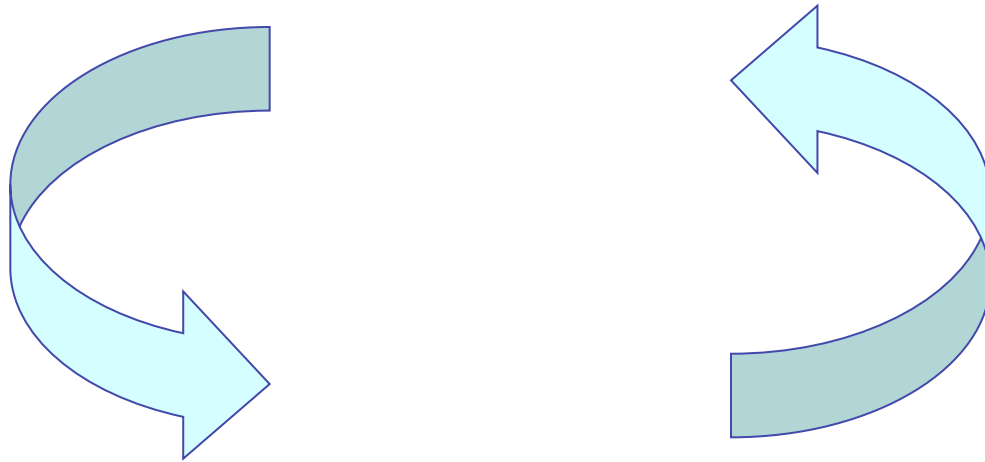


OCULAR MANIFESTATIONS



SYSTEMIC DISEASES

CATEGORIES OF SYSTEMIC DISEASE

- Congenital
- Traumatic
- Vascular
- Neoplastic
- Autoimmune
- Idiopathic
- Infectious
- Metabolic/Endocrine
- Drugs/Toxins

EYE EXAMINATION

- Vision
- External
- Pupils
 - Relative afferent pupillary defect
- Motility
- Anterior segment exam
- Dilated ophthalmoscopy
- Visual fields

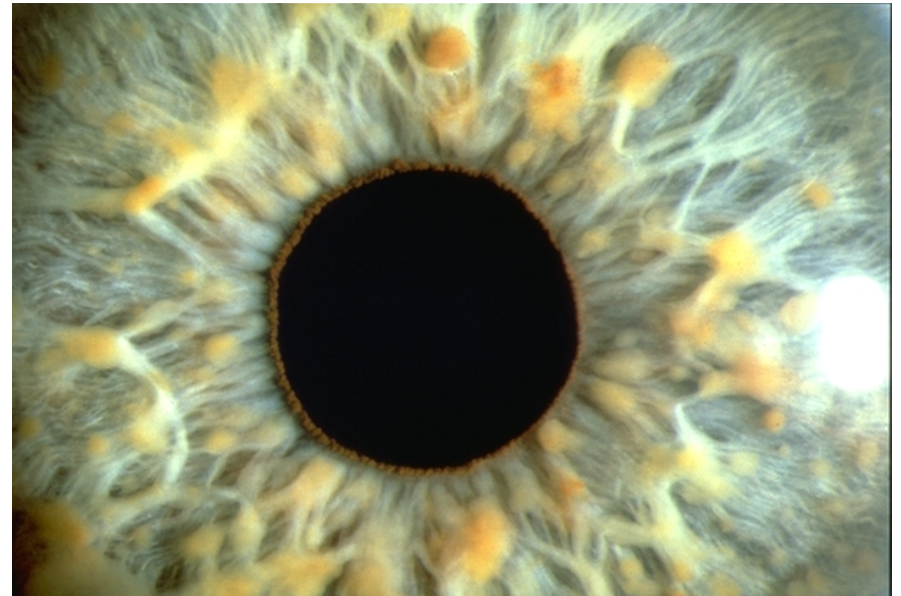
CONGENITAL DISORDERS

- Down syndrome
- Marfan syndrome
- Myotonic dystrophy
- Tuberous sclerosis
- Neurofibromatosis
- Congenital metabolic disorders
 - Lysosomal storage
 - Carbohydrate metabolism

