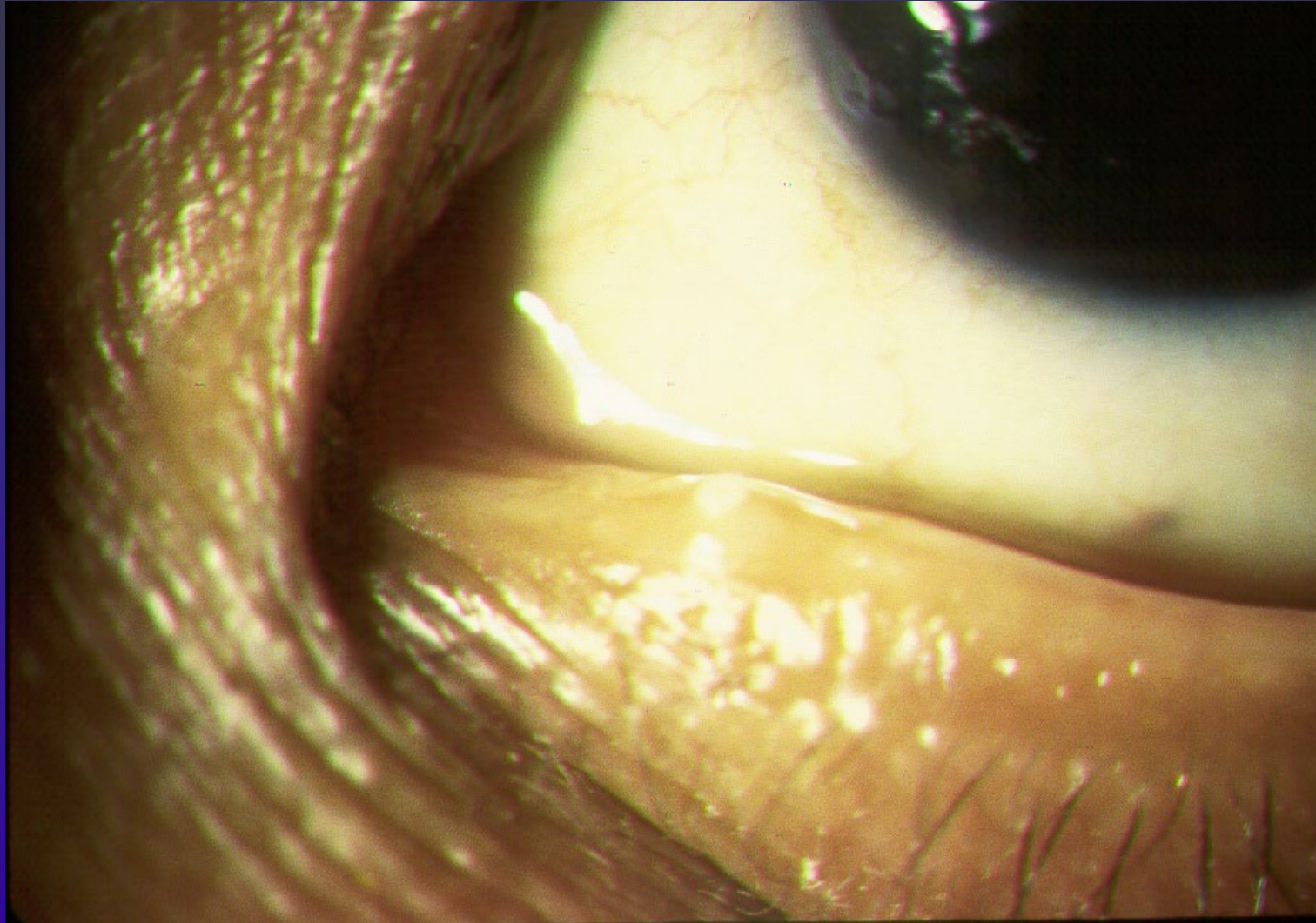
Dry Eyes

- Associated conditions
 - Aging
 - Sjogren's syndrome
 - Rheumatoid arthritis
 - Stevens-Johnson syndrome
 - Systemic medications: antihistamines, diuretics, antidepressants

Dry Eyes Treatment

- Lubricant eye drops (artificial tears)
- Lubricating ointment at bedtime
- Protective glasses and hat outdoors
- Omega three fatty acid supplements
- Restasis (topical cyclosporine) or Zidria (liftegast)
- Punctal plugs or occlusion

Punctal Plugs



Vision Threatening Red Eye

- Corneal infections
- Iritis/uveitis
- Acute angle-closure glaucoma

Vision Threatening Red Eye

Indications for Referral

- Decreased vision
- Severe eye pain
- Light sensitivity
- Opacity on cornea

Corneal Infections

- Viral keratitis
 - Herpes simplex most common
- Bacterial keratitis
 - Frequently related to soft contact lens wear
- Fungal keratitis

