

Ophthalmology in Primary Care 2015

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No financial disclosures

Objectives

- Red eye
 - Nonvision threatening
 - Vision threatening
- Cataracts
- Diabetes
- ARMD
- Red Flag Signs and Symptoms

Nonvision Threatening Red Eye

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

Vision Threatening Red Eye

- Corneal infections
- Iritis
- Scleritis/Episcleritis
- 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

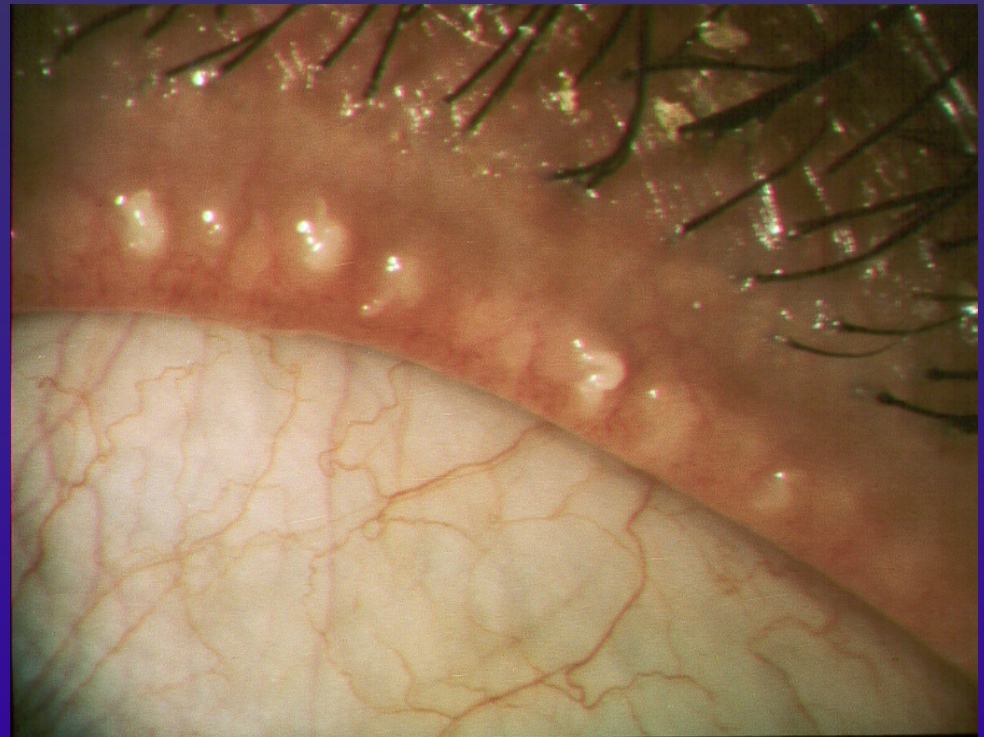


Stye/Chalazion

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

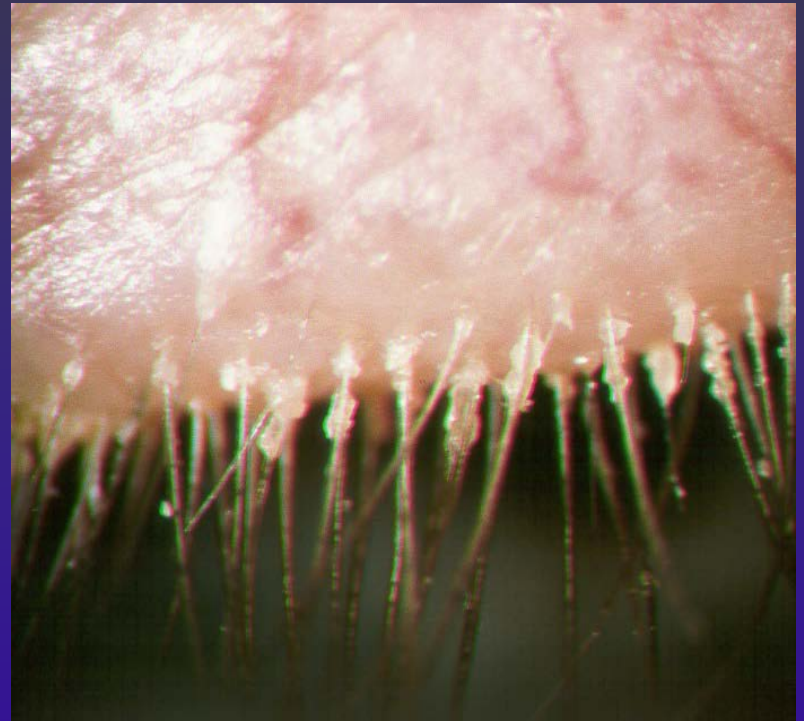
Blepharitis

- 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 chronic or recurring problem

Blepharitis Treatment

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

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

Topical Antihistamines

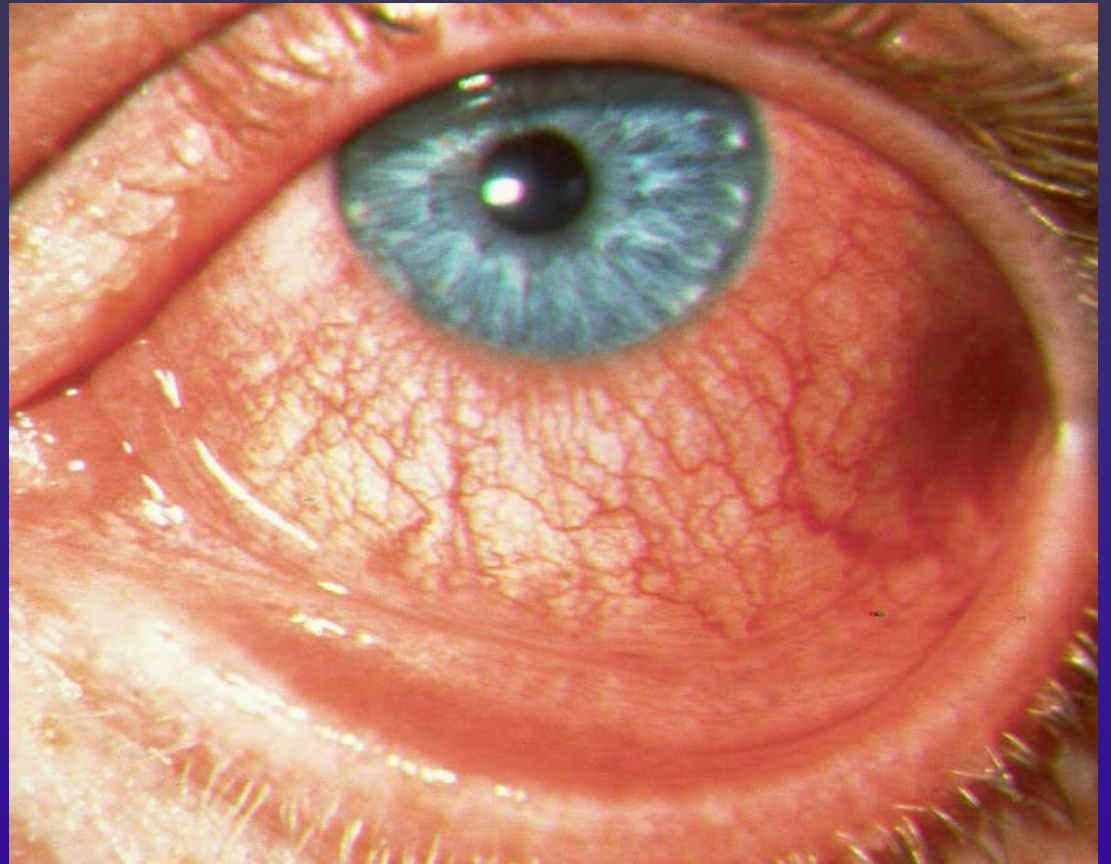
- Over the counter (use QID)
 - Vasocon-A
 - Naphcon-A
 - Opcon-A
 - Visine-A