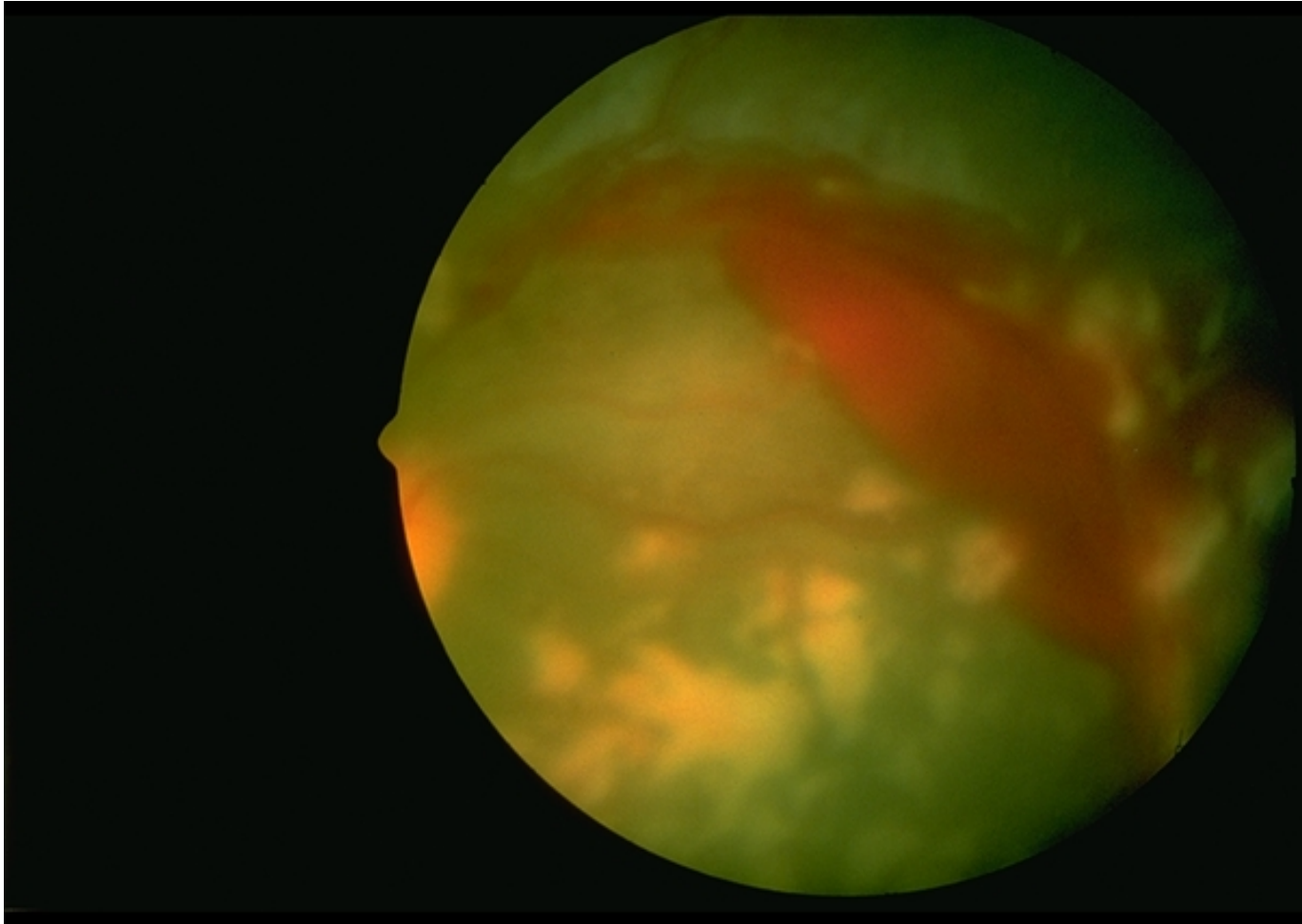
NEUROFIBROMATOSIS NF1



Café-au-lait spots



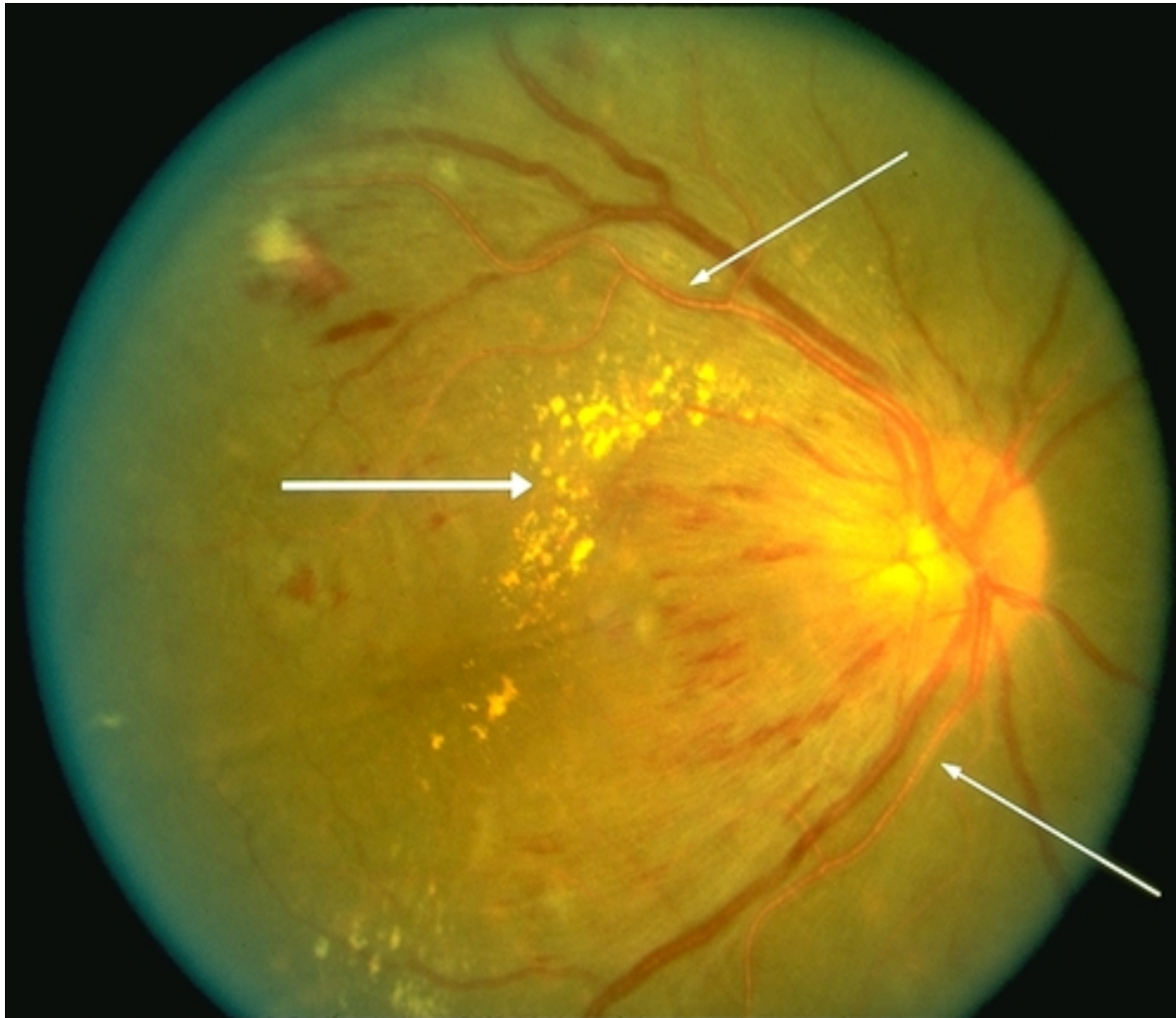
Iris Lisch nodules



Shaken baby syndrome: multiple retinal hemorrhages

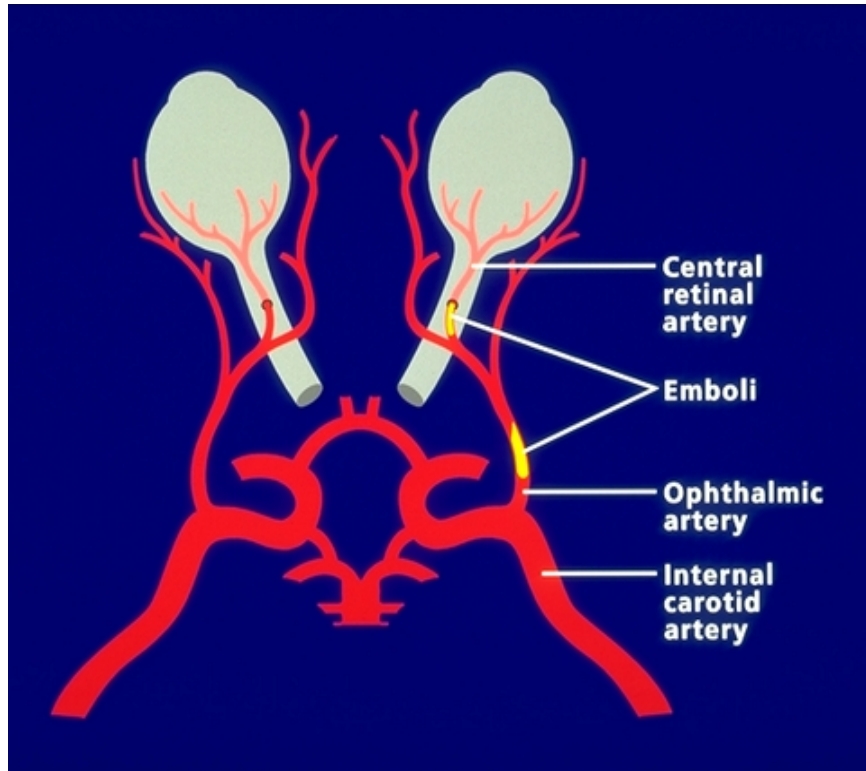
SYSTEMIC HYPERTENSION: FACTORS AFFECTING RETINAL ARTERIOLES

- Severity
- Duration



Malignant hypertension

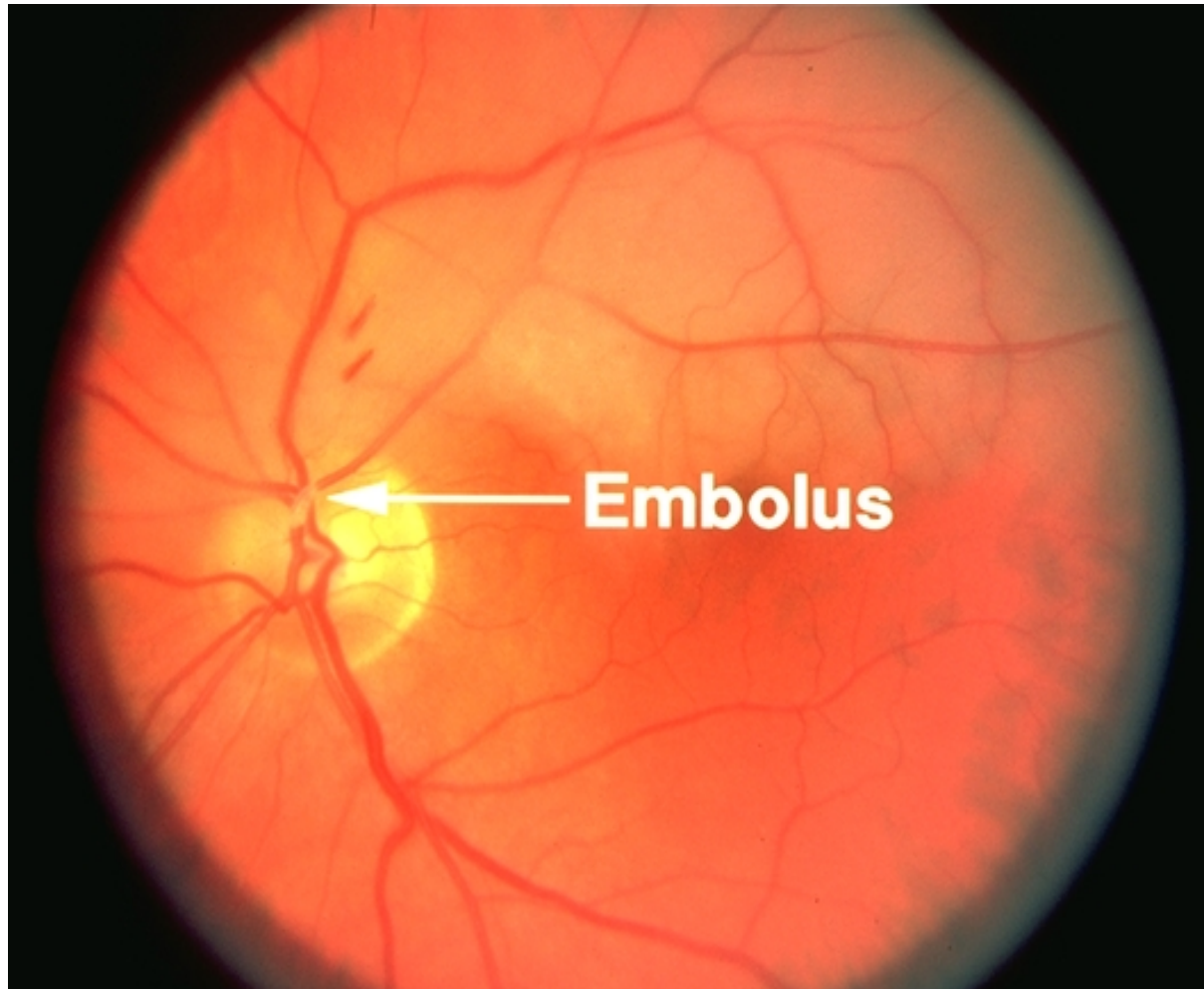
Embolic Disease



Sites of emboli to the
ophthalmic circulation



Cholesterol embolus
(Hollenhurst plaque)



Left eye with superotemporal branch retinal artery occlusion

CRAO



“Cherry red spot” in CRAO



Normal fundus

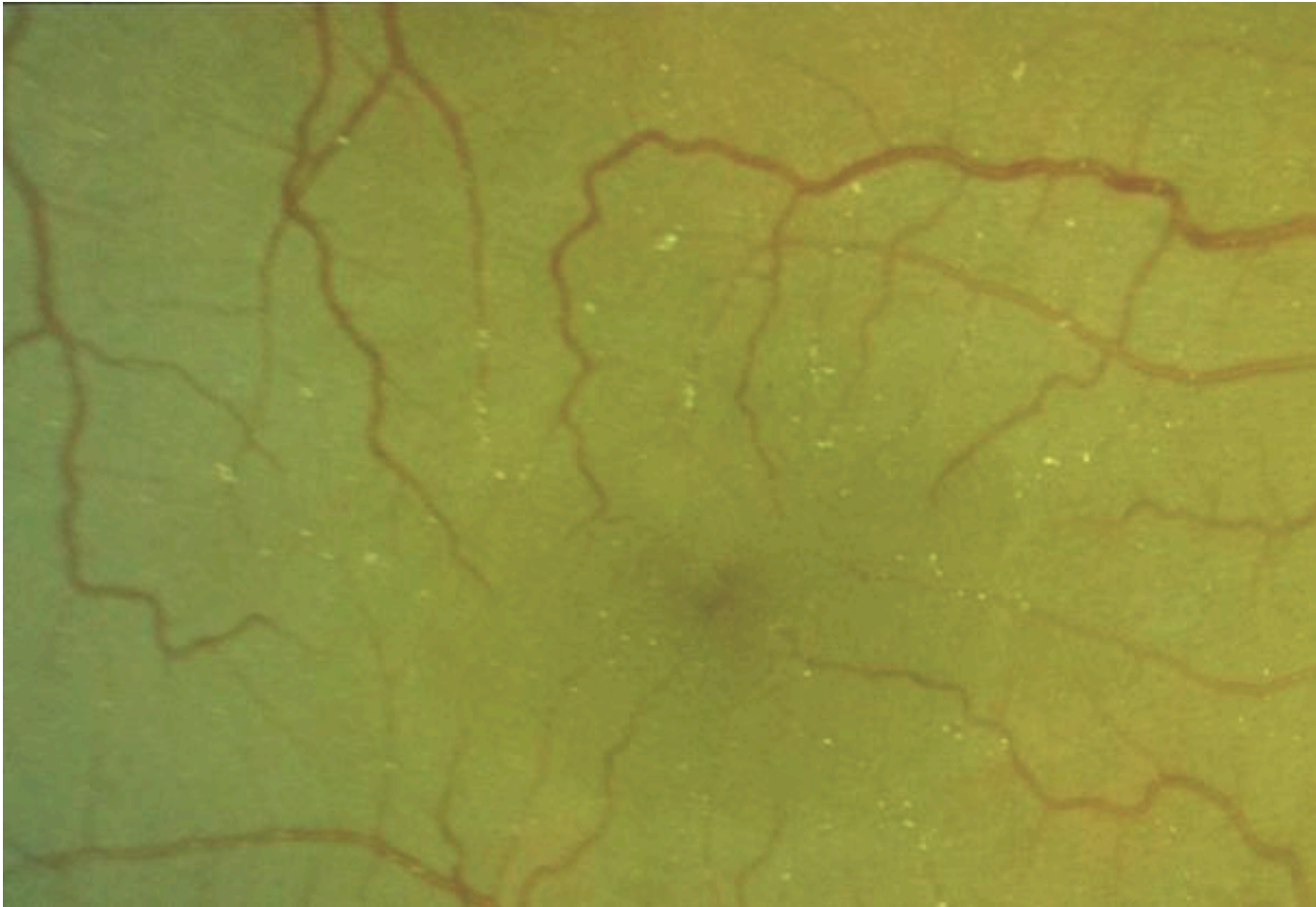
AMAUROSIS FUGAX

"Fleeting Blindness"