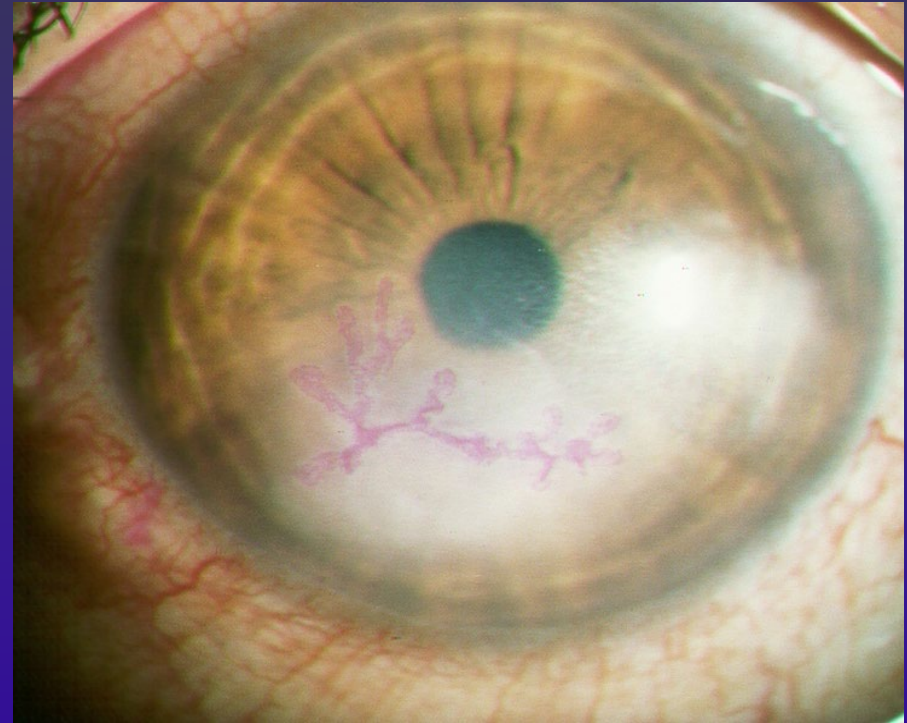
Herpes Simplex Keratitis

- Primary HSV
 - Conjunctivitis with watery discharge
 - Skin vesicles on lids
 - Enlarged preauricular lymph nodes
 - +/- corneal involvement with single or multiple dendrites
- Recurrent HSV-low dose anti-viral prophylaxis reduces recurrences

