DISEASES OF THE CORNEA

Department of Ophthalmology

IMMUNE MEDIATED KERATITIS

- Phlyctenular keratitis
- Marginal ulcer(catarrhal ulcer)
- Asso. with acne rosacea
- Asso with systemic collagen vascular disease
- Chronic serpiginous(Mooren) ulcer
- Interstitial keratitis
- Disciform keratitis

INTERSTITIAL KERATITIS

- Non ulcerative deep stromal keratitis
- Infective or allergic in origin
- Causes: Syphilis congenital 90%,
  acquired 10%
  Tuberculosis
  Cogan's syndrome
  Leprosy
  Sarcoidosis

- Local Ag –Ab reaction

- Progressive stage
- Florid stage
- Stage of regression

Bilateral

Keratitis is secondary to uveitis

Treatmemt

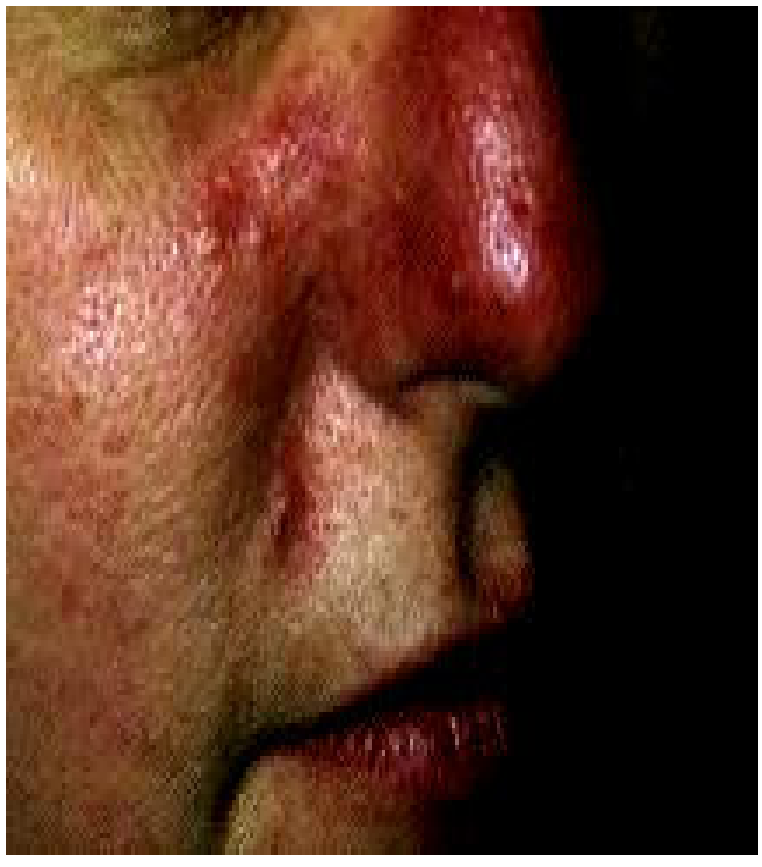
- Systemic : penicillin
- Local: lubricants
  steroids
  cycloplegics

MARGINAL(CATARRHAL) ULCER

- Form of peripheral ulcerative keratitis
- Immune response to staphylococcal toxins, Moraxella, Haemophilus
- Old age
- Shallow, slightly infiltrated
- Typically located at the points of contact of lids with cornea i.e 4,7,10 and 2 o' clock
- Clear zone b/w lesion & limbus
- Vascularization + in recurrent cases
- Treatment Antibiotic + steroids

ROSACEA KERATITIS

- Ds. of sebaceous glands of skin
- Women > men
- Facial eruptions in butterfly configuration
- Keratits in 5-10% cases



