Ocular Manifestations of Systemic diseases

Acknowledgement

- Kanski's Clinical Ophthalmology, 8th Ed.(Elsevier)
- Endocrinology : Adult and Paediatric. Burch, Henry B.; Bahn, Rebecca S.. Published January 1, 2016. © 2016.
- Some of the images used were taken from eyetext.net

Learning Objectives

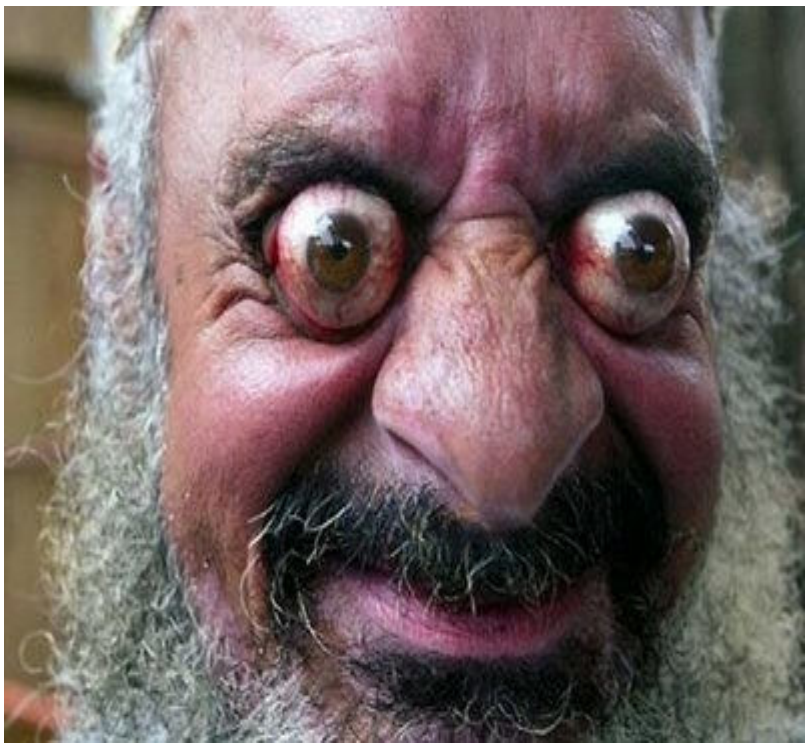
- **At the end of this class the students shall be able to :**
- Describe ocular signs and symptoms associated with selected systemic diseases .
- Understand the importance of early detection of ocular features of systemic diseases.

Introduction

- **"The eyes are the window to the soul."**
  (English proverb)
- **Occasionally, eye findings may be the first indication of underlying systemic disease leading to early diagnosis and management.**

Question

- Identify the ocular abnormality in the adjoining photograph?
- What systemic evaluation would you do in this patient ?



Why do eye problems manifest in systemic forms

The eye is linked with rest of the body by-

- Development
- Blood supply
- Meninges and nerve fibres of brain

Common Systemic Diseases affecting the Eye

- Autoimmune disorders
- Haematological abnormalities
- Infectious diseases
- Endocrine disorders
- Muscular disorders
- Inherited disorders

Autoimmune disorders

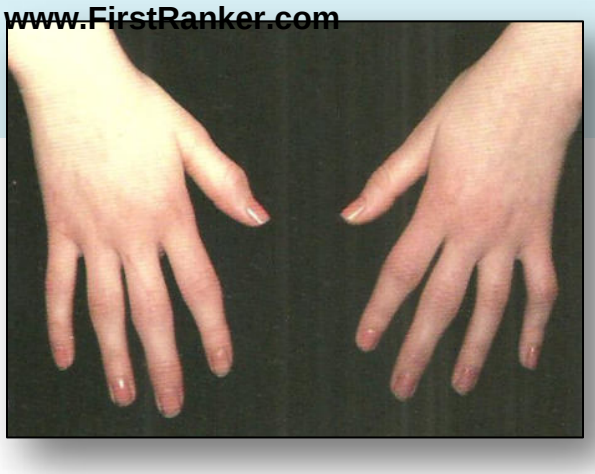
Rheumatoid Arthritis

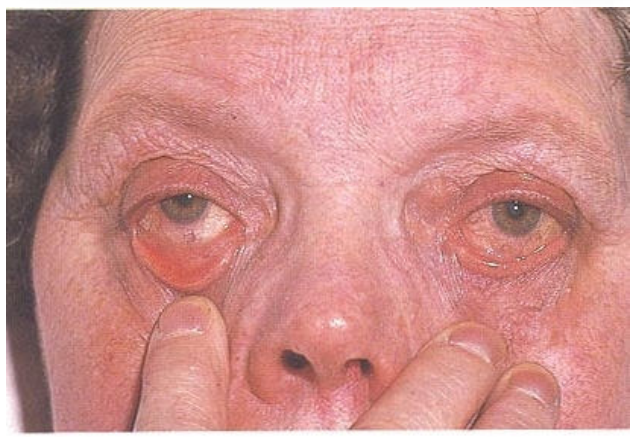
a)Kerato Conjunctivitis Sicca

b)Ulcerative Keratitis

c)Acquired Superior oblique tendon sheath syndrome

d)Scleritis





Keratoconjunctivitis Sicca

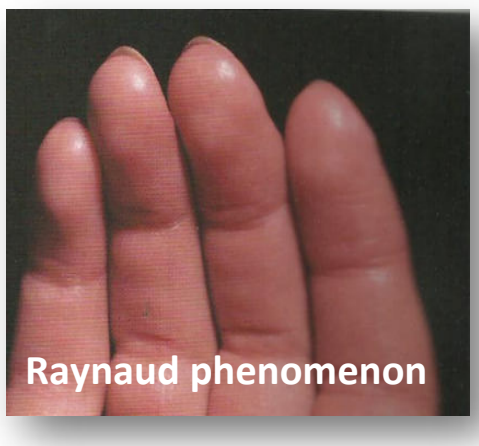
Scleritis

Systemic Lupus Erythematosus

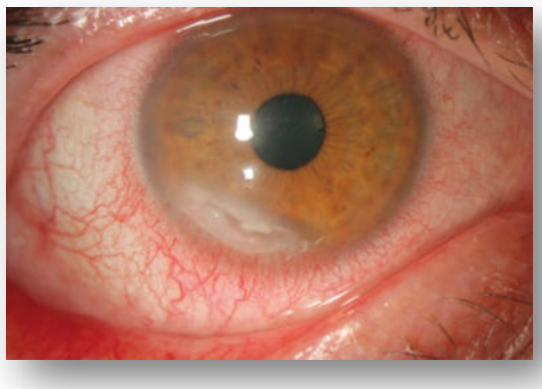
a) Kerato Conjunctivitis Sicca (KCS)