Primary HSV HSV



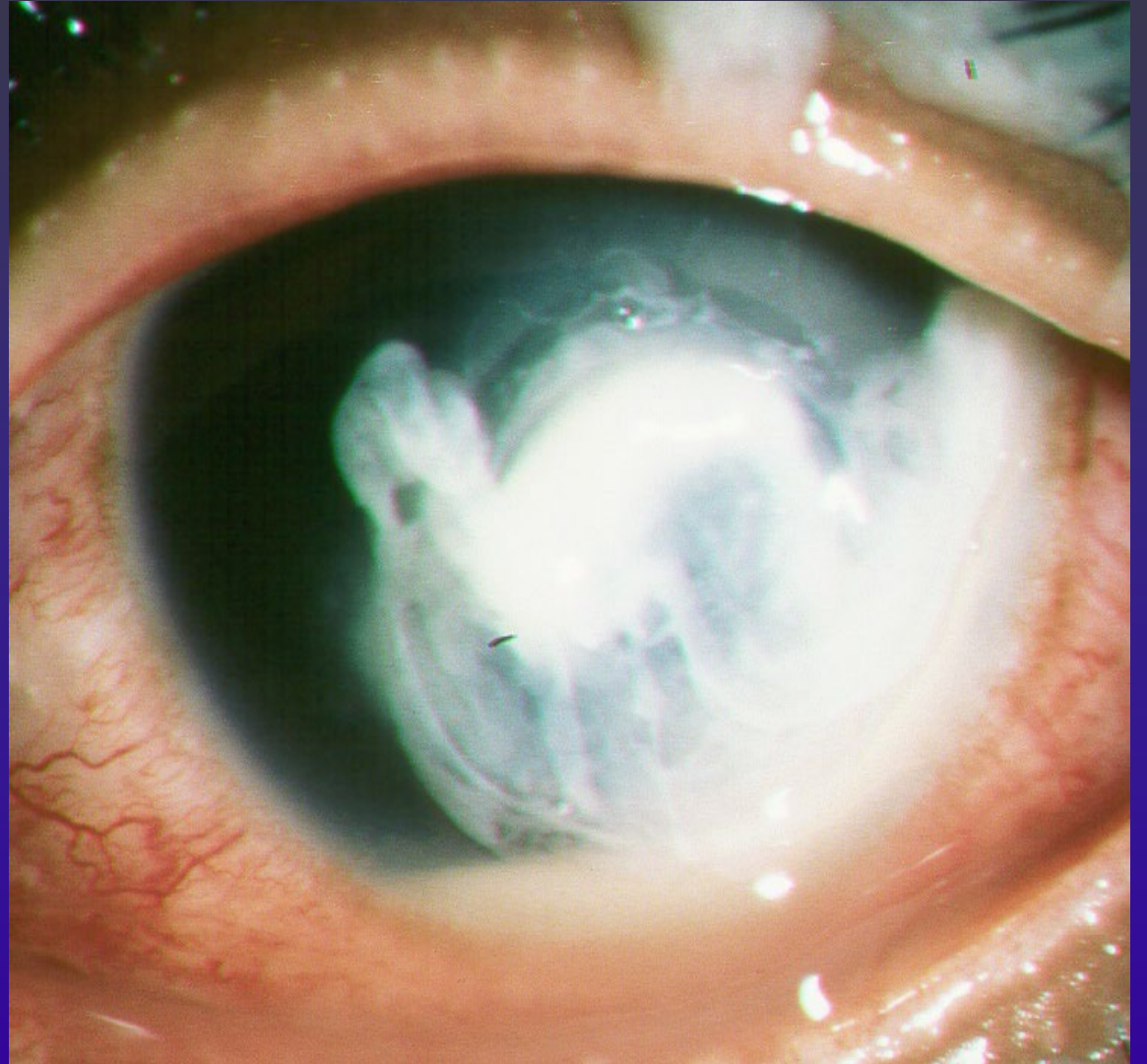
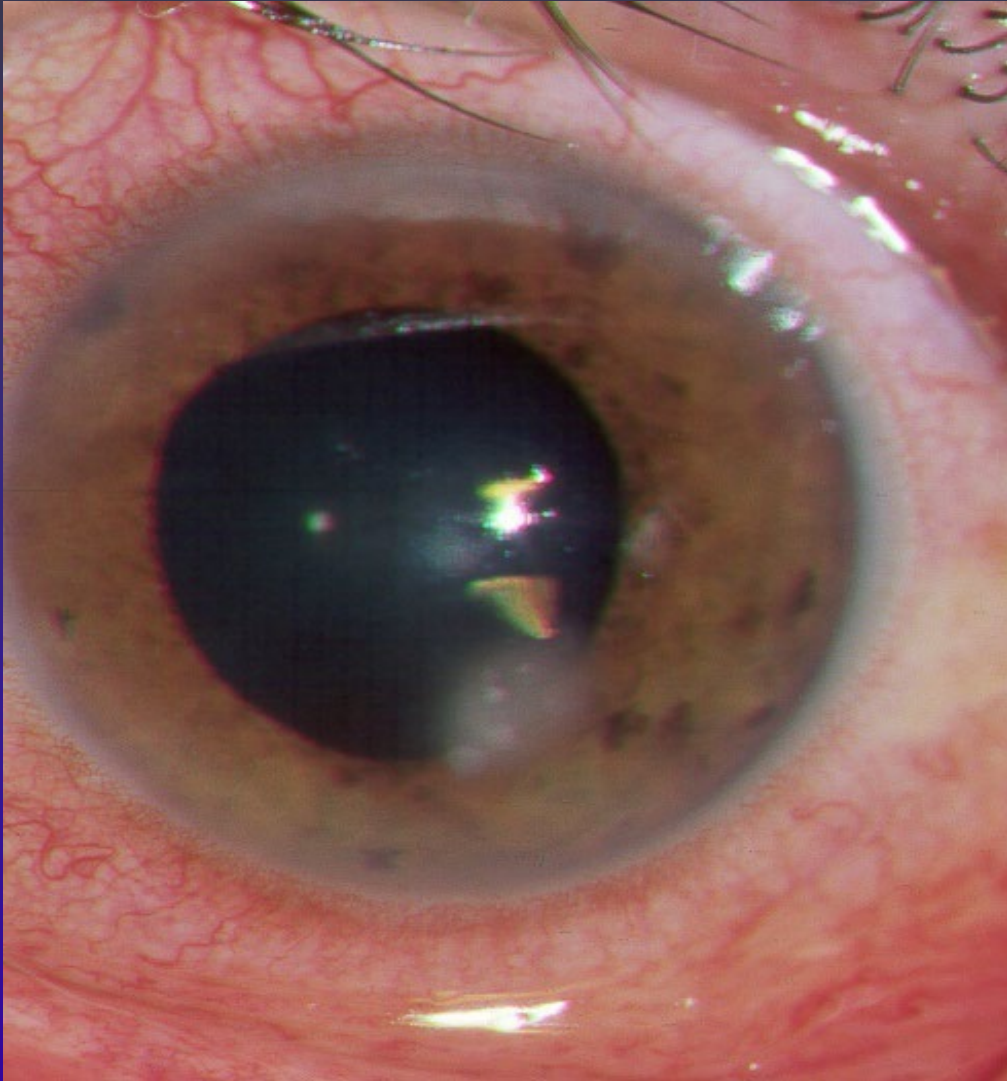
Recurrent



Bacterial Keratitis

- Most common in soft contact lens wearers
- Red painful eye
- Opacity on the cornea
- Requires ophthalmologic referral for culture and sensitivity

Bacterial Keratitis



Iritis/Uveitis

- Inflammation in the anterior chamber (iritis) or involving the entire eye (uveitis)
- Symptoms
 - Pain
 - Photophobia
 - Decreased vision