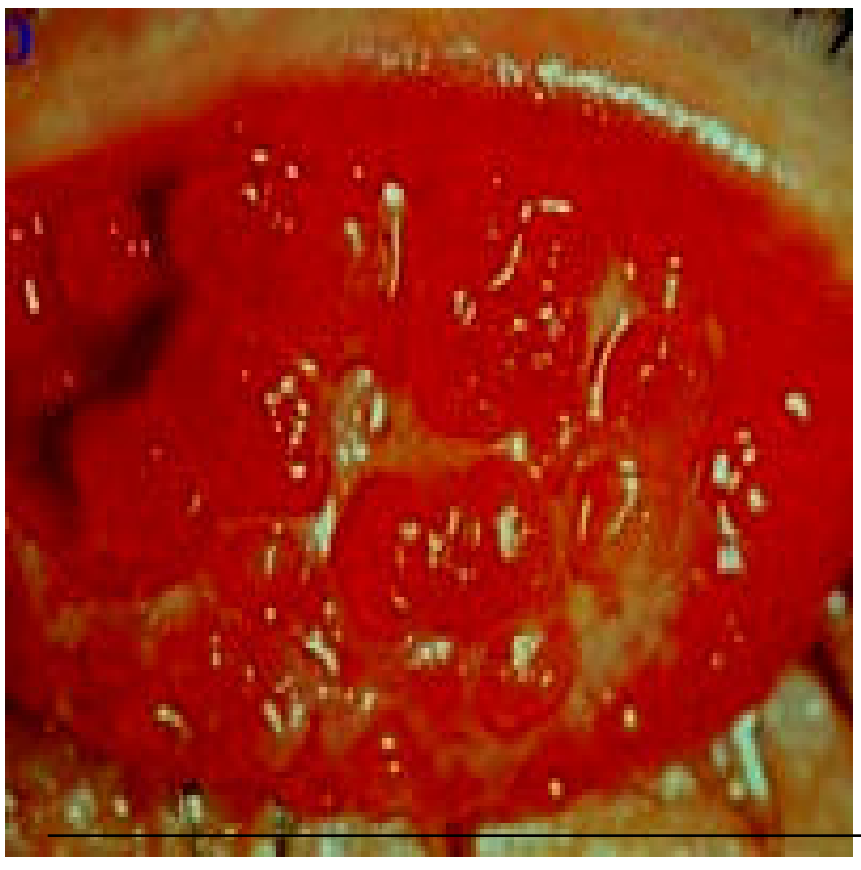
ROSACEA KERATITIS

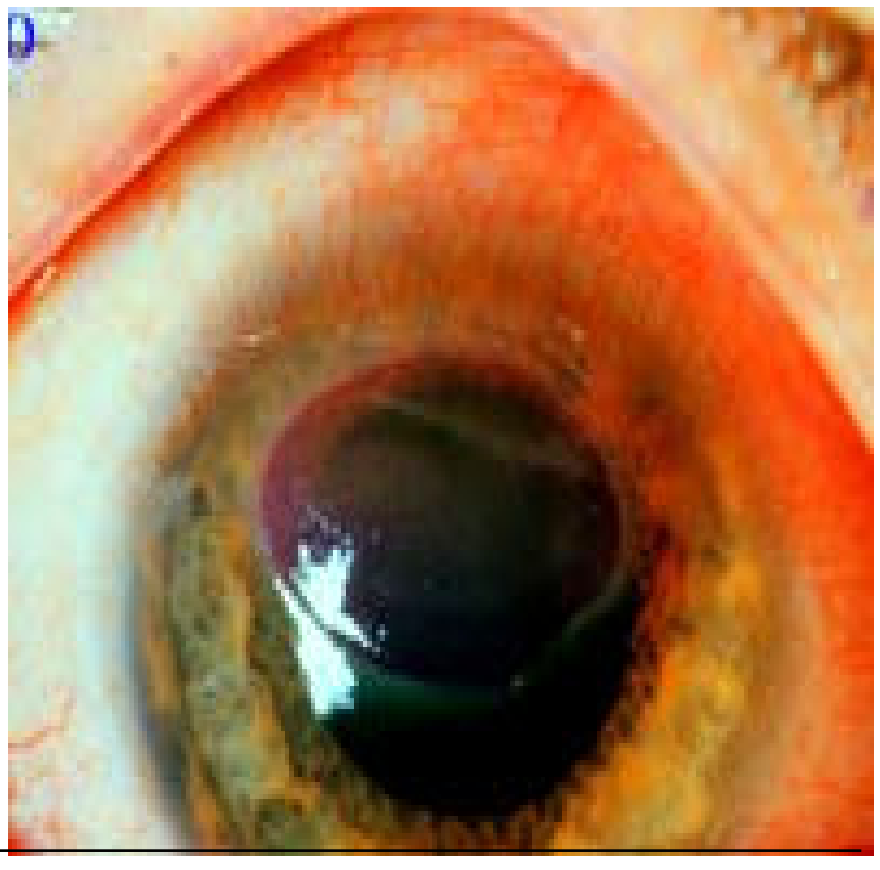
- Infiltrates + small corneal ulcers near limbus
- Prominent vascularization
- Blepharoconjunctivitis
- Frequent recurrences
- Local treatment - low dose steroids
- Systemic therapy- Tetracycline 3-6 months
  Doxycycline

KERATITIS IN RHEUMATOID ARTHRITIS

- Sclerosing keratitis
- Perpheral corneal thinning(contact lens cornea)
- Acute stromal keratitis
- Acute corneal melting

SHIELD ULCER IN VKC



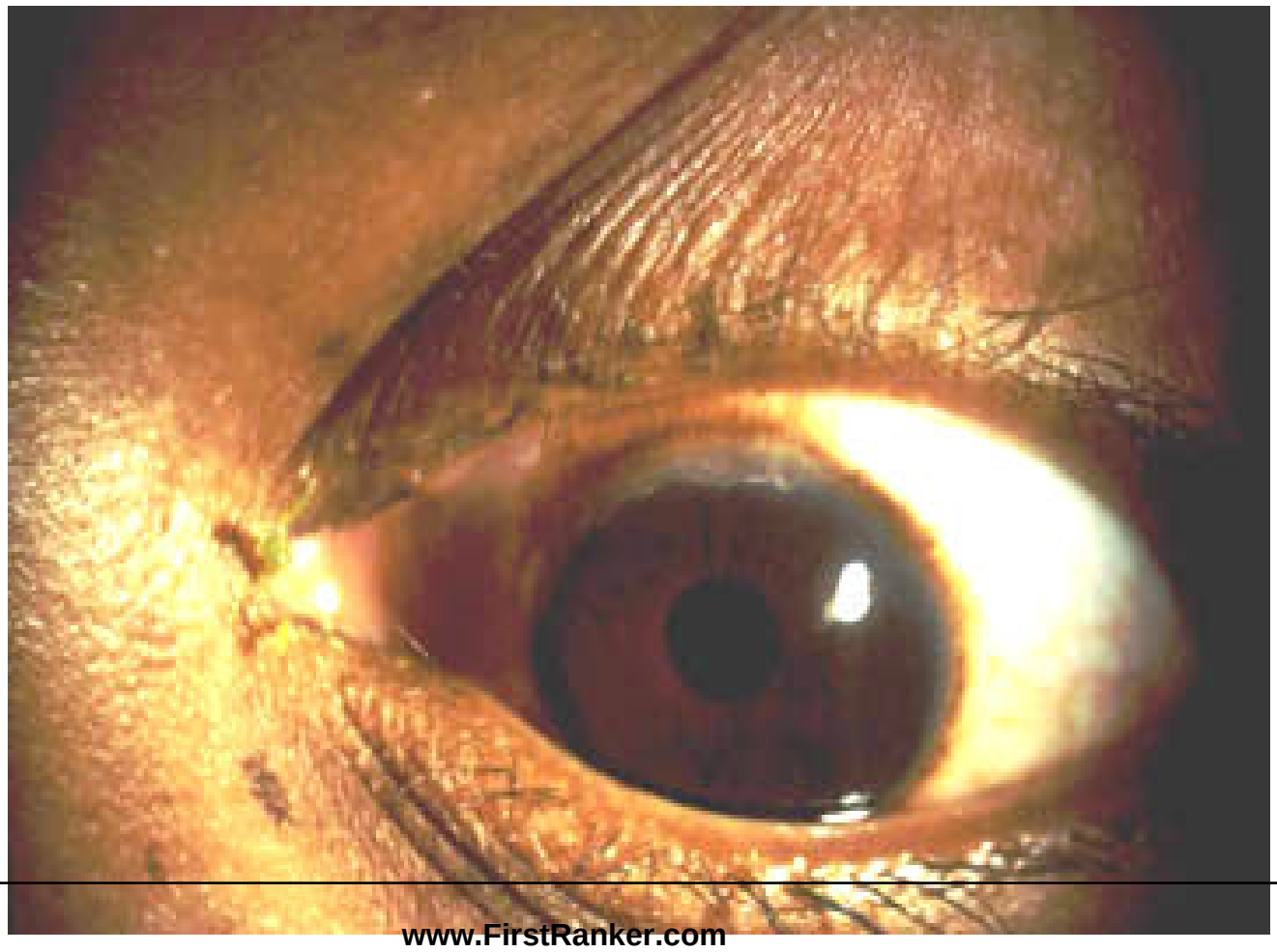


MOOREN'S ULCER

- Form of inflammatory peripheral ulcerative keratitis
- Two forms — Limited form/ Benign
  Progressive/Virulent

- Etiology — Autoimmune
  Ischaemic necrosis
  Enzymes produced by conj.
  Degenerative