b) Scleritis

c) Optic Neuropathy



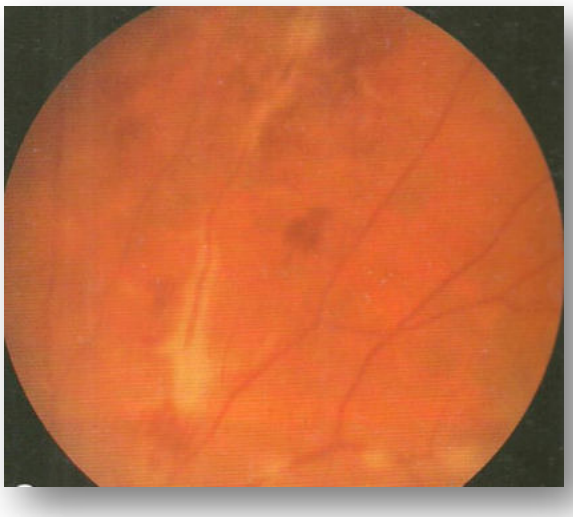
Retinal Vasculitis



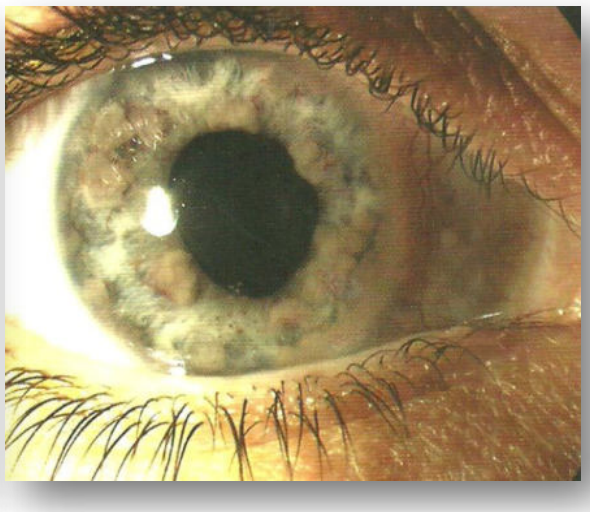
Peripheral ulcerative Keratitis

Sarcoidosis

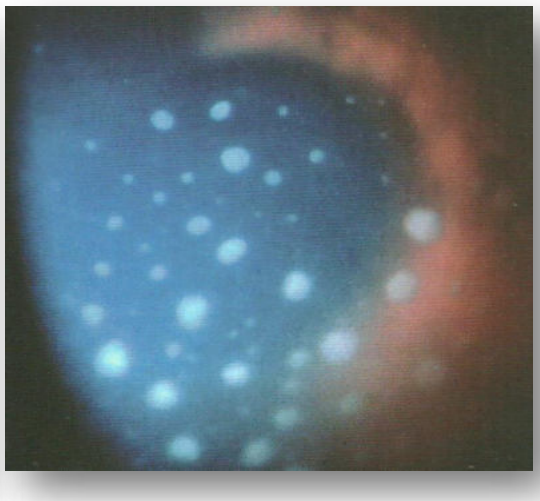
- 30% ocular signs



Phlebitis

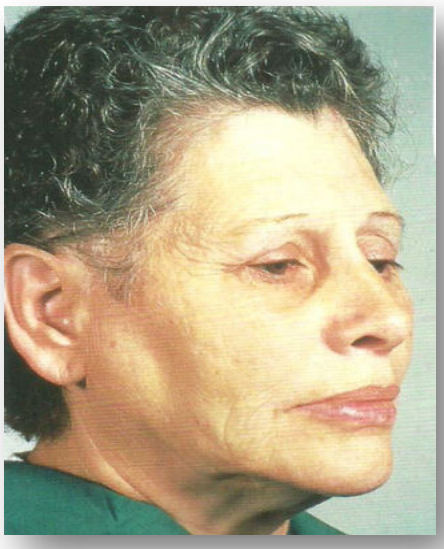


Iris nodule

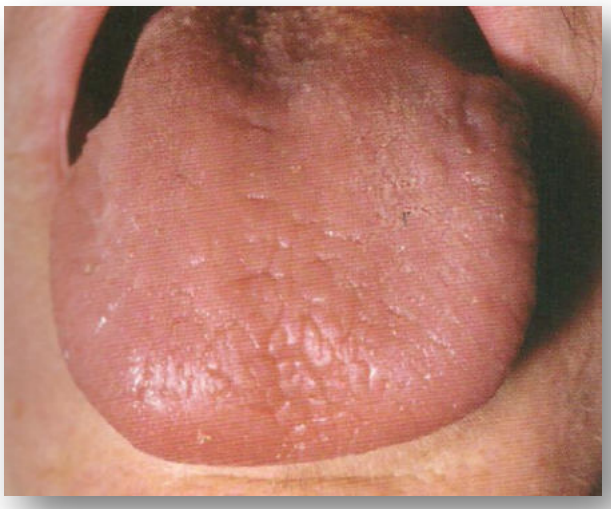


Mutton fat kps

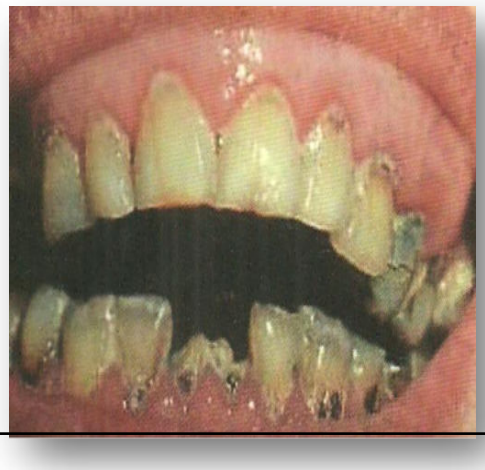
Sjogren's Syndrome



Parotid enlargement



Dry fissured tongue



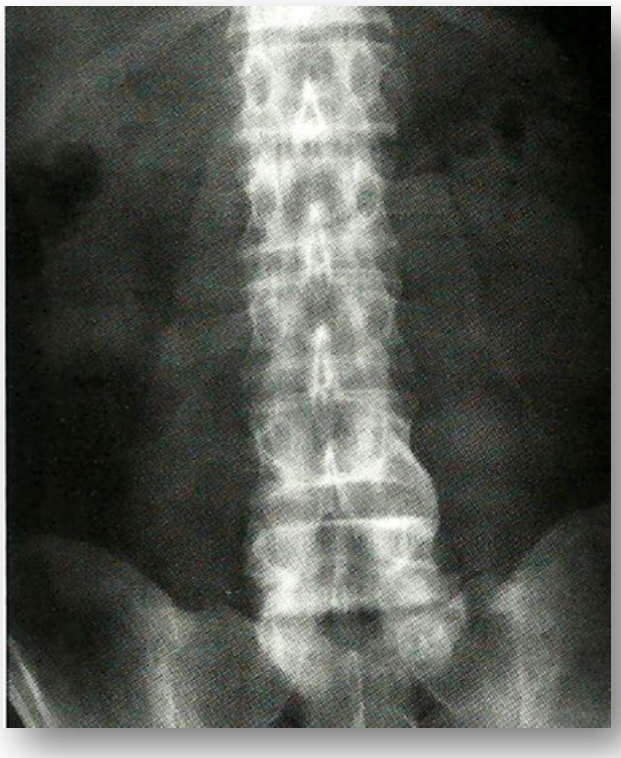
Dental caries

Ankylosing Spondylitis

- Acute anterior uveitis
- Scleritis

Symptoms:

- Photophobia
- Redness
- Decreased vision



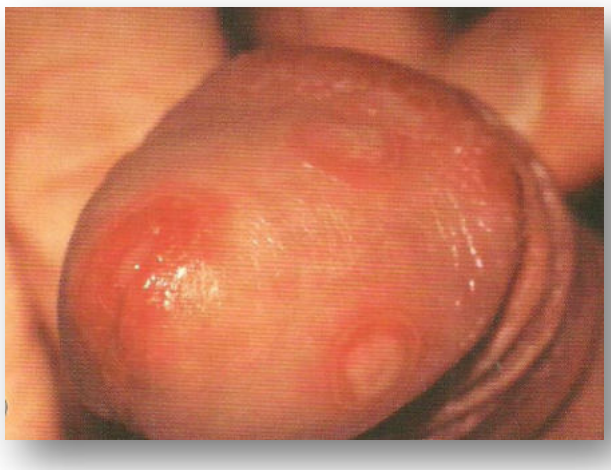
- **Bilateral sclerosis**
- **Erosion of sacro-iliac joint**
- **Bony fusion of spine**

Reiter's Syndrome

Triad → *Urethritis*, *Conjunctivitis*, *Arthritis*

Eye Signs

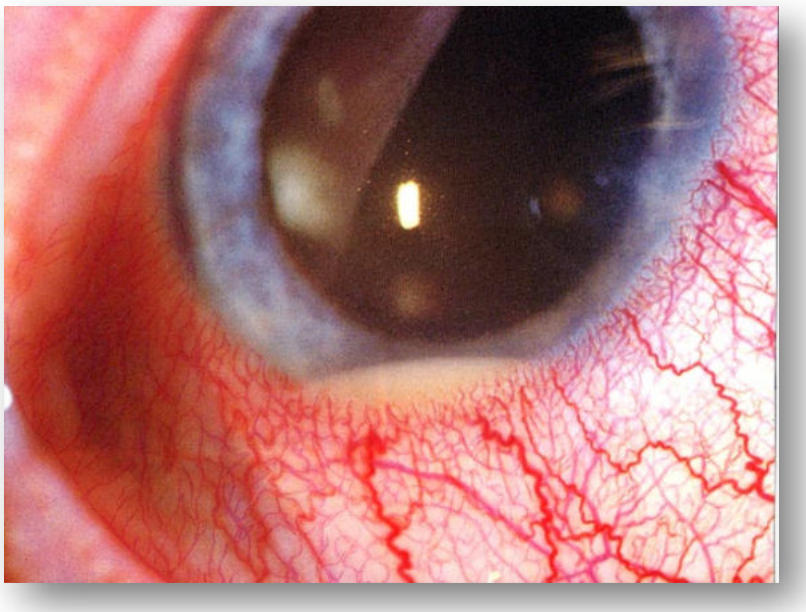
- Conjunctivitis
- Acute anterior uveitis
- Numular Keratitis
- Episcleritis
- Scleritis
- Papillitis
- Retinal vasculitis



Urethritis

Behcet's Disease

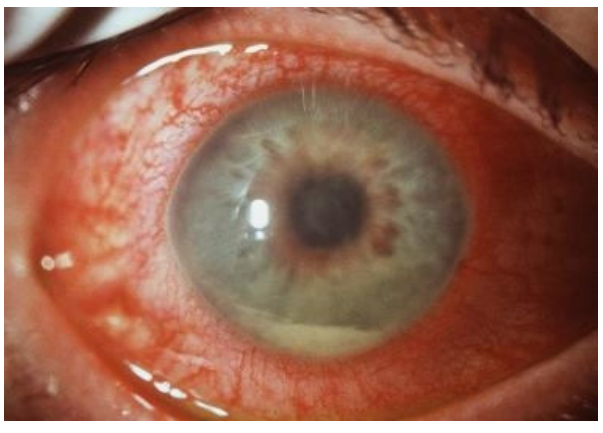
Hypopyon Uveitis



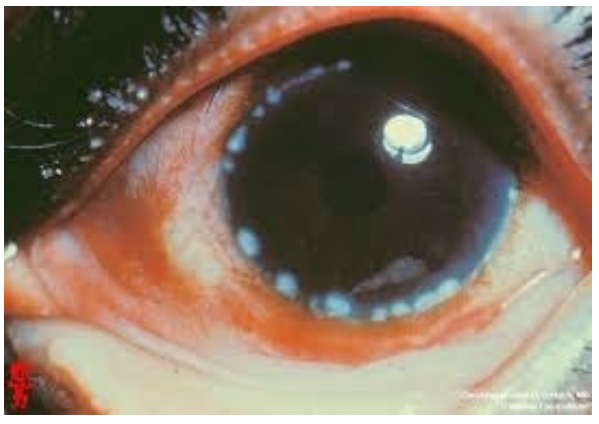
Inflammatory Bowel Disease- Ulcerative Colitis Crohn's Disease

Ophthalmic manifestations

a)Acute anterior uveitis
b)Peripheral corneal infiltrates
c)Conjunctivitis
d)Episcleritis
e) Scleritis
f) Papillitis
g)Retinal Vasculitis