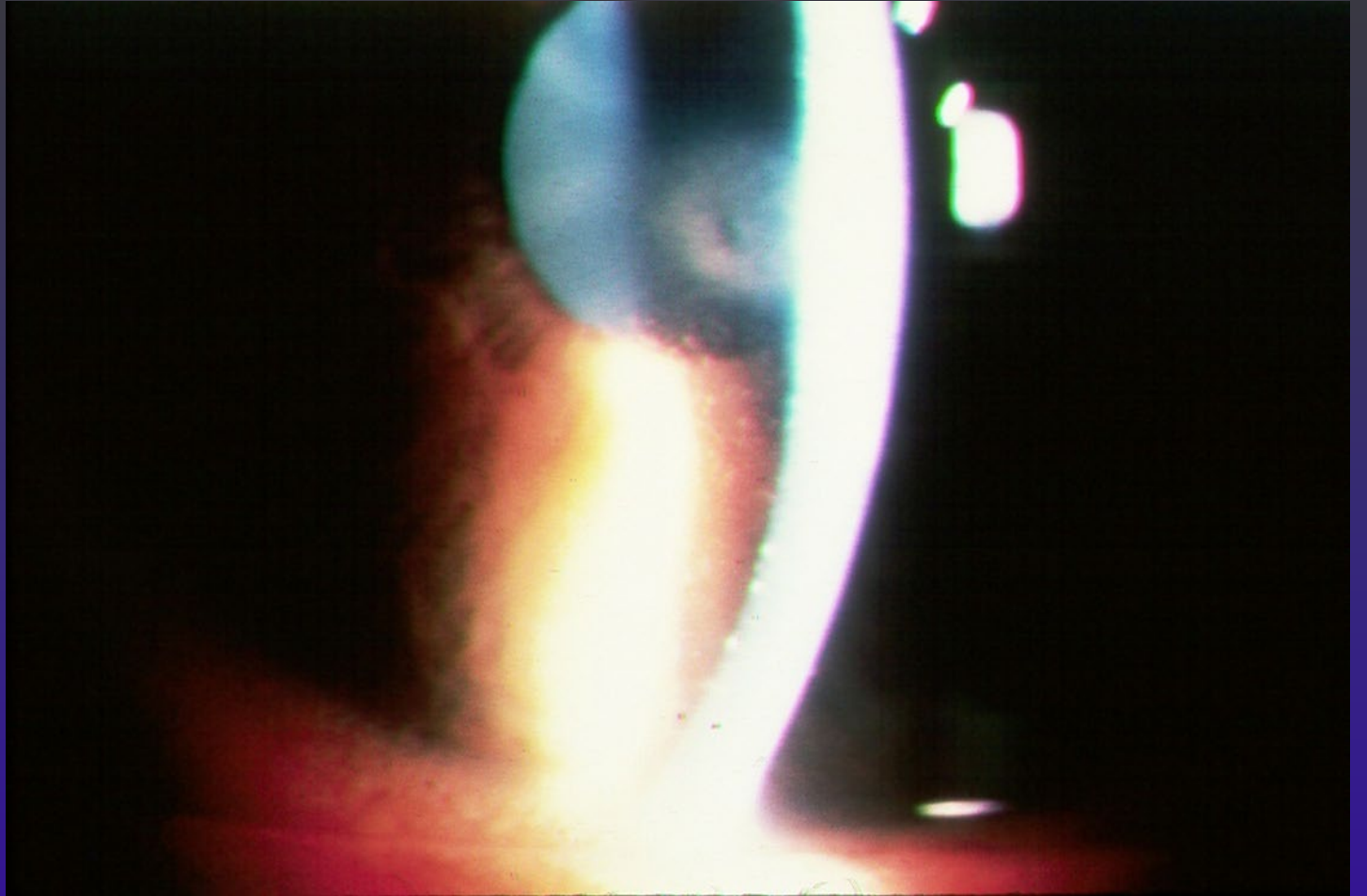
Iritis/Uveitis

Clinical findings:

Circumcorneal
redness

Pupil is smaller than
normal

Cell and flare in the
anterior chamber

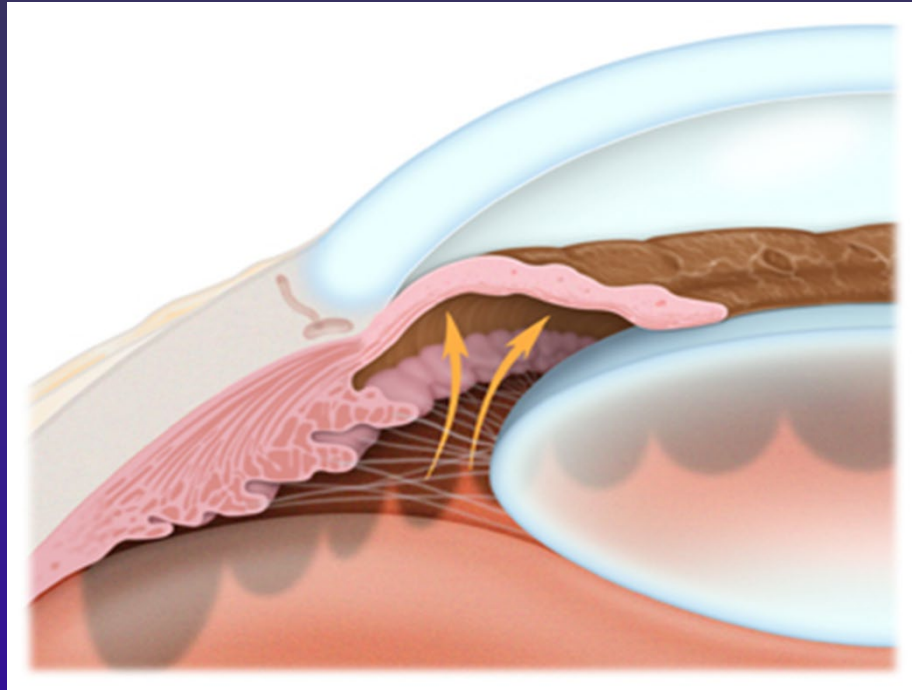


Iritis/Uveitis Etiology

- Nongranulomatous:
 - Idiopathic
 - Traumatic
 - Ankylosing spondylitis
 - Behcet's disease
 - Inflammatory bowel disease
 - Herpes
 - Lyme disease
 - Postoperative
 - Psoriatic arthritis
 - Reiter's syndrome
 - Lupus
 - Wegener's granulomatosis
 - JRA
- Granulomatous:
 - Sarcoidosis
 - Tuberculosis
 - Syphilis
 - Toxoplasmosis
 - Brucellosis

Angle Closure Glaucoma

Obstruction of aqueous outflow due to occlusion of the trabecular meshwork by the iris. Occurs in patients anatomically predisposed with shallow anterior chambers.