MOOREN'S ULCER



- Severe pain
- Signs Superficial infiltration
  Shallow ulceration
  Overhanging edge
  Vascularization at base
  Perforation rare
  Sclera uninvolved

NO CLEAR ZONE b/w ulcer & limbus

DIAGNOSIS OF EXCLUSION

TREATMENT OF MOOREN'S ULCER

- Topical antibiotics for infiltration
- Frequent topical steroids
- Systemic steroids/Cyclosporin
- Conjunctival peritectomy
- Bandage contact lens
- Lamellar corneal grafts

CORNEAL ECTASIAS

- Secondary to inflammations

  anterior staphyloma

- Non inflammatory

  keratoconus

  keratoglobus

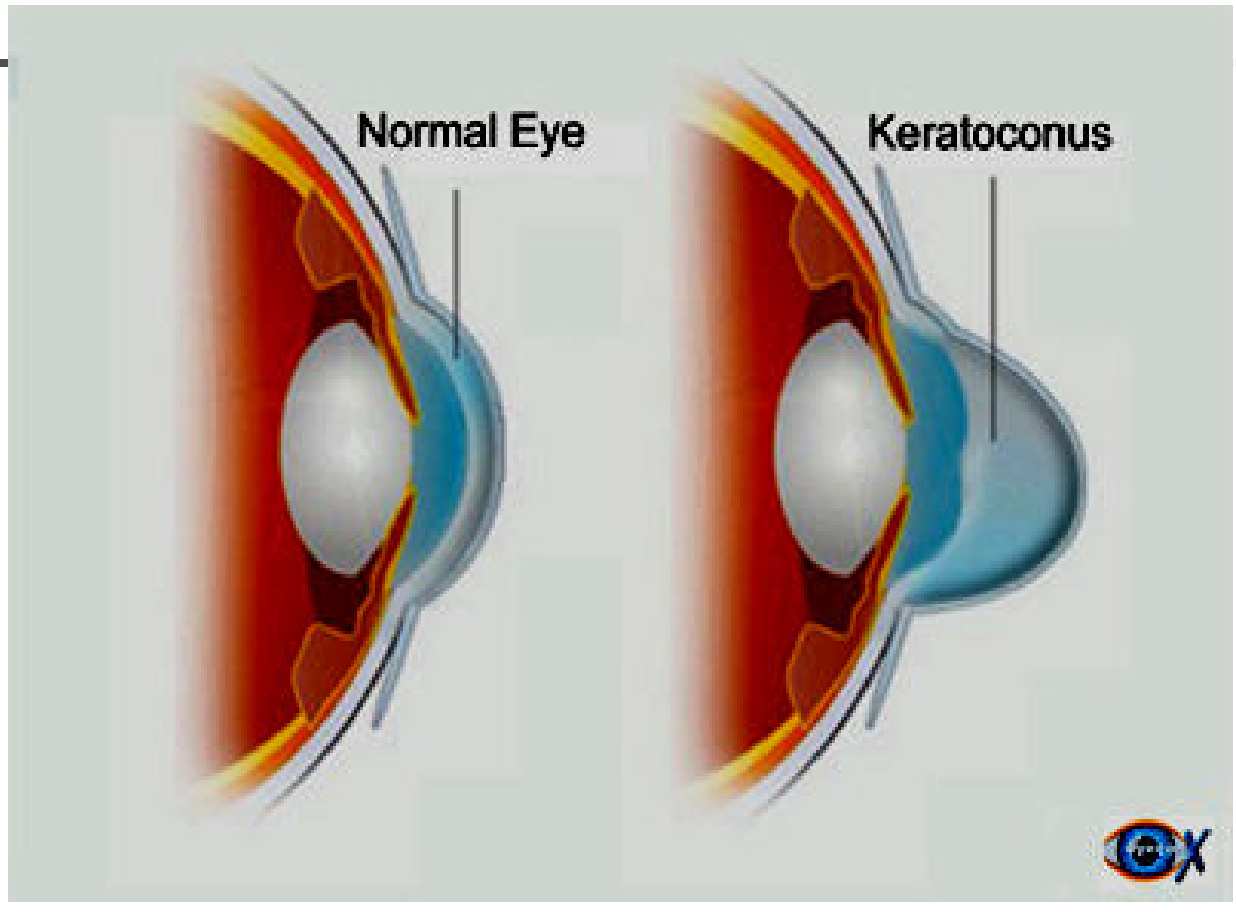
  pellucid marginal degeneration

KERATOCONUS

- Non inflammatory, self limiting, ectasia of central cornea
- Cornea becomes conical
- Congenital weakness of the cornea
- Manifest after puberty

- Central/paracentral stromal thinning
- Apical protrusion
- Irregular astigmatism

Keratoconus



- Bilateral in 90% cases, onset asymmetrical
- Etiology

Destruction of stromal tissue by collagenaze

- Heredity
- Asso. with atopic diseases
- Hormonal influences
- Systemic ds i.e Marfans, Downs, Ehlers Danlos syndrome

KERATOCONUS

SEVERITY

- Mild K reading < 48D
- Moderate K reading 48-54 D
- Severe K reading >54 D

MORPHOLOGY

- Nipple cones <5mm
- Oval cones 5-6mm
- Globus cones >6mm

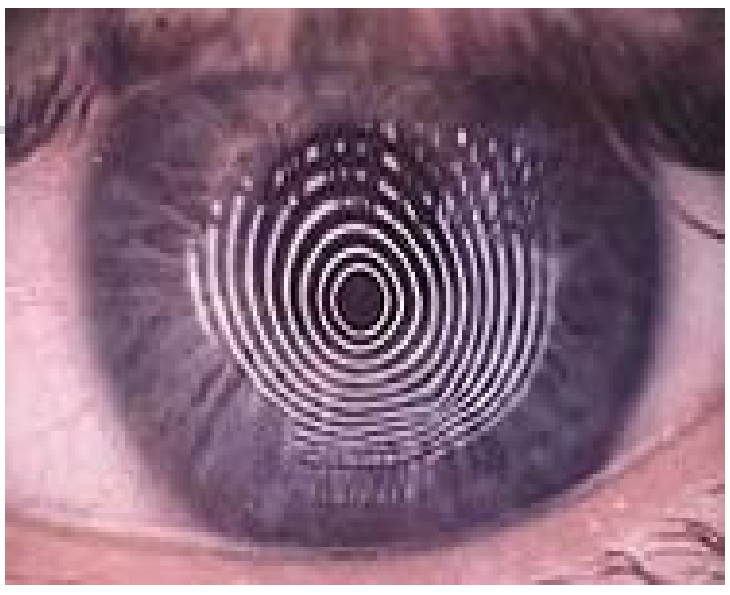
SYMPTOMS

- Frequent change of glasses
- Decreased tolerance to CL wear
- Monocular diplopia
- Distortion for distant and near objects

