



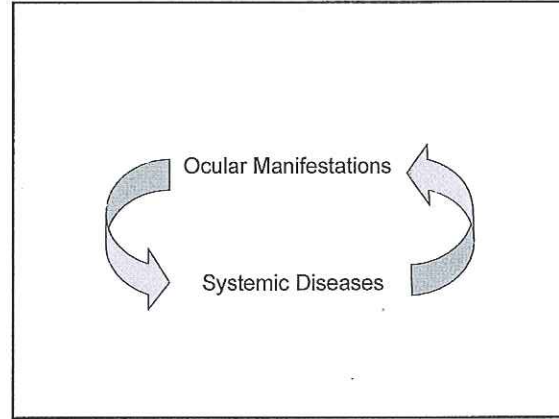
Ophthalmic- Systemic Disease

Ophthalmic Manifestations of Selected Systemic Diseases



Patrick Sibeony, MD

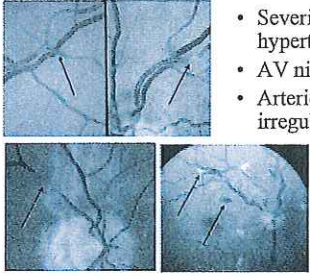




Categories of Systemic Diseases

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

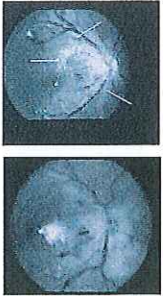
Chronic Hypertensive Retinopathy




- Severity and duration of hypertension.
- AV nicking
- Arteriolar narrowing and irregularity
- Sclerotic vessels
- Blot/flame heme
- Cotton wool spots

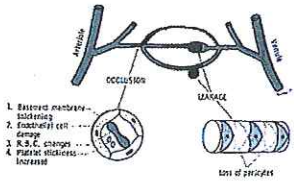
Acute hypertensive retinopathy

- Malignant, accelerated, hypertensive crisis
- BP >200/120
- Renal disease, toxemia of pregnancy, vasculitis
- Usually associated with vision loss
- Severe exudative changes, disc edema, hemorrhages



Diabetic Retinopathy

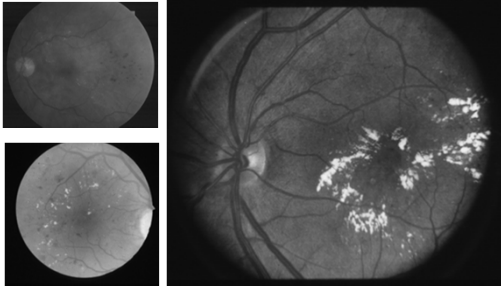




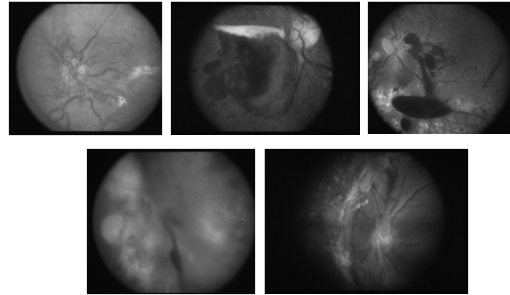
1. Basement membrane... thickening
2. Endothelial cell... damage
3. R.S.E. changes ...
4. Pericyte thickening... increase

loss of pericytes

Non proliferative Diabetic Retinopathy



Proliferative Diabetic Retinopathy



Factors that lead to progression

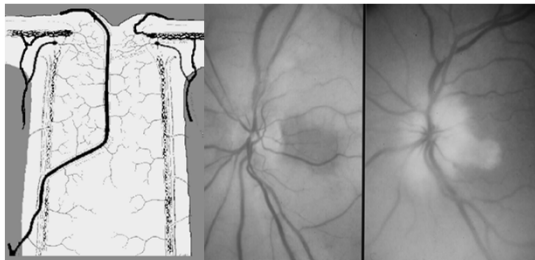
- **Puberty and pregnancy**
- Systolic and diastolic **blood pressure**
- **Hyperlipidemia** : hard exudates in the macula and high risk of visual loss.
- Poor control of **serum glucose**
- **ASA and smoking has no effect.**