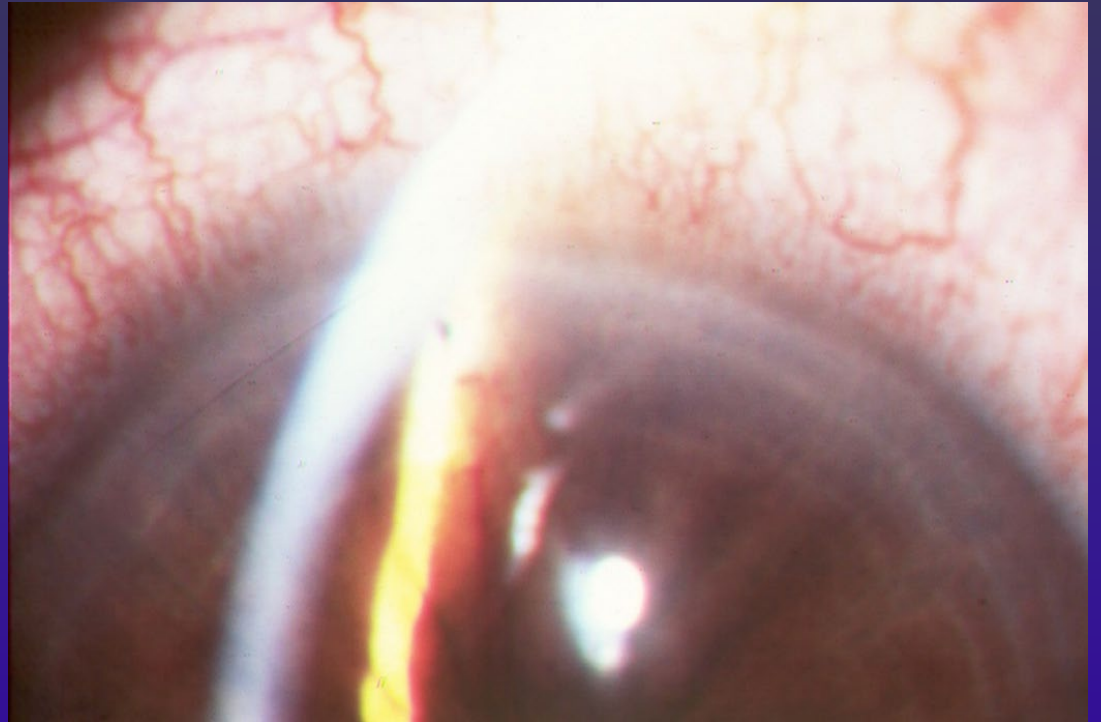
Angle Closure Glaucoma

Screening: penlight held temporal and parallel to the iris reveals a shadow on the nasal iris in at risk patients.



Angle Closure Glaucoma

- Definitive therapy:
Iridectomy



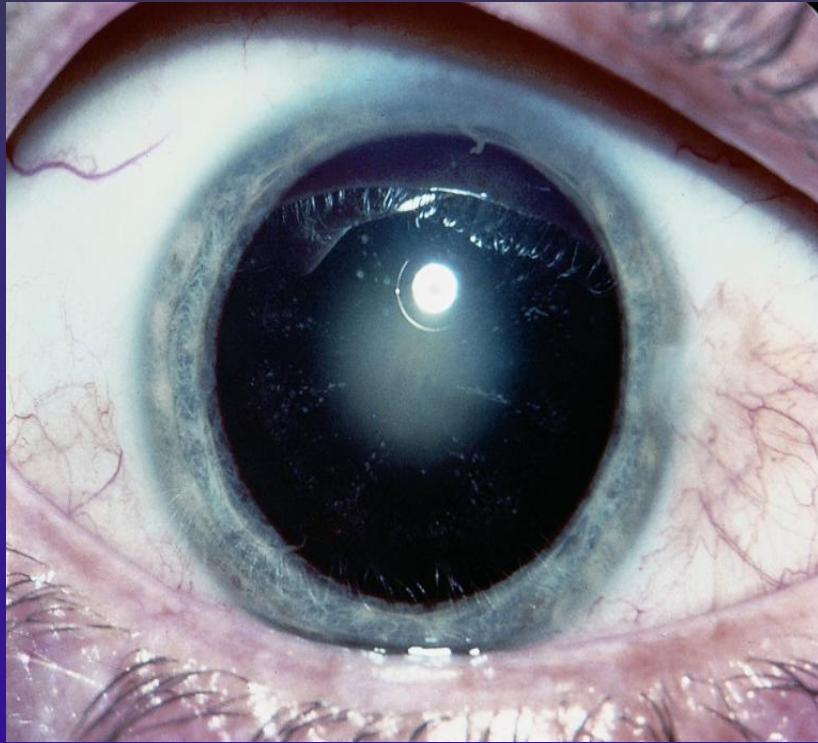
Cataract

- Clouding of the lens which may result in decreased vision
- Leading cause of treatable blindness worldwide
- In US accounts for 50% of low vision cases in adults > 40
- Cataract surgery with IOL implantation one of most common surgeries performed under Medicare

