

Ocular manifestations of HIV disease

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What is the incidence of eye involvement in HIV?

1. 10 – 15%
2. 30 – 35%
3. 50 – 55%
4. 70 – 75%



Ocular manifestations

➤ Incidence

- 70% - 75% of patients with HIV/AIDS will develop ocular disease sometime during the course of their illness
- It may be the first sign

➤ Etiology

- Microvasculopathy
- Opportunistic infections
- Neoplasms
- Immune dysregulation (autoimmune and hyperallergic diseases)



Ocular manifestations

- ▶ Presentation

- ▶ External (orbital and adnexal) manifestations
- ▶ Anterior segment manifestations
- ▶ Posterior segment manifestations
- ▶ Neuro –ophthalmic manifestations

Ocular manifestations correlating with immune status and stage of HIV infection

CD4	EXTERNAL EYE	ANTERIOR SEGMENT	POST SEGMENT	NEURO OPHTHALMIC
1000		Stevens-Johnson Syndrome		Headache
500-1000	Allergic conjunctivitis Hypertrichosis	HIV uveitis Childhood arthritis and uveitis	Retinal vasculitis	Optic neuritis
200-500	Dry eye Blepharitis HZO Kaposi's sarcoma Molluscum contagiosum OSSN	Herpes zoster Herpes simplex Keratitis	Intraocular lymphoma Tuberculosis uveitis Syphilitic uveitis	Cryptococcal M Lymphoma TBM
0-200			HIV Retinopathy CMVR PORN Toxoplasmosis	

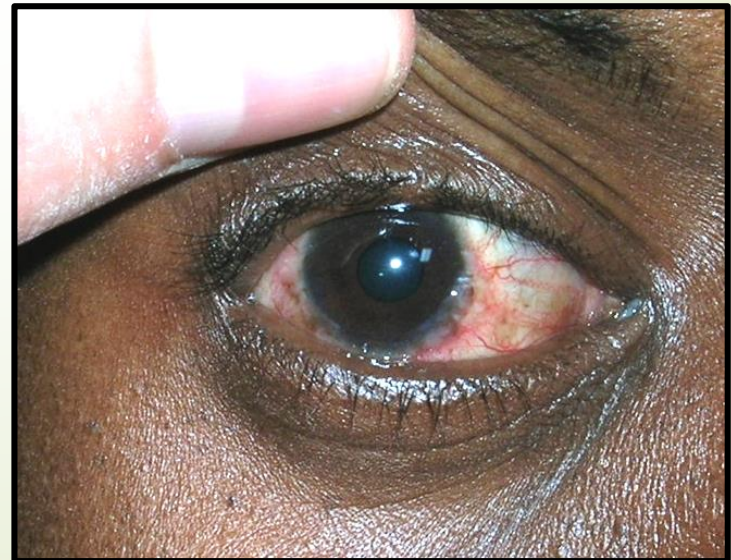


External eye manifestations

- Allergic conjunctivitis
- Dry eyes (sicca)
- Blepharitis
- Trichomegaly/hypertrichosis
- Molluscum contagiosum
- HZO
- Ocular surface squamous neoplasia (OSSN)
- Kaposi's Sarcoma
- Orbital cellulitis
- Orbital lymphoma

Allergic conjunctivitis

- ▶ Uncomfortable, red, itchy and sticky eyes
- ▶ Similar to vernal conjunctivitis
- ▶ Onset at older age
- ▶ Stringy discharge
- ▶ Mostly responds to weak steroid drops eg fluoromethalone but may need systemic treatment
- ▶ Recurs



Dry eyes (sicca syndrome)

- ▶ Burning uncomfortable red eyes
- ▶ Due to destruction of lacrimal gland tissue or lid infections or secondary to Stevens-Johnson syndrome
- ▶ Treat with artificial tears



Blepharitis

- Common
- Often associated with recurrent Meibomian cysts
- Lid hygiene, lid scrubs and hot compresses
- Antibiotic ointment



Trichomegaly/hypertrichosis

- ▶ Exaggerated eyelash growth
- ▶ Unknown cause but likely autoimmune



Molluscum contagiosum

- DNA virus of pox virus family
- Small elevation with central umbilicus
- Often multiple and bilateral in AIDS
- Treatment:
 - Surgical excision
 - Curettage
 - Cryotherapy

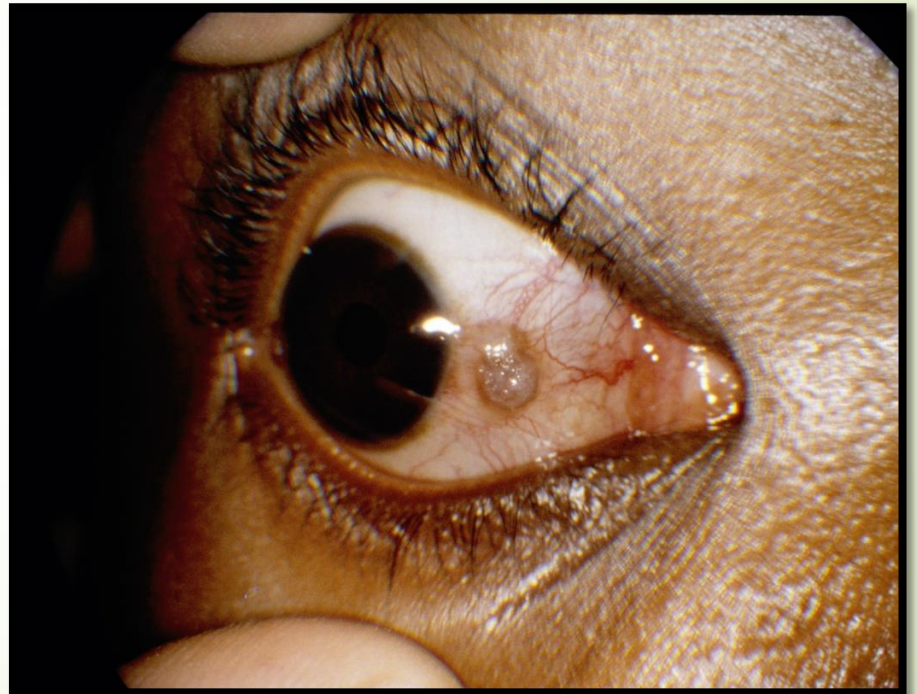


What is the most common ocular malignancy in HIV?