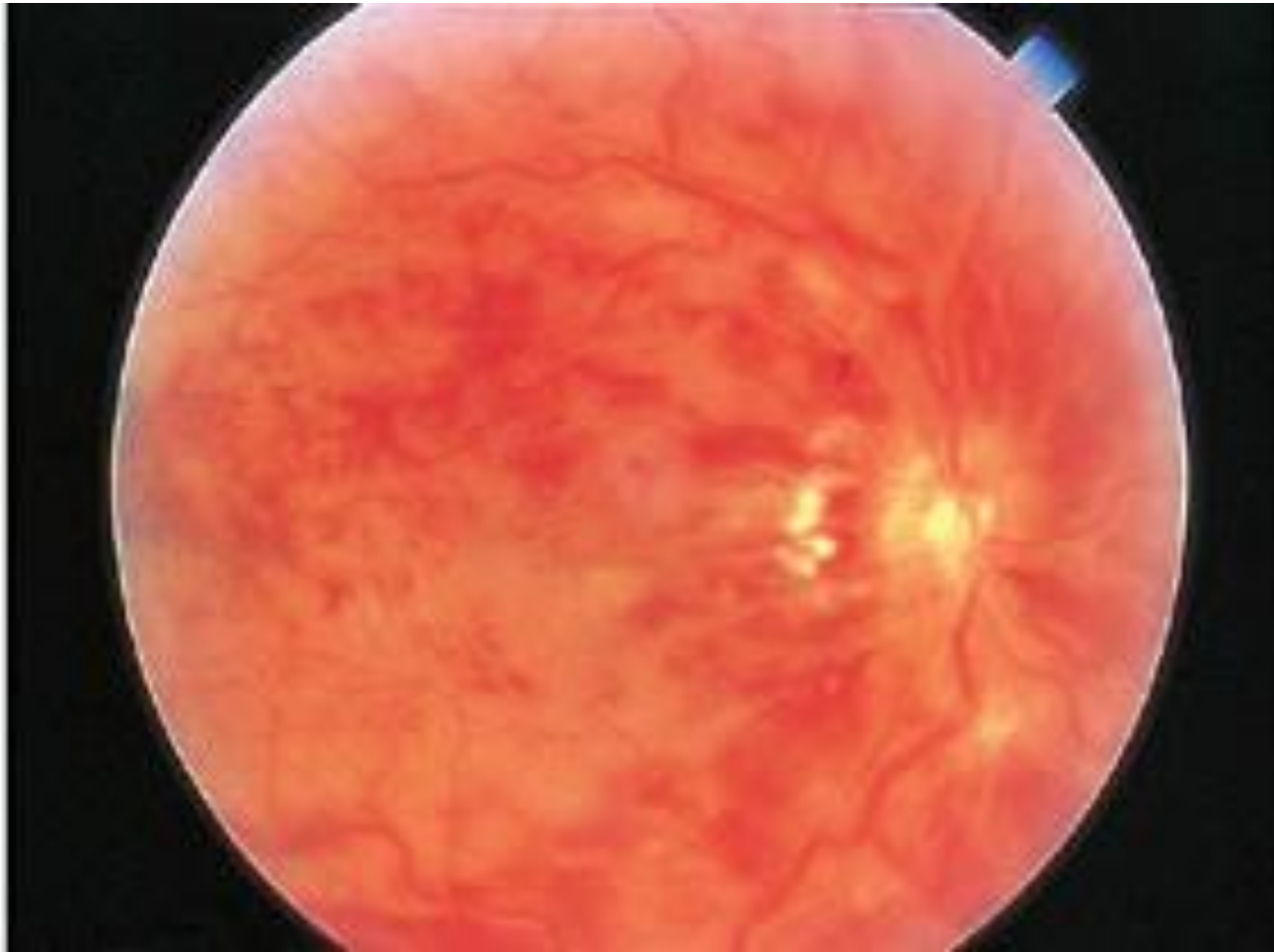
- Monocular dimming of vision
- Temporary arterial obstruction
- Sudden, transient, painless visual loss

AMAUROSIS FUGAX: A MULTIDISCIPLINARY EVALUATION

- Cardiovascular
- Cerebrovascular
- Ophthalmologic



Talc embol in IV drug abuser

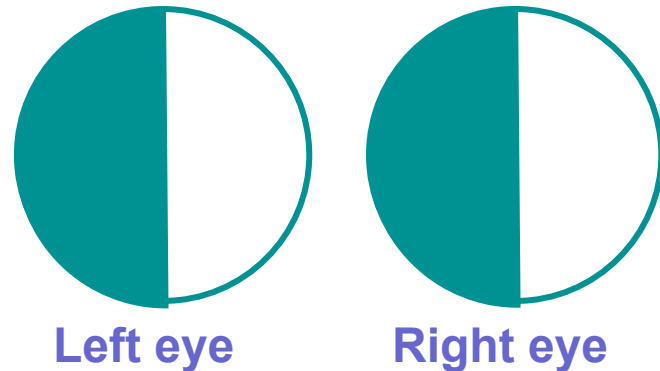


Central retinal vein occlusion (CRVO)

MIGRAINE: VISUAL SYMPTOMS

- Scintillations
- Transient obscuration of vision
- Transient homonymous hemifield loss

Transient homonymous hemianopia



Scintillations

MIGRAINE: TYPES

- With headache
 - Classic
 - Common
 - Complicated
- Without headache
 - Acephalgic

MIGRAINE: TREATMENT

- Prevent frequent attacks
- Examine for visual loss
- Consider discontinuing oral contraceptives

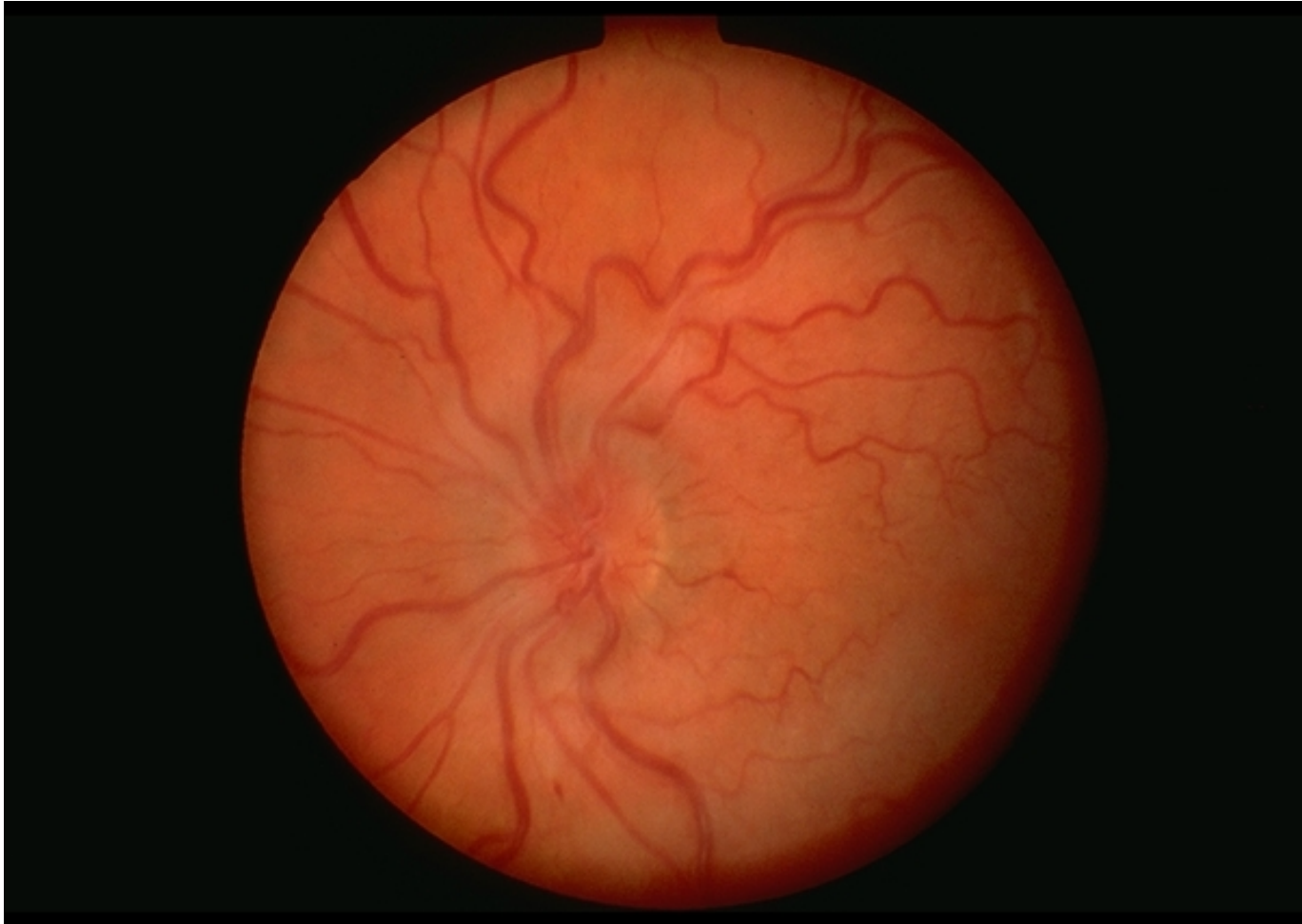
BLOOD DYSCRASIAS WITH OCULAR MANIFESTATIONS

- Hyperviscosity syndromes
- Thrombocytopenia
- Anemia, including sickle cell anemia

HYPERVISICOSITY SYNDROMES:

OCULAR SYMPTOMS

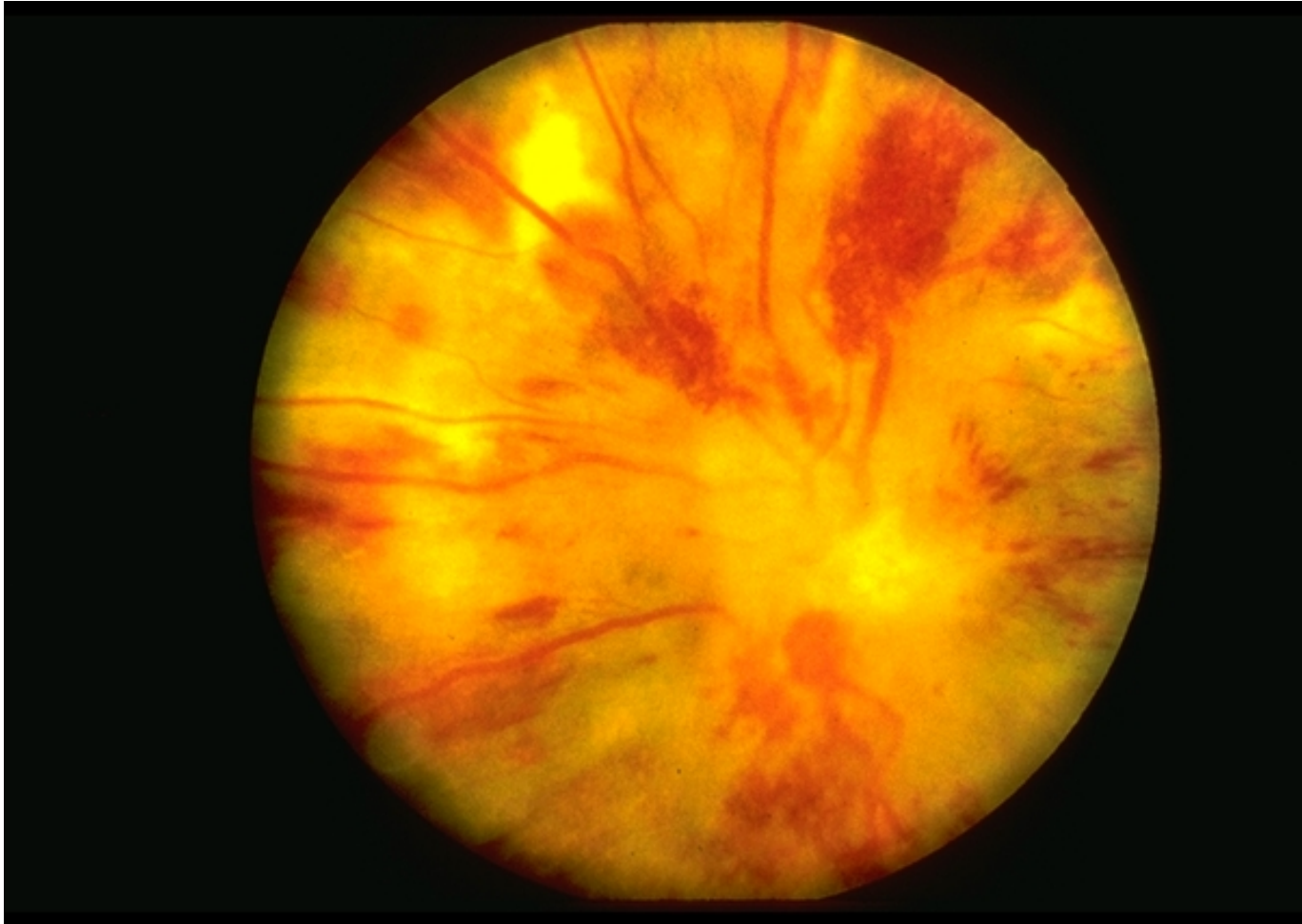
- Amaurosis fugax
- Permanent visual loss



**Hyperviscosity dilated retinal veins,
retinal hemorrhages, and disc edema**



Leukemia

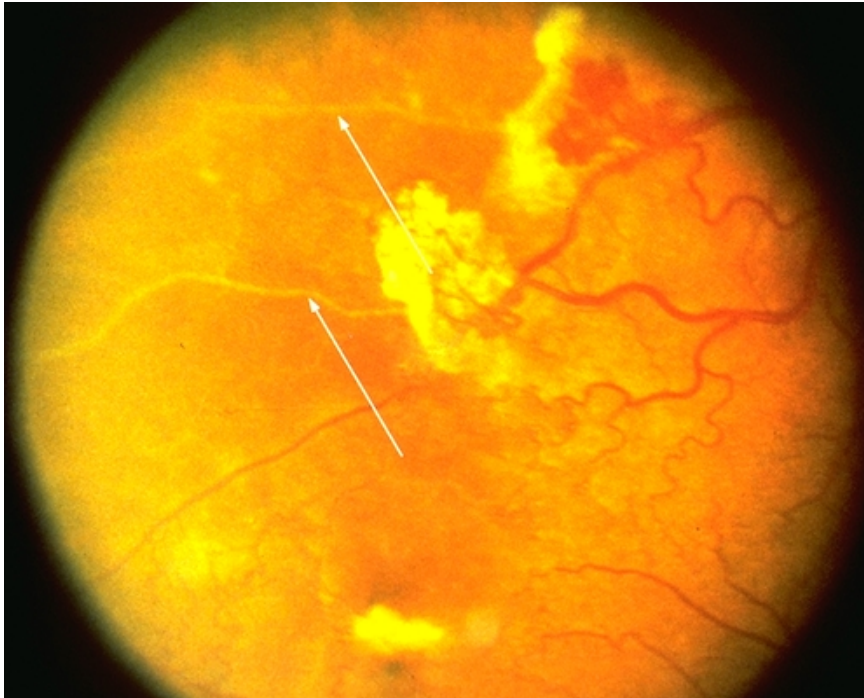


Leukemic infiltration of the optic nerve

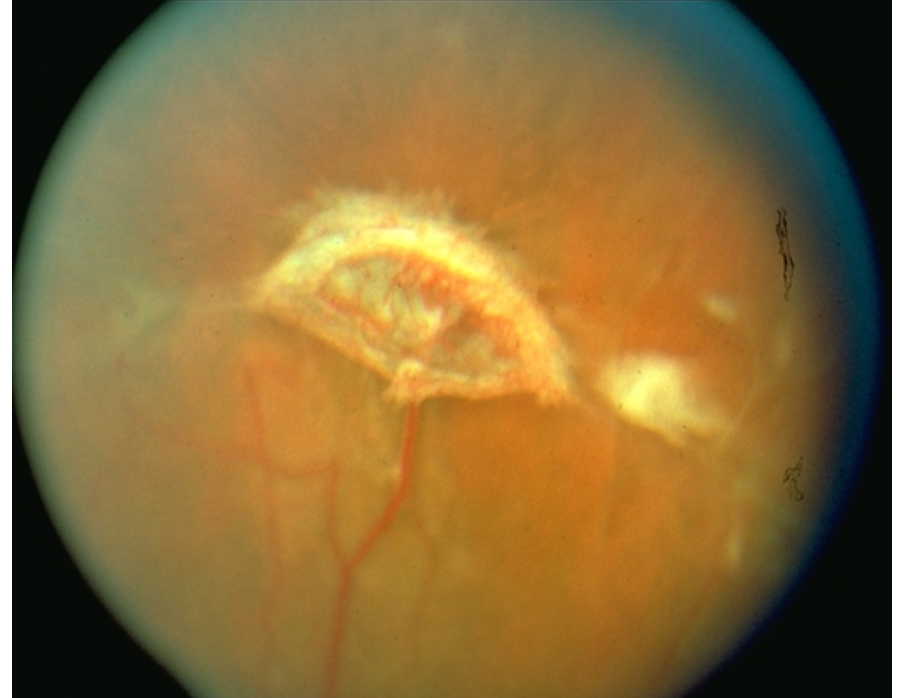
SICKLE CELL RETINOPATHY

- HbSC disease (most common form)
- HbSS disease
- Sickle thalassemia

SICKLE CELL ANEMIA



Retinal arterial occlusions



“Sea fan” neovascularization

MALIGNANT NEOPLASMS INVOLVING THE EYE

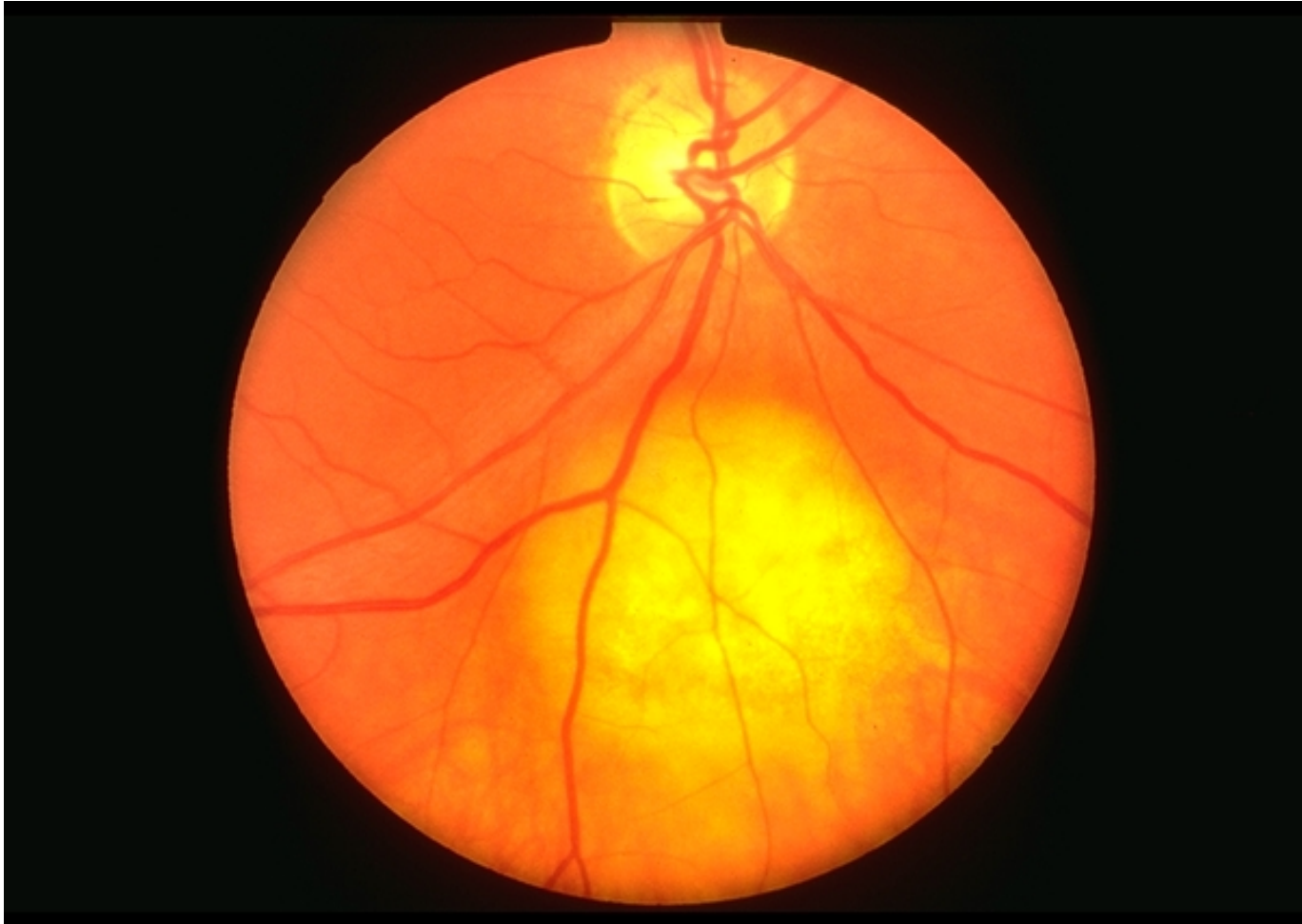
- Primary ocular melanoma
- Large cell lymphoma
- Metastatic carcinoma

METASTATIC CARCINOMA

- Most common intraocular malignancy in adults
- May be asymptomatic
- May produce decreased or distorted vision



Iris metastasis from lung carcinoma



Choroidal metastasis from breast cancer

Ophthalmologists should
monitor ocular metastases
at regular intervals.