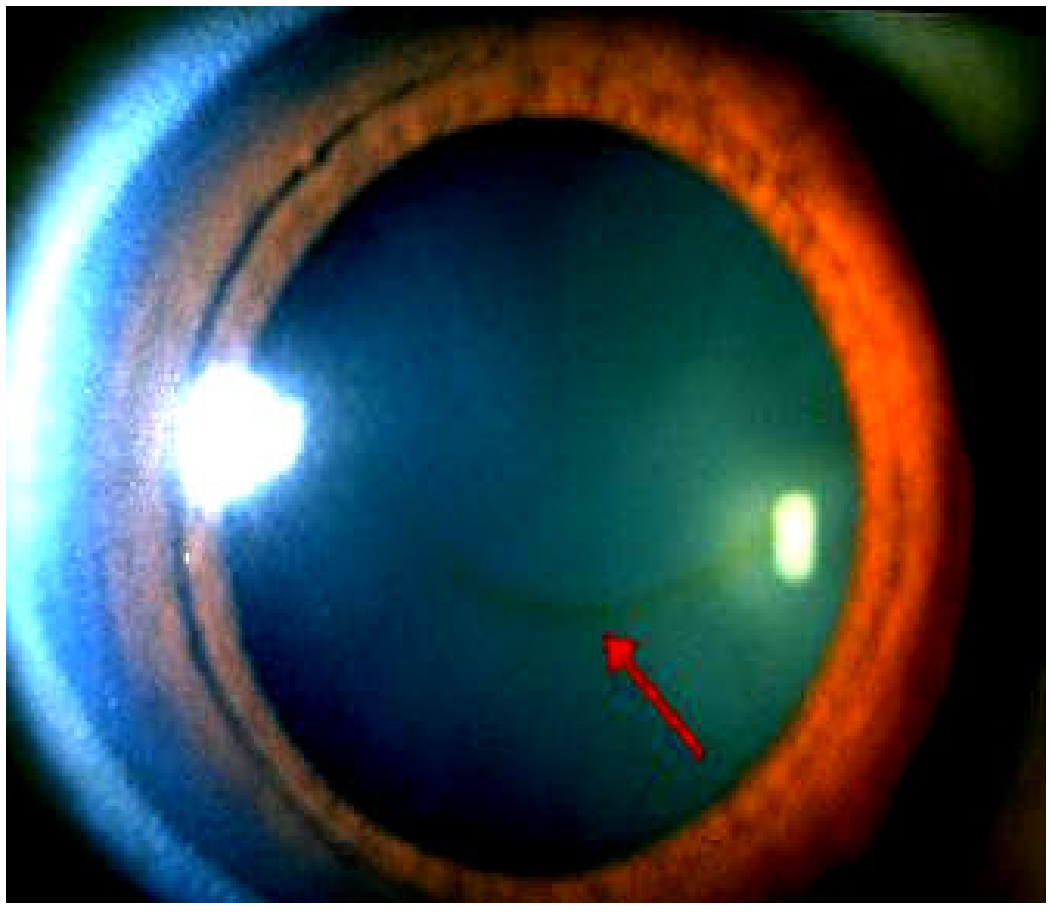
SIGNS

- Streak retinoscopy
  scisssoring reflex
- DDO
  oil droplet reflex
- Keratometry
  malalignment of mires
- Placido disc
  unevenly placed circles
- Slit lamp examination
  corneal thinning
  stress lines of vogt
  Fleischers ring
  corneal scarring
  hydrops
  Munsons sign
  Rizzuti's sign
- Corneal topography

MUNSONS SIGN



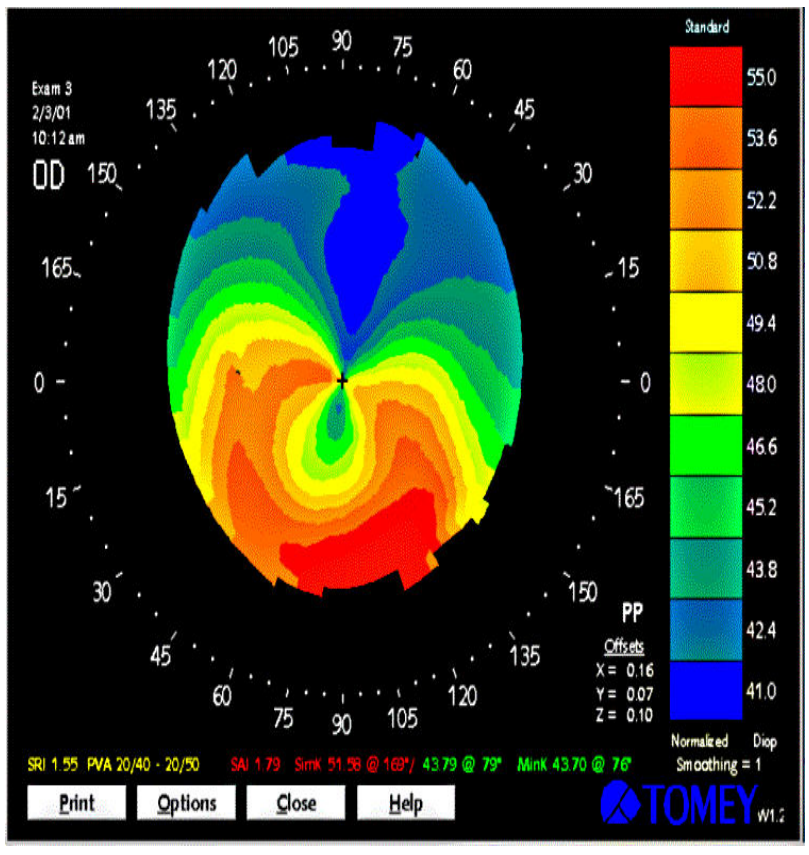
FLEISCHER'S RING



VOGT'S STRIAE

HYDROPS

TOPOGRAPHY



TREATMENT OF KERATOCONUS

- Spectacles early cases
- Contact lenses
- Epikeratoplasty
- Penetrating keratoplasty
- U V cross linking

DEGENERATIONS AND DESTROPHY

Degenerations	Dystrophies
1.Unilateral and asymmetric	1.Bilateral and symmetric
2.Not inherited	2.Inherited (AD)
3.Located eccentrically	3.Centrally located
4.Usually accompanied by vascularization	4.Avascular
5.Middle life or later	5.Early onset
6.Progressive lesions	6.Slower in progression
7.ass. With systemic conditions Ageing, infllamation or trauma	7.Not related to any systemic or local conditions