Allergic Conjunctivitis Treatment

- Mast cell stabilizers with antihistamine action
 - BID use
 - Azelastine (Optivar)
 - Epinastine (Elestat)
 - Ketotifen (Alaway)
 - Ketotifen (Zaditor --over the counter)
 - Nedocromil (Alocril)
 - Olopatadine (Patanol)
 - Pemirolast (Alamast)
 - Once daily use
 - Olopatadine (Pataday)
 - Alcaftadine (Lastacaft)

Viral Conjunctivitis

- Adenovirus
- Highly contagious

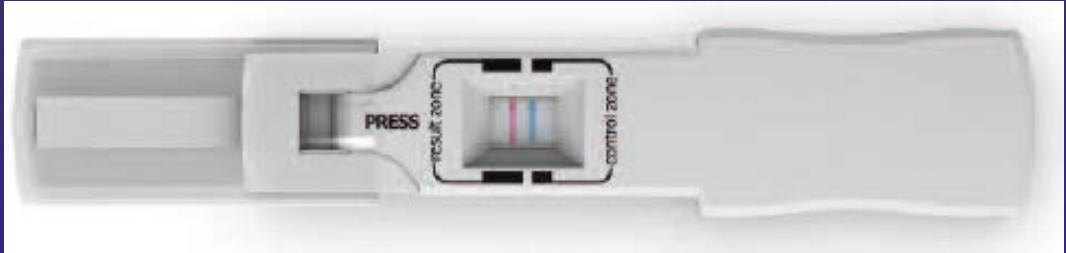


Viral Conjunctivitis

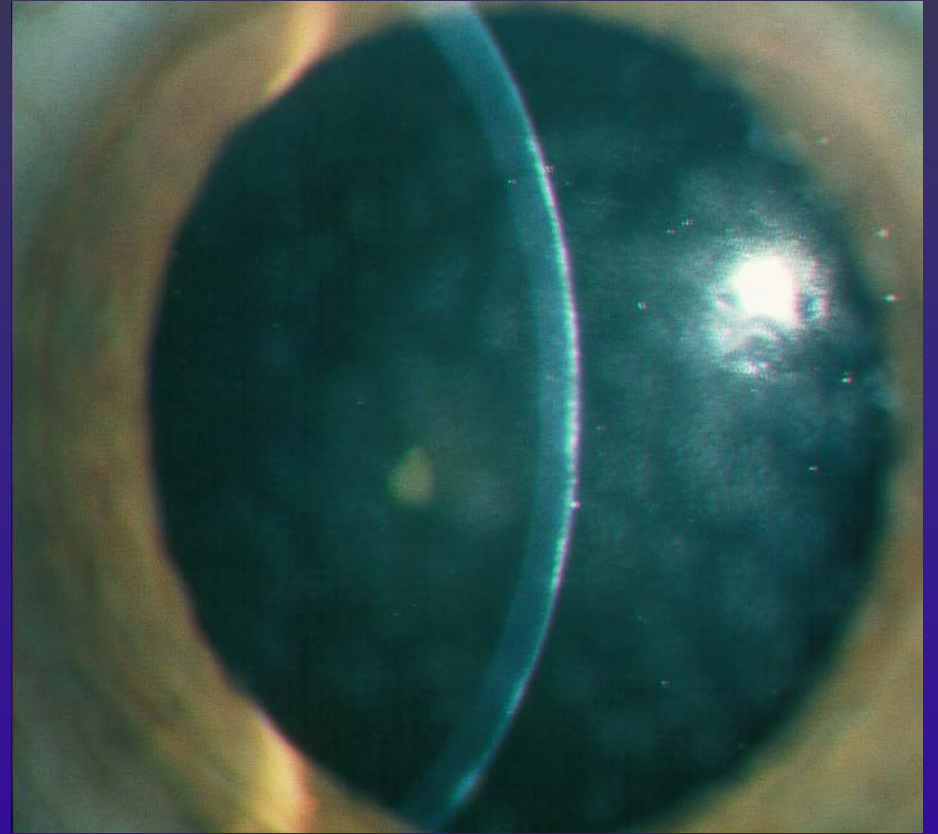
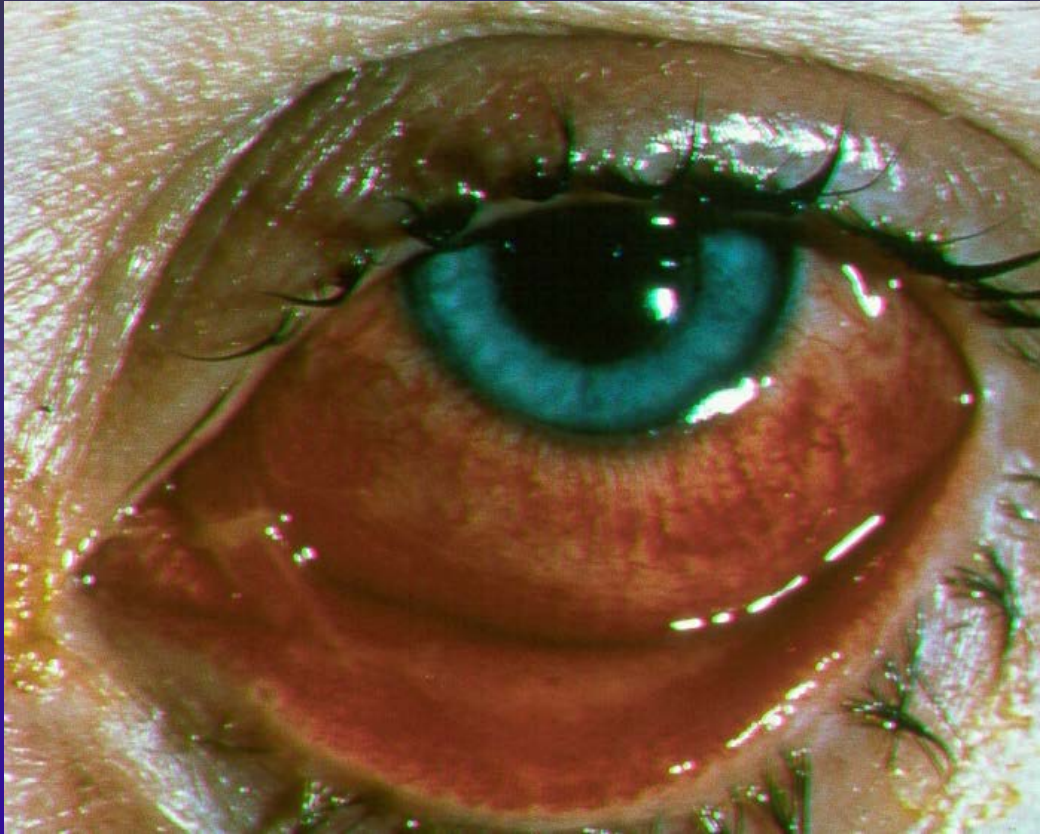
- Symptoms
 - Burning discomfort
 - Associated systemic symptoms: URI, sore throat, fever, malaise
- Clinical findings
 - Redness
 - Watery discharge
 - Palpable preauricular lymph node