1. Kaposi sarcoma
2. Lymphoma (intraocular)
3. Lymphoma (orbital)
4. Ocular surface squamous neoplasia (OSSN)

Ocular Surface Squamous Neoplasia (OSSN)

- ▶ Patients <50yrs - ± 50% are HIV +ve
- ▶ Spectrum
 - ▶ Mild dysplasia
 - ▶ Moderate dysplasia
 - ▶ Severe dysplasia
 - ▶ Carcinoma-in-situ (CIS)
 - ▶ Invasive squamous carcinoma



OSSN

- More aggressive in HIV disease
- Elevated, well-demarcated grey to red gelatinous mass
- Interpalpebral
- Straddles nasal or temporal limbus
- Prominent feeder vessels
- Surface keratin
- May be papilliform with tufted superficial vessels



OSSN



Locally invasive if neglected



OSSN

► Treatment

► Surgery

- Complete local excision with or without lamellar dissection into sclera or corneal stroma
- Enucleation of eye or exenteration of orbit if neglected and invading eye or orbit
- MMC 0,4% tds alternate weeks x3



Kaposi sarcoma (KS)

- ▶ ± 30% of AIDS patients
- ▶ 20% of these involve the eyelid skin or conjunctiva.
- ▶ More malignant when associated with HIV and can disseminate
- ▶ Red/purple (violaceous) subepidermal/subepithelial nodule
- ▶ Flat to elevated



KS

► Treatment

► Local

- Radiotherapy (8Gy)
- Cryotherapy
- Surgical excision
- Intralesional vinblastin

► Systemic


- Cytotoxic chemotherapy
- Immunotherapy (alpha-interferon)



Orbital disease

- ▶ Fortunately rare
- ▶ Ptosis or proptosis may occur due to:
 - ▶ Infections
 - ▶ Inflammation
 - ▶ Neoplasmsof the paranasal sinuses and orbital tissues





Anterior segment manifestations

- Stevens-Johnson syndrome
- Uveitis associated with arthritis in children
- Anterior uveitis in adults

- Herpes Zoster Ophthalmicus (HZO)
- Herpes Simplex keratoconjunctivitis
- Keratitis

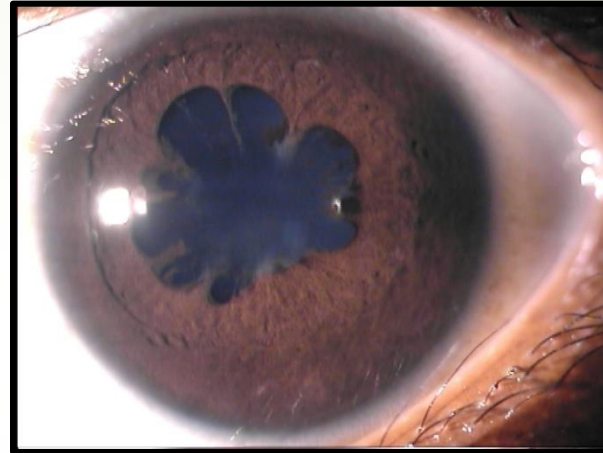
Stevens-Johnson Syndrome

- Mucocutaneous disease resulting in acute membranous conjunctivitis
- Caused by infections (HIV per se, Herpes simplex, streptococcus species) or drugs (ARVs, sulfonamides)
- Can lead to severe dry eyes, conjunctival vascularization and keratinisation



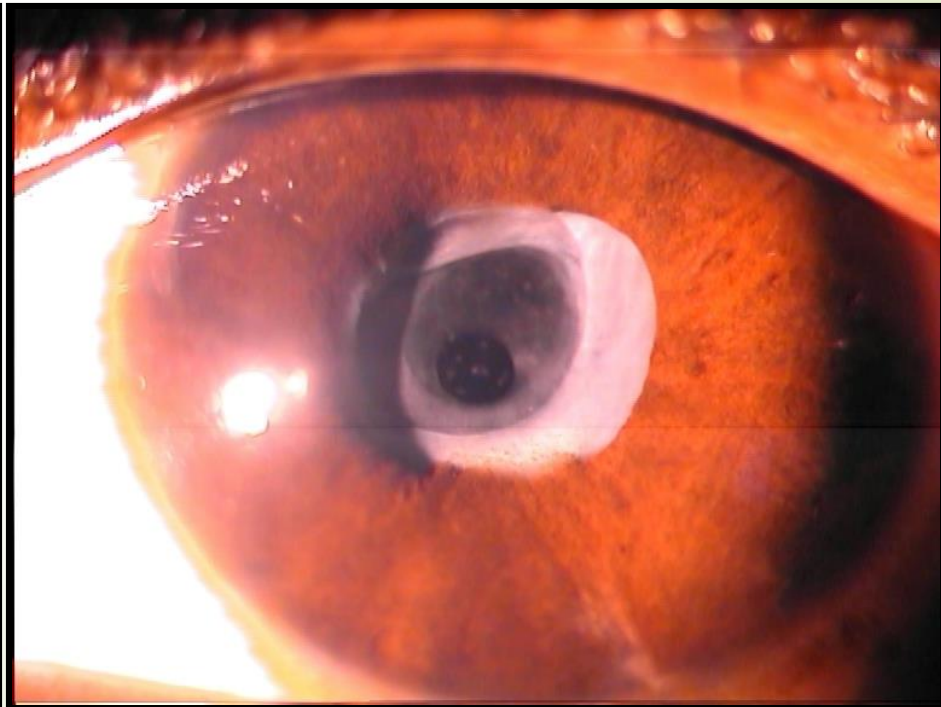
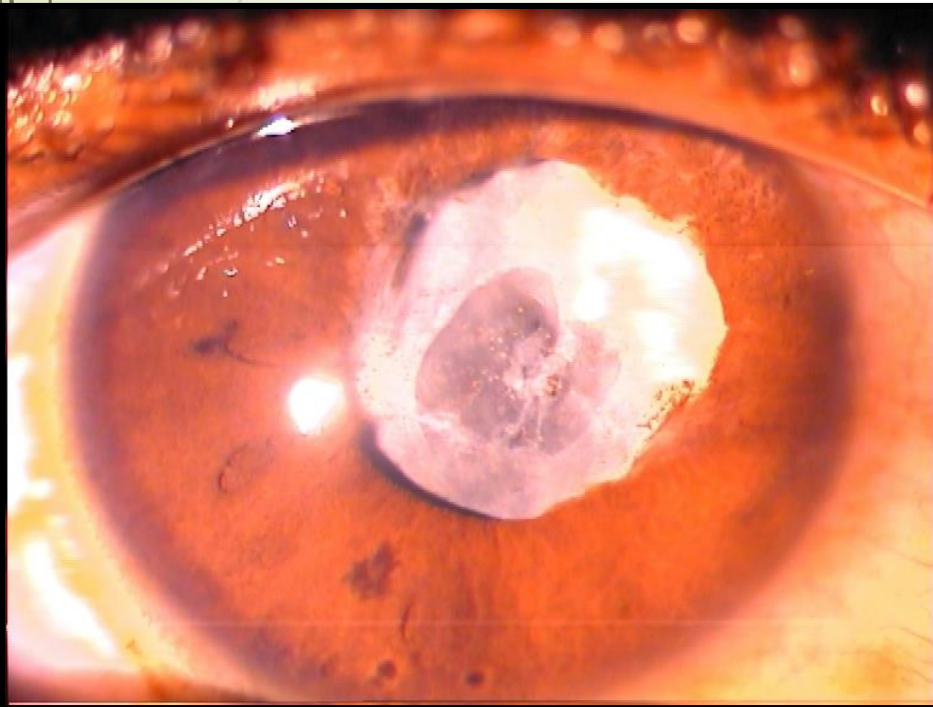
Uveitis associated with arthritis in children