AUTOIMMUNE DISORDERS

- Connective tissue diseases
- Thyroid eye disease
- Myasthenia gravis

CONNECTIVE TISSUE DISORDERS

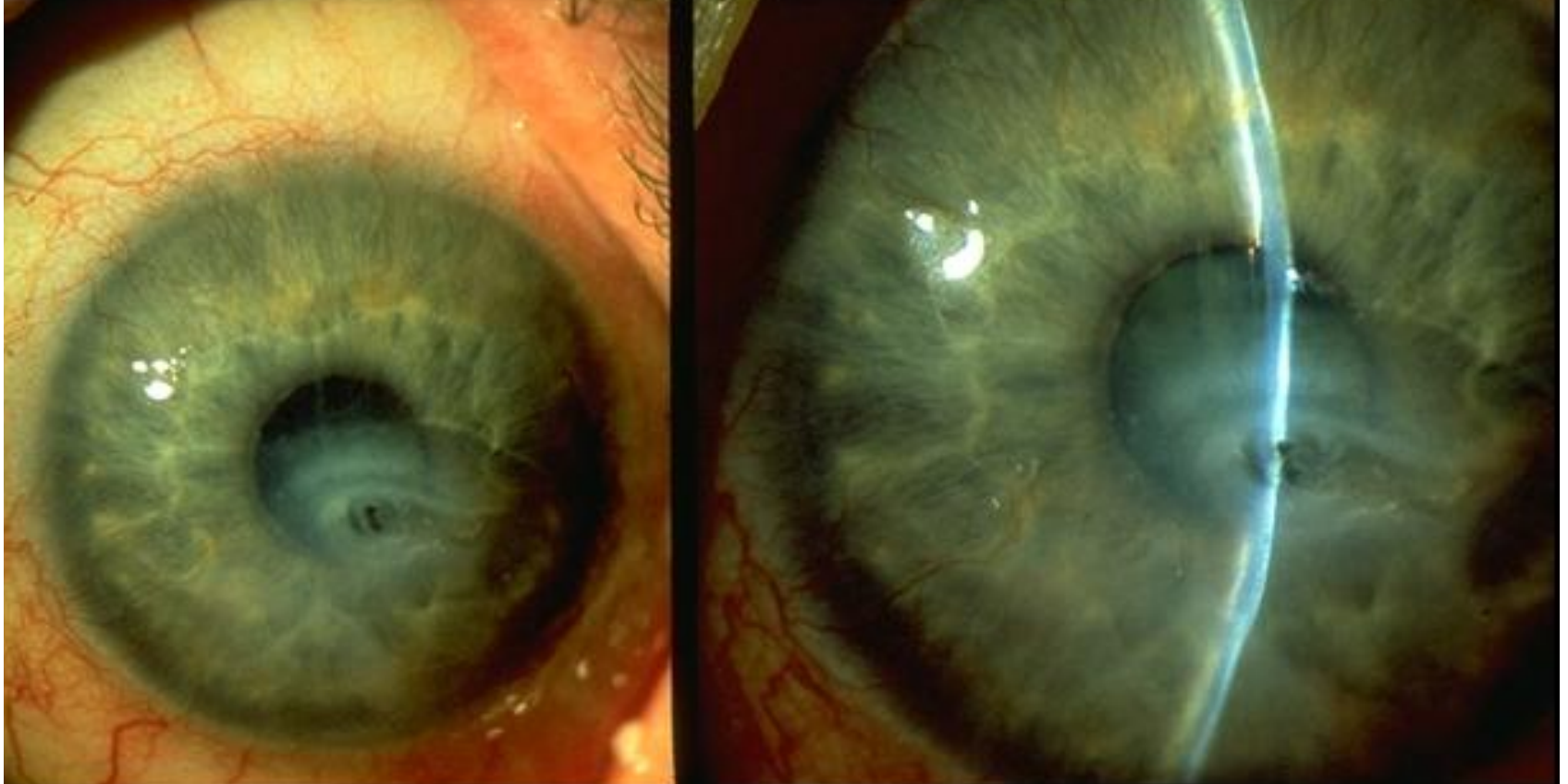
- Dry eyes are the most common manifestation (keratoconjunctivitis sicca)
- Symptoms
 - Burning
 - Foreign-body sensation
 - Photophobia

SJÖGREN' S SYNDROME

- Dry eyes
- Dry mouth
- \pm Connective tissue disorder
- Specific antibodies

DRY EYES: TREATMENT

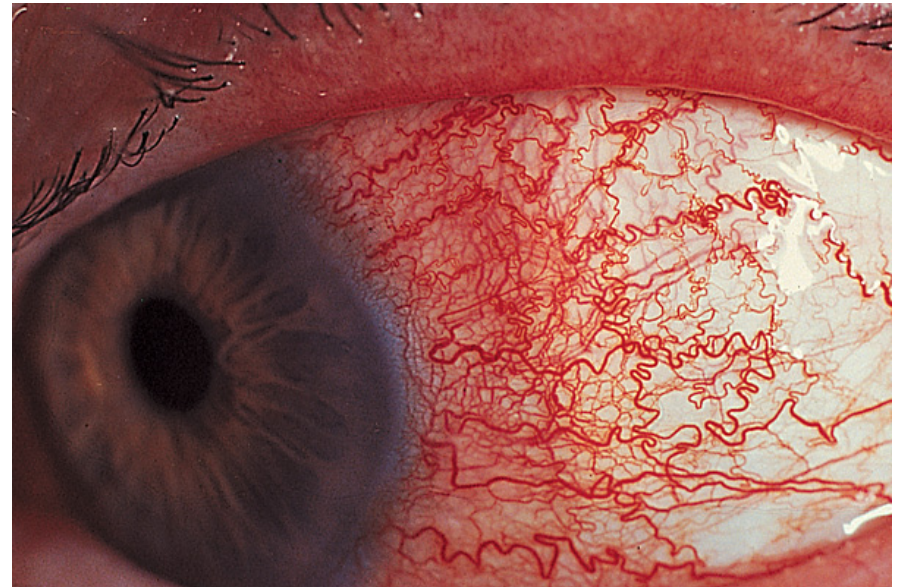
- Artificial tears
- Lubricating ointment at night
- Punctual occlusion
- Environmental modification
- Topical anti-inflammatory agents



Severe tear deficiency: corneal ulceration and perforation

ANKYLOSING SPONDYLITIS: OCULAR SYMPTOMS

- Photophobia
- Redness
- Decreased vision

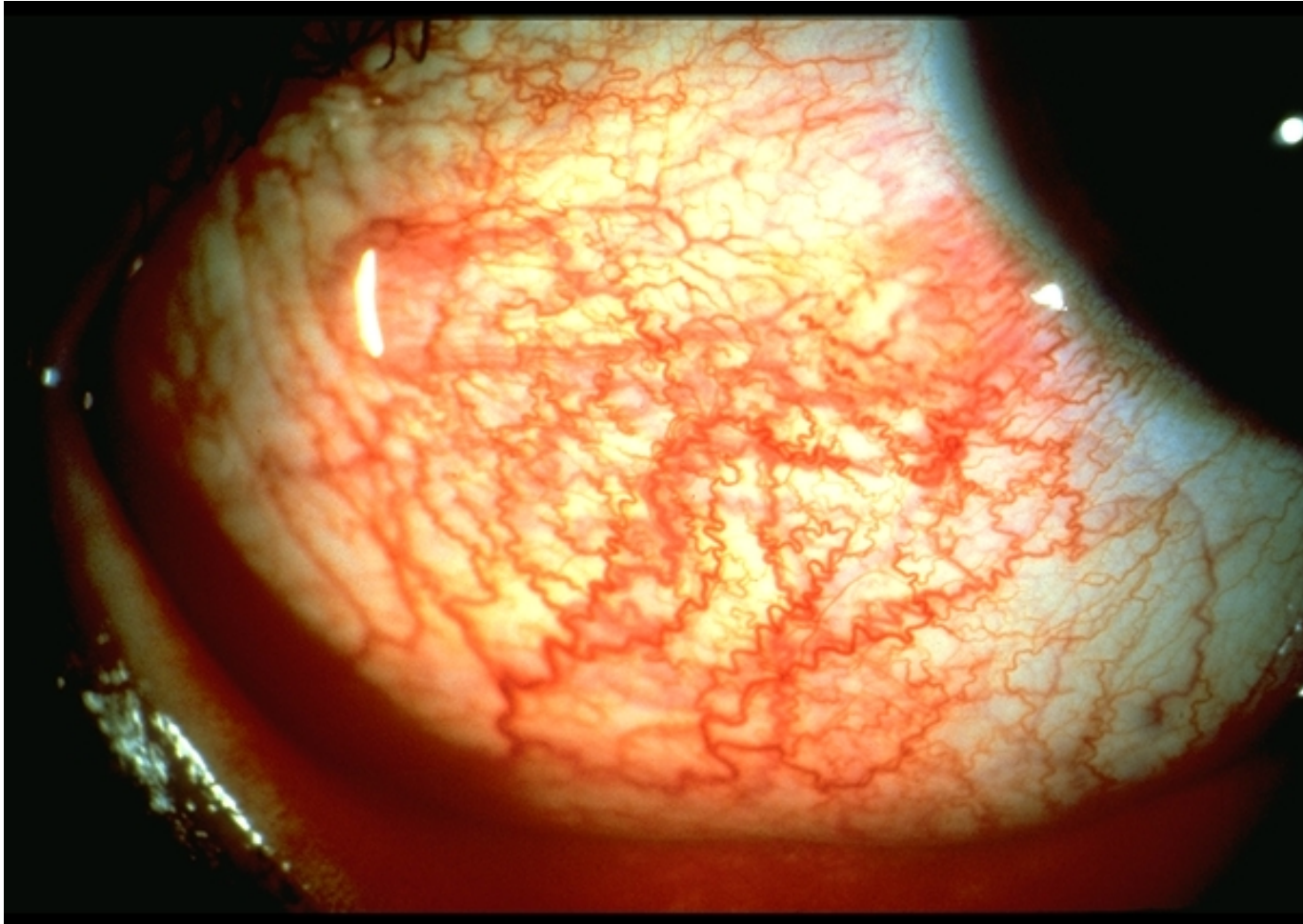


**If iritis, refer for evaluation
and treatment.**

Topical corticosteroids may
lead to serious ocular
complications.