Viral Conjunctivitis Diagnosis

- AdenoPlus is immunoassay to detect adenoviral antigens
- Compared to cell culture 90% sensitivity, 96% specificity
- 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

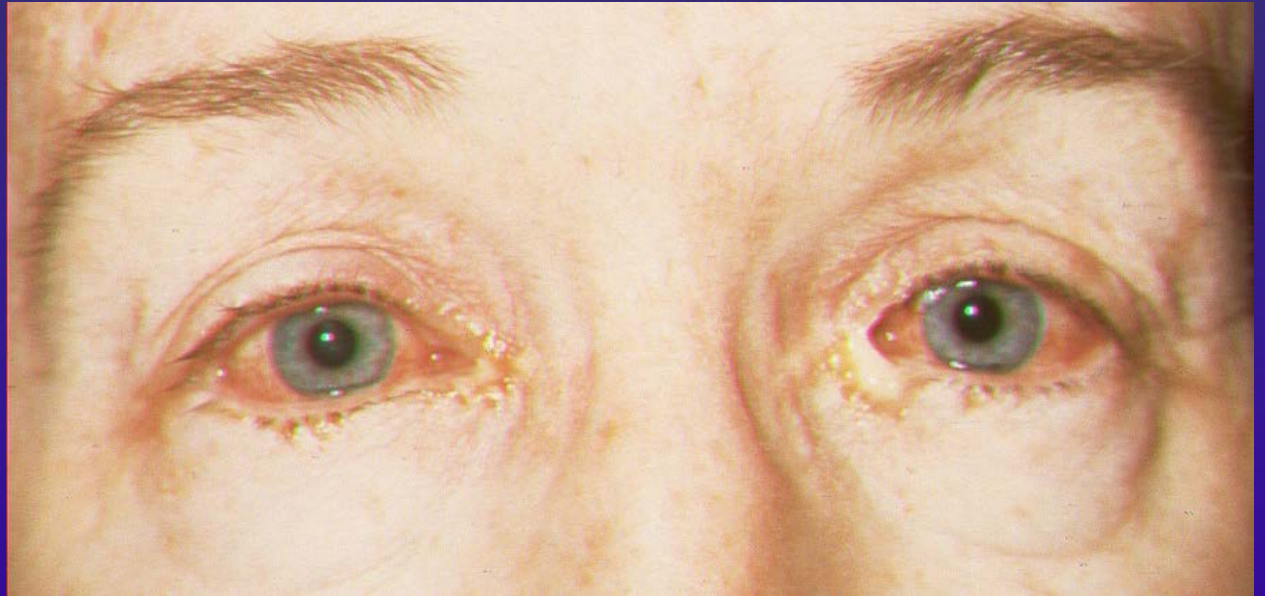
- Duration is 1-3 weeks
- Contagious period is for 1 week after onset of symptoms
- Postconjunctivitis dry eye syndrome may persist for several months

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 Antibiotic Ointments

- Erythromycin
- Bacitracin
- Sulfacetamide sodium
- Gentamicin
- Tobramycin
- Ciprofloxacin
- Polymyxin B/Bacitracin
- Polymyxin B/Neomycin/Bacitracin
- Polymyxin B/Oxytetracyclin

Ophthalmic Antibiotic Solutions

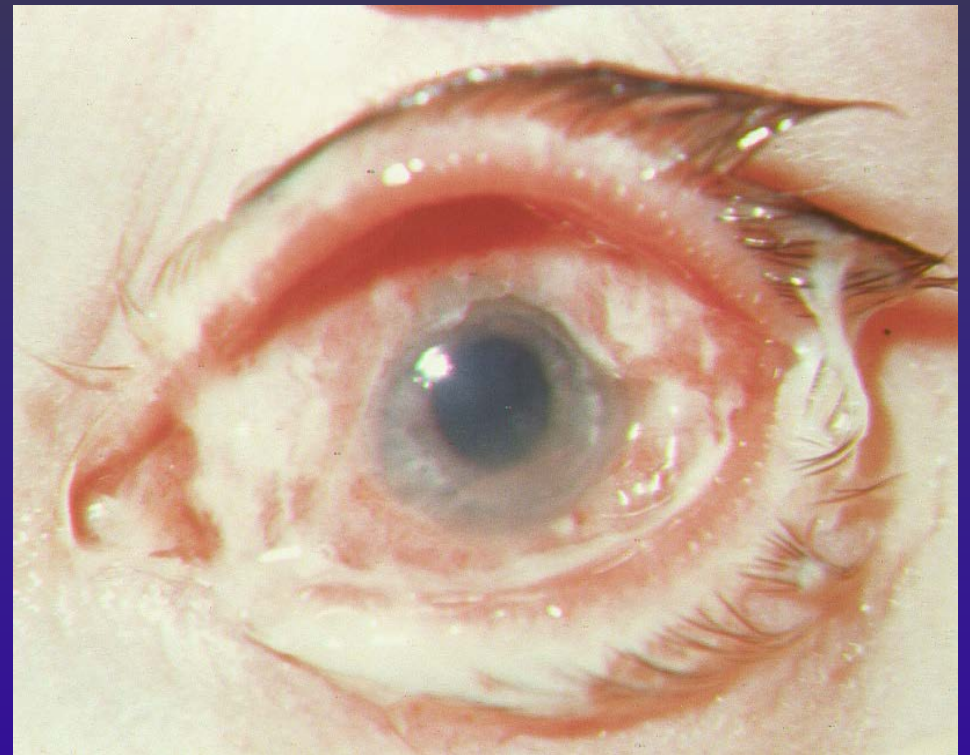
- Sulfacetamide sodium
- Polymixin B/trimethoprim (Polytrim)
- Polymixin B/Neomycin/Gramicidin (Neosporin)
- Gentamicin
- Tobramycin
- Azithromycin (Azasite)

Ophthalmic Antibiotic Solutions

- Ofloxacin (Ocuflox)
- Ciprofloxacin (Ciloxan)
- Levofloxacin (Quixin)
- Gatifloxacin (Zymar, Zymaxid)
- Moxifloxacin (Vigamox)
- Besifloxacin (Besivance)