CORNEAL DEGENERATIONS

- Age related — Arcus senilis
- Pathological — Band shaped keratopathy

  Climatic droplet keratopathy

  Salzmann's nodular degeneration

  Terrien marginal degeneration

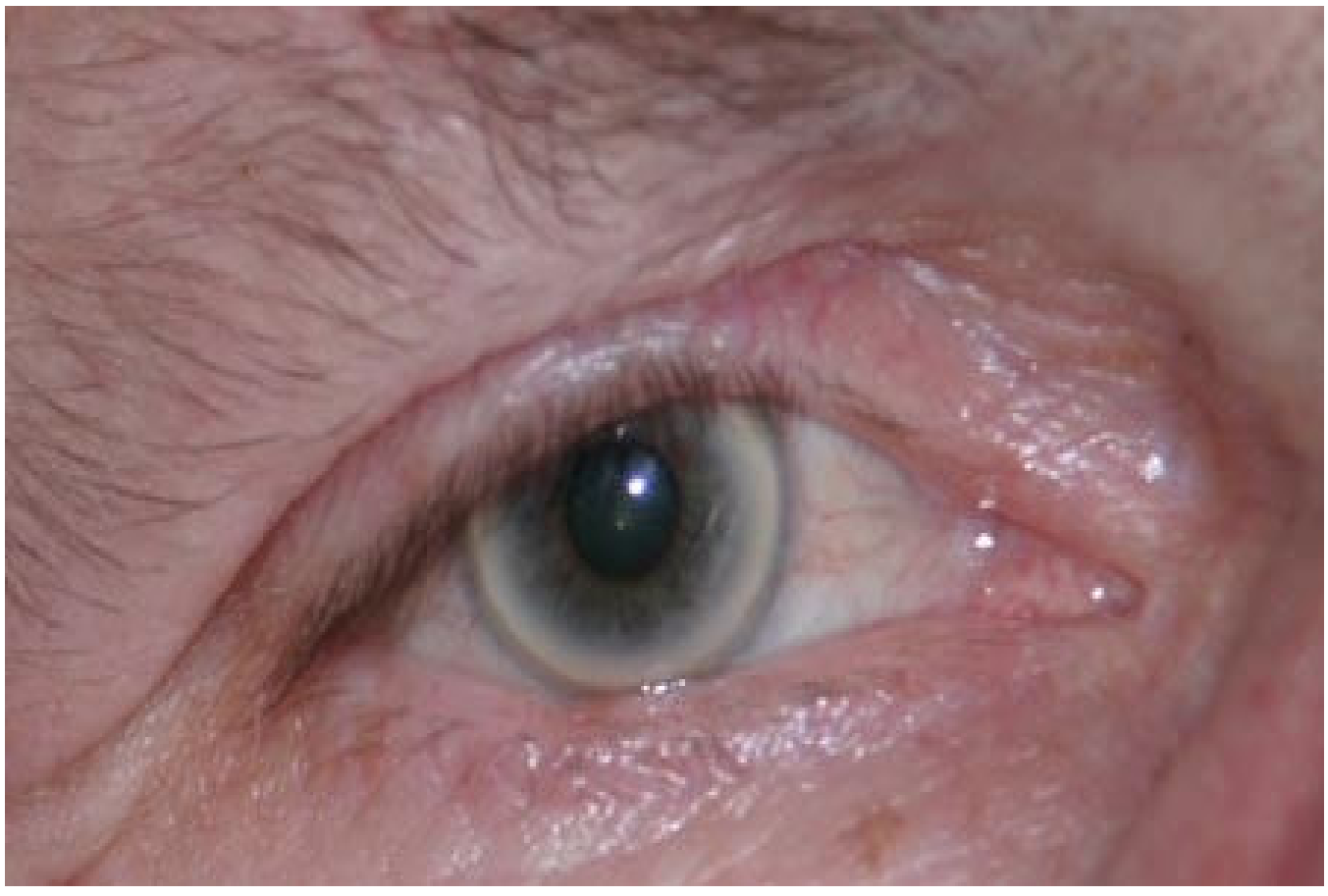
Arcus senilis

- M/c peripheral corneal opacity
- Lipoid infiltration of corner seen in elderly
- Present almost universally in people above 60 yrs of age
- It is a yellowish white deposit that occurs first in the inferior then in the superior aspect finally joining to form an arc
- Lucid interval of Vogt is characteristic, being sharply defined on the periphery, fading in the center

•U/L arcus-associated with carotid ds or ocular hypotony

Histology –lipid first deposited in the ant.1/2of descemet's membrane and then in ant. stroma

ARCUS SENILIS



Band keratopathy

- Hyaline infiltration of superficial parts of cornea followed by deposition of calcium salts in the ant part of Bowmans menbrane
- Causes

  - ocular – Chr. Ant. Uveitis
  - Pth. Bulbi
  - Silicone oil in AC
  - Chr. keratitis

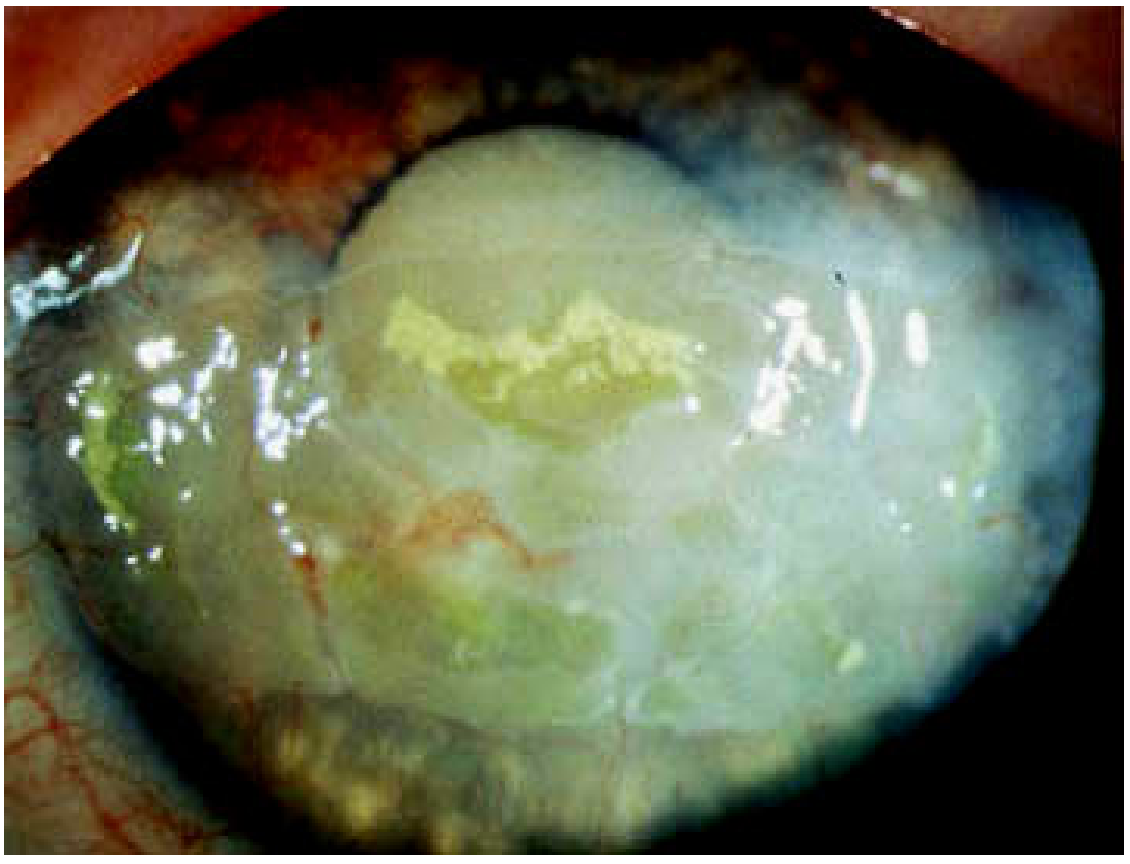
- Age related
- Metabolic – increase ca, CRF
- Hereditary