RHEUMATOID ARTHRITIS: OCULAR MANIFESTATIONS

- Dry eyes
- Episcleritis
- Scleritis
- Corneal ulcers
- Uveitis



Episcleritis



Scleritis

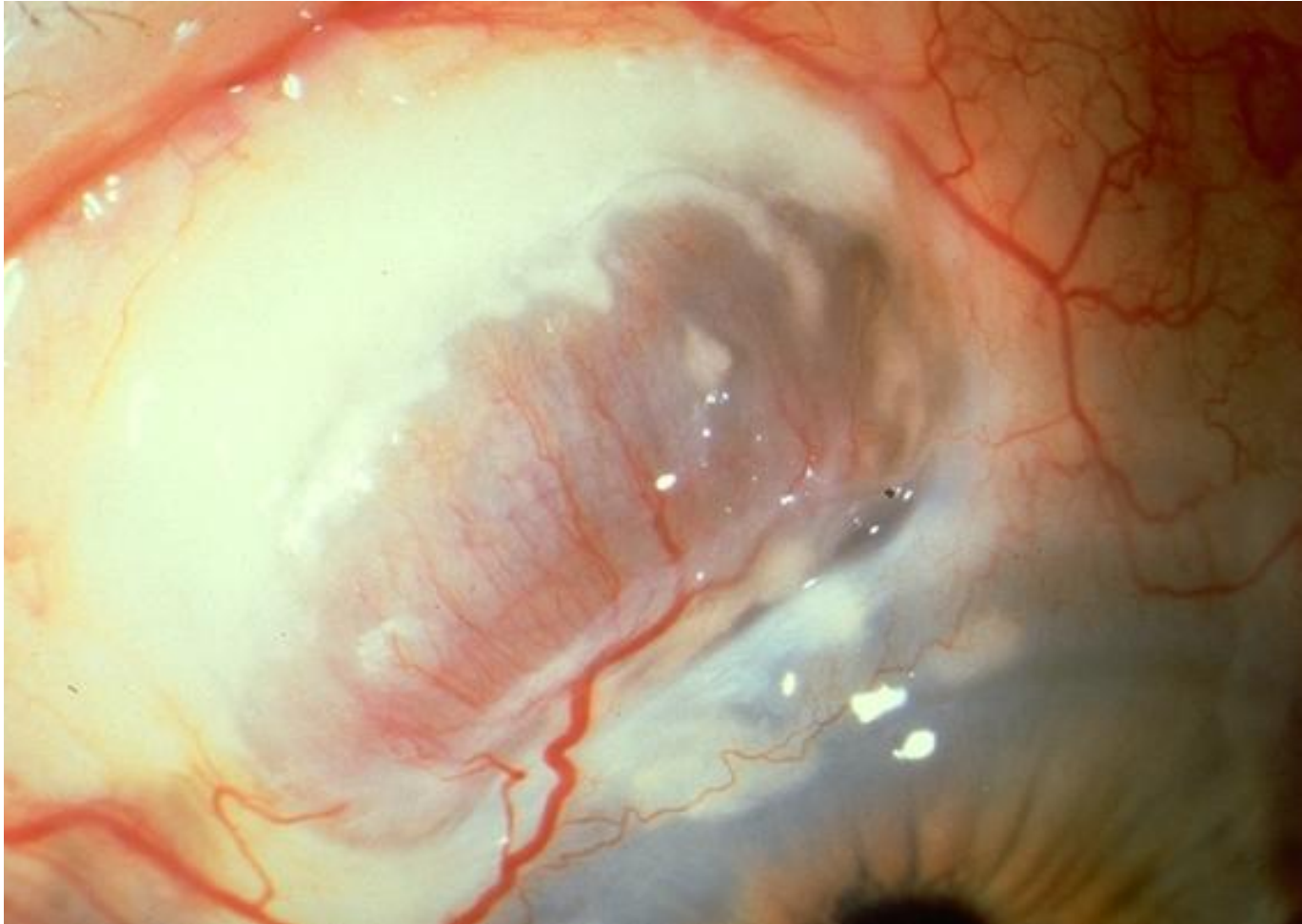


Scleritis



Necrotizing

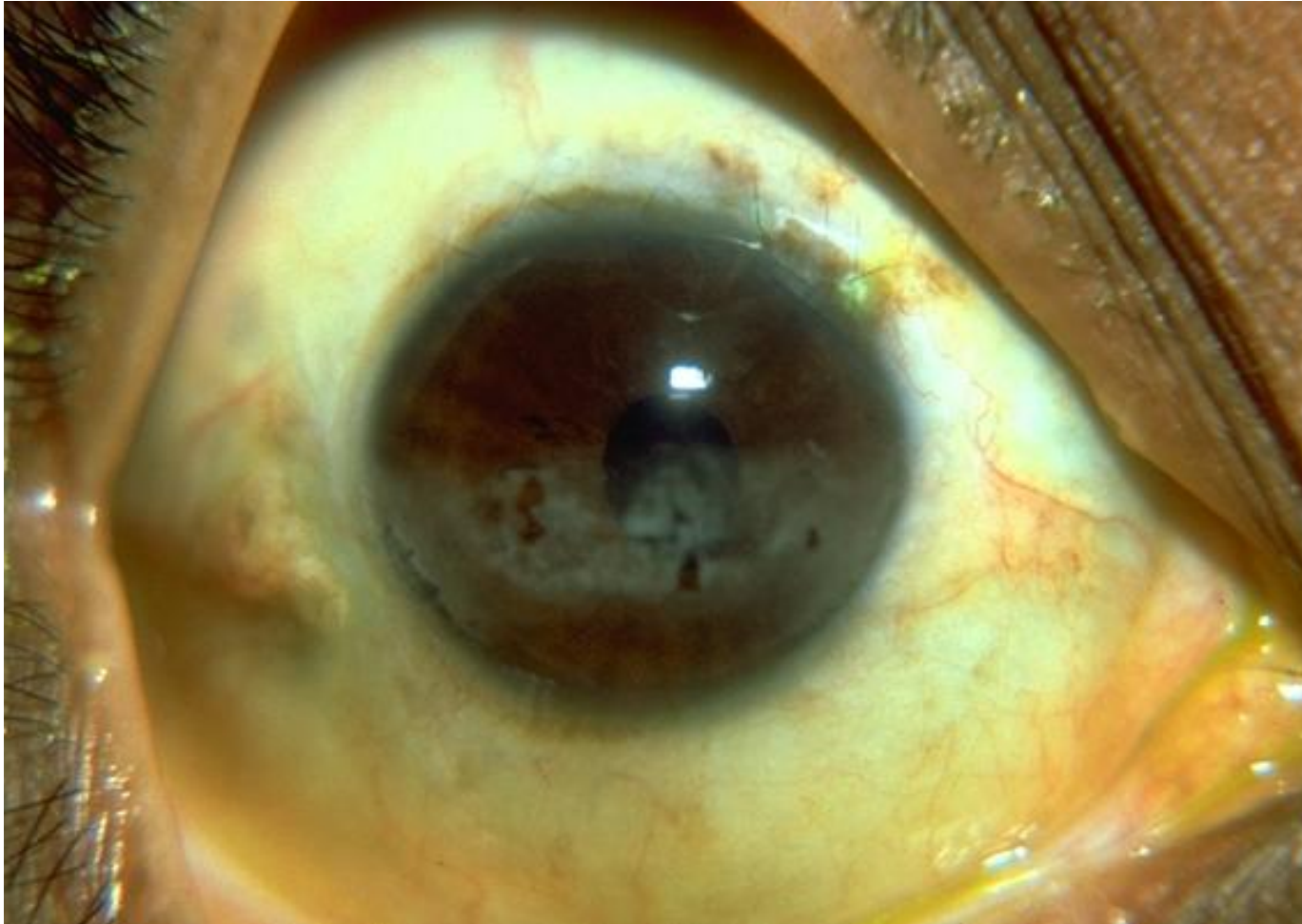
scleritis



Scleromalacia perforans



Peripheral corneal ulceration



Juvenile rheumatoid arthritis: band keratopathy

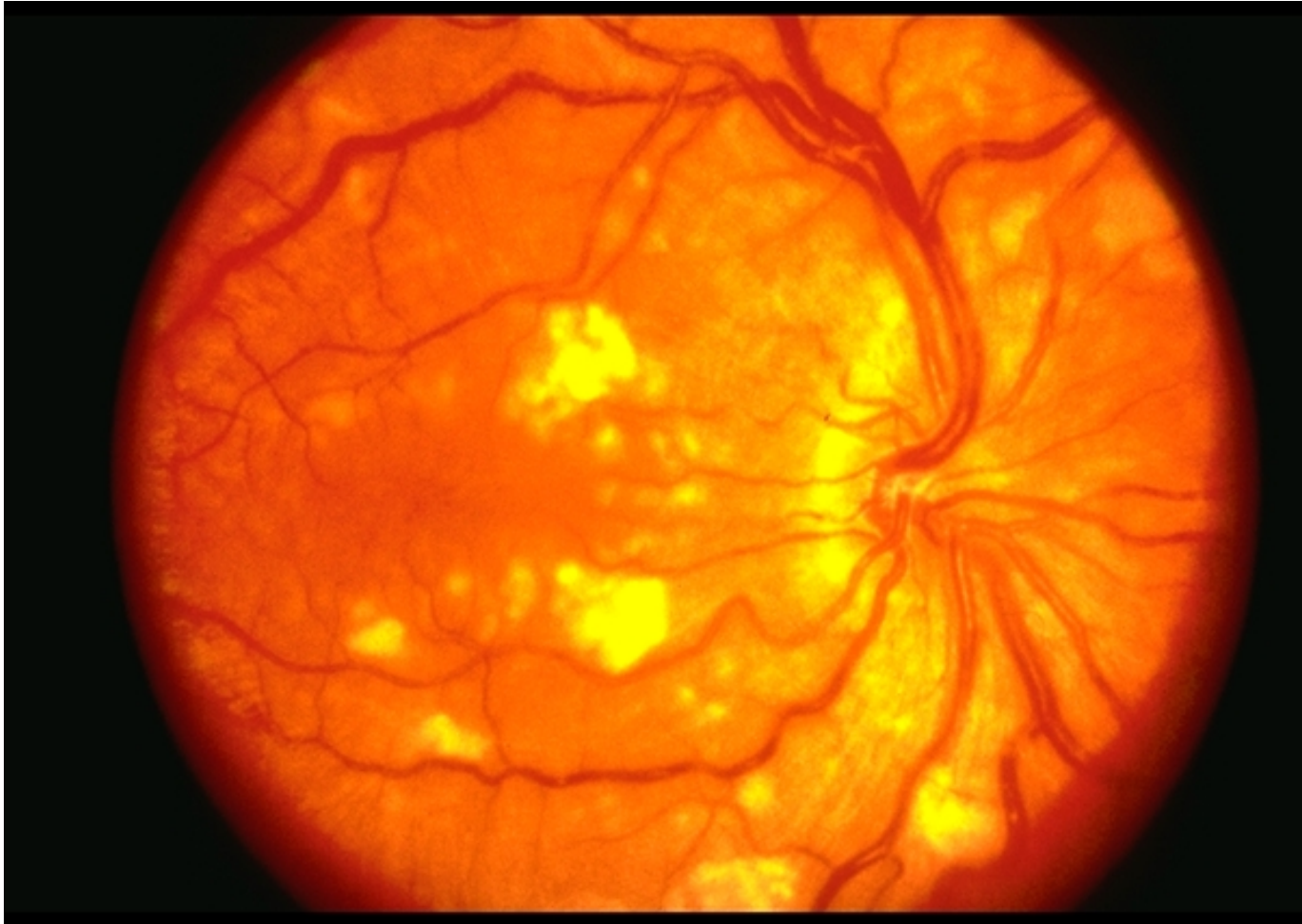
IRITIS IN JUVENILE RHEUMATOID ARTHRITIS

- Few symptoms or signs
- Usually chronic
- Secondary cataract and glaucoma

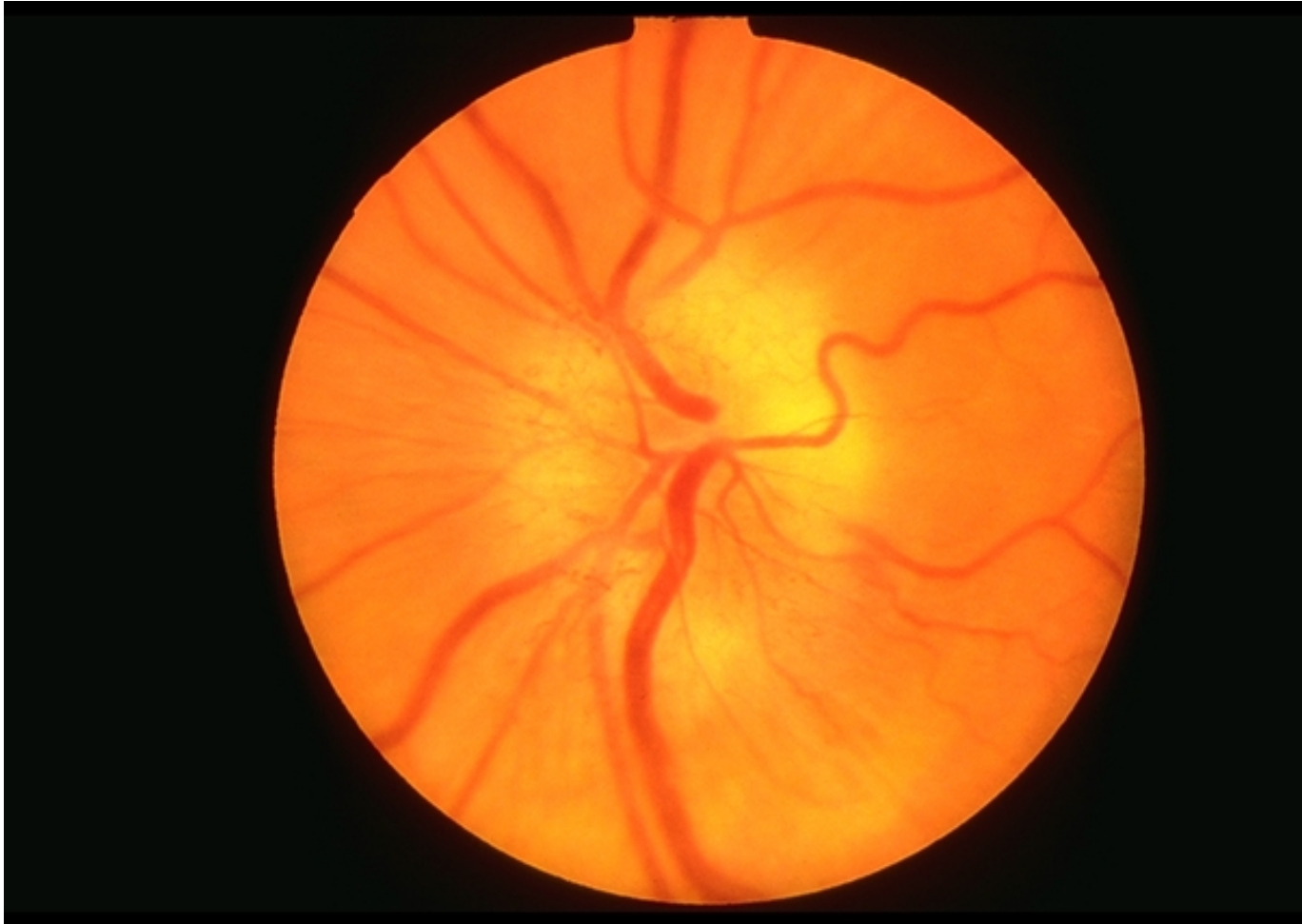
Refer for periodic ophthalmic screening.

SYSTEMIC LUPUS ERYTHEMATOSUS: OCULAR MANIFESTATIONS

- Dry eyes
- Scleritis
- Peripheral corneal ulcers
- Retinopathy and optic neuropathy



**Systemic lupus erythematosus:
Cotton wool spots and hypertensive retinopathy**



Systemic lupus erythematosus: optic nerve involvement

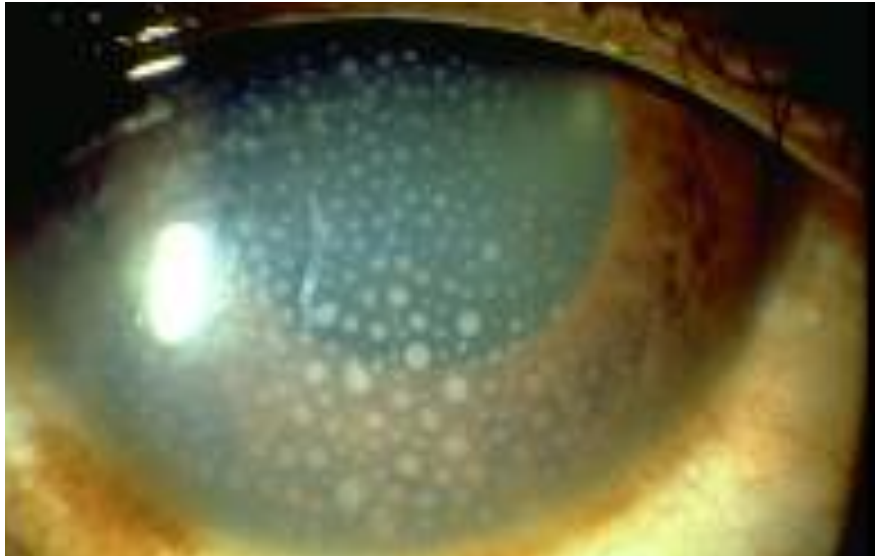
POLYARTERITIS NODOSA: OCULAR MANIFESTATIONS

- Dry eyes
- Corneal ulcers
- Scleritis
- Hypertensive retinopathy
- Retinal vasculitis

SARCOIDOSIS

- More commonly affects African-Americans and Hispanics
- Ocular involvement in about 25% of patients

SARCOIDOSIS



**Keratic precipitates in
granulomatous uveitis**



**“Candlewax drippings” in
choroiditis**

Refer patients with sarcoidosis
if ocular involvement is
suspected.

Treatment may include
corticosteroids.

GIANT CELL ARTERITIS: SYMPTOMS

- Jaw claudication
- Headache
- Scalp tenderness
- Fever
- Weight loss
- Fatigue
- Myalgias