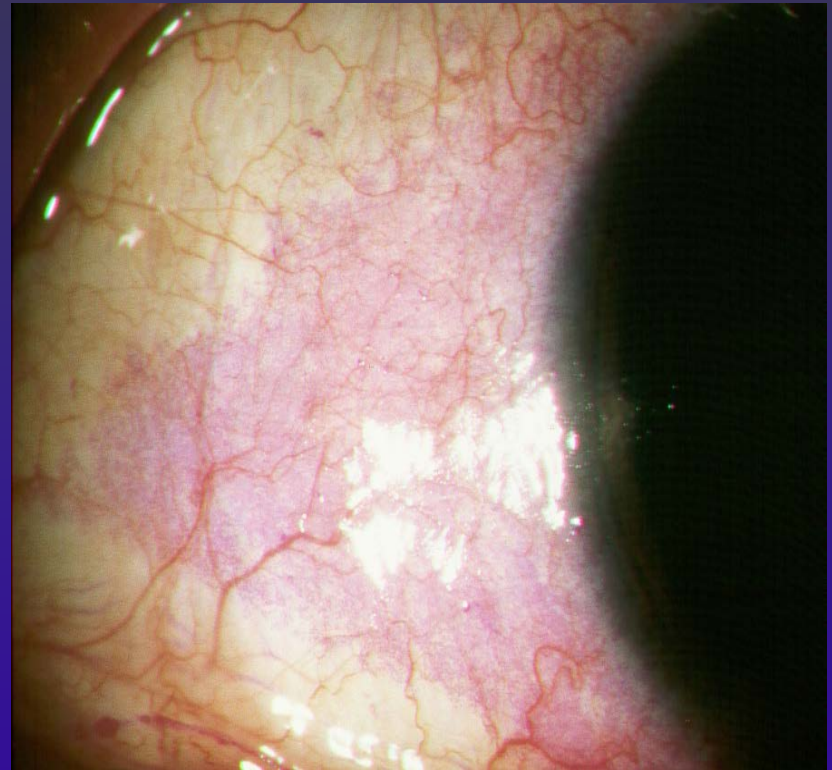
Hyperpurulent Bacterial Conjunctivitis

Copious discharge
may indicate
infection with
pseudomonas or
gonorrhea and
requires urgent
referral



Dry Eyes

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



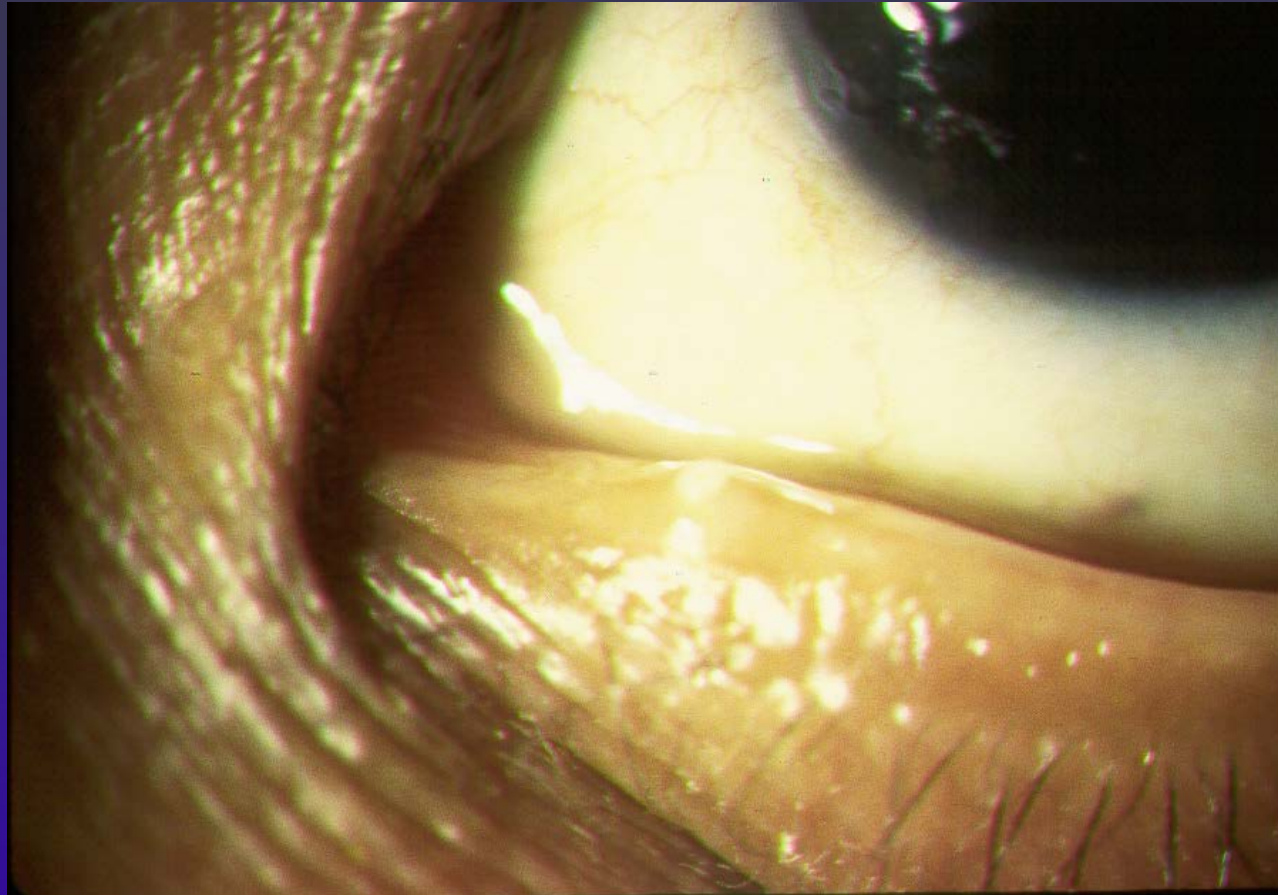
Dry Eyes

- 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
- Flaxseed oil 1000 mg daily
- Restasis (topical cyclosporine)
- Punctal plugs or occlusion

Punctal Plugs



Vision Threatening Red Eye

- Corneal infections
- Scleritis/episcleritis
- 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

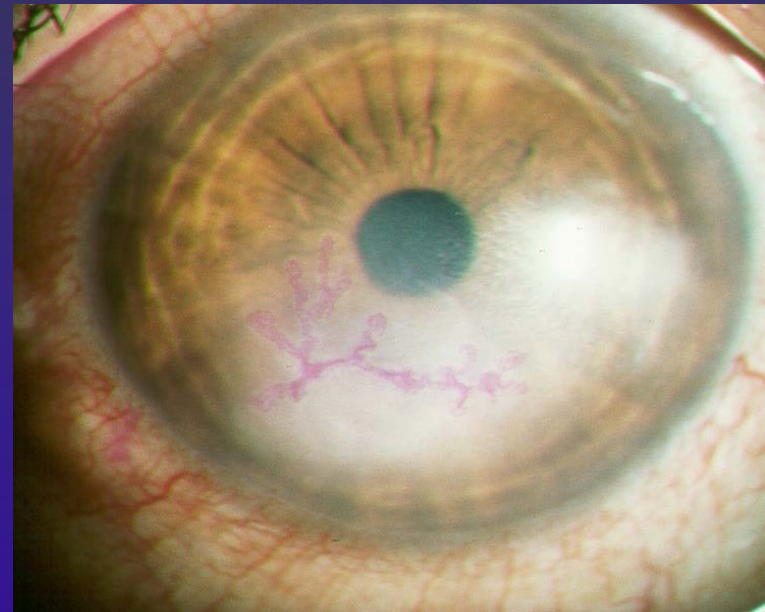
Herpes Simplex Keratitis

- Primary HSV
 - Conjunctivitis with watery discharge
 - Skin vesicles on lids
 - Enlarged preauricular lymph nodes
 - +/- corneal involvement with single or multiple dendrites
- Recurrent HSV