- ▶ Similar to JIA, but polyarticular rather than pauciarticular, more common in males and all ANA negative



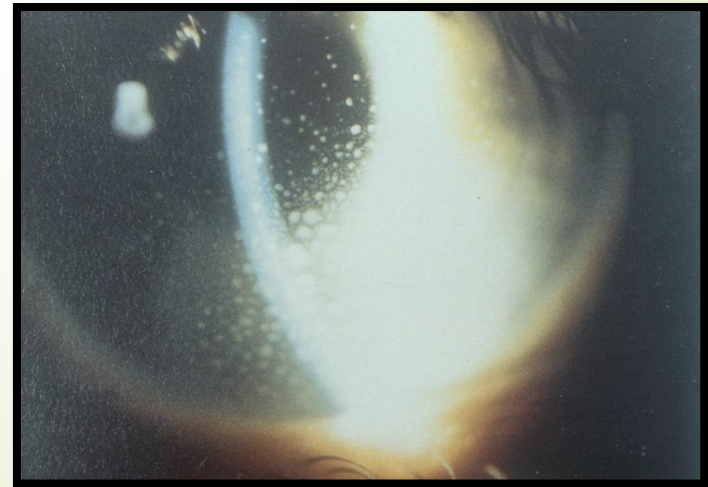
Uveitis/arthritis in children

- Following bilateral cataract surgery



Anterior uveitis in adults

- ▶ Caused by HIV per se or other viruses (Herpes or CMV) or bacteria (syphilis or TB)
- ▶ Signs and symptoms
 - ▶ Pain and redness
 - ▶ Decrease in vision
 - ▶ Mild inflammation
 - ▶ AC activity
- ▶ Treat with steroid eye drops and treat underlying infection



Herpes zoster ophthalmicus (HZO)

- ▶ Patients <40yrs usually HIV +ve
- ▶ Worse clinical course than HIV -ve
- ▶ Early or late in course of HIV disease
- ▶ Ocular involvement may be severe



HZO

- ▶ Maculo-papulo-vesicular rash in trigeminal nerve distribution
- ▶ Vesicles become pustules in 3 to 4 days, then dry and crust in 10 to 12 days
- ▶ Neuralgia in the dermatome can continue for months or years



HZO

- ▶ Ocular involvement common (>70%)
 - ▶ Hutchinson's sign (Vesicles on tip of nose)
 - ▶ Conjunctivitis
 - ▶ Keratitis
 - ▶ Dendritic
 - ▶ Neurotrophic
 - ▶ Episcleritis/Scleritis
 - ▶ Uveitis



HZO

- Secondary bacterial infection often occurs which compounds the scarring and leads to cicatricial entropion or ectropion
- Chronic inflammation may lead to corneal vascularization, opacification, lipid keratopathy, thinning and even perforation of the cornea



HZO

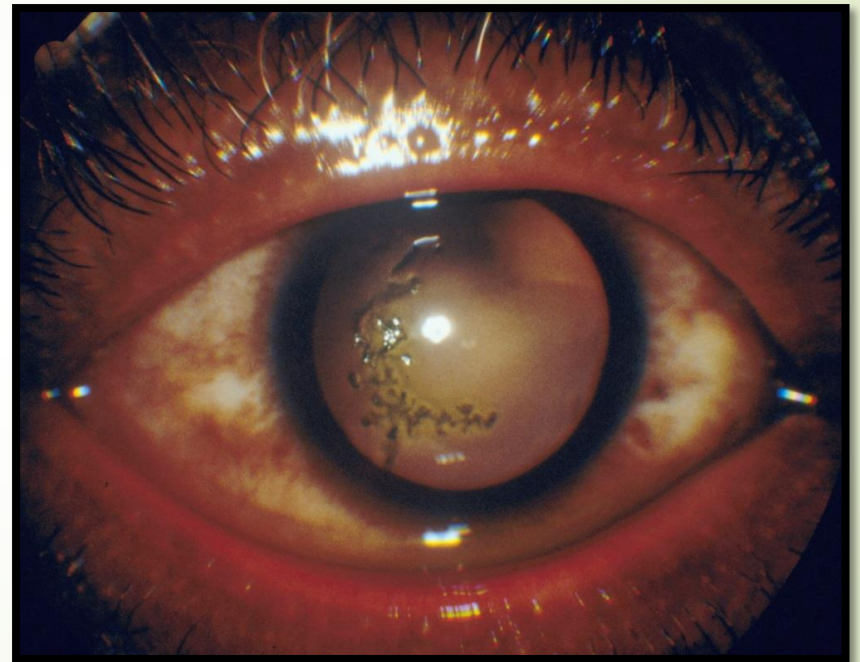
► Treatment

- Avoid dessication
- Antivirals (7 – 10 days)
 - Acyclovir (Zovirax)
800mg 5x/day
- Analgesics
 - Eg Brufen (acute pain)
 - EMLA gel
- Amitriptyline at night for neuralgia



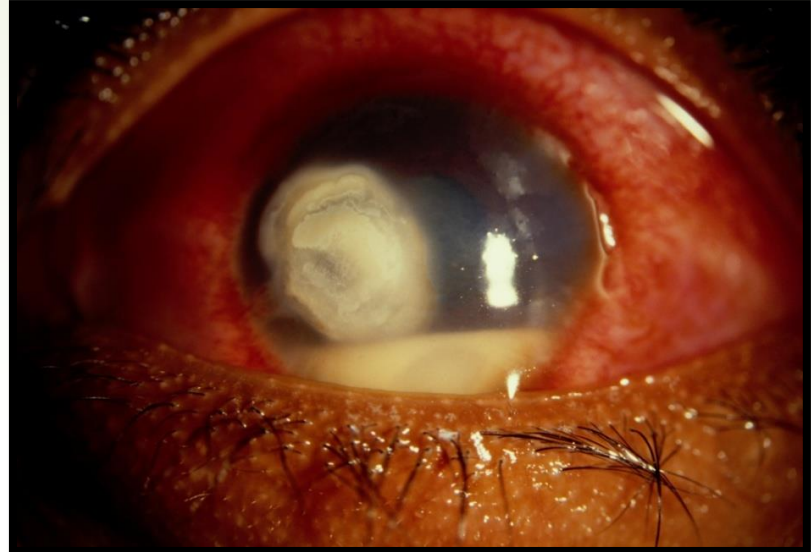
Herpes simplex

- Keratoconjunctivitis
- Keratitis
- More frequent recurrences
- Dendrites located peripherally
- Treatment:
 - Acyclovir – sometimes resistant
 - Topical acyclovir ointment 5 x dly



Keratitis

- Bacterial or fungal
- Larger and more aggressive
- Slow improvement on treatment