Acute anterior uveitis

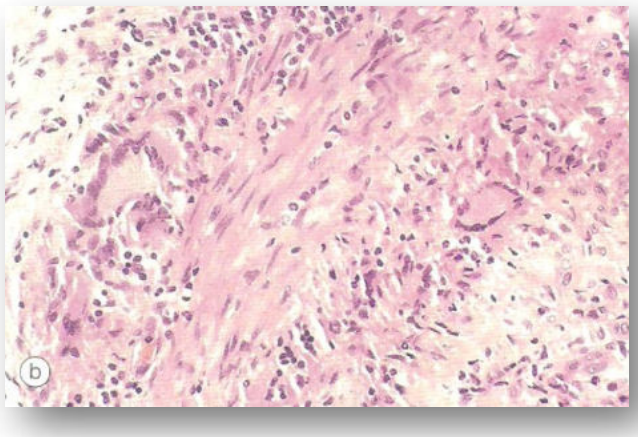


b) Peripheral corneal infiltrates

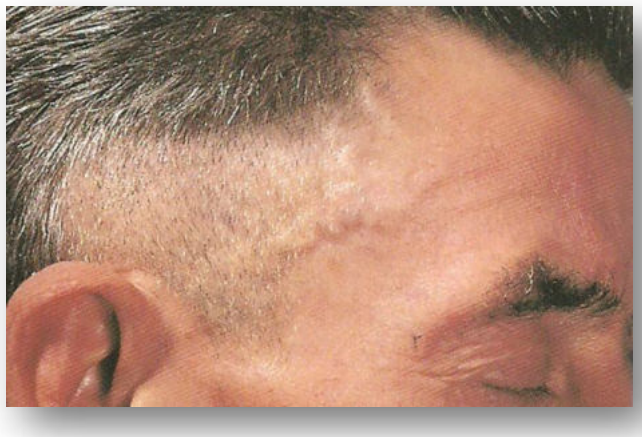
Giant Cell Arteritis

Predilection for superficial temporal A, ophthalmic A, posterior Ciliary & proximal vertebral A

a) AION (Arteritic)
b) Cilio-retinal Occlusion
c) Central retinal artery occlusion
d) Cotton wool spots



Giant cells & small round cells



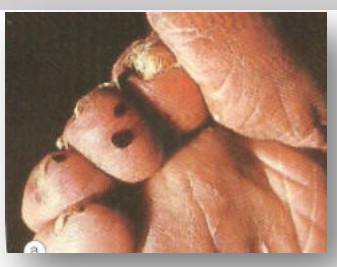
Superficial temporal arteritis

Vasculitis

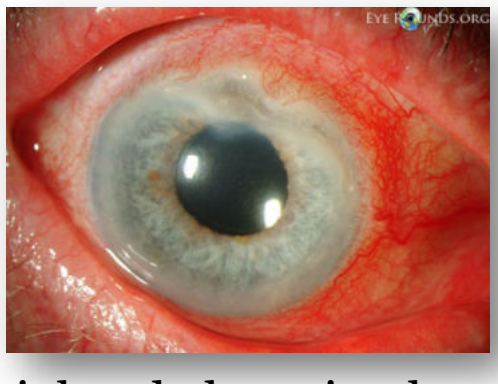
Wegeners granulomatosis

Polyarteritis nodosa

Relapsing Polychondritis



Dermal infarcts



Peripheral ulcerative keratitis

Ocular features-

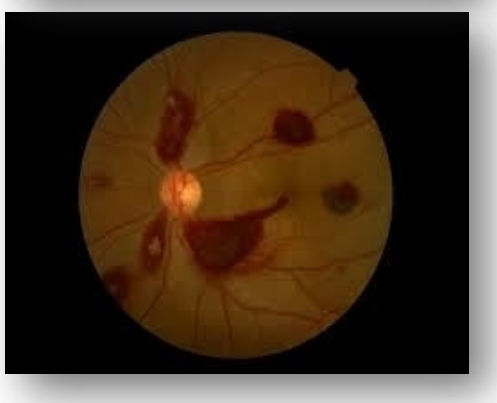
a) Necrotising scleritis
b) Peripheral ulcerative Keratitis
c) Occlusive retinal periarteritis
d) Peripheral ulcerative Keratitis
e) Dacryocystitis
f) Scleritis
g) Acute anterior uveitis

Dacryocystitis

Haematological diseases

Haematological diseases

1) Anaemia
2) Leukaemia
3) Lymphomas
4) Sickle cell Anaemia

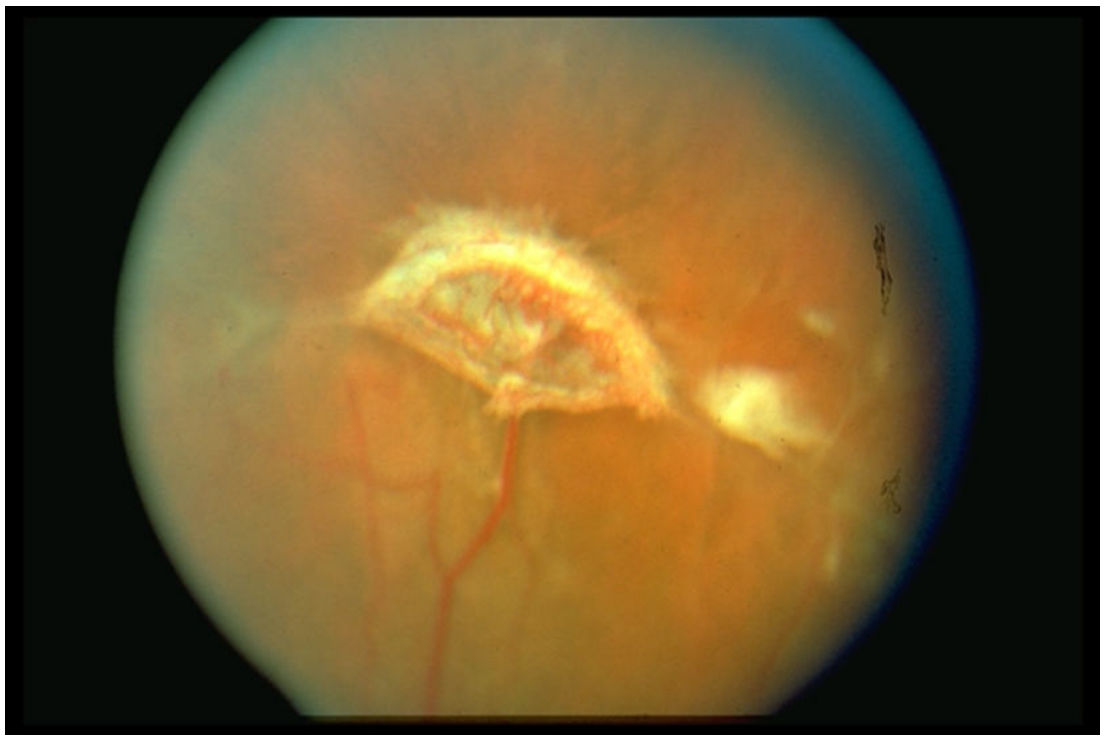


Ocular Presentation:

Haemorrhagic Retinopathy

"ROTHS SPOT"

Sea fan neovascularisation in sickle cell disesase

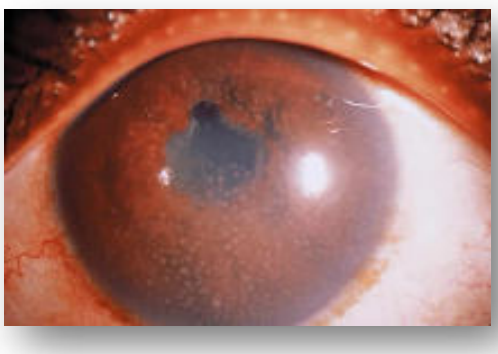


Infectious diseases

Tuberculosis

All Structures of Eye except Lens may be involved

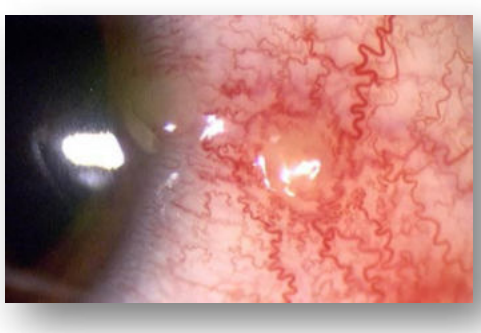
a) Uveitis: chronic granulomatous anterior uveitis, multifocal choroiditis



b) Eyelids: lupus vulgaris (nodules surrounded by erythema)

c) Orbit: cellulitis,dacryoadenitis,dacryocystitis, osteomyelitis, abscess

d) Conjunctiva: phlyctenular conjunctivitis



e) Cornea: phlyctenular keratoconjunctivitis, interstitial keratitis (unilateral, sectorial, superficial vascularisation)

f) Sclera: episcleritis, nodular scleritis

g) Retina: exudative retinitis, Vasculitis

h) Optic nerve:- papilloedema, ON

Leprosy

a) Facial palsy

b) Madarosis

c) Granulomatous iritis

d) Episleritis/scleritis

e) Secondary Glaucoma

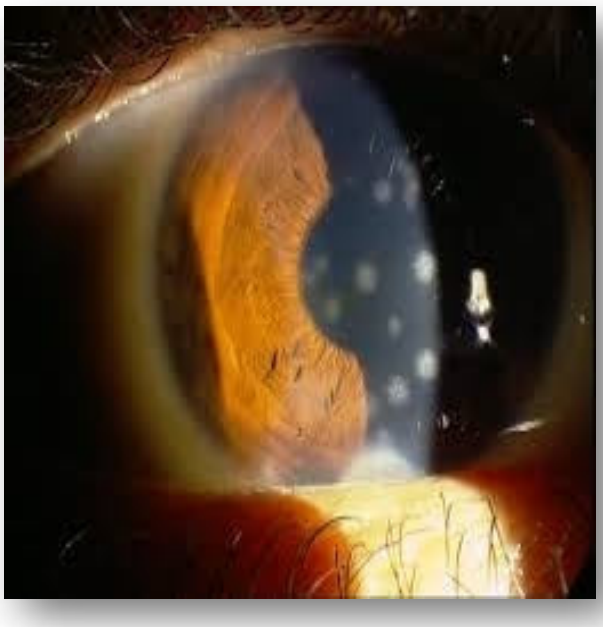
f) Cataract

Syphilis

- Congenital: Acute interstitial keratitis, Diffusely opaque cornea, salt & pepper fundus
- Secondary : Iritis, choroiditis, and/or exudates around disc + vessels
- Tertiary: Chorioretinitis and/or diffuse neuro-retinitis and vascular sheathing