Risk Factors

- Smoking
- Lifetime exposure to UV-B radiation
- Diabetes
- Inhaled, topical, and oral corticosteroid use
- Hypertension
- Myopia
- Obesity
- No significant delaying effect on cataract development with vitamin supplementation

Cataract

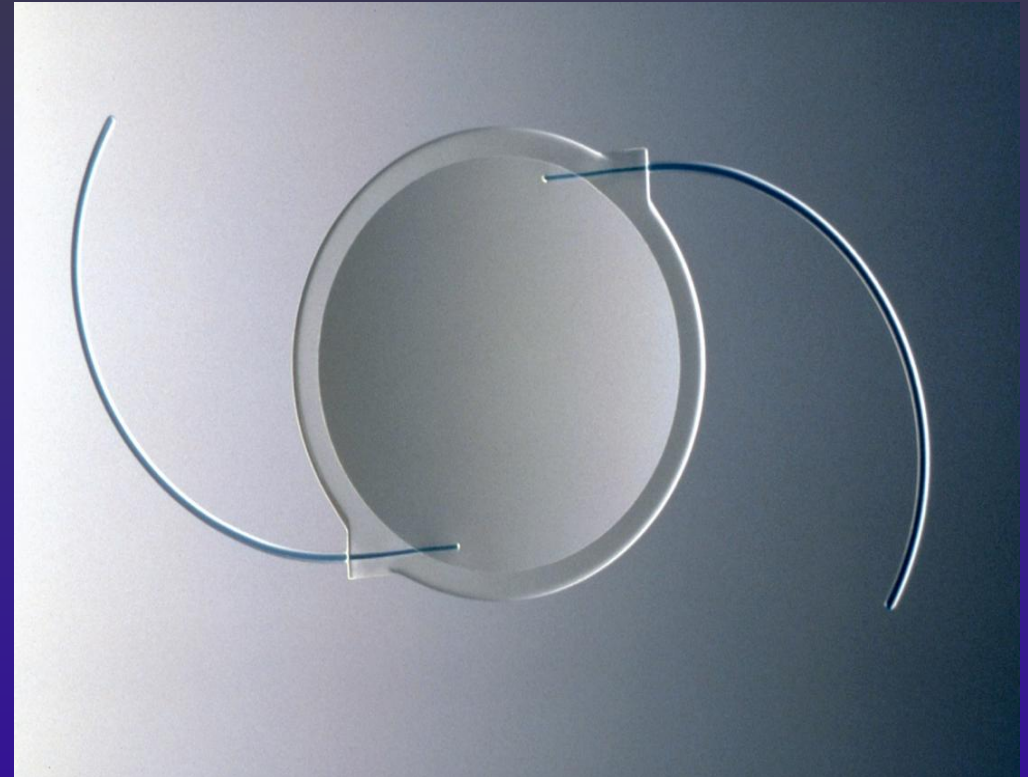


Treatment of Cataracts

- Cataract extraction with intraocular lens implant
- Indicated when patients are having difficulty with their vision due to cataracts
- Typically small incision phacoemulsification

Intraocular Lenses

- Posterior chamber intraocular lens inserted into the lens capsule
- Anterior chamber or sutured IOL used in certain cases

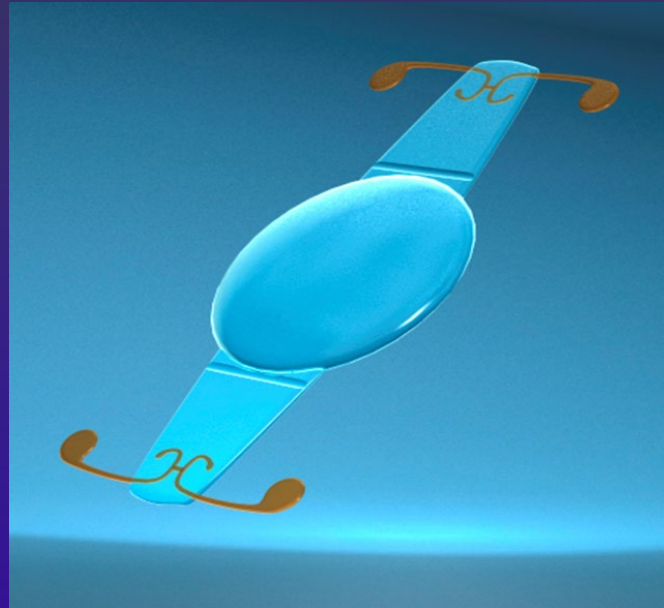


Intraocular lenses

Multifocal IOL



Accommodative IOL



Preoperative Preparation

- Patient and ophthalmologist decide based on patient's needs if cataracts are visually significant
- Preoperative physical examination (rules are changing)
- Laboratory studies and EKG as medically necessary
- Preoperative topical antibiotics
- Anticoagulation—frequently may be continued, but consult with ophthalmologist

Tamsulosin Precautions

- Alpha blocker therapy may cause intraoperative floppy iris syndrome and increase the risk of surgical complications
- Discontinuation of alpha blockers for weeks to years does not reverse the effect
- If a patient has a cataract and requires tamsulosin or other therapy, consider cataract surgery before initiating therapy
- Tell ophthalmologist of any history of alpha blocker use (even if discontinued)

Benefits of Cataract Surgery

- Better optically corrected vision
- Better uncorrected vision with reduced spectacle dependence
- Increased ability to read or do near work
- Reduced glare
- Improved ability to function in dim light
- Improved depth perception and binocular vision
(reduced risk of motor vehicle accidents and falls with broken hips and shoulders)

What Is New in Glaucoma?