Evaluation of Diabetics

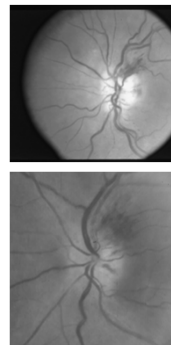
- * May progress without visual symptoms.
- * Florid neovascularization and still maintain perfect 20/20 vision.
- Insulin dependent, juvenile onset:
 - Needs exam during first 4 years, then yearly
- Non insulin dependent, adult onset:
 - Needs exam at the time of diagnosis, then yearly
- Diabetes prior to pregnancy:
 - Needs exam prior to or early in first trimester, then every trimester

Ocular Circulation

Central retinal a. Posterior ciliary a

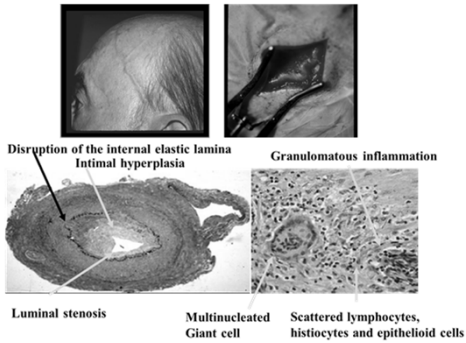


Ischemic Optic Neuropathy

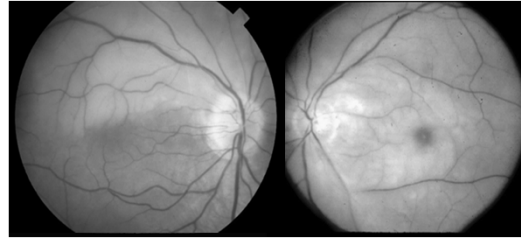


- Sudden , painless vision loss with signs of optic neuropathy.
- Non arteritic
 - HBP or DM
 - Blood loss / Anemia
- Arteritic
 - Cranial arteritis

Cranial Arteritis

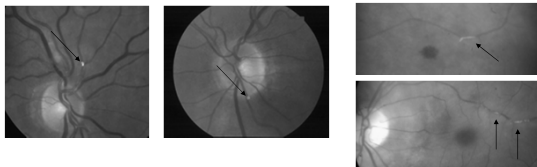


Retinal Artery Occlusion



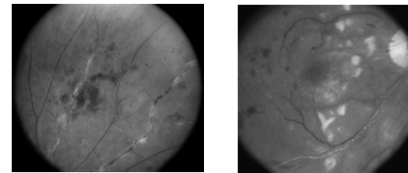
- Carotid stenosis, cardiogenic emboli, vasculitis, and hypercoagulability
- Ophthalmic emergency: paracentesis
- Urgent evaluation to prevent further events

Retinal Emboli



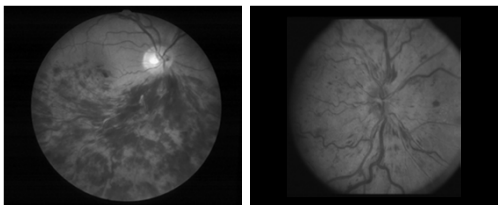
- | | | |
|-------------------------------------|----------|--------------------|
| Cholesterol
(Hollenhorst plaque) | Calcific | Platelet – fibrin |
| Carotid
(aorta, heart valves) | Cardiac | Carotid or cardiac |
| Asymptomatic | BRAO | BRAO |

Retinal Vasculitis



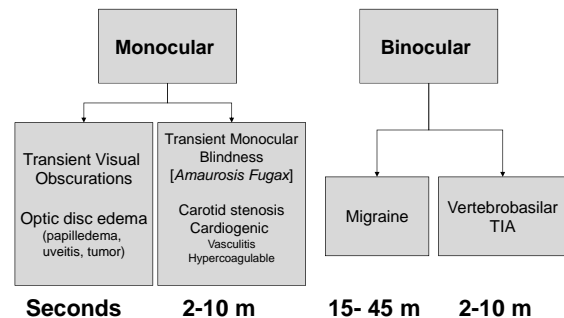
- | | | |
|--|--|-----------------------------|
| Retinal periphebitis
Sarcoidosis | Retinal arteriitis
Lupus | Giant cell arteritis |
| Primary Ocular conditions | Systemic Associations. | |
| Idiopathic obliterative peripheral retinovasculopathy (Eale's disease) | Lupus | Sarcoidosis |
| Frosted branch angiitis | Rheumatoid arthritis | Behcets |
| Birdshot chorioretinopathy | Microangiopathy of retina/brain (Susacs) | Multiple sclerosis |
| Idiopathic retinal vasculitis | Inflammatory bowel disease | sypihlis, TB |
| Optic disc vasculitis | Wegeners, Polyarteritis | Toxoplasmosis |
| | Acute retinal necrosis (herpes zoster) | CMV (HIV) |