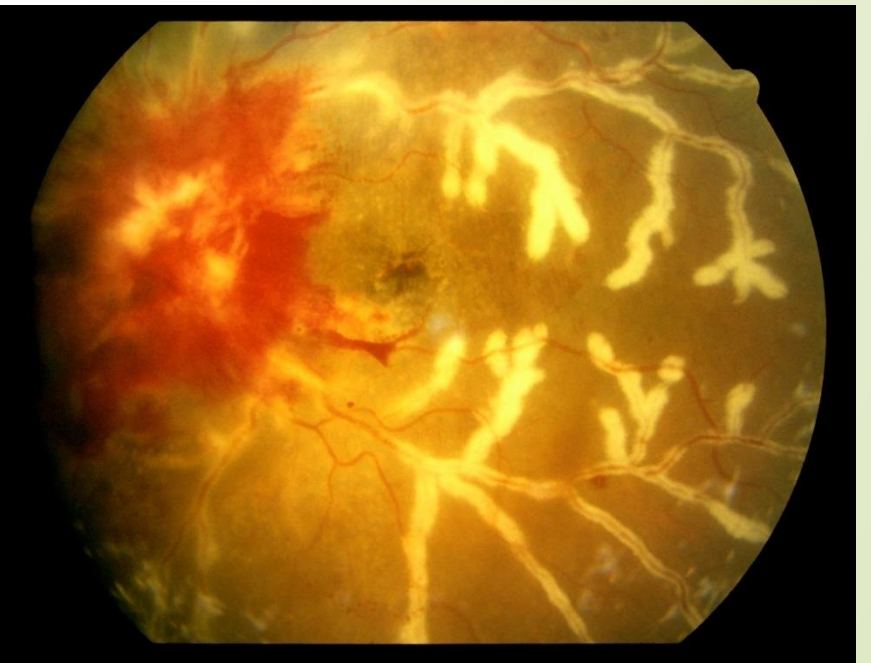
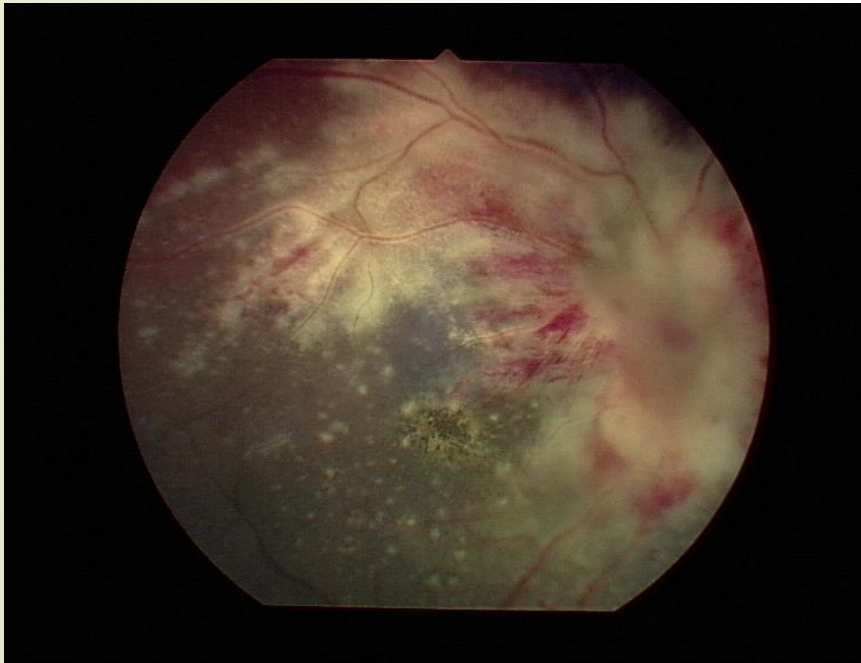
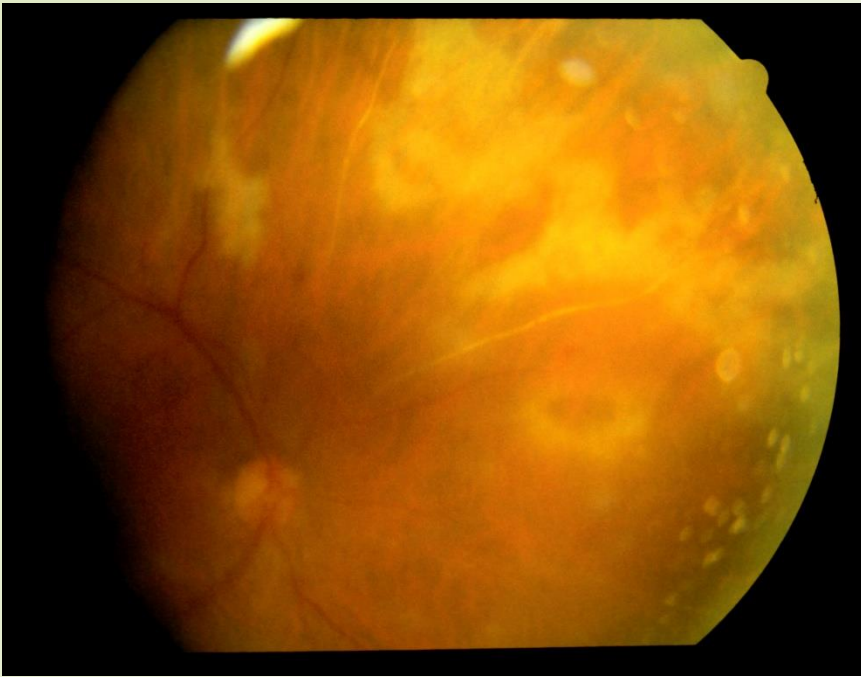
Posterior segment manifestations

- ▶ Cytomegalovirus Retinitis (CMVR)
- ▶ Progressive Outer Retinal Necrosis (PORN)
- ▶ Toxoplasmosis chorioretinitis
- ▶ Tuberculous choroiditis/choroidal granulomas
- ▶ Syphilitic chorioretinitis
- ▶ Multifocal choroiditis of disseminated disease
- ▶ HIV microangiopathy (cotton-wool spots)

CMV Retinitis

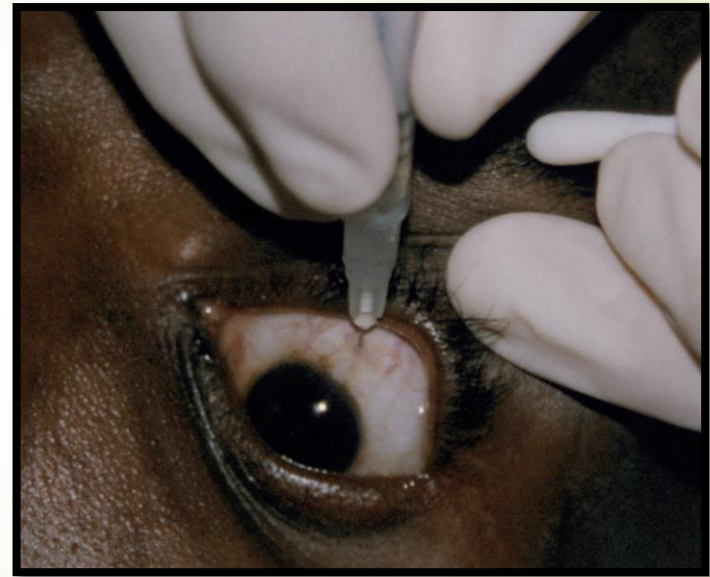
- Most common cause for visual loss in AIDS.
- Typically in advanced stages of AIDS when CD4+ < 50 cells/mm³
- Full-thickness retinal necrosis
- Various patterns of infection
 - Brushfire, fulminant, indolent, perivascular, peripheral, frosted branch angiitis