- Acute visual loss



Giant cell arteritis: ischemic optic neuropathy



Giant cell arteritis: third cranial nerve involvement

GIANT CELL ARTERITIS: DIAGNOSIS

- Clinical history
- STAT ESR and CRP
- Temporal artery biopsy
- Fluorescein angiogram

GIANT CELL ARTERITIS: MANAGEMENT

- Begin treatment immediately with high-dose corticosteroids daily
- Do not wait for results of temporal artery biopsy
- Ophthalmologist, PCP, and rheumatologist manage jointly

THYROID OPHTHALMOPATHY

- Not always correlated with serum thyroid levels
- Can progress after thyroid function is normal

SPECTRUM OF THYROID OPHTHALMOPATHY

- Eyelid retraction
- Exophthalmos (proptosis)
- Extraocular muscle dysfunction
- Corneal exposure
- Conjunctival erythema
- Optic nerve dysfunction

THYROID OPHTHALMOPATHY: OCULAR INVOLVEMENT



Widened palpebral fissure



Soft tissue involvement

THYROID OPHTHALMOPATHY: ADVANCED



Proptosis

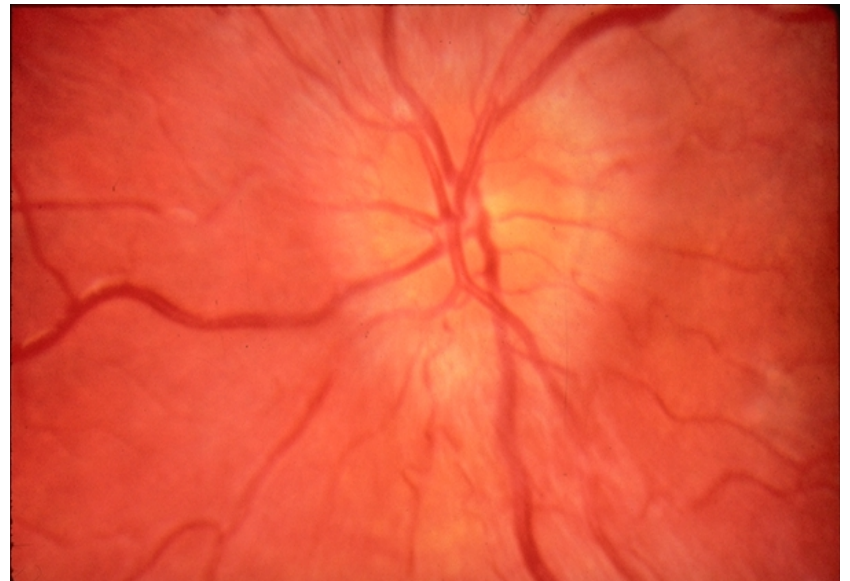


restriction

THYROID OPHTHALMOPATHY: SEVERE



Corneal damage



Swollen optic disc

THYROID OPHTHALMOPATHY: COMPUTED TOMOGRAPHY OF THE ORBIT



Proptosis



Enlarged extraocular muscles

THYROID OPHTHALMOPATHY: TREATMENT OF CONGESTIVE PHASE

- Tear substitutes
- Corticosteroids
- Orbital irradiation or surgical decompression

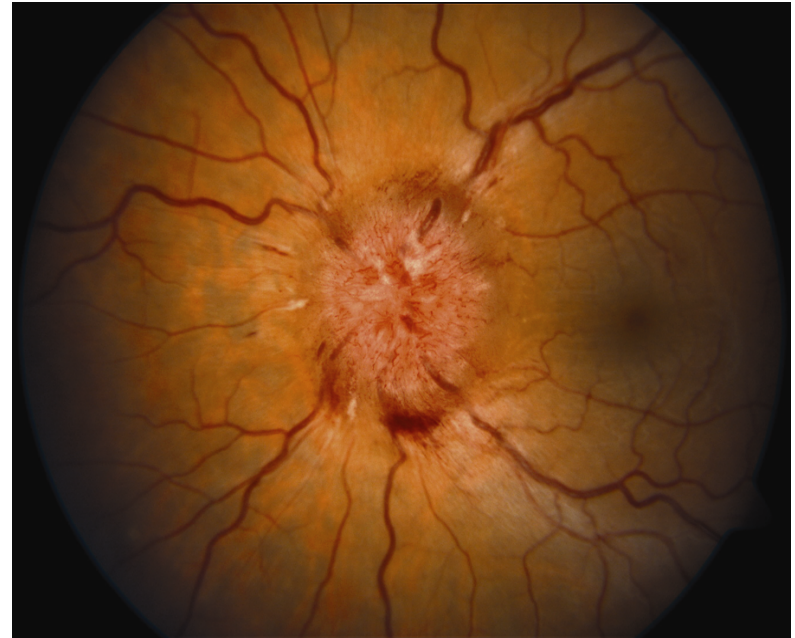
THYROID OPHTHALMOPATHY: TREATMENT OF CICATRICAL PHASE

- Lid surgery
- Muscle surgery
- Orbital surgery

MYASTHENIA GRAVIS: SYSTEMIC INVOLVEMENT



Refer suspects for neurologic evaluation.