- Glaucoma is a disease of the optic nerve with a characteristic pattern of atrophy and visual field loss
- Intraocular pressure is the only treatable risk factor
- Lowering intraocular pressure has been shown to reduce or arrest visual field loss in all types of glaucoma

Glaucoma Management

- Medications:
 - Prostaglandin analogs-latanoprost, bimatoprost, travoprost
 - Beta-blockers-timolol
 - Alpha-blockers-brimonidine
 - Topical carbonic anhydrase inhibitors-dorzolamide, brinzolamide
 - Cholinergics-pilocarpine

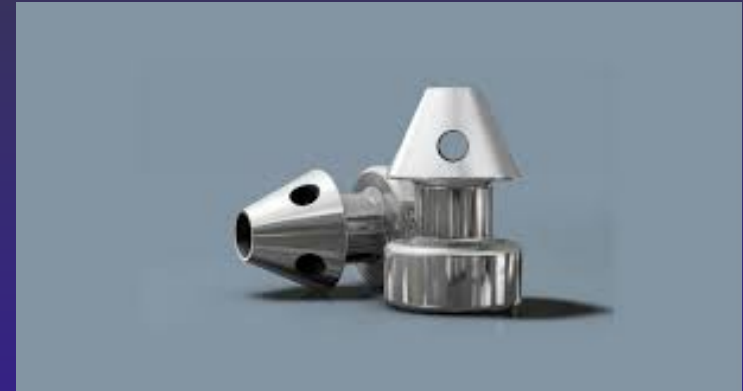
Glaucoma Management

- New medications
 - Vyzulta-latanoprostene bunod. Combination prodrug of latanoprost and butanediol mononitrate. Latanoprost lowers IOP by increasing aqueous humor outflow through uveoscleral pathway, butanediol through trabecular meshwork
 - Rhopressa-netarsudil. Is a Rho-associated protein kinase inhibitor lowers IOP by increasing aqueous humor outflow through trabecular meshwork
 - Rocklatan-combination of latanoprost and netarsudil

Glaucoma Management

New surgical options: MIGS

- I-stent: inserted through TM into Schlemm's canal at time of cataract surgery. IOP reduction 7.0 mmHG at 24 months, 5.9 at 36 months



- Hydrus: inserted into Schlemm's canal at time of cataract surgery. IOP reduction 7.6 ± 4.1 mm Hg



Glaucoma Management

- New surgical options
 - Endoscopic cyclophotocoagulation
 - Goniotomy: Remove trabecular meshwork, Kahook dual blade, trabectome, GATT
 - Canaloplasty: dilate Schlemm's canal +/- stent with suture
- Reduce medication burden
- Address disease earlier in course
- May affect long-term outcome of disease

