

Acute Anterior Uveitis

Carmen Santos M.D.
University of Puerto Rico

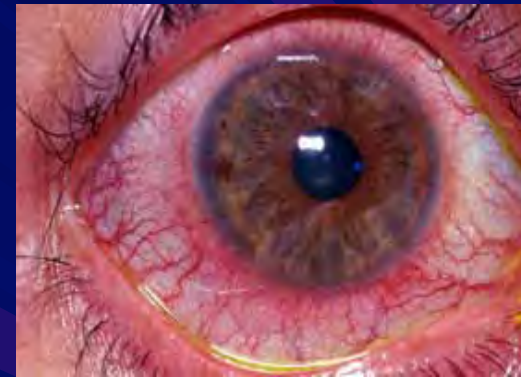
Anterior uveitis

- Most common form of uveitis
- Accounts for large majority of uveitis cases
- Annual incidence rate
 - 8 per 100,000 population
 - 102-341 per 100,000 population in
 - patients 65 and over
- Always rule out primary keratitis and scleritis

Anterior Uveitis

■ Acute anterior uveitis (AAU)

- Acute iritis
- Acute iridocyclitis
- Spillover iridocyclitis



■ Chronic iridocyclitis



AAU

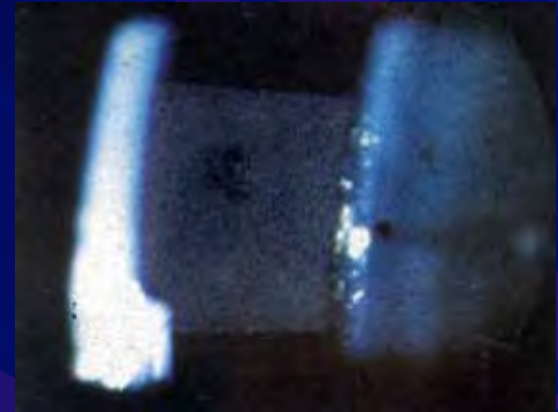
Acute Anterior Uveitis

- Acute iritis or iridocyclitis
 - Pain
 - Redness
 - Photophobia



AAU

- Ciliary flush
- Small pupil
- Flare and cells in A/C
- Cells in retrolental space or anterior vitreous (l-cy)
- Keratic precipitates
- Posterior synechiae



Acute Anterior Uveitis (AAU)

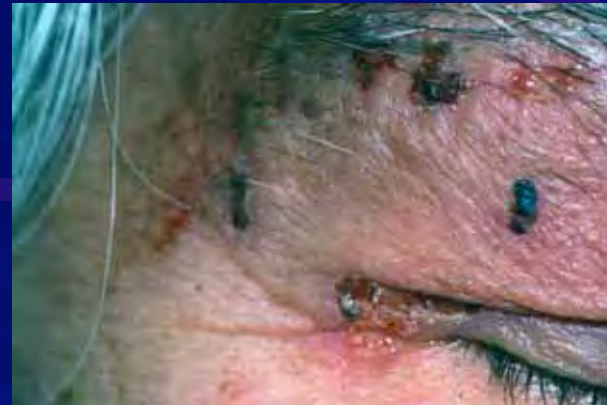
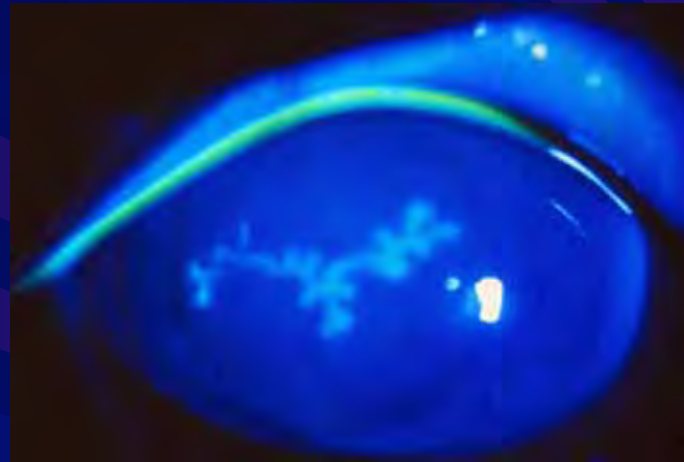
Iritis and Iridocyclitis

- Trauma
- Allergies
- Viruses
- HLA-B27 related diseases
- Glaucomatocyclitic crisis
- Lens-induced uveitis