Retinal Vein Occlusion



- Branch vein occlusion
- Central retinal vein occlusion
- Hypertension, glaucoma, hypercoagulability, anticardiolipin antibody Syndrome, hyperviscosity, myeloproliferative disorders, anemia


Transient Vision Loss



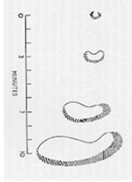
45 yo WM with a visual disturbance.

DATE	AGE	DESCRIPTION
1/17/72	45	A bilateral shadow in the V2 when looking in a horizontal up gaze. A shadow of dark brown, brownish yellow, and purple color and appearance & shape, with a size of 10-15 degrees.


- Doesn't matter whether either or both eyes are open, closed, look left or right, up or down
 - Day or Night - **S**ymmetrical
 - During a conversation in the afternoon, evening or morning in bed
 - eyes open or closed - usually occur 1/2 hour after waking up
 - Kaleidoscope must move about 1/2 of view
 - 30-10 min duration - gradually moves out of view shimmering
 - 70-80% of pain




Migraine



When through the dark tunnel of a hemianopic scotoma, one sees a world of strange shapes and colors. The world is not as it is, but as it appears to be. The world is not as it is, but as it appears to be. The world is not as it is, but as it appears to be.




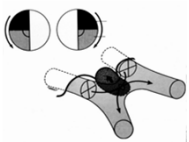
- Binocular,
- scintillations ± hemianopic scotoma
- 15-45 minutes
- Fortification spectra
- "Spectral march" across the visual field
- with or without headache
- prior h/o migraine headaches
- strong family history of headaches



Bourtange : Dutch fortress. 1577 - 1821

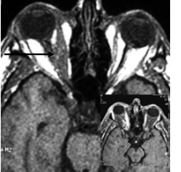
Pituitary tumors





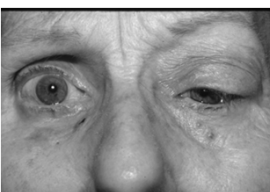
- ACTH: Cushings
- GH: Acromegaly
- Prolactin:
 - F: amenorrhea, galactorrhea
 - M: impotence, gynecomastia

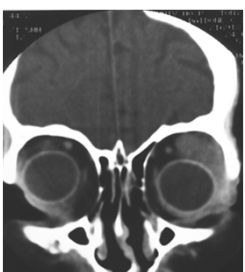
Orbital Lymphoma



- Extranodal B cell lymphomas
- 50-70 yo
- Unilateral (bilateral)
- Proptosis, anterior congestion, ophthalmoplegia, ptosis
- 40% associated with systemic involvement.
- May infiltrate any of the orbital structures or present as a molding, non displacing mass.
- Immunohistochemistry - to distinguish from benign lymphoid hyperplasia

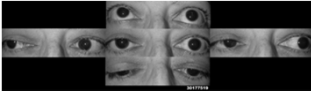
Orbital Lymphoma




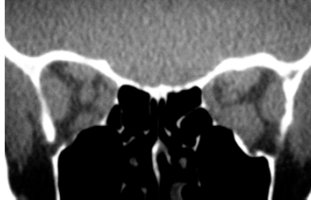



Orbital Myeloma

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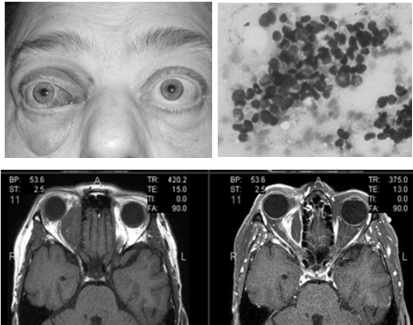