- Peripheral inter-palpeberal calcification with clear cornea separating sharp peripheral margins of the band from the limbus
- Spread centrally to form band like chalky plaque
- Advance lesion – nodular & elevated with discomfort d/t epi. breakdown

Treated by chelation- mild cases

- Sodium EDTA – applied with cotton bud
- Exc. Laser keratectomy

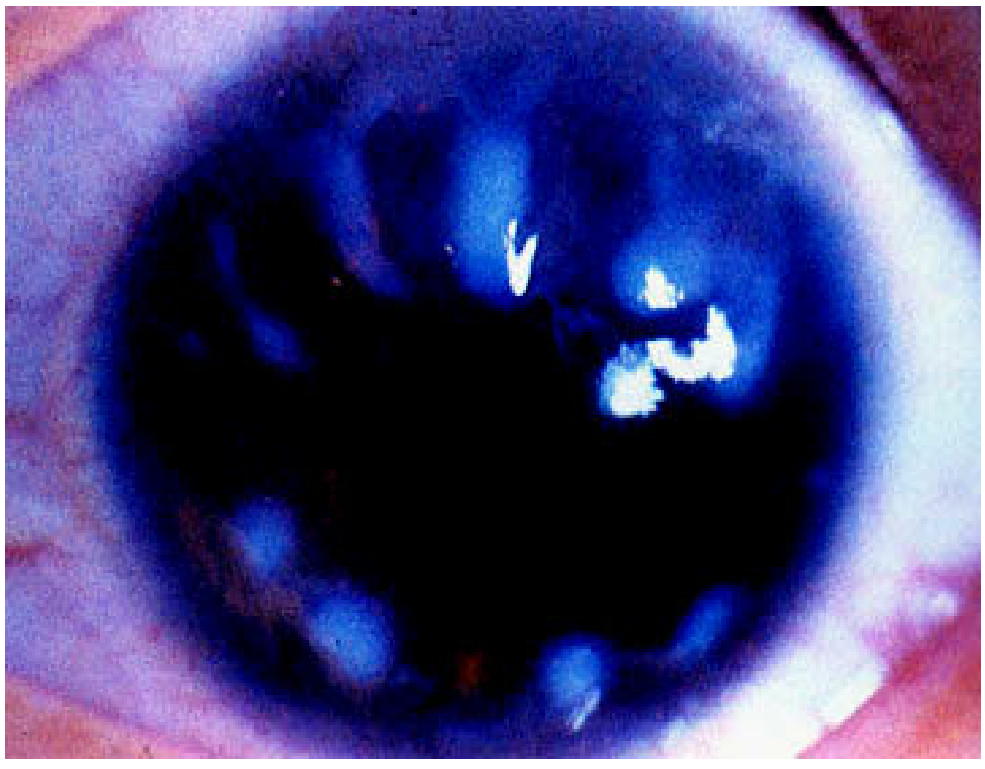
BAND SHAPED KERATOPATHY



Salzmann nod. degn

- Bluish white avasc. nodule- Sup. Layer of stroma & Bowmann memb.
- Seen with previous corneal Ds
- Slow progression
- **Treat**- lam. KP

SALZMANN'S NODULAR DEGENERATION



Spheroidal degn(climatic droplet KP)

- Common in people exposed to hot & dry weather
- Exposed inter- palp. cornea sparing the limbus
- **Sign**- small amber colored granules in sup. Stroma,
- **Treat**- lamellar KP, PRK