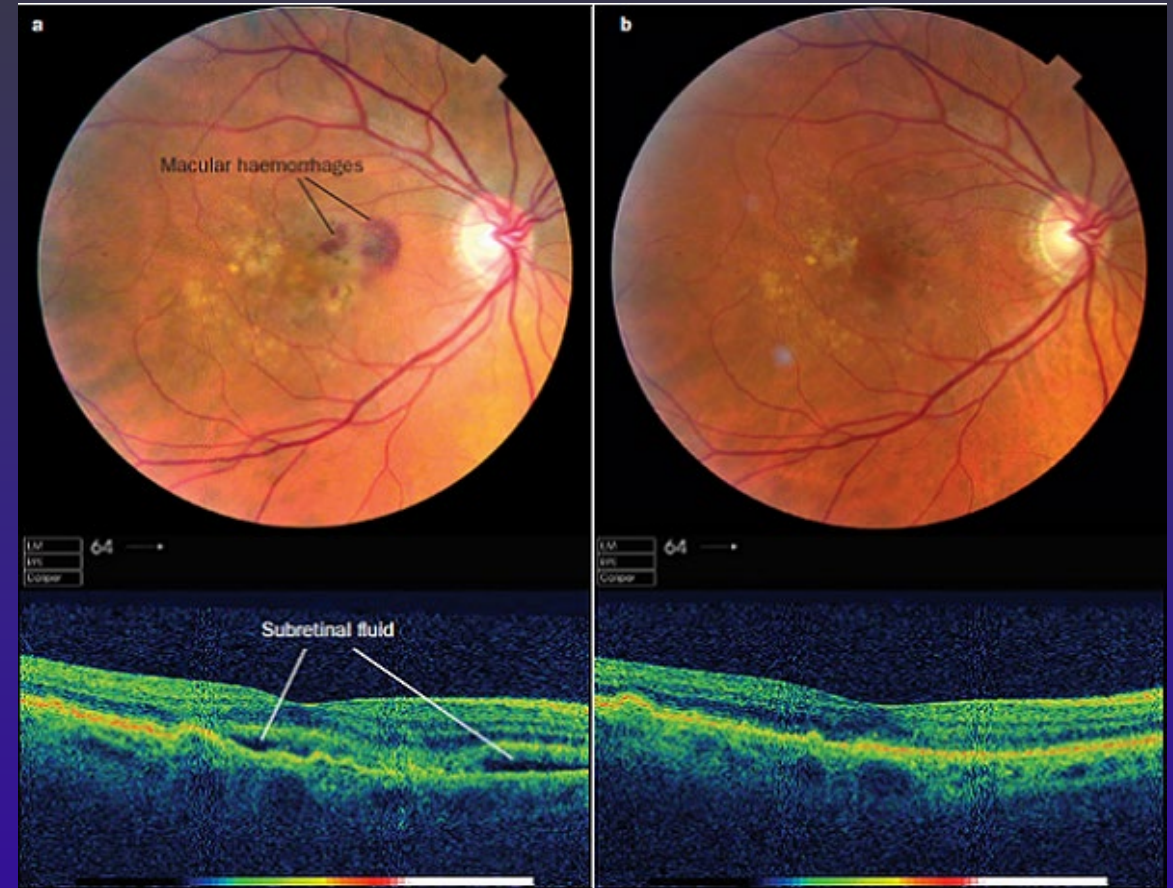
Dry Age-Related Macular Degeneration

- Drusen
- Retinal thinning
- Slow
- No proven treatment
- Studies with stem cells
- Reduce risk:
 - No smoking
 - Control weight
 - Green leafy vegetable
 - Antioxidants AREDS2 formula

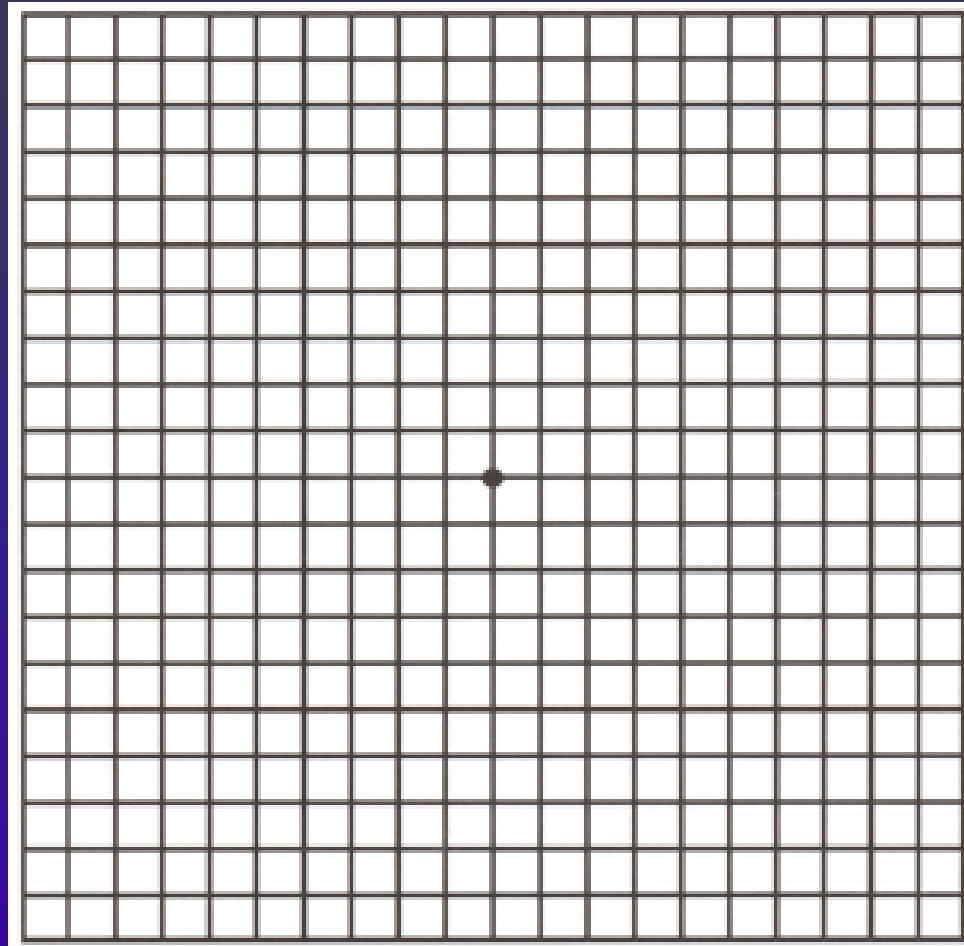


Wet Age-Related Macular Degeneration

- Neovascularization
- Bleeding
- Leakage of fluid
- Scar tissue formation
- Severe, rapid vision loss
- Treatment: Anti-VEGF
- Intravitreal injections with bevacizumab (Avastin), aflibercept (Eyelea), Ranibizumab (Lucentis)



Amsler Grid



Red Flag Signs and Symptoms

- Require urgent referral
 - Sudden decreased vision
 - Metamorphopsia (distorted vision)
 - Severe eye pain
 - Red eye with light sensitivity
 - Corneal opacity
 - Flashes and floaters
 - Binocular double vision

- **Key Points**

- Urgent referral: severe pain, light sensitivity, opacity on cornea, binocular diplopia, sudden decreased vision, metamorphopsia
- Prompt referral: Flashes/floaters, gradual decreased vision

- **Next best steps**

- No topical antibiotics for viral conjunctivitis
- Blepharitis is underdiagnosed, undertreated, and common
- No topical steroids without slit-lamp exam