Primary HSV



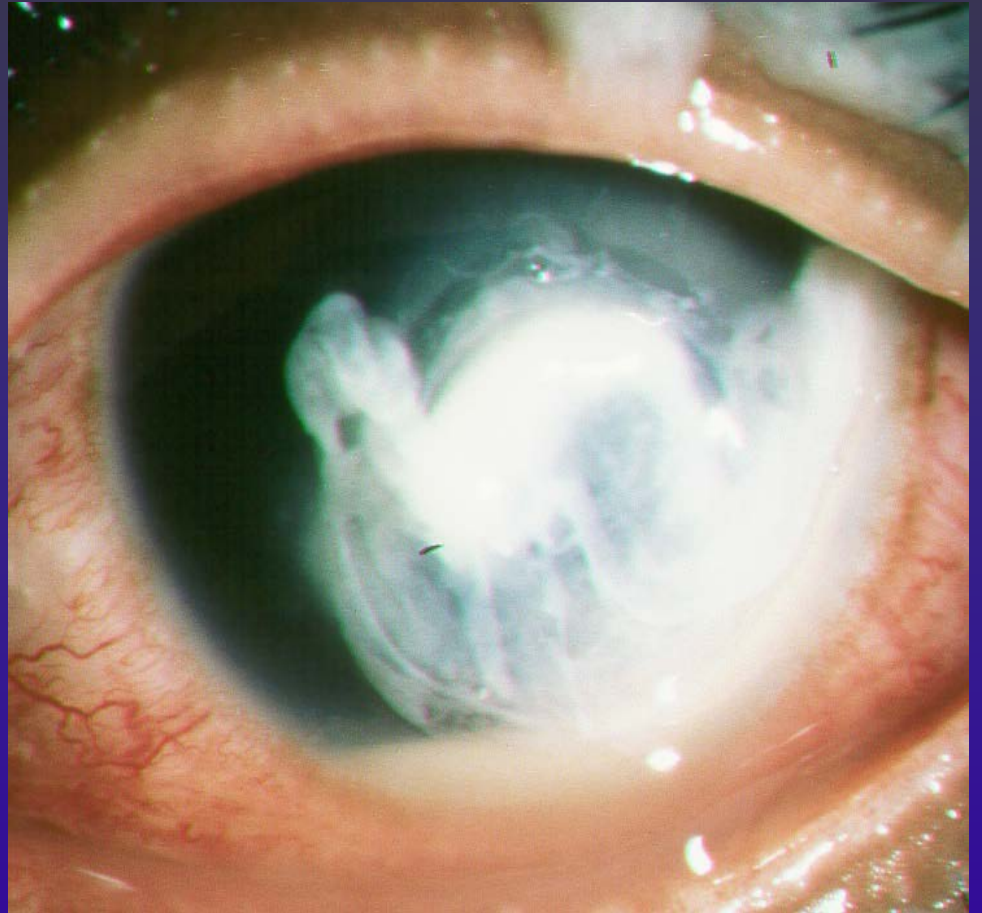
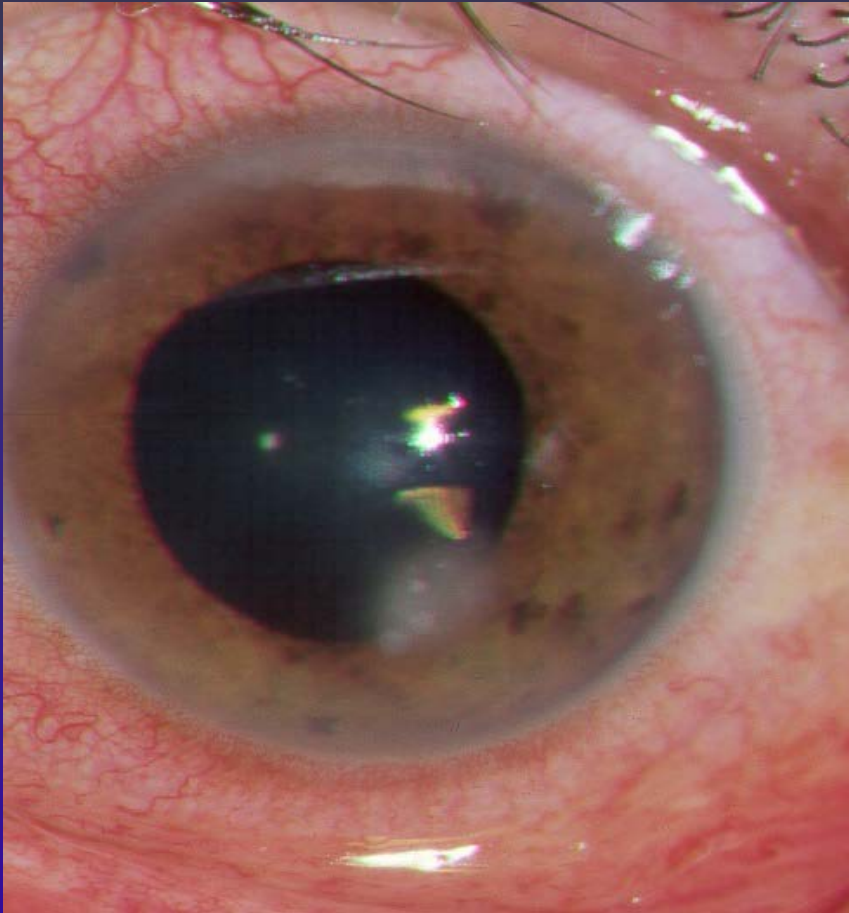
Recurrent HSV