**CMVR is treated with intraocular ganciclovir injections.
What is the frequency of injections?**

1. Twice a week
2. Weekly
3. Fortnightly
4. Monthly
5. Every 2 months



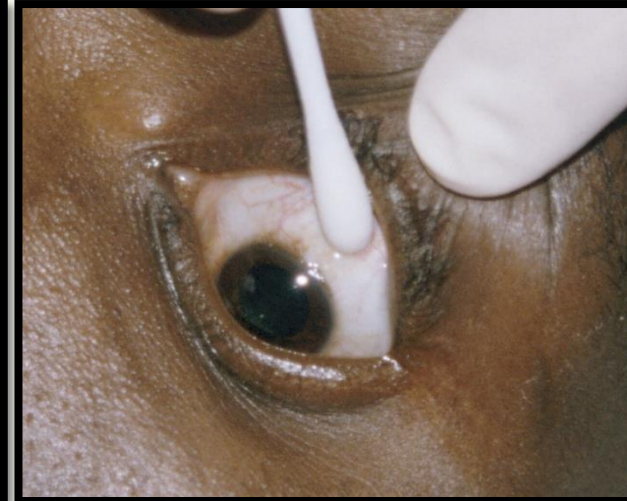
Treatment

Intravitreal ganciclovir

Twice weekly for 2 – 3 weeks

Weekly thereafter until
CD4 > 60

Then fortnightly until
CD4 > 100



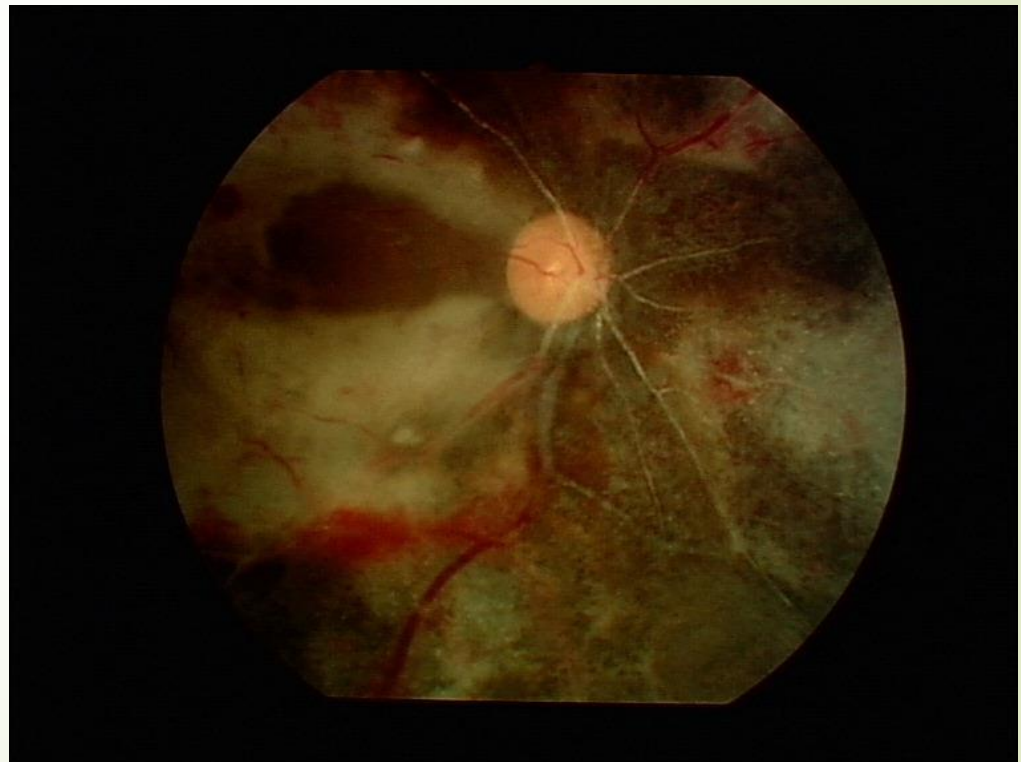
Progressive outer retinal necrosis (PORN)

- HSV or VZV
- Often have a history of cutaneous zoster infection, recent chicken pox infection or HSV ulcer
- Rapid progression in circumferential fashion
- Relative sparing of retinal vasculature early in the course

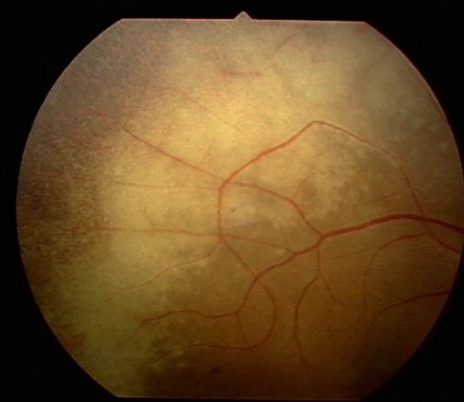


PORN

- 67% blind within 1 month – mainly due to rhegmatogenous RD
- Treatment is with intravitreal GCV – excellent response
- Add oral acyclovir



The rapid progression of PORN



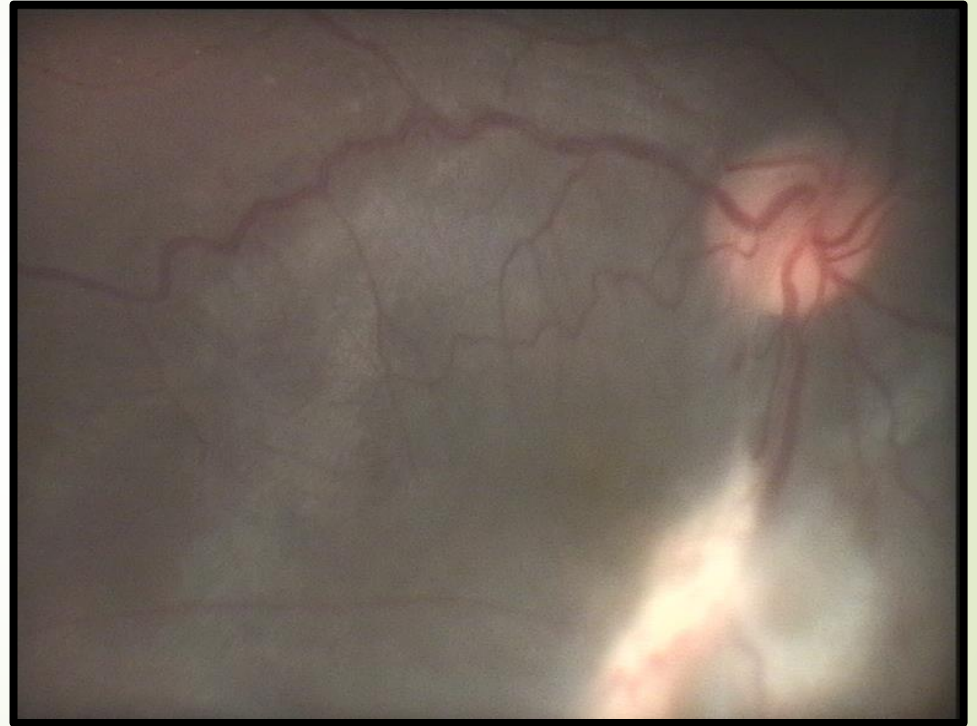
Toxoplasmosis

- Intense, white, focal area of retinal necrosis
- Solitary, multifocal or miliary patterns
- Larger than in immunocompetent individuals and usually no preexisting scar
- Substantial inflammation