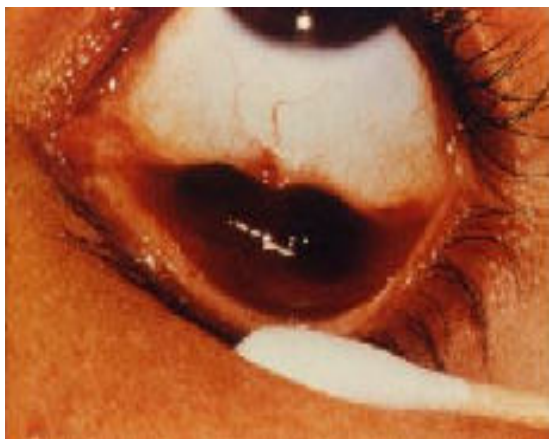
Other Viral Infections associated with Ocular Diseases

- **Herpes zoster**
- **Herpes simplex**
- **CMV**
- **Rubella**
- **Measles**
- **AIDS**

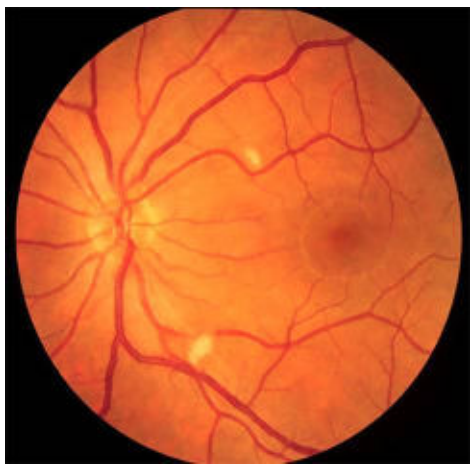


AIDS

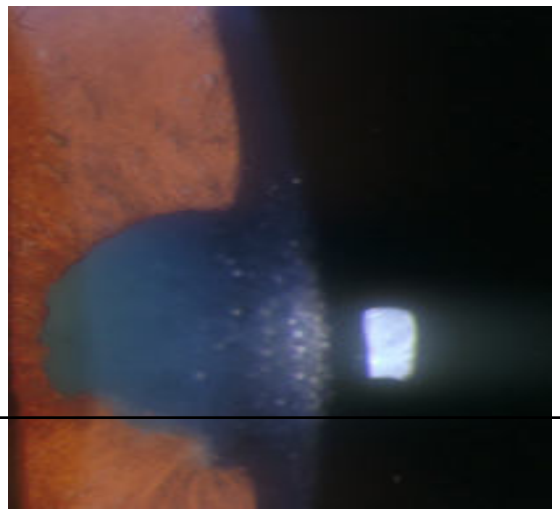
Kaposi's sarcoma- most common tumour



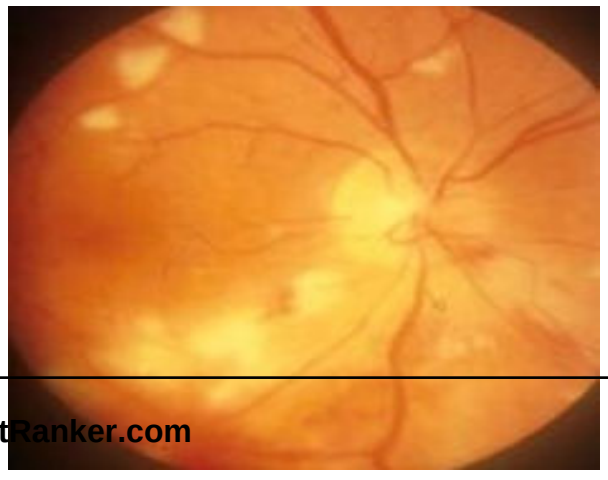
AIDS retinopathy- 50 to 70%



Anterior Uveitis

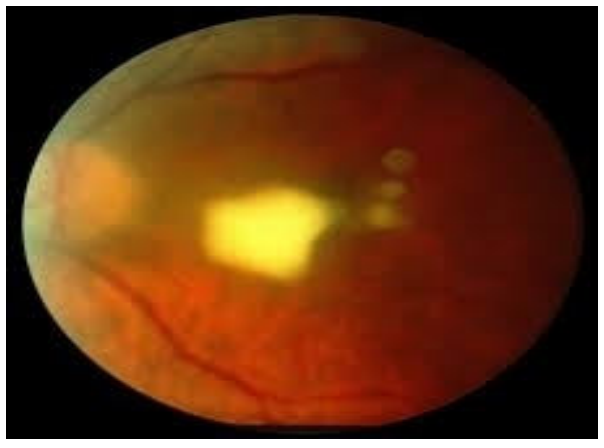


CMV retinitis- most common opportunistic infection



- **Fungal**

Candidiasis- Fluffy white-yellow superficial retinal infiltrate, vitritis



- **Parasitic**
- **Toxoplasmosis**
- **Toxocariasis**
- **Cysticercosis**

Macular scarring, retinochoroiditis, vitritis, VR Granuloma

Cyst

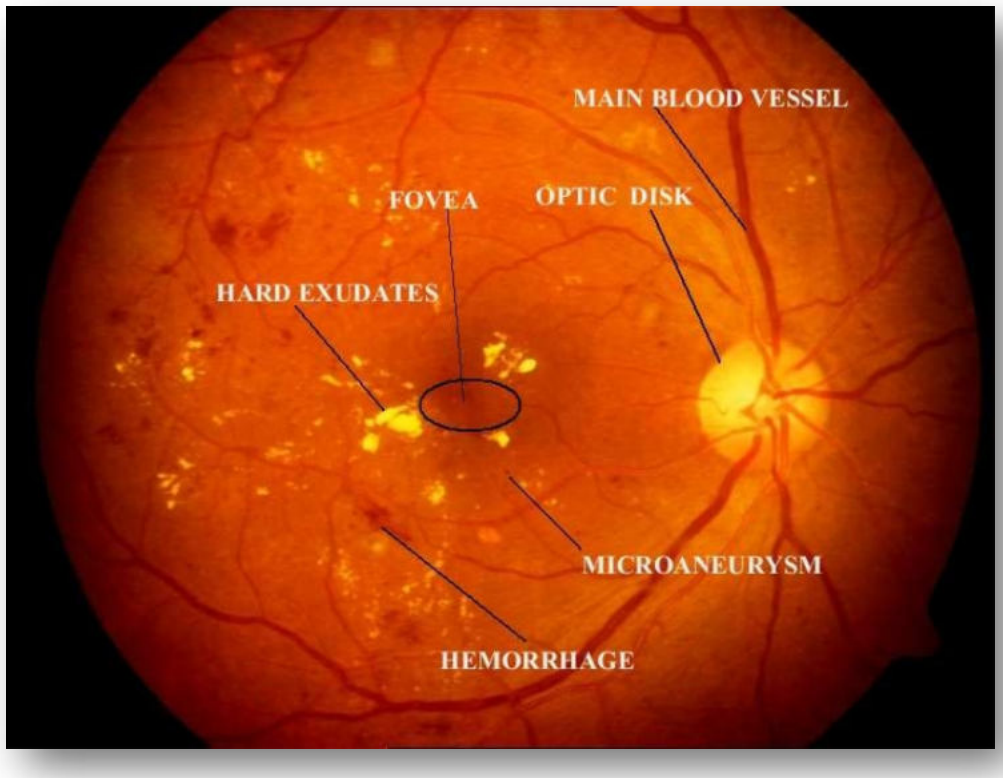
Endocrine & Metabolic disorders

Endocrine & Metabolic disorders

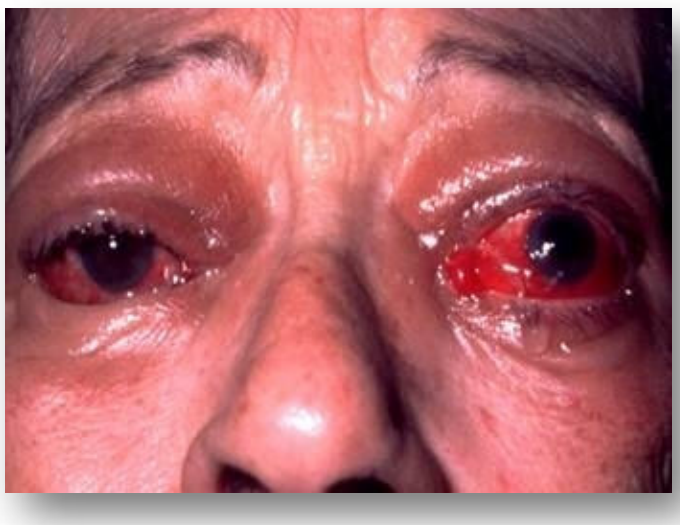
- Diabetes Mellitus
- Muco-polysaccharidoses
- Wilson's disease
- Homocystinuria
- Hyperthyroidism
- Hypothyroidism

Diabetes mellitus

- Refractive error
- Infections
- Corneal ulcers
- Snowflake cataract
- Retinopathy
- Maculopathy
- Optic nerve papillopathy