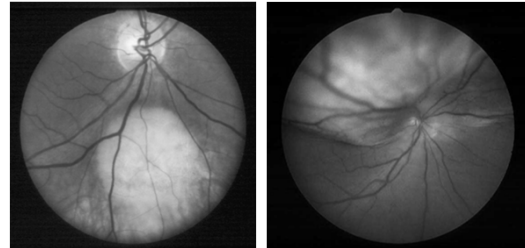




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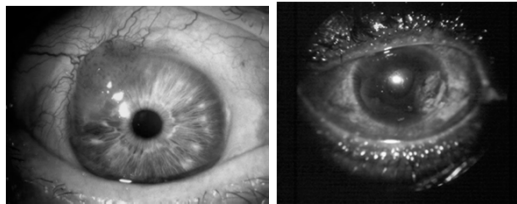
Tumors of the posterior pole



Choroidal metastasis: lung

Melanoma

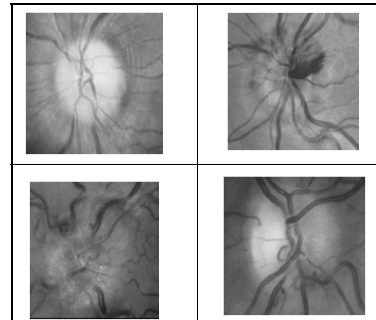
Anterior segment tumors



Squamous Cell carcinoma

Metastatic carcinoma

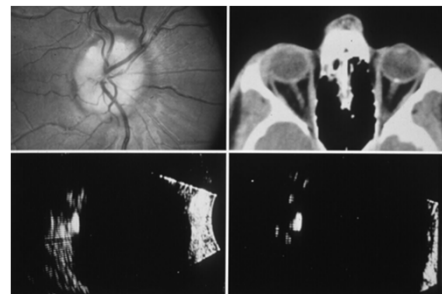
Papilledema



Papilledema

- Idiopathic intracranial hypertension
- Brain tumors
- Venous sinus thrombosis
- Obstructive hydrocephalus
- Meningitis
- Cerebral edema
 - Subarachnoid hem


Pseudopapilledema



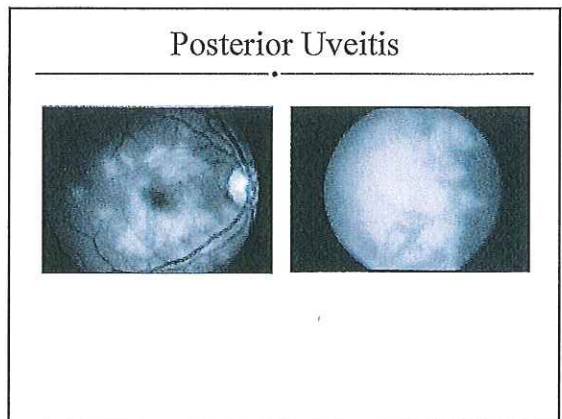
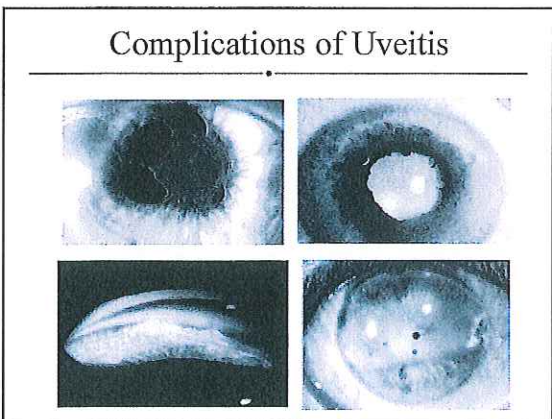
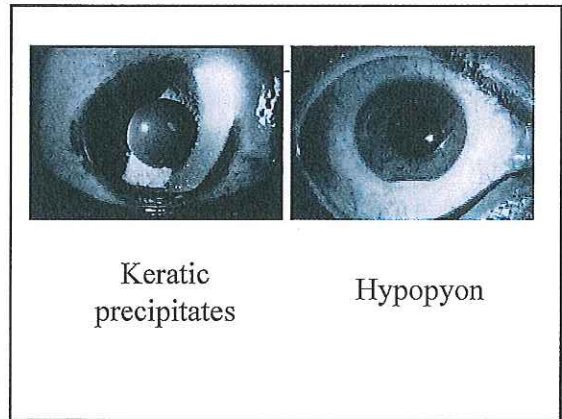
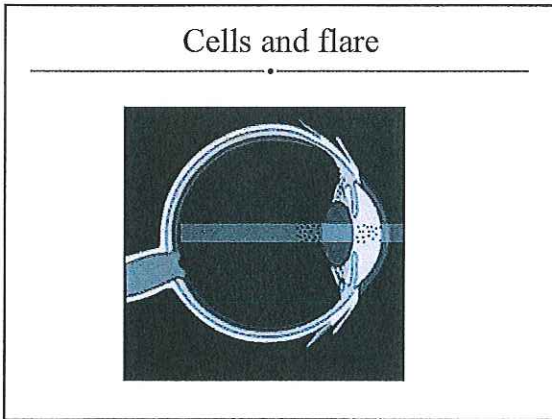
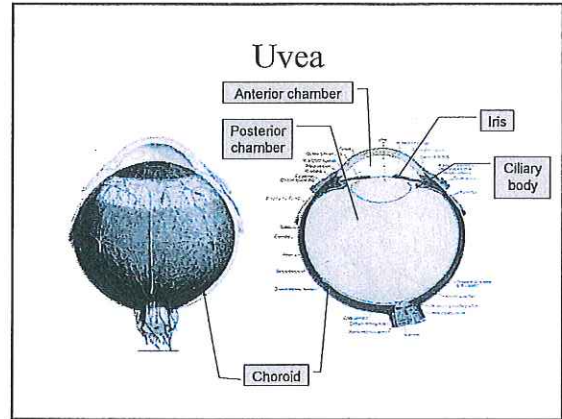
Ophthalmic- Systemic Disease