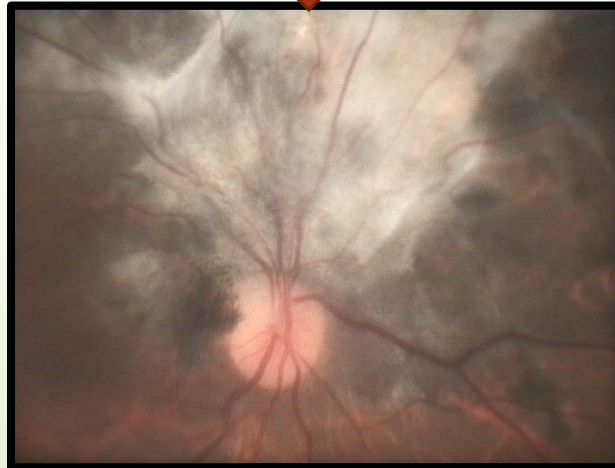
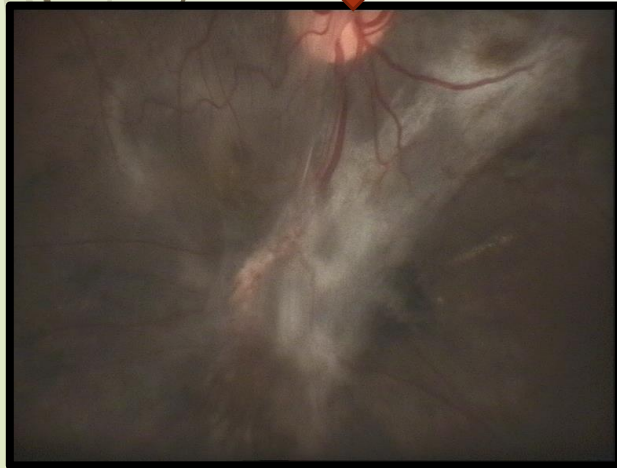
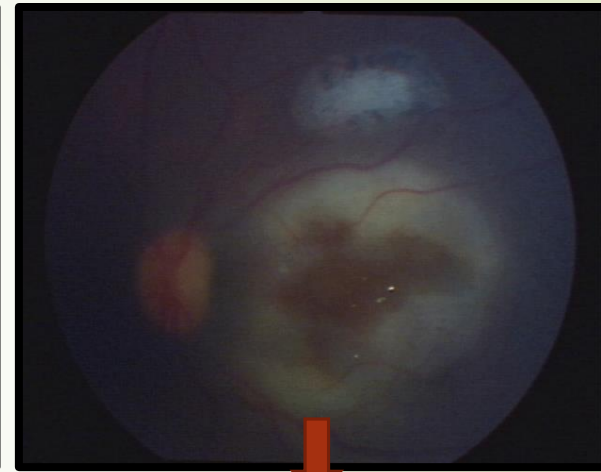
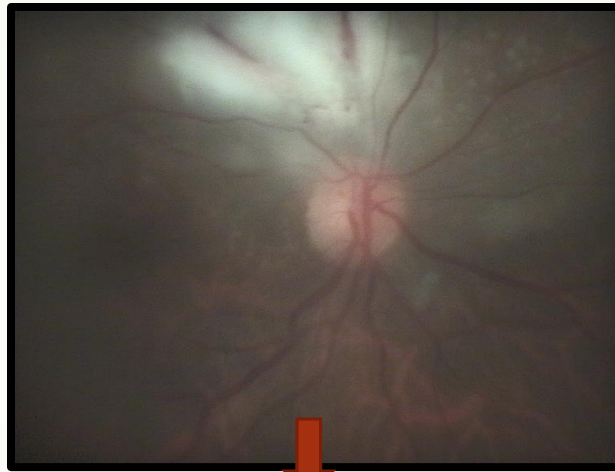
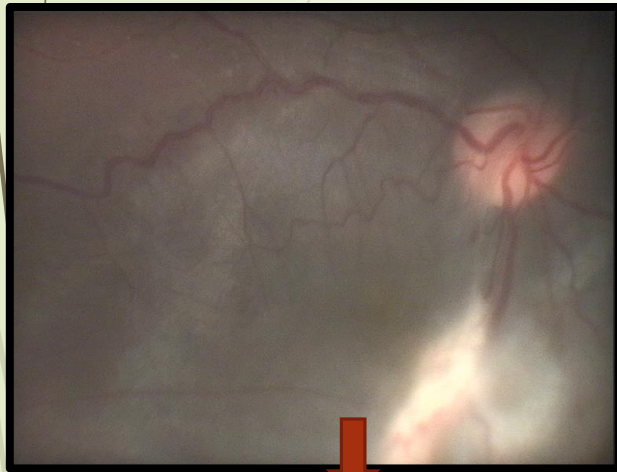
Toxoplasmosis

- Almost always has concomitant CNS involvement
- 10-40% of population has latent infection (congenital or acquired)
- Reactivation of quiescent tissue cysts in HIV – 90% brain involved, then lungs and retina
- Diagnosis on serology - IgG