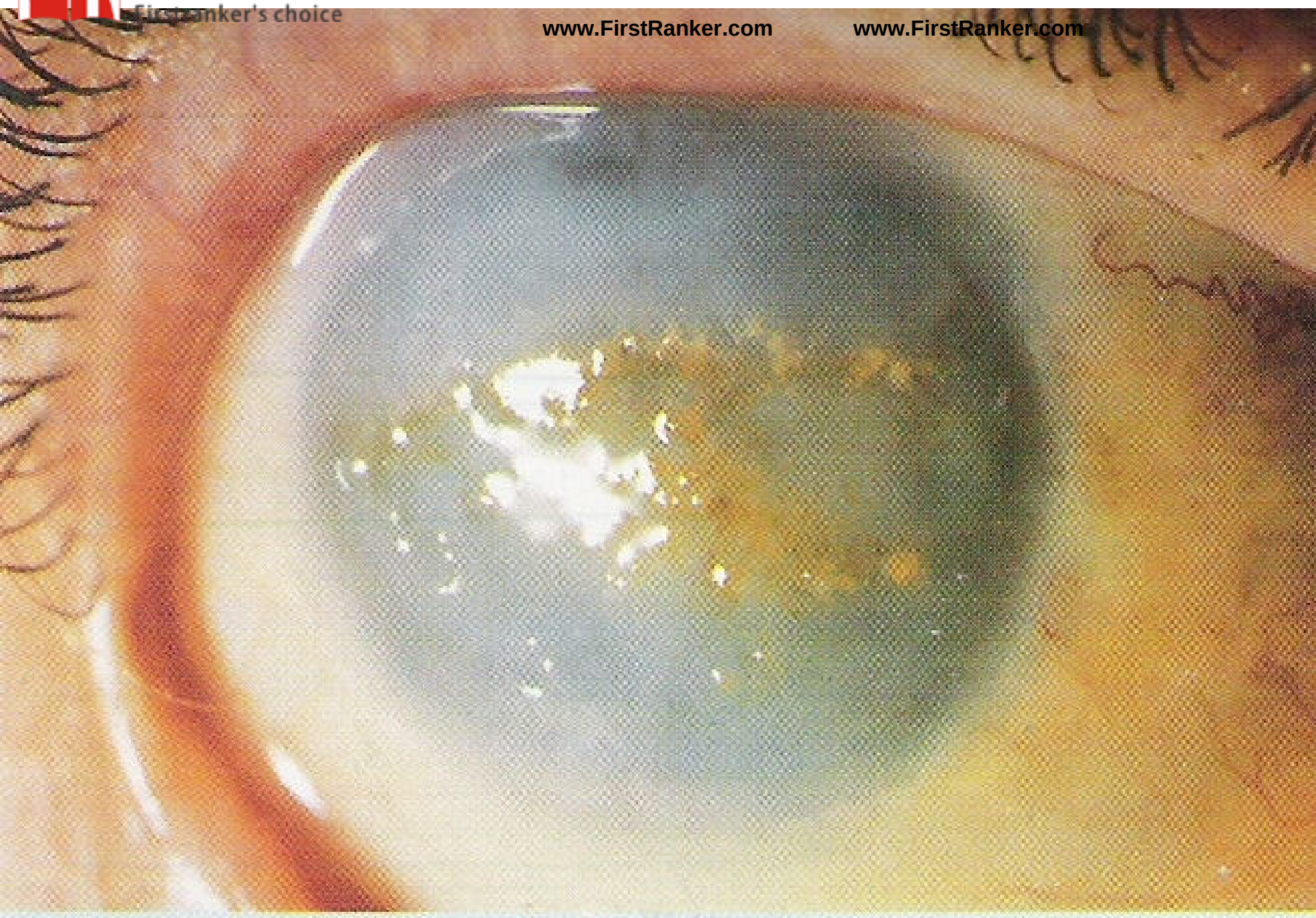


Fig. 5.89

Terrien marginal degeneration

- Usually bilateral
- Slow progressive thinning of peripheral cornea sparing the limbus
- More frequently seen in males
- Eye is quite with no inflammation
- Vascularised pannus is seen with yellow deposit of lipid
- May cause myopic or irregular astigmatism
- Perforation can occur with mild **trauma**

CORNEAL DYSTROPHIES

- Anterior — Cogans microcystic dystrophy
  Reis – Buckler
- Stromal — Granular
  Macular
  Lattice
- Endothelial — Fuchs endothelial dystrophy
  Posterior polymorphous dystrophy

Epi. BM dys

- Also k/a - Map dot fingerprint dys.
- m/c dys.
- Onset - 2nd decade
- Recurrent corneal erosions – 10%
- Signs- dot like opacity , epi. microcysts, sub-epi map like pattern
- Treat- same as rec. corneal erosions(saline , bandage 48hrs, ointment)

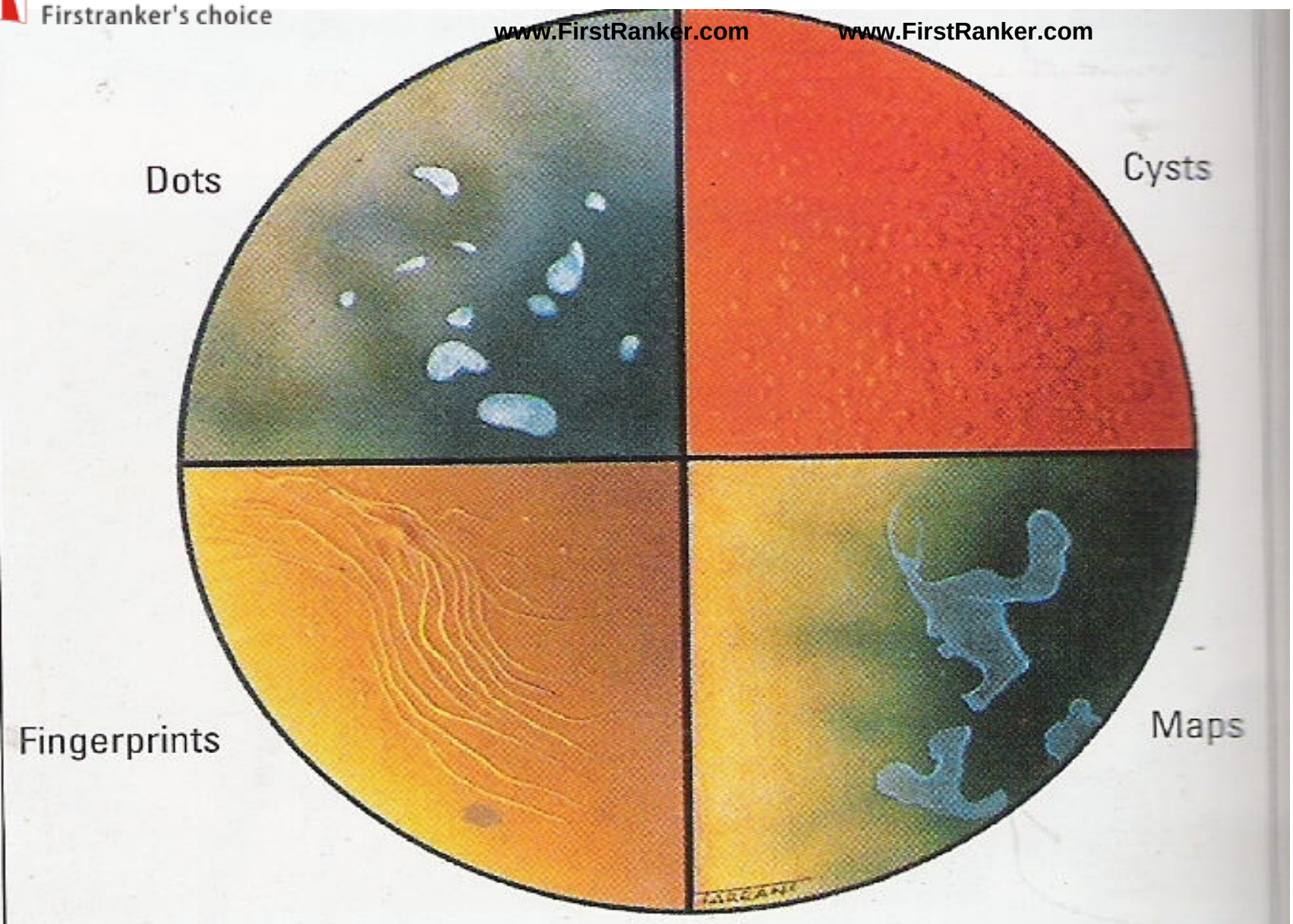
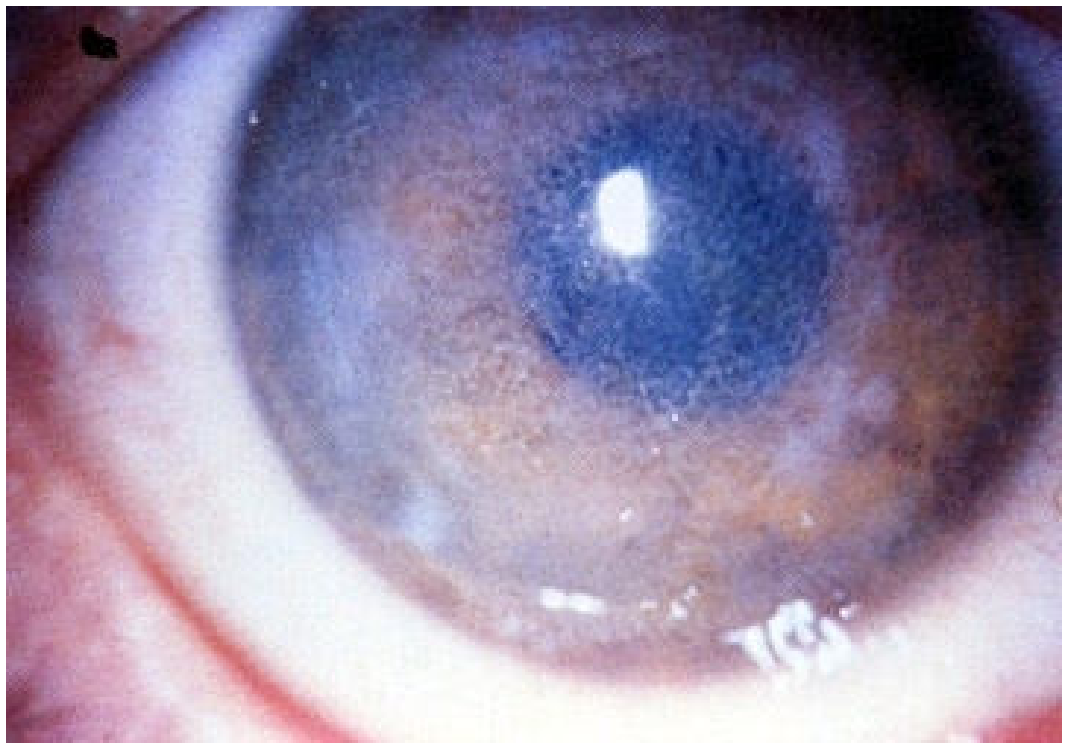