Viral Uveitis

Herpes Viruses

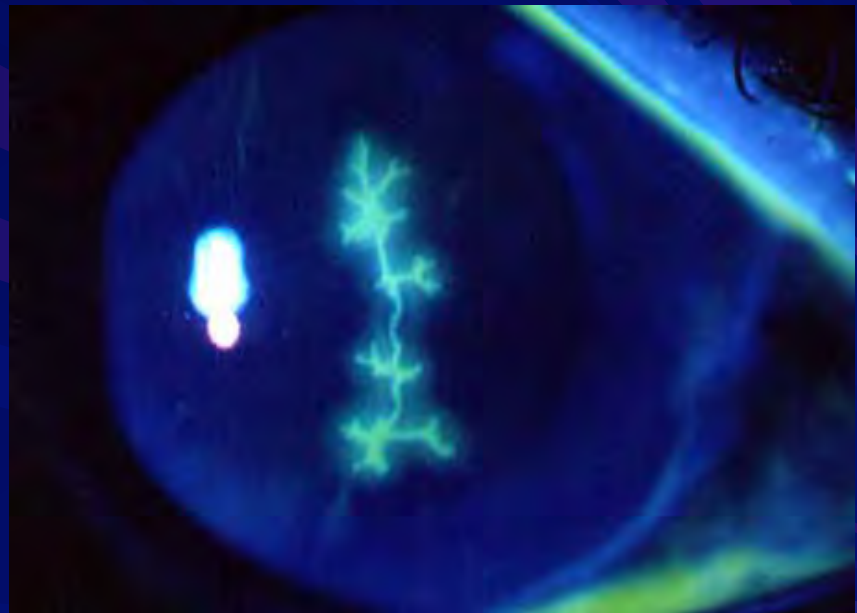
- Herpes simplex
- Herpes zoster
- CMV
- EBV



Viral Uveitis

Herpes Simplex

- Reactive iritis in HSK
 - Dendritic keratitis
 - Disciform keratitis
 - Stromal necrotizing keratitis
- Keratouveitis
- Recurrent iritis



Viral Uveitis

Herpes Simplex

- Iritis most commonly accompanies stromal necrotizing or disciform keratitis
- Keratic precipitates tend to cluster on the endothelium in the region of corneal disciform edema
- Secondary glaucoma is common



Anterior Uveitis

Herpetic Uveitis

- Recurrent uveitis in the absence of corneal involvement is a recognized herpetic manifestation
- May have or not previous history of HSK
- May be bilateral in immunosuppressed or atopic patients
- Herpes viruses (HSV) is a significant cause of AAU