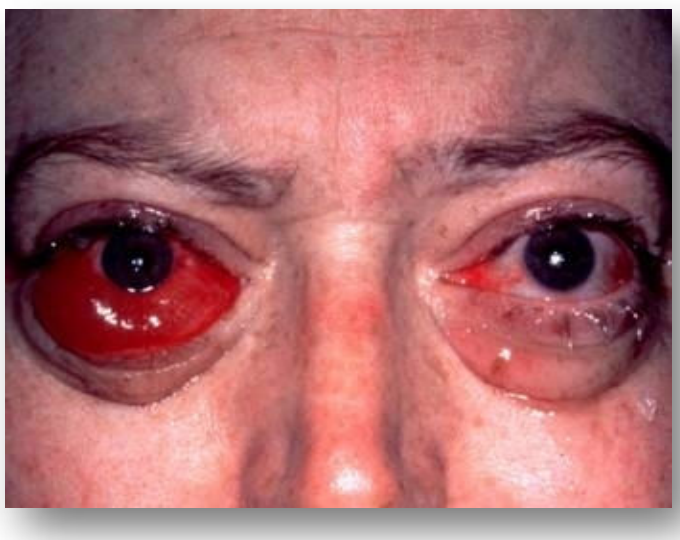


THYROID EYE DISEASE



Periorbital and lid swelling

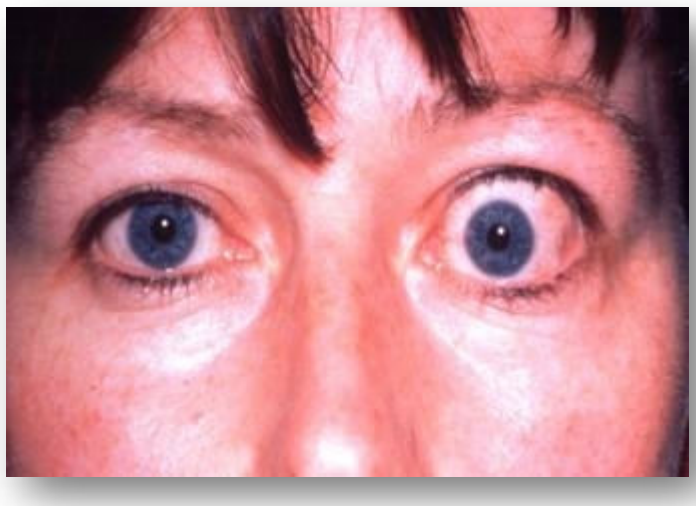
Conjunctival hyperaemia



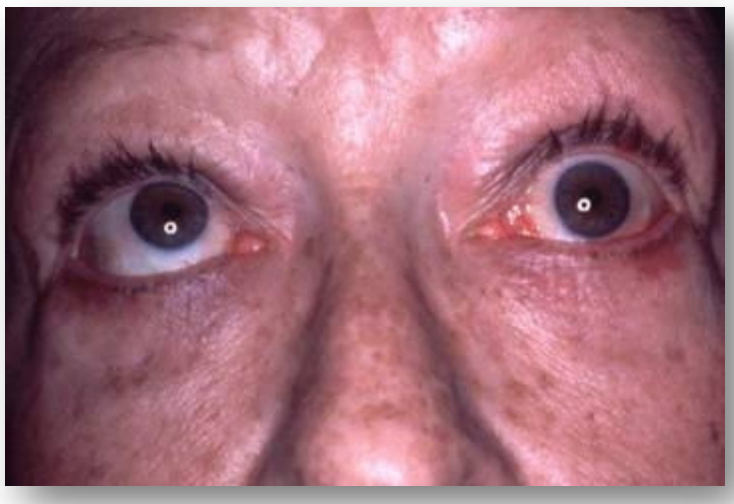
Chemosis

Superior limbic keratoconjunctivitis

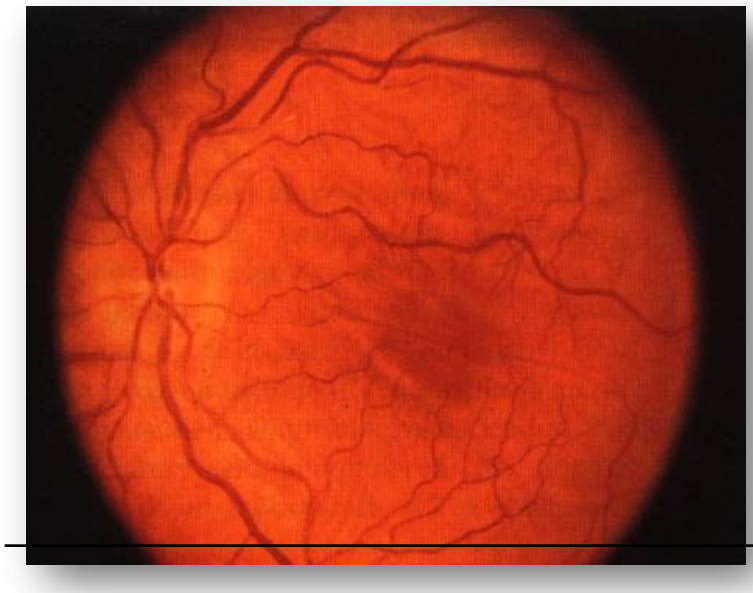
THYROID EYE DISEASE



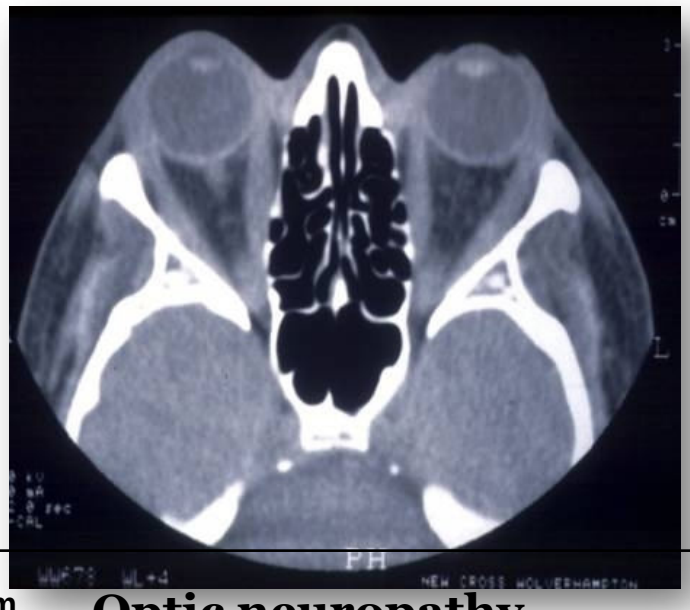
Unilateral lid retraction & proptosis



Restrictive myopathy



Choroidal folds

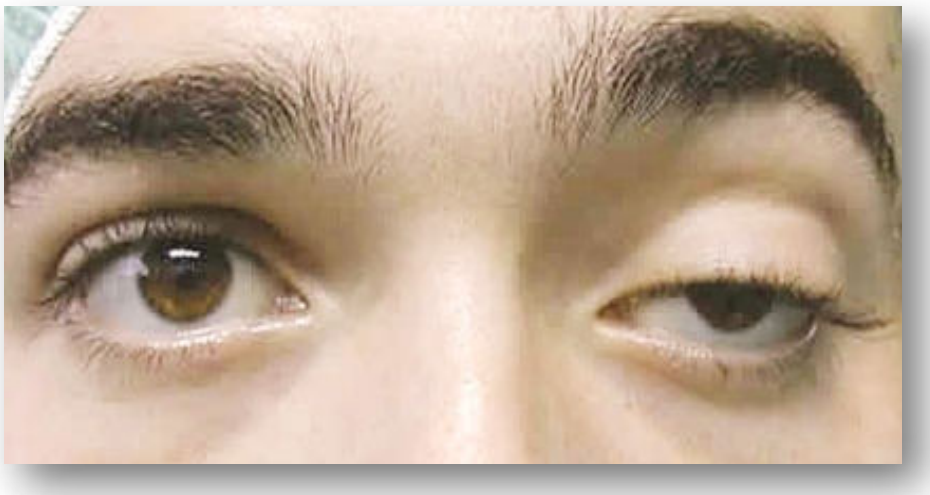


Optic neuropathy

Muscular disorders

Muscular disorders

- Myasthenia gravis
- Muscular dystrophy



Ocular Manifestations:

a) Ptosis

b) Diplopia,

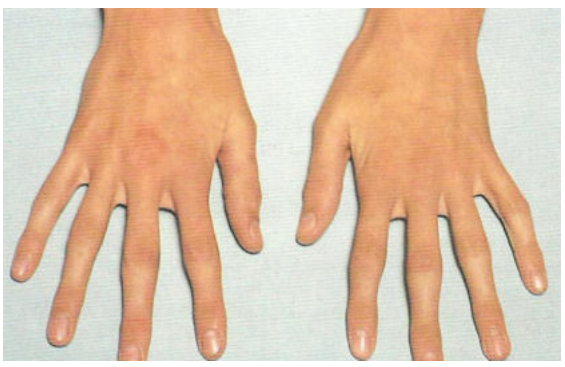
c) Ophthalmoplegia

d) Cataract

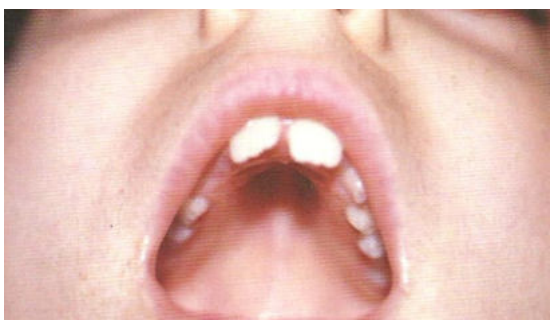
Inherited disorders

Marfan's Syndrome

a) Hypoplasia of dilator pupillae
b) Myopia
c) Retinal detachment
d) Microspherophakia
e) Keratoconus
f) Cornea Plana