Bacterial Keratitis

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

Bacterial Keratitis



Iritis/Uveitis

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

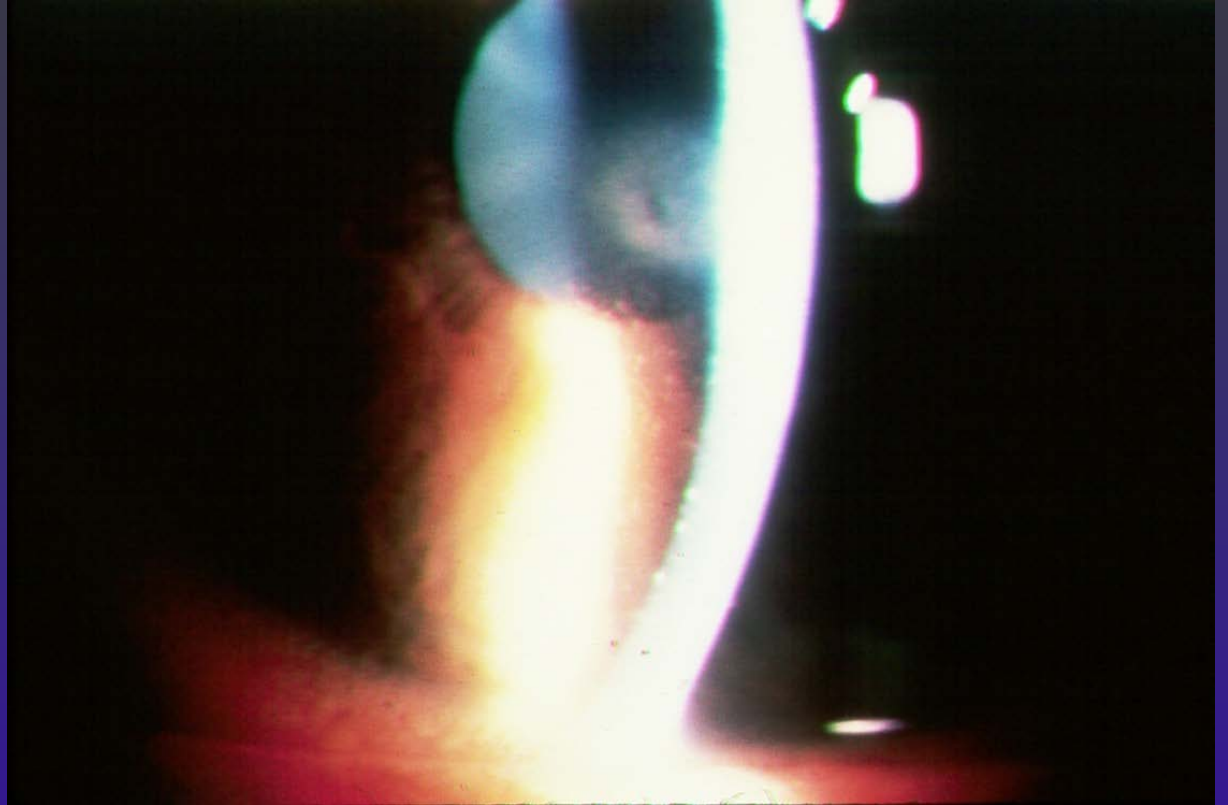
Iritis/Uveitis

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

Episcleritis

- Benign, self-limited inflammation of episclera (Tenon's capsule)
- Rarely associated with systemic disease
- Mild eye pain and tenderness
- Treatment: Oral NSAIDs



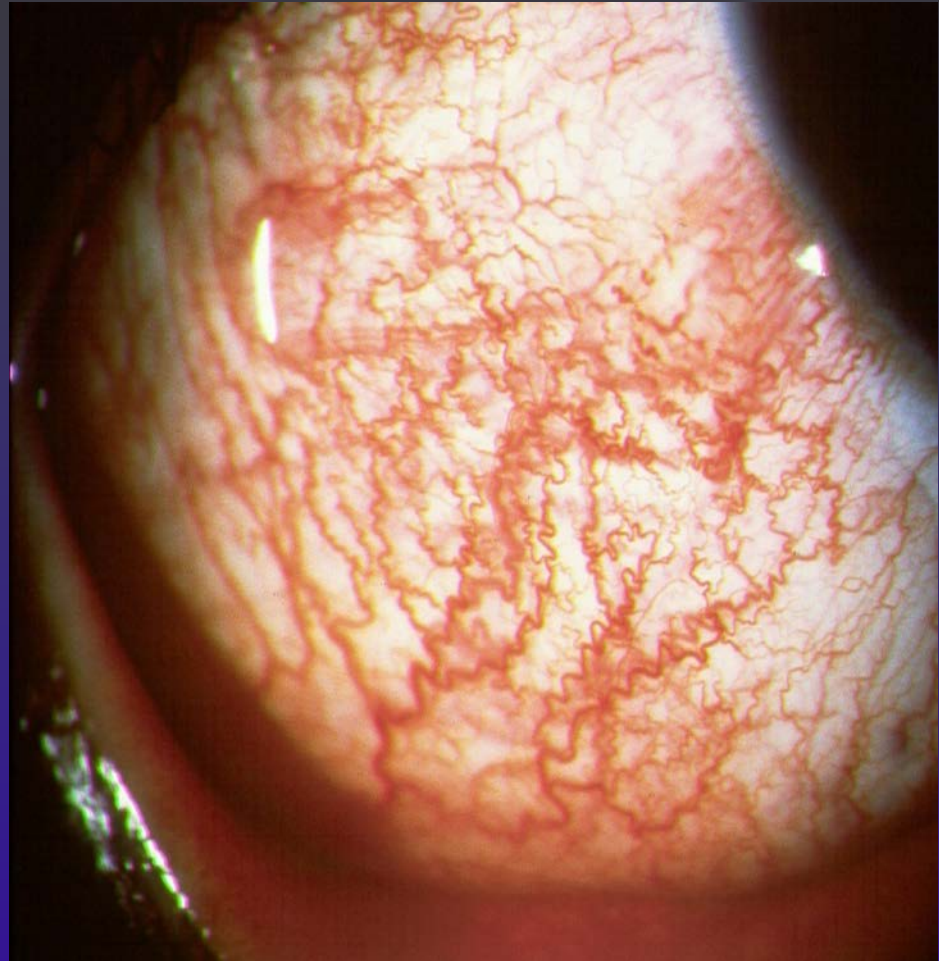
Scleritis

Inflammation of the wall of the eye.

Severe destructive disease, underlying systemic disease

Severe boring eye pain

Treatment with systemic steroids, NSAIDs, and/or immunosuppressives



Scleritis



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

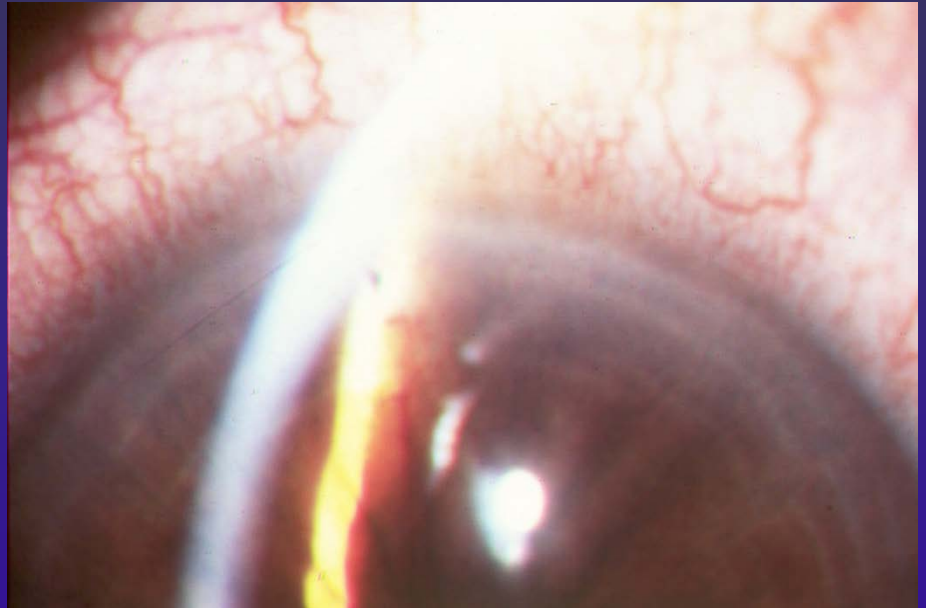


Angle Closure Glaucoma

- Symptoms
 - Severe ocular pain
 - Blurred vision
 - Halos around lights
 - Headache
 - Nausea and vomiting
- Clinical findings
 - High intraocular pressure
 - Mid-dilated sluggish pupil
 - Corneal epithelial edema
 - Conjunctival injection
 - Shallow AC

Angle Closure Glaucoma

- Medical treatment to lower IOP
 - Pilocarpine
 - Topical aqueous humor suppressants: timolol, brimonidine, carbonic anhydrase inhibitors
- Definitive therapy: Iridectomy