Part 2

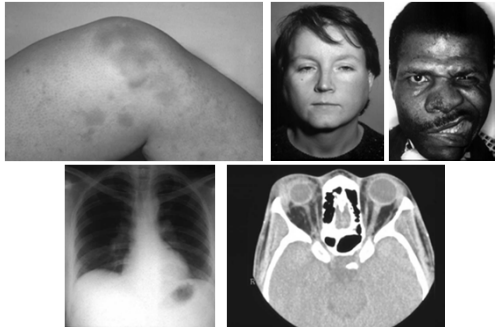
Ophthalmic Manifestations of Selected Systemic Diseases



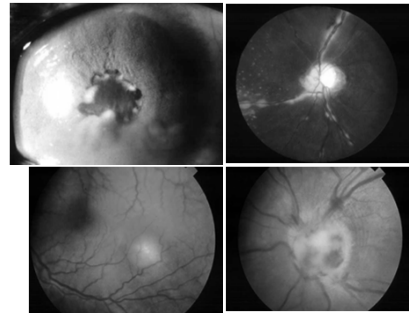
A small, stylized illustration of a human eye, showing the iris, pupil, and sclera.



Sarcoidosis



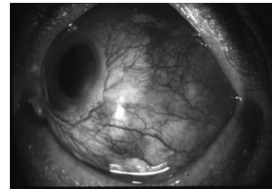
Sarcoidosis



Uveitis

- Infectious
 - Toxoplasmosis
 - Syphilis
 - Lyme
 - Viral
 - TB
 - Herpes zoster
 - Nematodes
 - CMV
 - Toxocara canis (dog roundworm)
- Autoimmune
 - Ankylosing spondylitis
 - Reiters syndrome
 - MS
 - Inflammatory bowel disease
 - Sarcoidosis
 - Vogt Koyanagi Harada
 - Vasculitis
 - Behcets
- Idiopathic
- Masquerade syndrome
 - Lymphoma
 - Ocular ischemia
 - Retinoblastoma

Scleritis

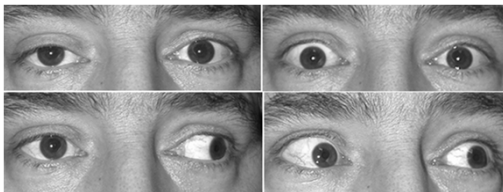


- 50% with systemic disease
- Rheumatoid arthritis
- Wegeners
- Polyarteritis
- Lupus
- Relapsing polychondritis.