Herpetic Uveitis

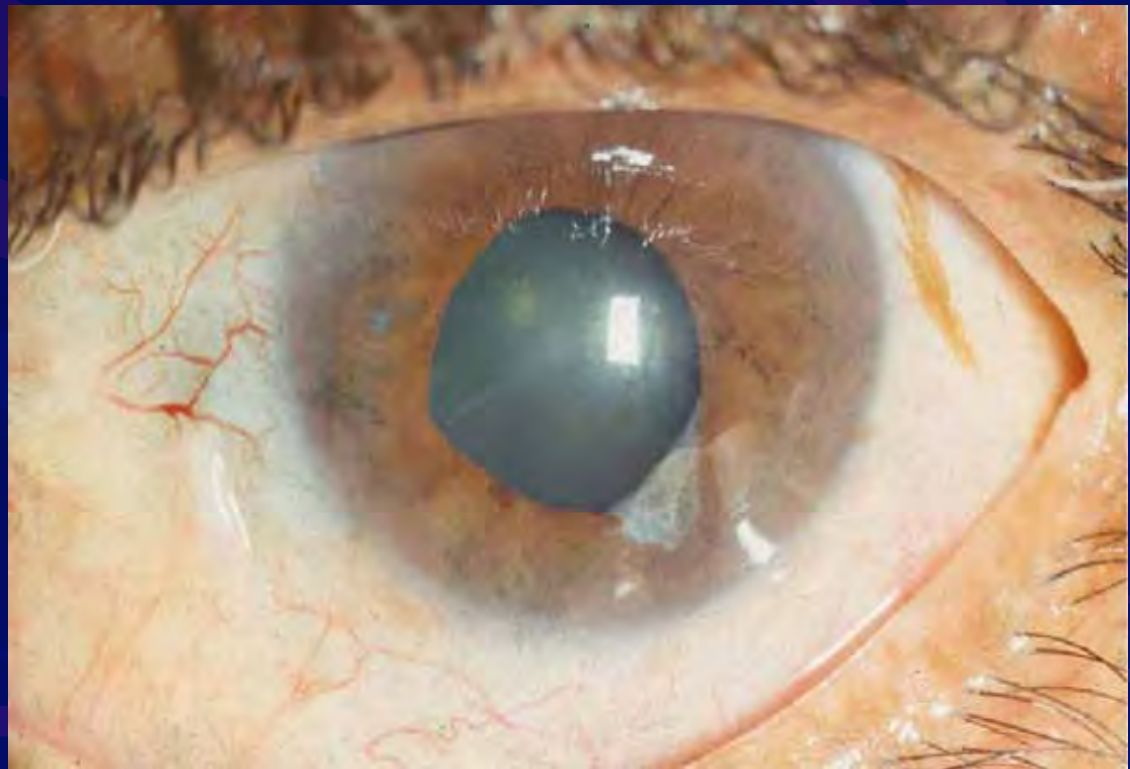
Sectorial iris atrophy

-May need transillumination to see

■ Oval shaped pupil

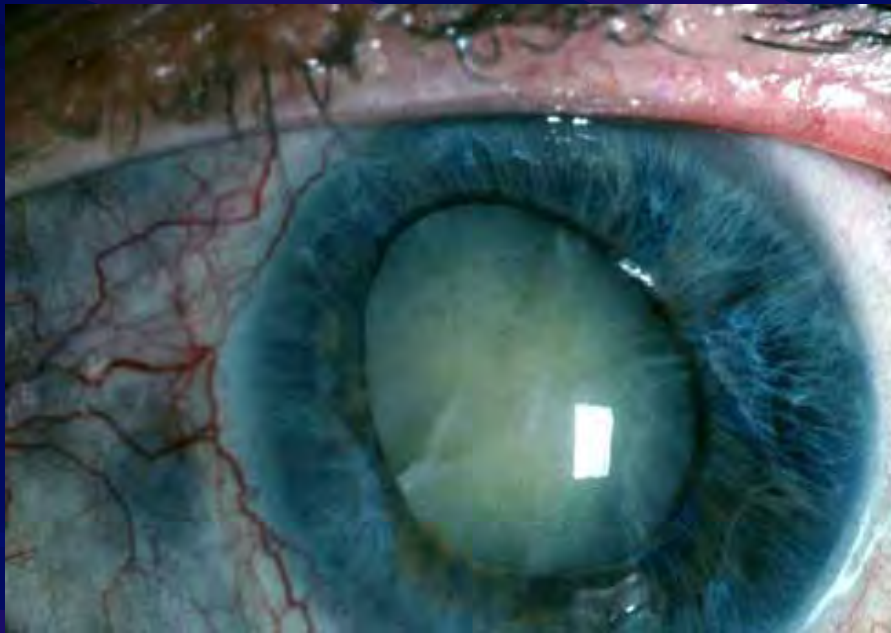
– Sphincter atrophy

■ Increased intraocular pressure

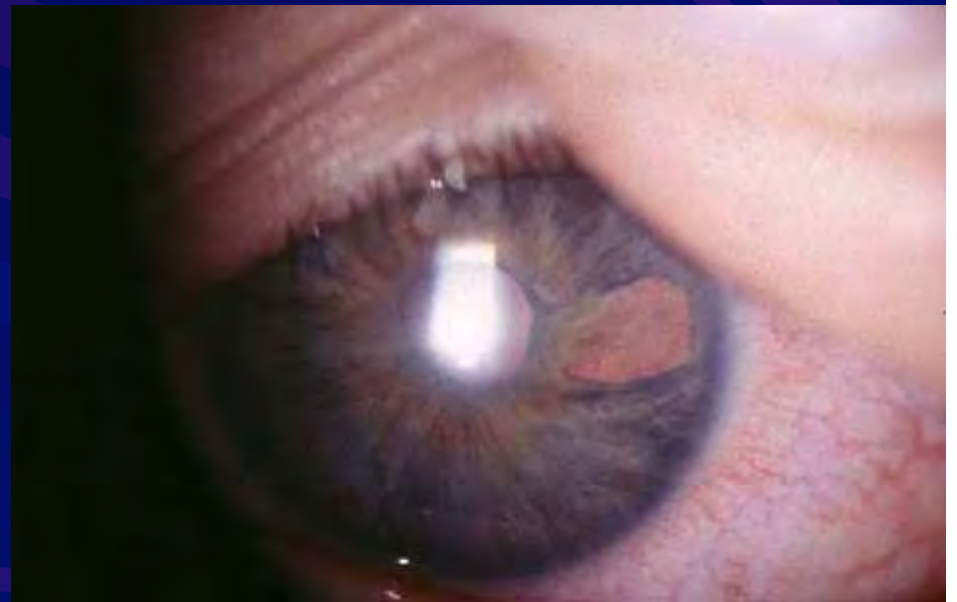


Herpetic Uveitis

Iris Atrophy



Herpetic Uveitis in Absence of Corneal Involvement



Herpetic Uveitis



- Centrally located or scattered KP's



Hyphema/Hypopyon

Viral Uveitis

Herpes Viruses

- Intraocular pressure is elevated, even when the anterior chamber reaction is not great
- Acute elevations in intraocular pressure that are not associated with significant anterior uveitis are presumably related to occult trabeculitis

Viral Uveitis

Herpes Viruses

- Virus most commonly associated with anterior uveitis is HSV-1
- HSV-1 may be suspected in 1 to 9% of all cases of unilateral anterior uveitis
- HSV-2, Varicella zoster, EBV and CMV may give a similar clinical picture

Viral Uveitis

Herpes Zoster



- Chronic uveitis and glaucoma
- Lesion in side or tip of nose (Hutchinson's sign)
- Chronic steroid treatment often needed

Herpetic Uveitis Treatment

■ Systemic antivirals

- Acyclovir 200-400mg 5 times/day
 - VZV 800mg 5 times/day
- Valtrex 500mg TID
 - VZV- 1gm TID
- Famvir 125-250mg TID
 - VZV- 500mg TID

■ Topical steroids

- Taper gradually up to 1 drop/week

Herpetic Uveitis

Steroids

Should not be used without antiviral coverage

Prednisolone acetate 1% QID

Topical antivirals

Topical acyclovir 3%