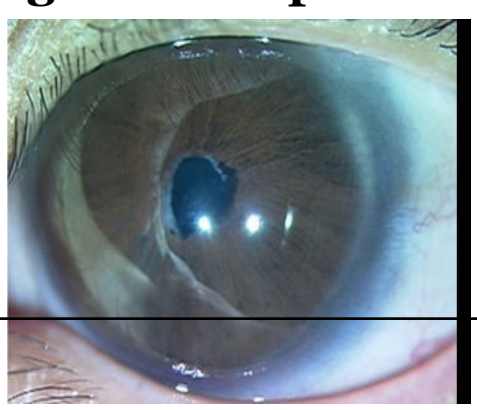


Arachnodactyly



High-arched palate

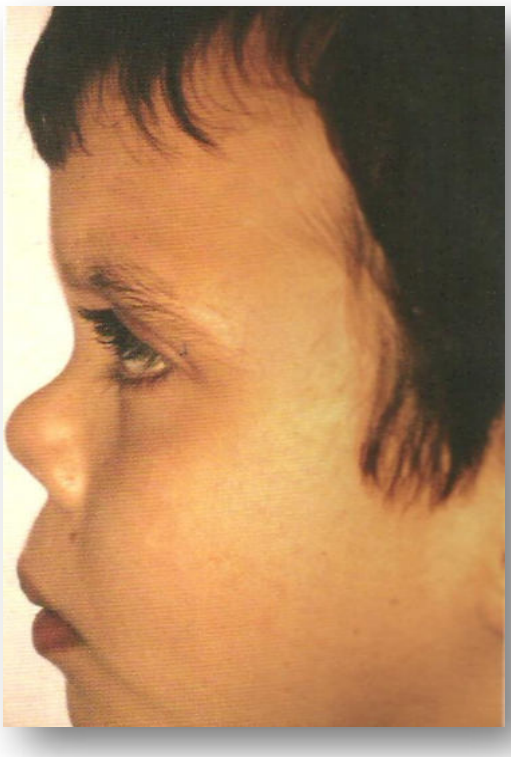
Ectopia lentis



Angle anomaly

Stickler Syndrome (Herditary artho-ophthalmopathy)

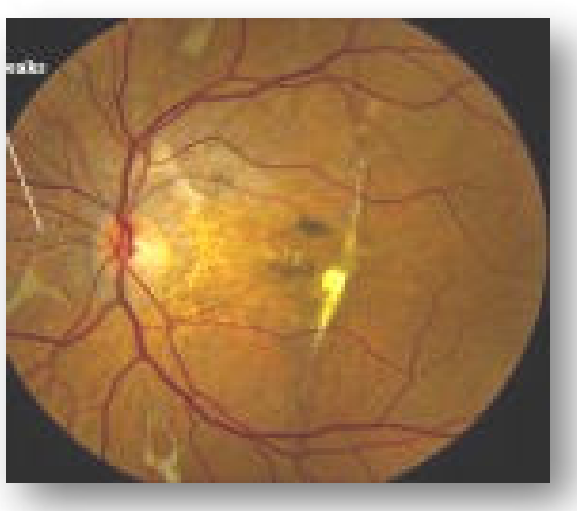
Retinal Detachment *[commonest inherited cause in children]*



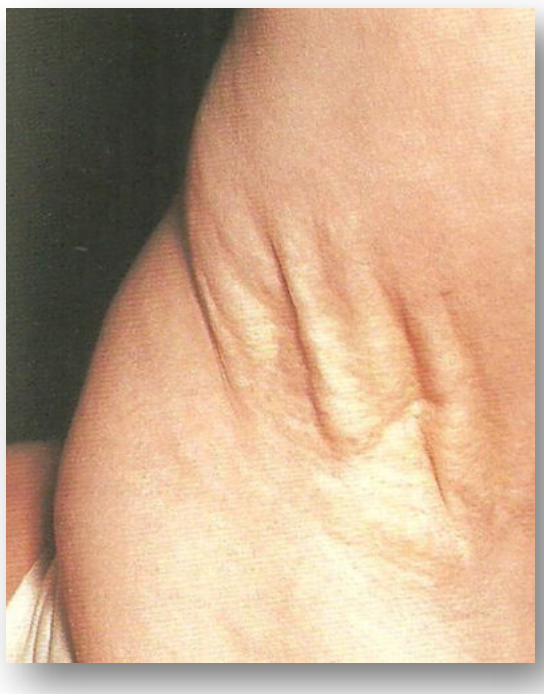
Flat nasal bridge

Pseudoxanthoma elasticum

Blue sclera



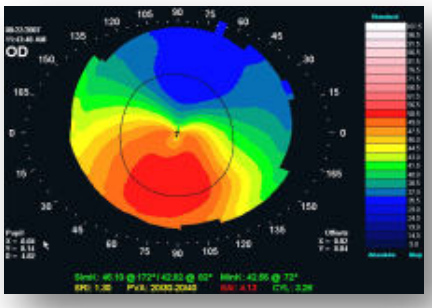
Angiod streaks



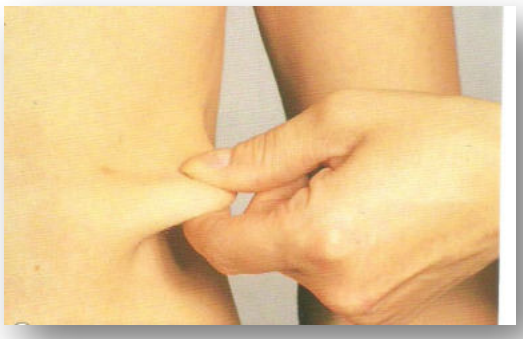
Loose skin folds

Ehlers - Danlos Syndrome type 6 (Ocular sclerotic)

Ocular fragility

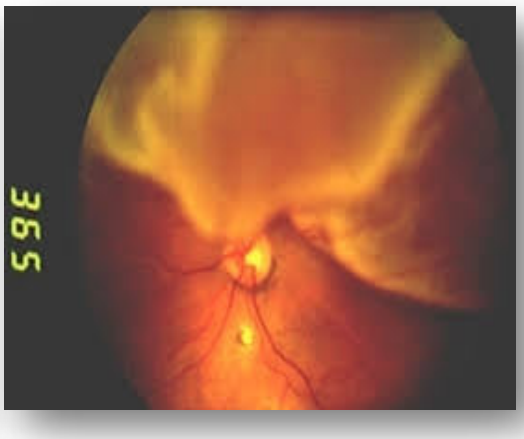


Keratoconus

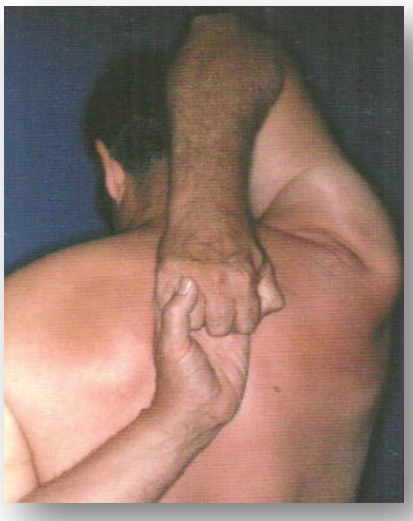


Hyperelasticity of skin

High myopia



RD

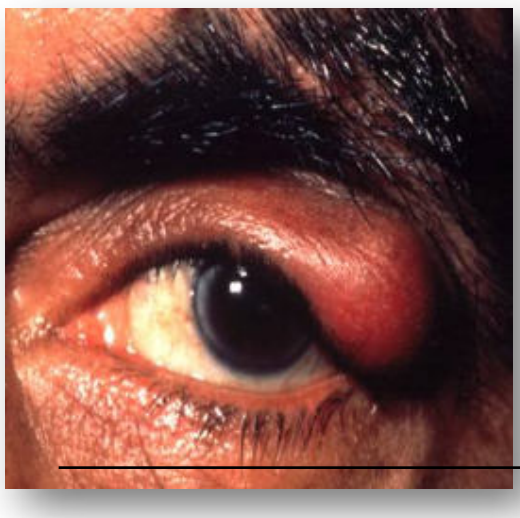


Hypermobility of joints

PHACOMATOSES - Neurofibromatosus-Type I (Von Recklinghausen disease)

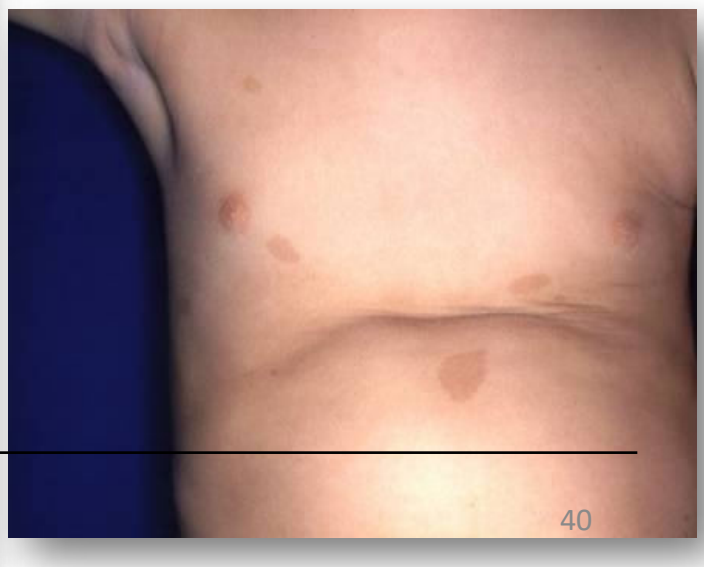
- Most common phacomatosis
- Affects 1:4000 individuals
- Presents in childhood
- Gene localized to chromosome 17q11