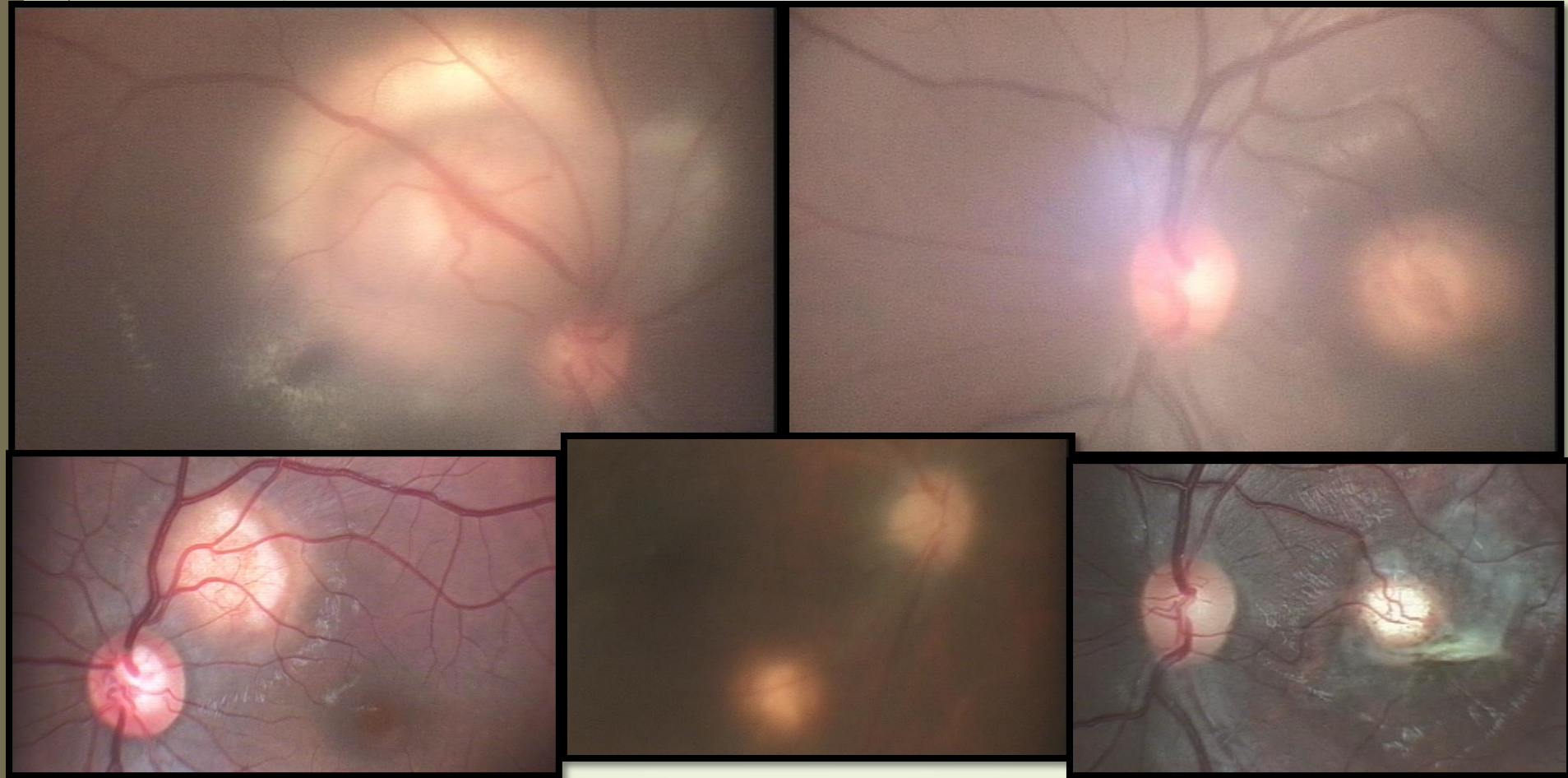


Treatment

Cotrimoxazole 4 qid for 2 weeks, then 4 bd for 1 month, then 2 bd until CD4 > 300

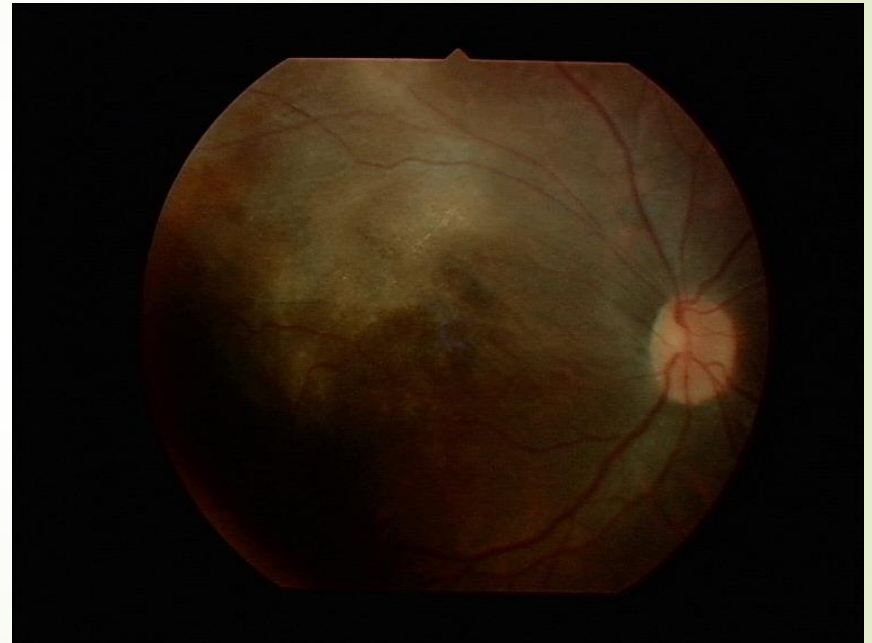


TB choroiditis/choroidal granuloma



Syphilitic chorioretinitis

- ▶ Vitritis associated with bilateral, large, solitary, placoid, pale yellow subretinal lesions with central fading.
- ▶ Stippled RPE hyperpigmentation



Multifocal choroiditis and systemic dissemination

- ▶ *Cryptococcus neoformans*
- ▶ *Pneumocystis carinii*
- ▶ *Mycobacterium tuberculosis*
- ▶ Atypical mycobacteria
- ▶ Combination of 2 or more