Myasthenia Gravis

Pre

Post



Tensilon Test

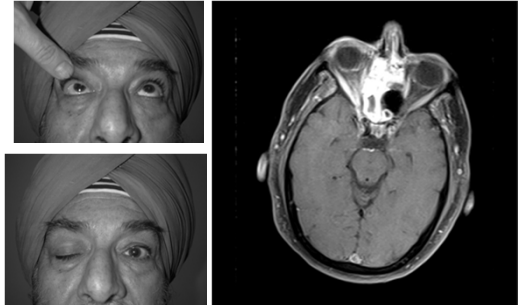


Orbital Cellulitis

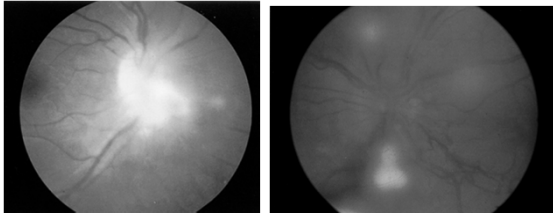


- Bacterial infection of the orbit secondary to sinusitis
- Erythema, swelling, proptosis, Ophthalmoplegia , vision loss
- fever, leucocytosis

Infection: sinusitis

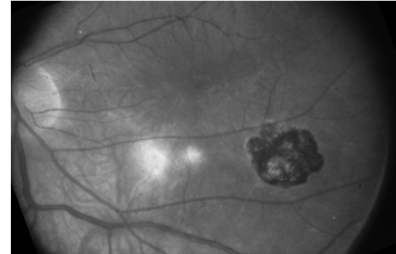


Candida endophthalmitis



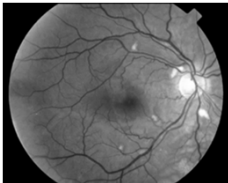
- Opportunistic infection
- Diabetics, burn patients, chronic iv antibiotics, iv drug abuse, patients receiving parenteral nutrition

Toxoplasmosis

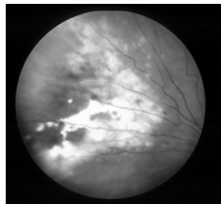


- Protozoan infection due to *t. gondii*; Host: cat
- Ingestion of contaminated uncooked meat or reactivation from prior transplacental in utero exposure

HIV



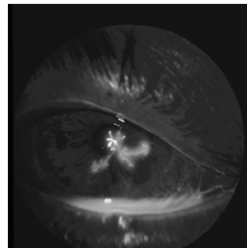
HIV retinopathy



CMV retinitis

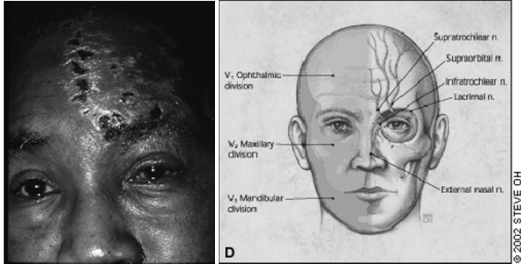
- usu seen with CD4 <50
- Rx. Gancyclovir, Foscarnet, Cidofovir

Herpes Simplex Keratitis



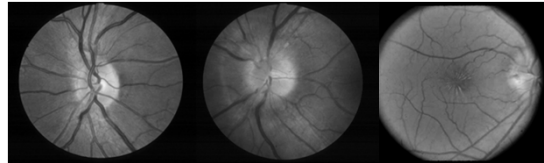
- Intracellular DNA virus
- Usually Type I
- Primary infection usually in children
- Neonatal (type II)
- Recurrent forms (type I), trigeminal ganglion reservoir

Zoster ophthalmicus



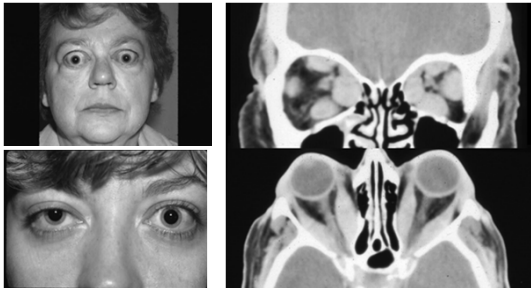
Optic Neuritis

Acute, painful vision loss with decreased acuity, abnormal color vision, APD and Central scotoma on visual fields. Fundus findings consist of three types:

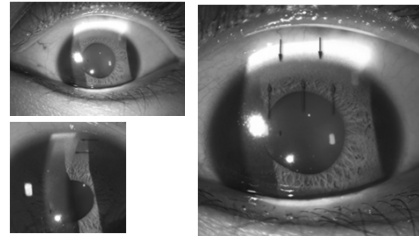


Retrobulbar Optic neuritis MS, Idiopathic
 Papillitis MS, Virus
 Neuroretinitis Virus

Dysthyroid orbitopathy

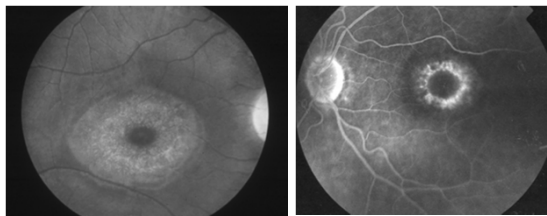


Keyser-Fleischer Ring



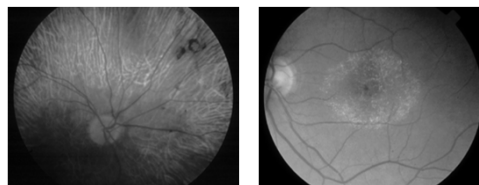
Wilson's disease
 Inherited disturbance in copper metabolism
 Neurological problems especially basal ganglia

Bulls eye maculopathy



Placquinil (chloroquine) : risk of toxicity with cumulative doses of 300 gm

Toxic retinopathies



Phenothiazines

Tamoxifen

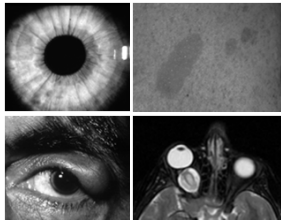
Toxic reactions



Genetic Disorders

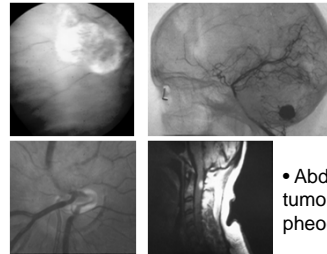
- Phakomatoses
 - Neurofibromatosis
 - Tuberous sclerosis
 - Von Hippel Lindau
- Mitochondrial myopathies
- Coloboma
- Down's syndrome
- Marfan syndrome

Neurofibromatosis



- Dominantly inherited
- 3:10,000
- Lisch nodules of the iris
- Café au lait spots (>5)
- Cutaneous neurofibroma
- Optic n gliomas
- Intertriginous freckles
- osseous lesions (sphenoid dysplasia)

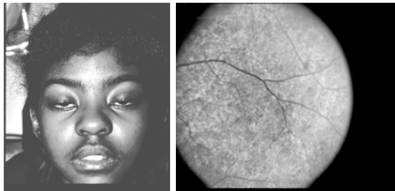
von Hippel Lindau



- Dominantly inherited
- Capillary angiomas of the disc and retina
- CNS tumors : hemangioblastomas
- Abdominal or visceral tumors e.g. renal carcinoma, pheochromocytomas

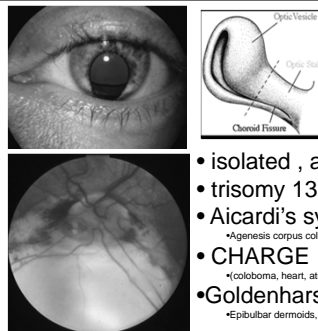
Kearns-Sayre

Chronic progressive external ophthalmoplegia



- Mitochondrial DNA disease
- Chronic progressive external ophthalmoplegia
- Cardiac conduction disturbance
- Retinitis pigmentosa

Coloboma



- isolated , autosomal dominant
- trisomy 13
- Aicardi's syndrome
 - *Agenesis corpus callosum, EEG abnrl, choroidal lacunae, retardation
- CHARGE
 - * (coloboma, heart, atresia, retardation, genital, Ear)
- Goldenhars syndrome
 - * Epibulbar dermoids, maldevelopment ears, mouth and jaw