Nodular



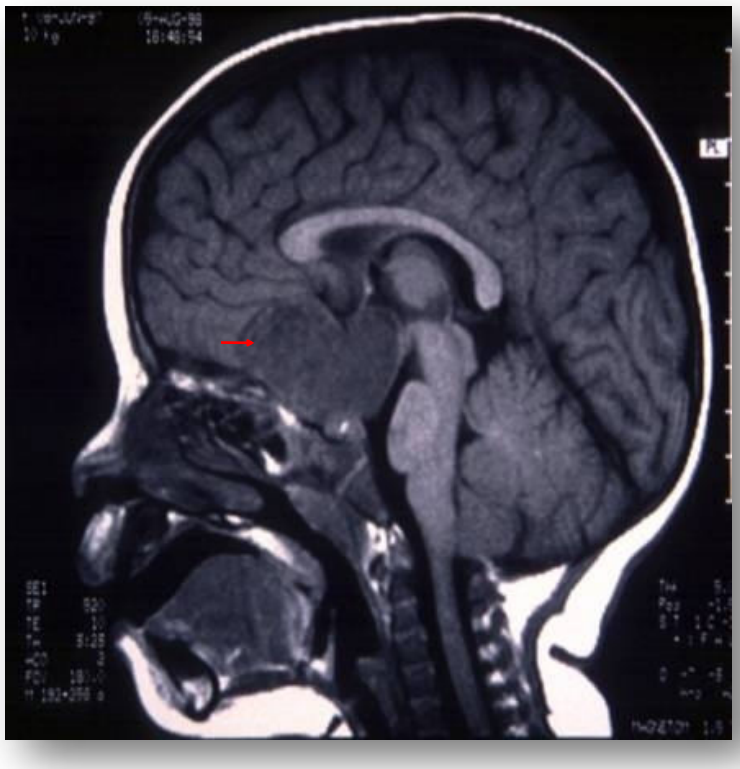
Facial hemiatrophy-
Skeletal defects

Café-au-lait spots

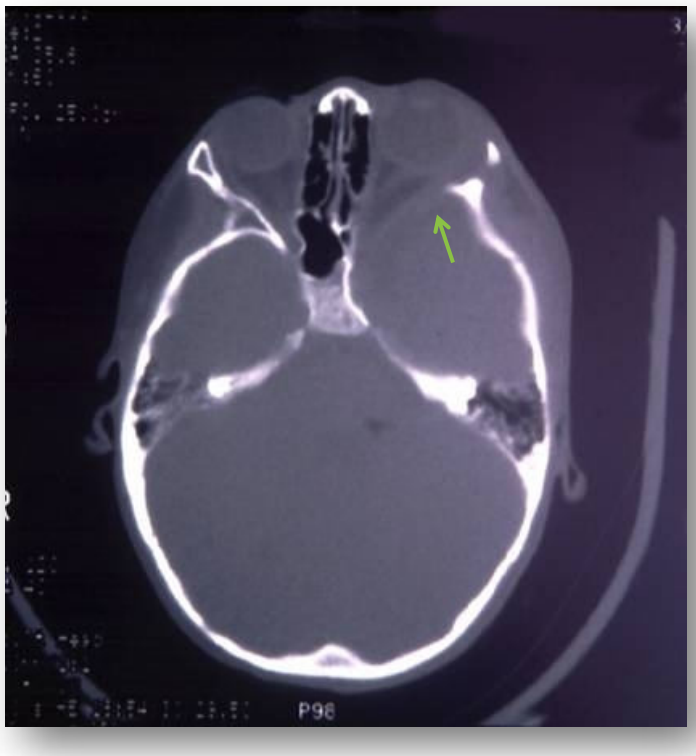


Orbital lesions in NF-1

- **Optic nerve glioma (in 15%) invading hypothalamus**

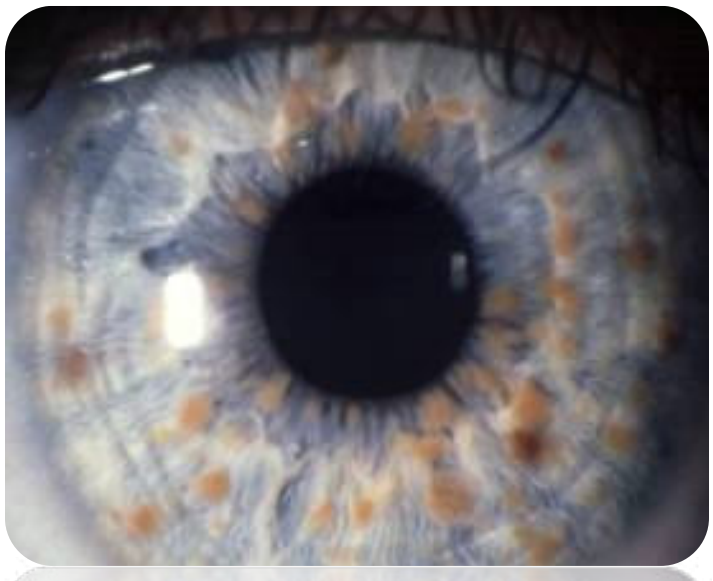


- **Spheno-orbital encephalocele showing congenital absence of left greater wing of sphenoid bone**
- **Pulsating proptosis without bruit!**

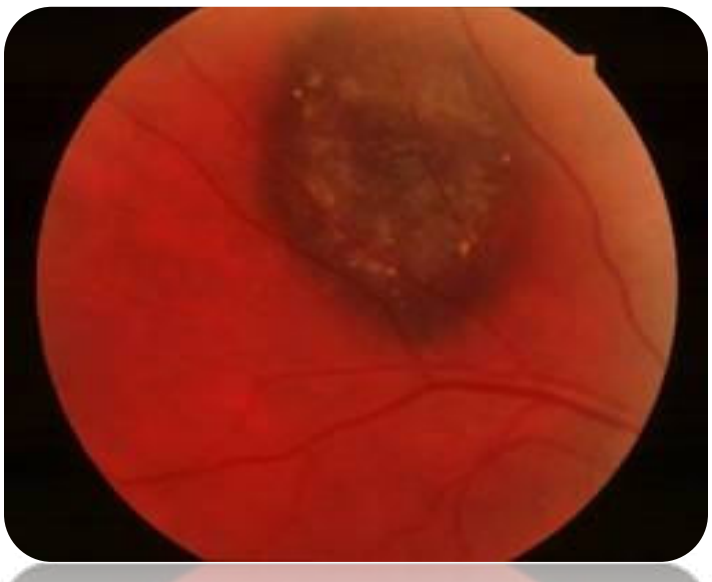


Intraocular lesions in NF-1

Lisch nodules



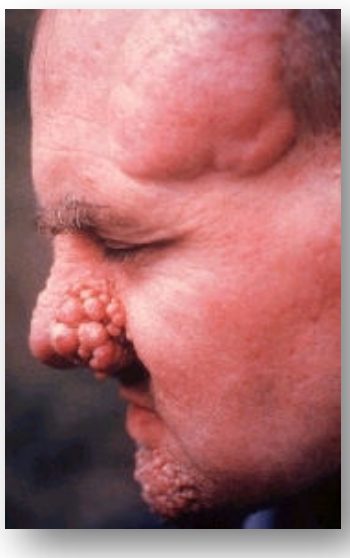
Choroidal naevi



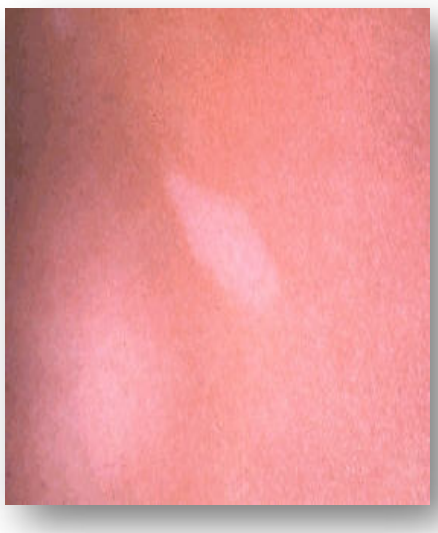
Tuberous sclerosis (Bourneville disease)