penetrates into A/C

Trifluorothymidine (viroptic)

punctal occlusion

Prolonged use may give toxicity

Herpetic Eye Disease Studies (HEEDS)

Long-term suppressive treatment with acyclovir decreased significantly (by 50%) the rate of recurrences in patients with herpetic uveitis or keratouveitis

Acyclovir 400mgBID for 1 year

Acute Anterior Uveitis

HLA-B27 Antigen

- AAU most common form of intraocular inflammation
- 50% associated with the HLA-B27 allele
- HLA-B27 is highly associated with the seronegative spondyloarthropathies
 - RF factor negative

Acute Anterior Uveitis

HLA-B27 Antigen

- Seronegative spondyloarthropathies:
 - Ankylosing spondylitis
 - Reactive arthritis
 - Psoriatic arthritis
 - Enteropathic arthritis (IBS)
 - Crohn's disease,
 - Ulcerative colitis
 - Reiter's syndrome

Acute Anterior Uveitis

HLA-B27 Antigen

- 50% of patients with AAU are HLA-B27+
- 6% of general population in US is HLA-B27+
- 90% of patients with ankylosing spondylitis are HLA-B27+
- 60-95% of patients with Reiter's syndrome are HLA-B27+

HLA-B27–associated Anterior Uveitis

- HLA-B27–associated systemic disease is present in 58% of the patients with anterior uveitis (78% in recent European study)
 - Half of them had the systemic problem diagnosed as a result of the uveitis diagnosis
- HLA-B27–associated iritis can also occur in the absence of any systemic diseases
- HLA-B27–associated uveitis can be severe, can produce posterior segment manifestations, and cause loss of vision