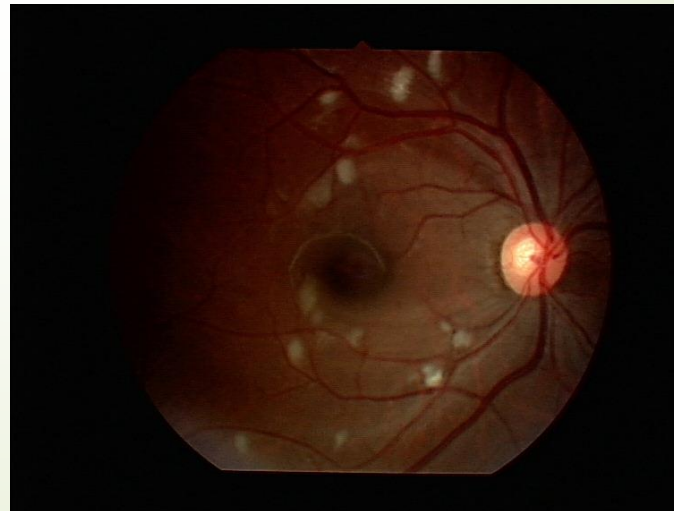
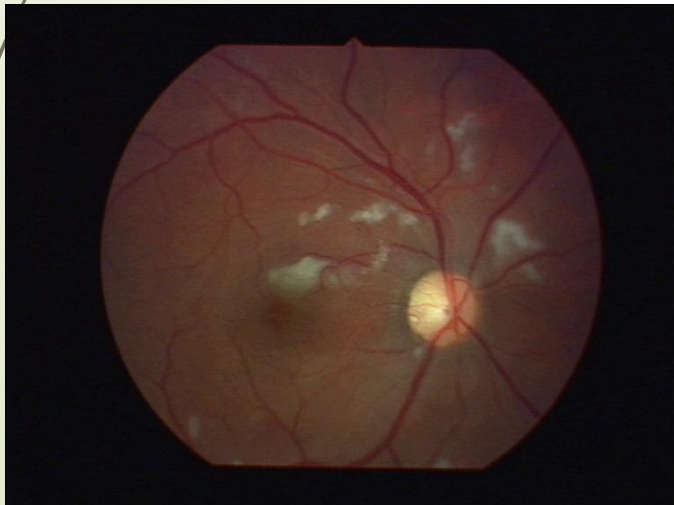
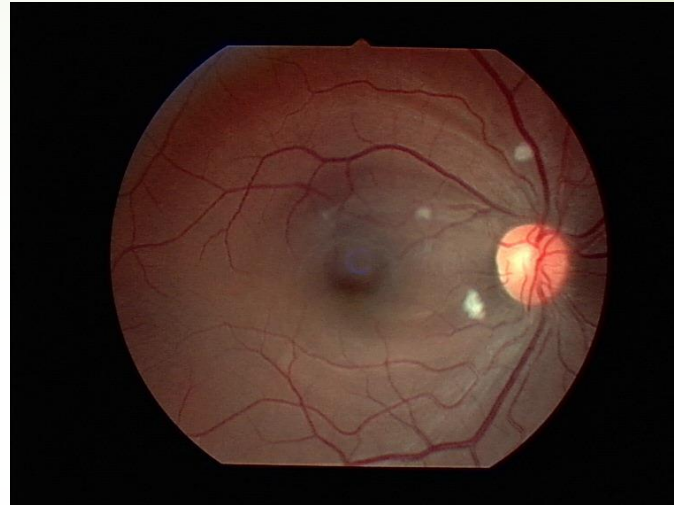
Cotton-wool spots

- ▶ NFL infarcts, part of HIV microangiopathy
- ▶ CD4+ < 50 cells/mm³
- ▶ Posterior pole or around optic disc
- ▶ Can be associated with small intraretinal haemorrhage similar to small focus CMVR



Cotton-wool spots

- Spontaneously resolve over several months
- Repeat examination in 2 weeks to distinguish between this and CMVR



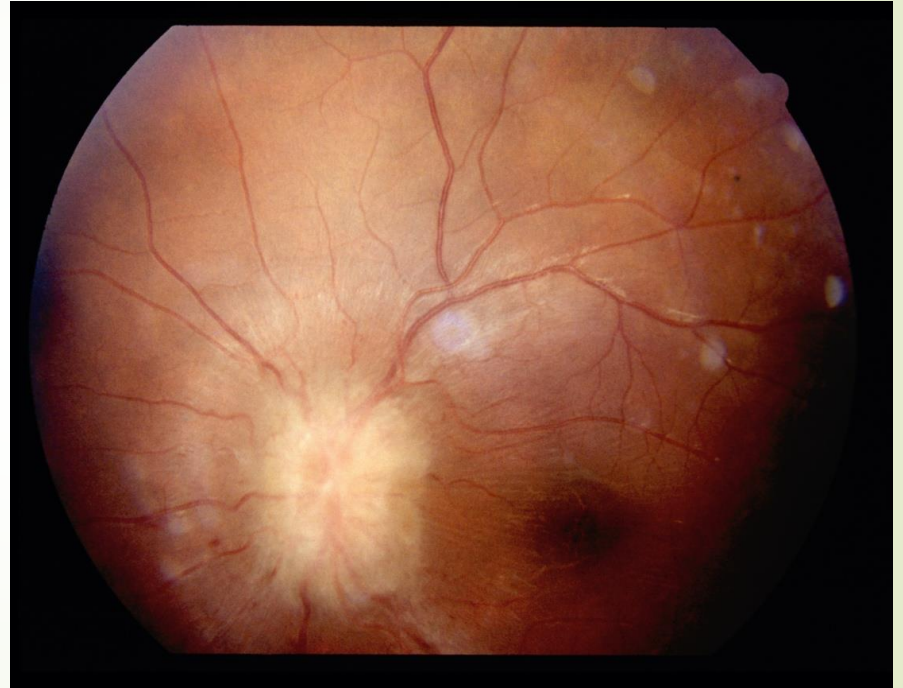


Neuro-ophthalmic manifestations

- Optic Neuritis
- Cranial nerve palsies
- Papilloedema

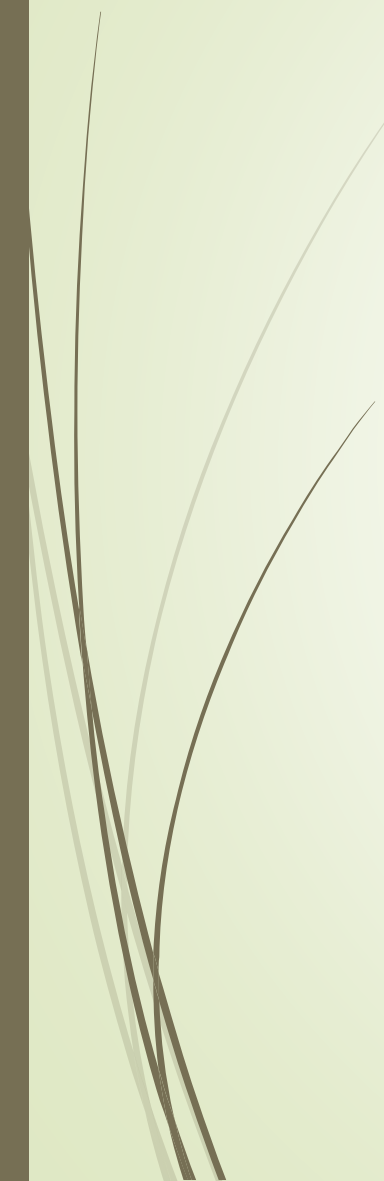
Optic Neuritis

- ▶ Can be due to HIV disease per se
- ▶ Can be associated with Neurosyphilis, TB meningitis, Cryptococcal meningitis
- ▶ Unilateral or bilateral
- ▶ Severe decrease in vision
- ▶ As vision can be lost permanently, systemic steroids are indicated
- ▶ Do LP





Cranial nerve palsies

- Due to CNS lymphoma or CNS infections eg neurosyphilis
 - Can be secondary to microvasculopathy or HIV infection per se
 - Often multiple cranial nerves involved simultaneously
- 



Papilloedema

- Secondary to :
 - Cryptococcal meningitis
 - TB meningitis
 - CNS Toxoplasmosis
 - Neurosyphilis
 - CNS Lymphoma and other intracranial tumours



Summary

- HIV/AIDS is still on the increase in South Africa and the rest of sub-Saharan Africa
- More than 70% of patients will present to an Ophthalmologist at some stage during their illness and sometimes the Ophthalmologist will be the one to make the diagnosis of HIV
- The ophthalmic markers of HIV infection are important for timeous referral and treatment.

THANK
YOU

CAUTION

MEN AT WORK



Women work all the time-
Men have to put up signs when they work.