Papilledema

INTRACRANIAL HYPERTENSION: CAUSES

- Brain tumor
- Meningitis
- Venous sinus thrombosis
- Hydrocephalus
- Idiopathic intracranial hypertension (pseudotumor cerebri)



OPTIC NEURITIS

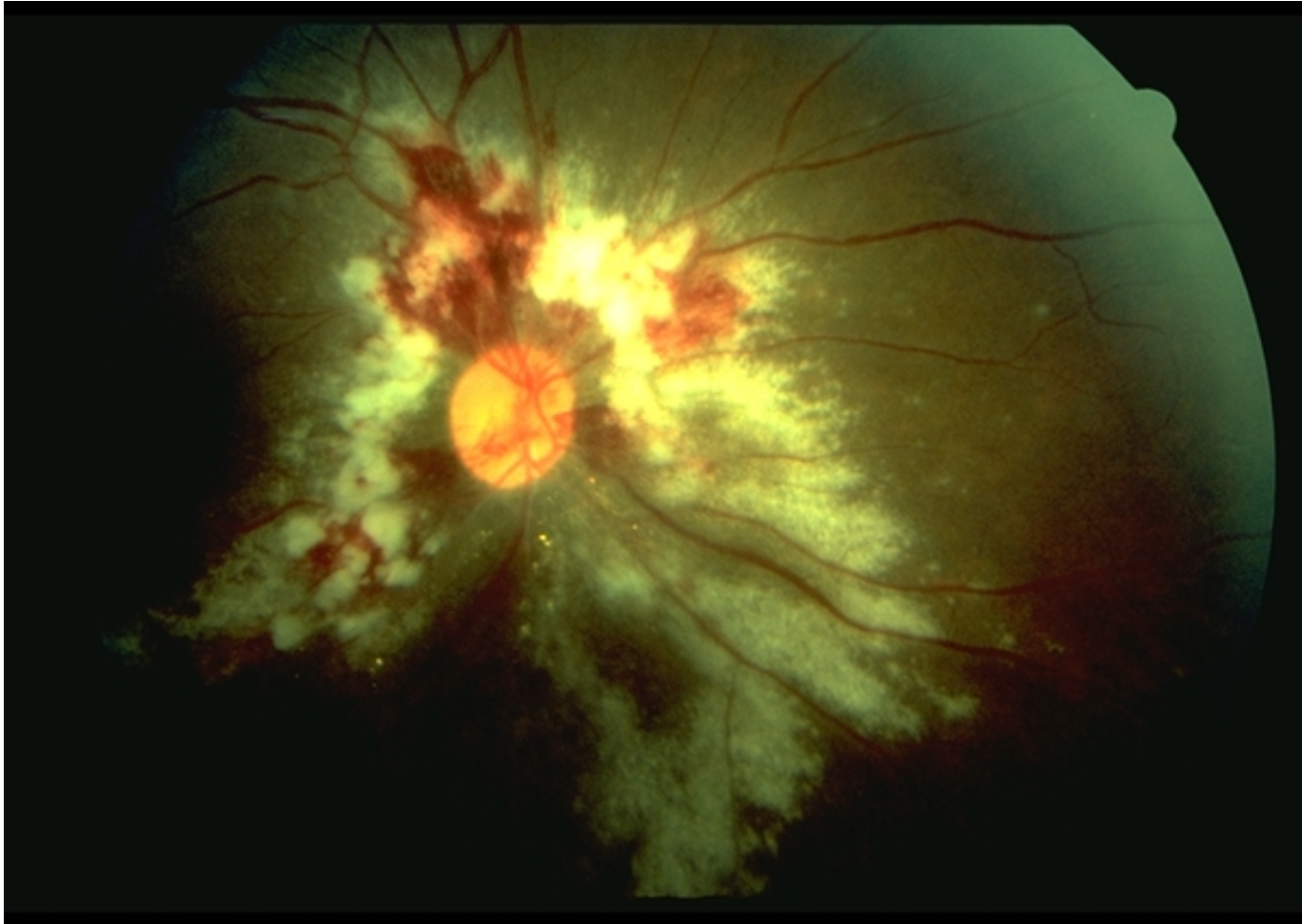
- May be initial manifestation of MS
- Acute, painful vision loss in one or both eyes
- Treat initial episode with intravenous methylprednisolone
- Interferon beta-1a may be of benefit

AIDS: OCULAR MANIFESTATIONS

- Dry eye
- Retinal cotton-wool spots
- CMV retinitis
- Kaposi's sarcoma
(eyelid or conjunctiva)



AIDS: Cotton wool patches



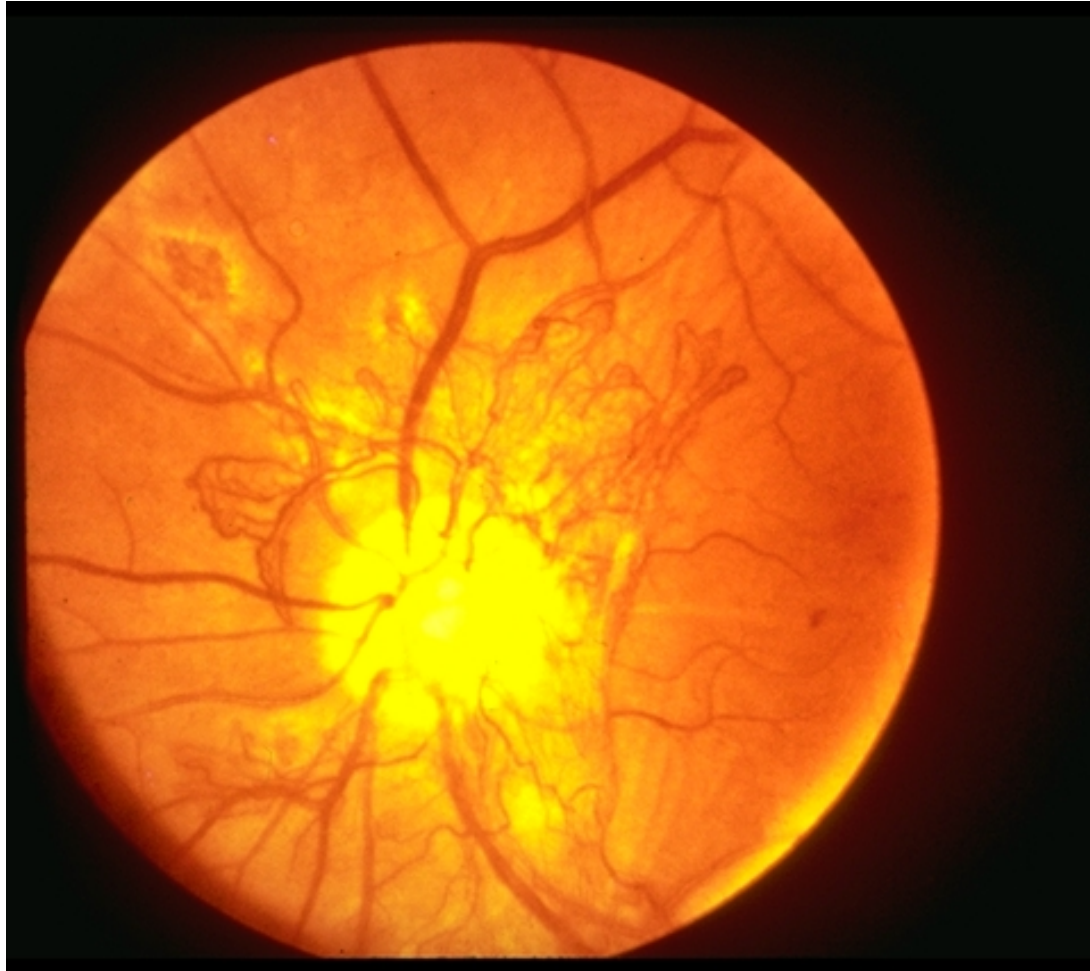
AIDS: cytomegalovirus (CMV) retinitis

CMV RETINITIS: THERAPY

- HAART (Highly Active Anti-Retroviral) Therapy
- IV ganciclovir
- IV foscarnet
- Intravitreal ganciclovir
- Implantable pellets of sustained-release ganciclovir into the vitreous

CD4 COUNTS

- < 100 cells/ml:
Opportunistic infections (eg, CMV retinitis)
- > 100 cells/ml:
Other ocular infections (eg, syphilis)

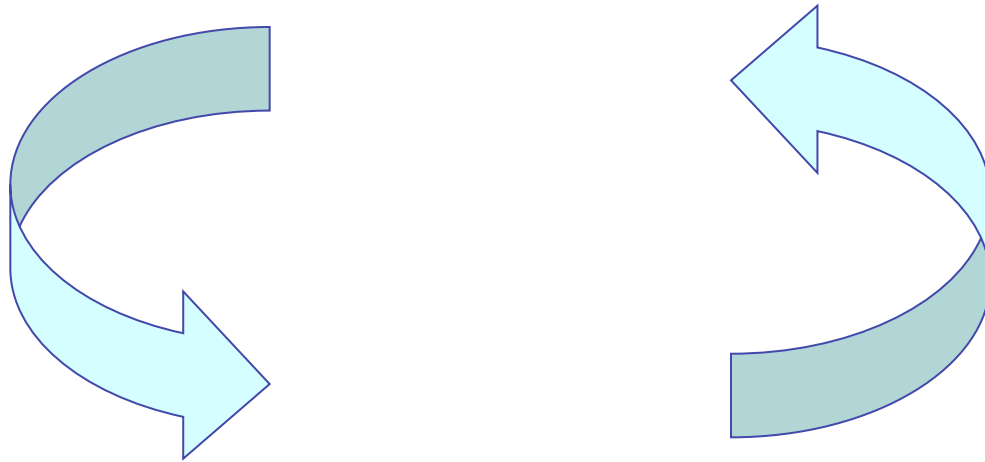


Diabetic retinopathy

SYSTEMIC MEDICATIONS WITH SIGNIFICANT OCULAR EFFECTS

- Toxic Retinopathy
 - Thioridazine
 - Chloroquine
 - Hydroxychloroquine
 - Tamoxifen
- Toxic Optic Neuropathy
 - Ethambutol
 - Isoniazid
 - Fluoroquinolones

OCULAR MANIFESTATIONS



SYSTEMIC DISEASES