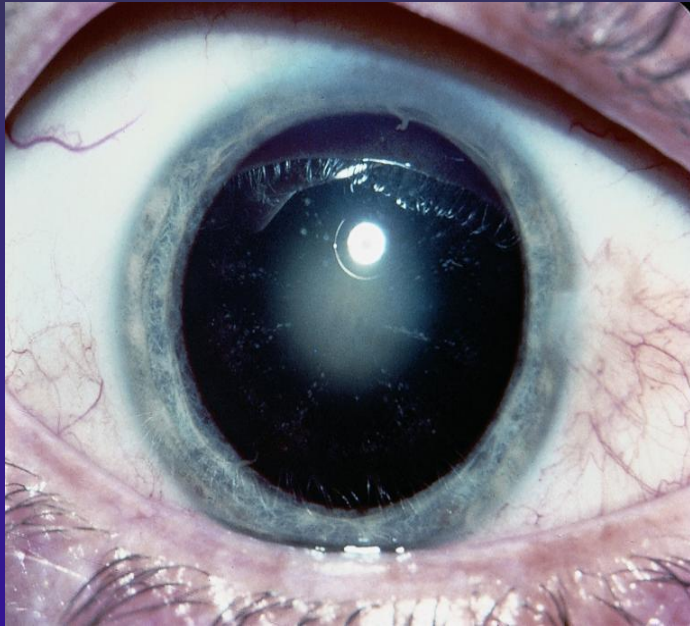
Cataract

- 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

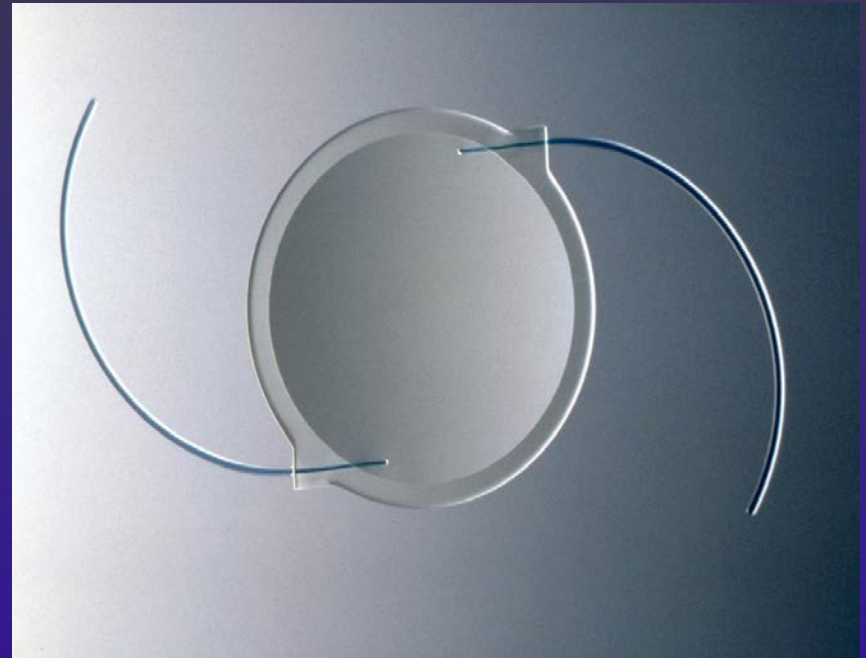


Treatment of Cataracts

- 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

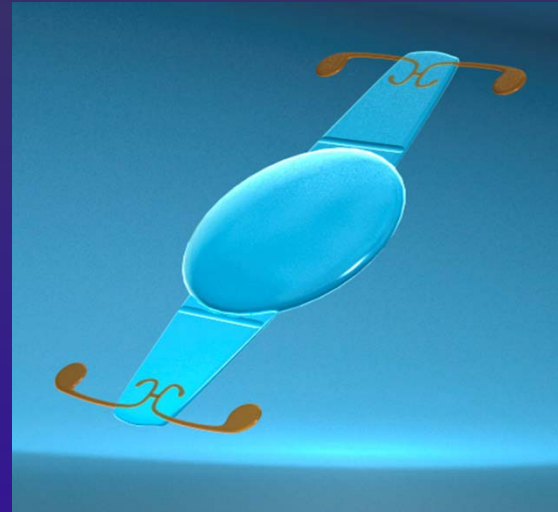


Intraocular lenses

Multifocal IOL



Accommodative IOL



Preoperative Preparation

- Decide based on patient's needs if cataracts are visually significant
- Measurements for IOL calculation
- Preoperative physical examination
- EKG in patients older than 65
- Laboratory studies as medically necessary
- Preoperative topical antibiotics and NSAIDS
- 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

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)

Diabetes

- Leading cause of blindness under age 65
- Prevalence increases with duration of disease
- Intensive control of blood glucose reduces the risk of retinopathy in both type I and II diabetics

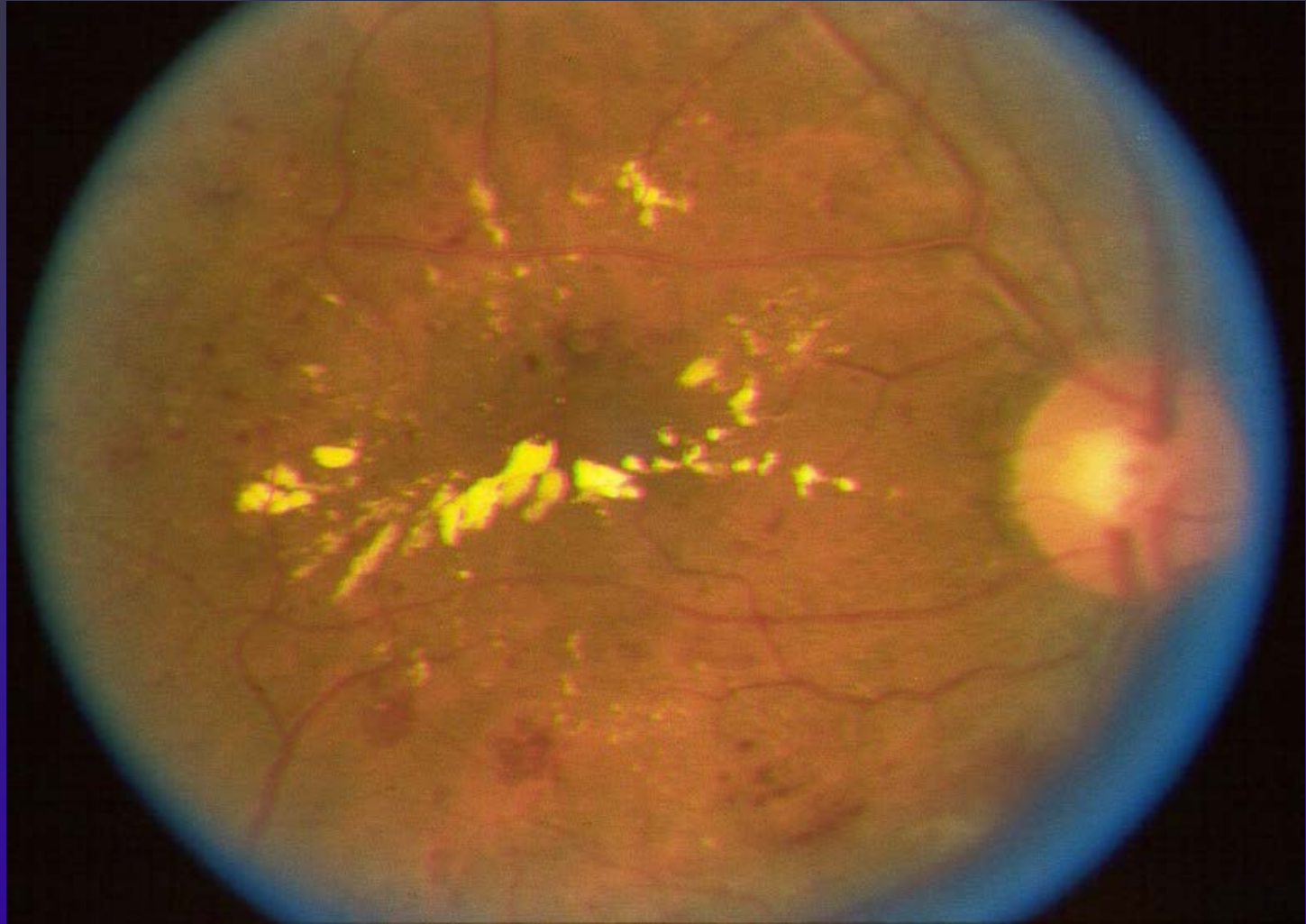
Nonproliferative Diabetic Retinopathy: Characteristics