Acute Anterior Uveitis

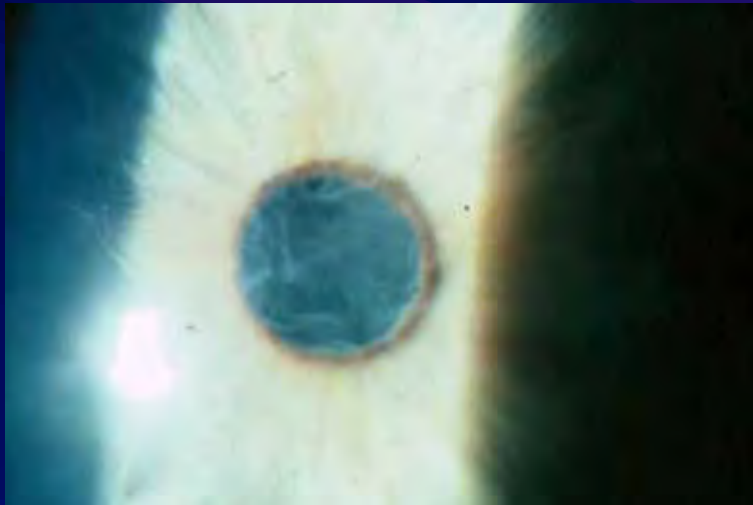
HLA-B27 Uveitis

- Acute recurrent iridocyclitis
- Pain, redness and photophobia
- Bilateral but alternates eye
- One eye more often affected



Acute Anterior Uveitis

HLA-B27 Uveitis



- Fibrinous reaction



- Hypopyon

Ankylosing Spondylitis

- Affects young men
- Sacroiliitis- may be asymptomatic in its earliest stages
- Sacroiliac joint X-rays should be done in young males with AAU
- Rheumatology evaluation

Ankylosing Spondylitis

- Vertebral fractures and subluxations may occur
- Cardiac conduction disturbances
- Peripheral arthritis, especially involving the upper joints
- Aortic insufficiency
- Pulmonary apical fibrosis

Ankylosing Spondylitis



Ankylosing Spondylitis

- Anterior uveitis develops in about 25% of patients with ankylosing spondylitis
- Ocular inflammation associated with ankylosing spondylitis is acute, recurrent, and highly symptomatic
- Eighty percent of patients eventually show bilateral involvement, but this involvement is rarely simultaneous

Reiter's Syndrome

- Nongonococcal urethritis
- Conjunctivitis
- Arthritis
- Conjunctivitis is the most common ocular finding, but it is often transient
- May be followed by recurrent iritis in a significant percentage of patients

Reiter's Syndrome

- Uveitis occurs in 5-10% of patients
- Anterior uveitis similar to that in ankylosing spondylitis
- Uveitis may become bilateral

Reiter's Syndrome

Systemic Findings

- Keratoderma blennorrhagica (a scaling dermatitis with special predilection for the soles of the feet)
- Aphthous ulcers
- Circinate balanitis
- Most develop arthritis that involves the knees, feet, wrists, or hands
- Sacroiliitis occurs primarily in the 80% of patients with Reiter's syndrome who are HLA-B27 positive

Reiter's Syndrome

- May follow Gram-negative dysentery or nongonococcal urethritis secondary to:
 - *Chlamydia trachomatis*
 - *Ureaplasma urealyticum*
 - *Salmonella*
 - *Shigella*
 - *Yersinia*
- Antibiotic tx may be useful

HLA-B27–associated Anterior Uveitis

- Treatment
 - Topical, periocular and systemic steroids
- Permanent loss of vision may occur from:
 - Macular edema
 - Epiretinal membrane formation
 - Glaucoma
- Synechiae form rapidly
 - Vigorous pupil dilatation indicated

Tubulointerstitial nephritis uveitis TINU

- Adolescent girls and women in early 30's
- Symptoms
 - Redness
 - Variable pain, blurred vision, photophobia
 - May have posterior segment findings
 - Ocular findings more severe in recurrent disease
- Common cause of uveitis in children in Japan

Tubulointerstitial nephritis uveitis TINU

- Systemic findings usually occur before ocular disease
- Renal findings
 - Abnormal urinalysis
 - Increased B2 microglobulin
 - Proteinuria
 - Glucosuria
 - Hematuria
 - Abnormal creatinine or creatinine clearance

Tubulointerstitial nephritis uveitis TINU

- Cause not clear but cellular immunity seems to play a role
 - Activated T-lymphocytes in kidney interstitium
 - renal biopsy shows severe interstitial fibrosis
- Treatment consists of high dose oral steroids

Lens-associated Uveitis

- Immune reaction to lens material
- Occurs after disruption of lens capsule
 - Traumatic
 - Surgical
- Leakage of lens proteins through lens capsule
 - Hypermature cataracts