- Autosomal dominant
- Triad - mental handicap
  epilepsy
  adenoma sebaceum

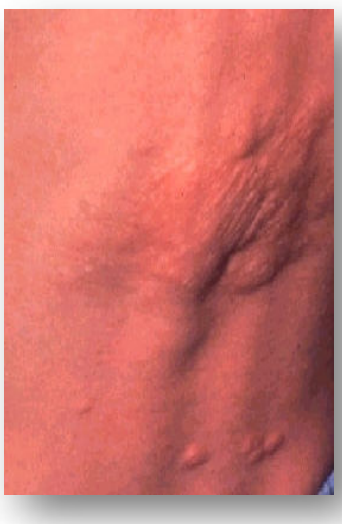
Adenoma sebaceum



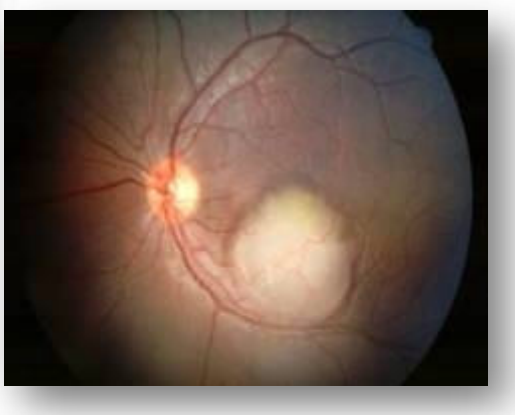
Shagreen patches



Ash leaf spots



Retinal astrocytomas

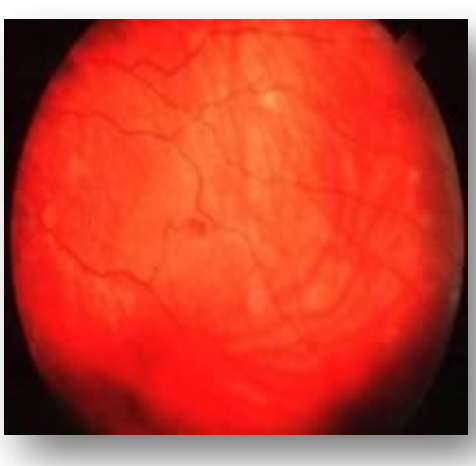


Innocuous tumour present in 50% of patients

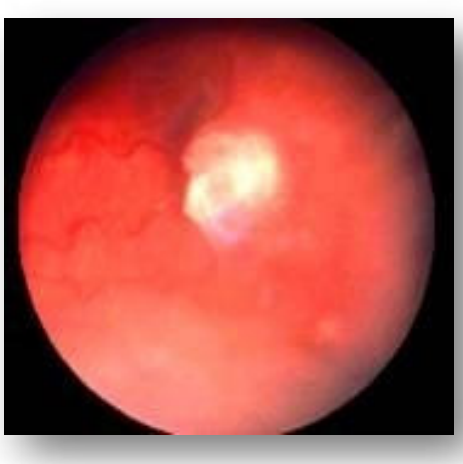
Von-Hippel-Lindau syndrome

- Tumours– renal carcinoma and phaeochromocytoma
- Cysts- kidneys, liver, pancreas, epididymis, ovary and lungs
- Polycythaemia
- Retinal capillary haemangioma

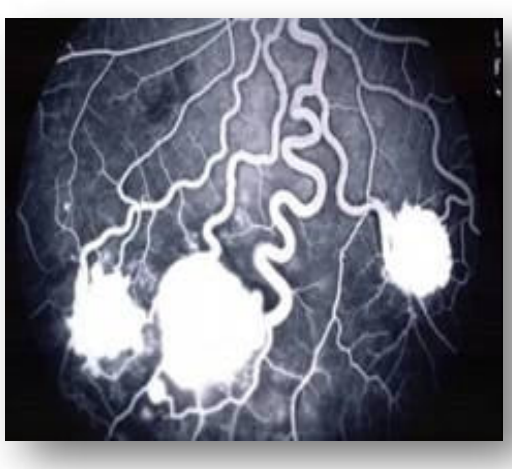
Tiny lesion between arteriole and venuole



Round orange-red mass



Associated dilatation and tortuosity of feeder vessels



Malignancy

Malignancy

- ✓Metastasis

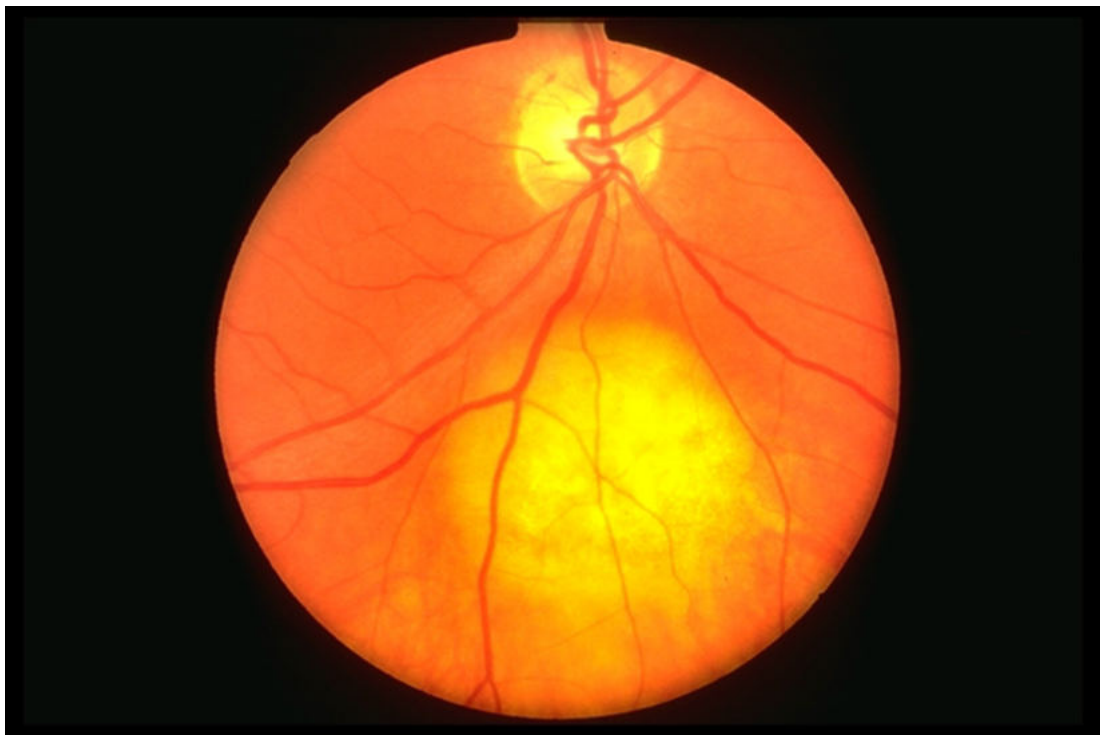
  From Breast, lung most common.

  Usually localize to choroid but extra ocular muscles and optic

  nerve can be affected.

- ✓Lymphoma, leukemia

Choroidal metastasis from breast cancer

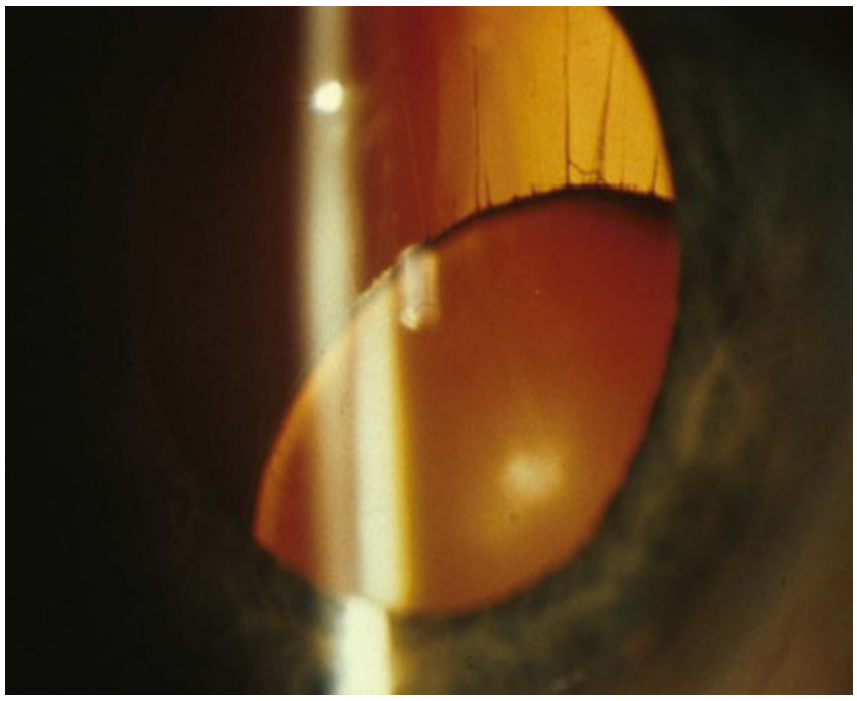


Summary

- Ocular examination plays a significant role in several systemic diseases/disorders.
- Ophthalmologists detect/suspect systemic illness for the first time in a patient when they examine the patient for Eye related complaints.
- These patients then need Physician/Paediatrician/Neurologist/ Neurosurgeon/ Orthopaedician/Obstetrician opinion for further management.

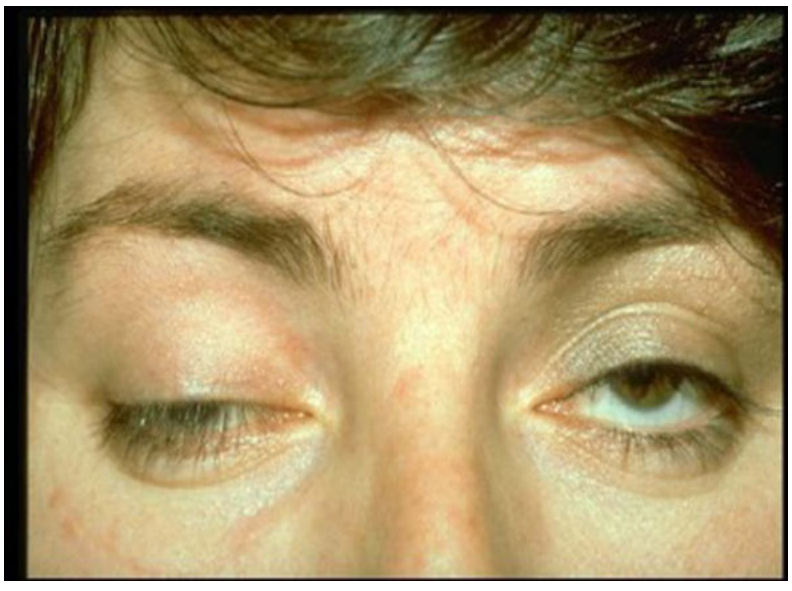
Question

- Identify the condition in the adjacent photograph.
- What could be the possible causes ?



Question

- Identify the abnormality .
- The patients condition worsens by evening.
- What is the possible diagnosis?
- How will you treat this condition?



THANK YOU