- Microaneurysms
- Leakage of intravascular fluid
- Intraretinal hemorrhage
- Retinal ischemia due to capillary dropout

NPDR



NPDR



NPDR



NPDR: Treatment

- Intravitreal anti-VEGF (Diabetic Retinopathy Clinical Research Net)
 - Bevcizumab (Avastin)
 - Ranibizumab (Lucentis)
 - Aflibercept (Eyelea)
- Focal laser photocoagulation for clinically significant macular edema (CSME) reduces rate of vision loss by more than 50% (EDTRS)
- Intravitreal steroids

Proliferative Diabetic Retinopathy: Characteristics

- All of the findings of NPDR
- PLUS formation of neovascular tissue from the optic nerve or the retinal surface

PDR



PDR



PDR: Treatment

- Intravitreal anti-VEGF
- Panretinal photocoagulation
 - Involute neovascularization
 - Reduce risk of vitreous hemorrhage and/or reduce traction retinal detachment
- Vitrectomy
 - Remove nonclearing vitreous hemorrhage
 - Repair traction retinal detachment

Pitfalls in Diagnosis

- More difficult if pupils undilated
- CSME not visible without stereoscopic view
- IRMA difficult to distinguish from neovascularization
- Neovascularization unapparent or outside field of direct ophthalmoscope

Screening Recommendations

- Type I diabetics 5 years after onset, then yearly
- Type II diabetics at time of diagnosis, then yearly
- Diabetics who are pregnant early in the pregnancy and every trimester

Age-Related Macular Degeneration

- A leading cause of severe, irreversible vision impairment
- Characterized by
 - Drusen
 - RPE abnormalities
 - Geographic atrophy
 - Neovascular maculopathy

Age-Related Macular Degeneration

- Risk factors
 - Smoking doubles risk of AMD
 - +/-hypertension, cardiovascular disease, inflammation
 - Low levels of anti-oxidants

Dry ARMD



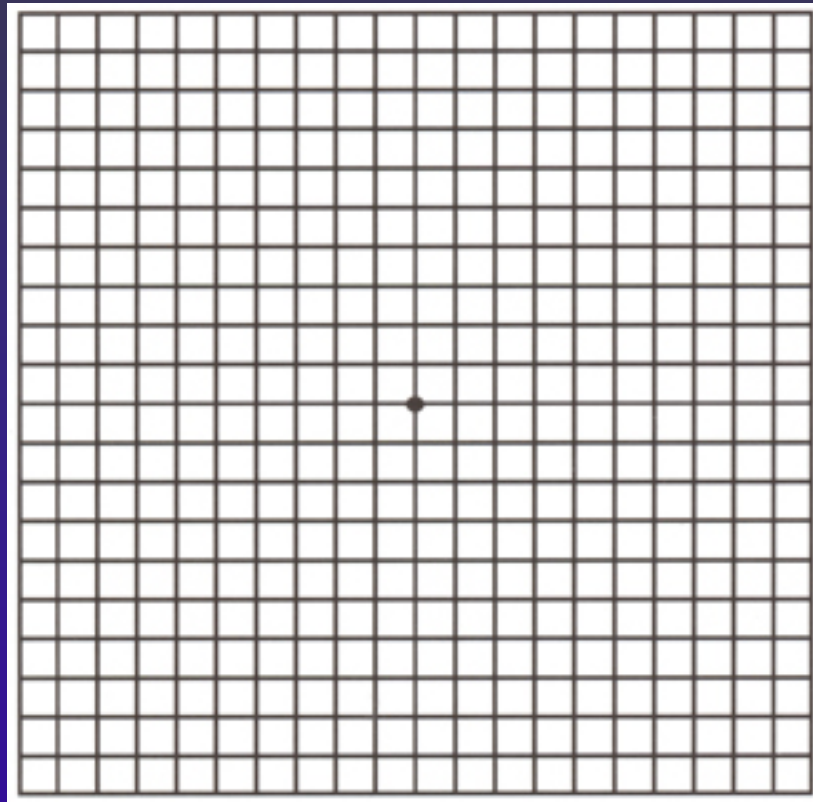
Wet ARMD



ARMD Treatment

- Dry ARMD
 - Diet rich in green leafy vegetables, no smoking, weight control
 - Anti-oxidant supplements for intermediate AMD or advanced AMD in one eye
- Wet ARMD
 - Intravitreal anti-VEGF (bevacizumab, ranibizumab, aflibercept)
 - Anti-oxidant supplements (AREDS 2 formula)

Amsler Grid



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

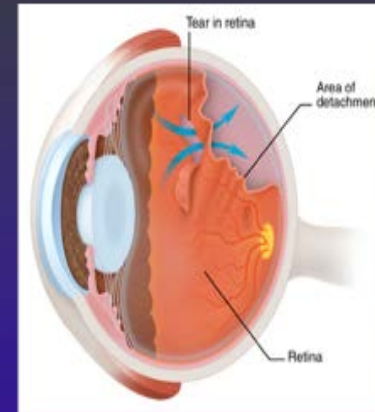
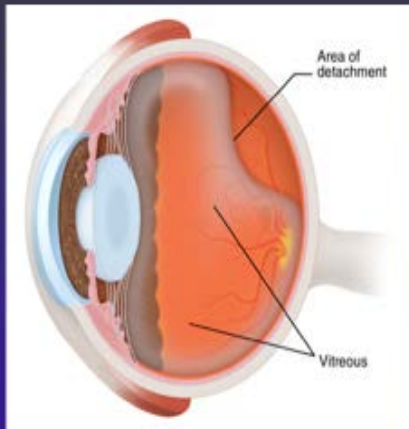
- Monocular: abnormalities in the refractive media
 - Corneal (high astigmatism)
 - Lenticular—cataract or dislocated lens
 - Retinal (rarely)
- Binocular: misalignment of the visual axis
 - Cranial nerve palsy
 - Giant cell arteritis
 - Demyelinating disease
 - Myasthenia gravis
 - Thyroid orbitopathy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

Flashes and Floaters

Patients need to be examined to detect and treat retinal holes and detachments.

What is the differential diagnosis?

- Posterior vitreous detachment
- Retinal hole/detachment
- Vitreous hemorrhage
- Posterior segment inflammation
- Trauma
- Migraine



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