Lens-associated Uveitis

- Phacoantigenic Endophthalmitis
 - phacoanaphylaxis
- Phacolytic glaucoma
- Phacotoxic Uveitis
- IOL associated post-op uveitis
- Chronic endophthalmitis

Lens-associated Uveitis

- Uveitis may result from immune reaction to lens material
- Disruption of lens capsule
 - Trauma
 - Surgery
- Leakage of proteins through lens capsule in hypermature cataract

Lens-associated Uveitis

- Altered tolerance to lens proteins
- Patients may become sensitized after surgery in one eye and develop uveitis after surgery in the second eye
- Inflammation may be granulomatous or non-granulomatous
- May be acute or insidious

Lens-associated Uveitis

Phacogenic uveitis

- Mutton fat keratic precipitates
- Significant flare and high-grade cell in the anterior chamber
- May develop hypopyon
- Formation of anterior or posterior synechiae
- Increased intraocular pressure
- May be difficult to differentiate from post-op endophthalmitis

Lens-associated Uveitis

■ Pathology:

- Zonal granulomatous reaction may be present at center of lens injury (phacoanaphylaxis)
- Phacoanaphylaxis frequently associated with sympathetic ophthalmia (20% of patients)

Lens-associated Uveitis

■ Treatment:

- Steroids
- Removal of lens material



Lens-associated Uveitis

Phacolytic Glaucoma

- Low-grade uveitis with elevation in intraocular pressure
- Keratic precipitates not present
- Corneal edema
- Hypermature cataract that leaks liquefied cortex
- Macrophages engulf cortex; block TM



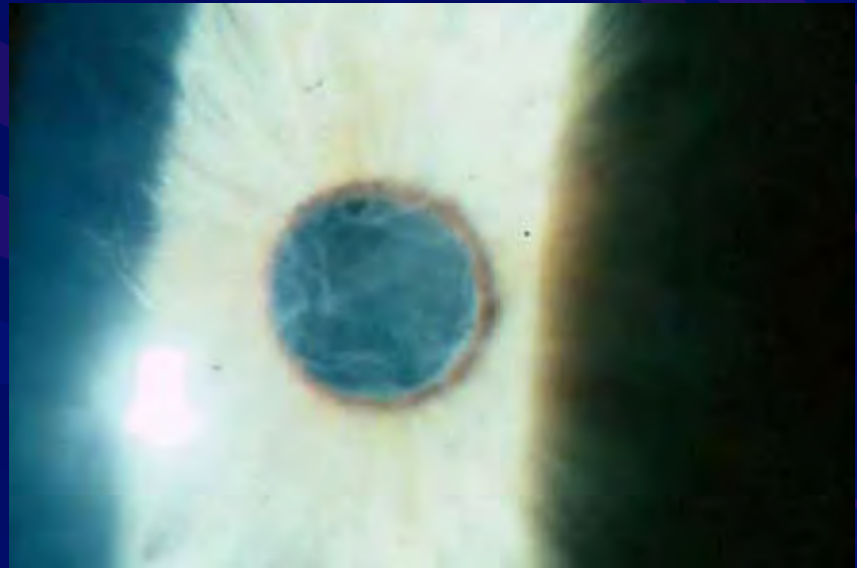
Phacolytic Glaucoma Treatment

- Suppression of inflammation with topical steroids
- Lowering of IOP with osmotic agents
- Immediate removal of the inciting lens

Lens-associated Uveitis

Post-cataract surgery

- Acute fibrinous reaction
- Chronic low grade uveitis
- More common after second eye surgery probably due to sensitization to lens proteins exposed after first eye surgery



Lens-associated Uveitis

- Aqueous and vitreal cultures are essential because infectious endophthalmitis can produce identical signs and symptoms in the same clinical settings



Intraocular Lens (IOL) Associated uveitis

- Ranges from mild to the UGH syndrome
- Chronic endophthalmitis

IOL associated uveitis

■ UGH syndrome

- Uveitis, glaucoma, hyphema
- Relates to poorly manufactured lenses
- Rigid A/C IOL's
- Irritation of iris root

■ Incidence is less than 1% with modern IOLs

Chronic Endophthalmitis

- *Propionebacterium acnes*
- Months to years after cataract surgery
- History of recurrent anterior uveitis since the surgery
- Initial response to steroids
- Eventually shows severe granulomatous reaction
- White deposits on posterior capsule

Chronic Endophthalmitis P acnes