Fig. 5.91
Cogan dystrophy

Reis – Buckler dys

- AD
- Onset- early childhood
- Arise in region of bow. Memb
- Recurrent erosions
- Cornea- irregular dense grey sub-epi. Opacity arranged in fish net pattern
- Treat- PRK, lam KP
- **HIGH RECURRENCE AFTER CORNEAL TRANSPALANT**

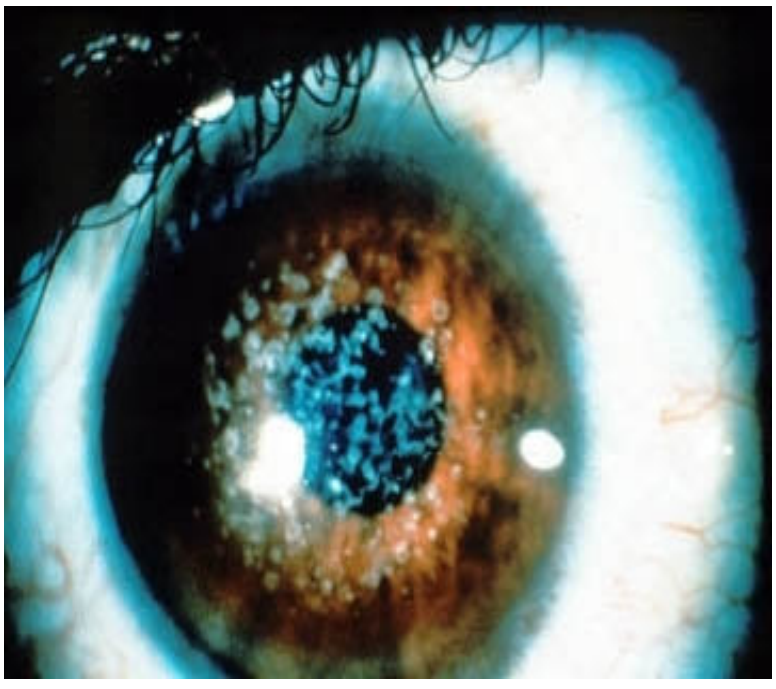
REIS-BUCKLER DYSTROPHY

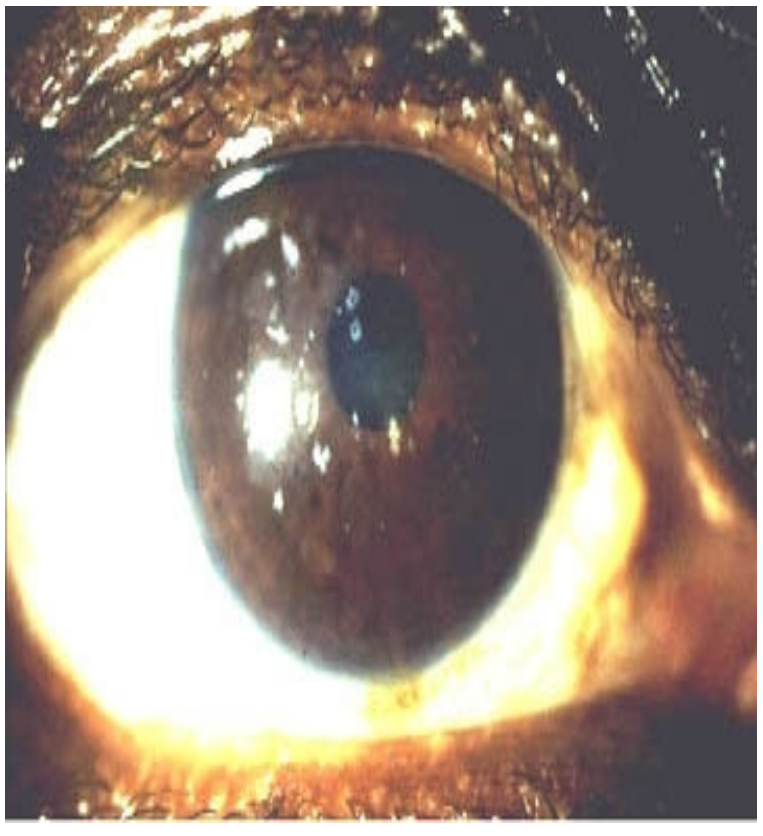


Hereditary stromal corneal dys

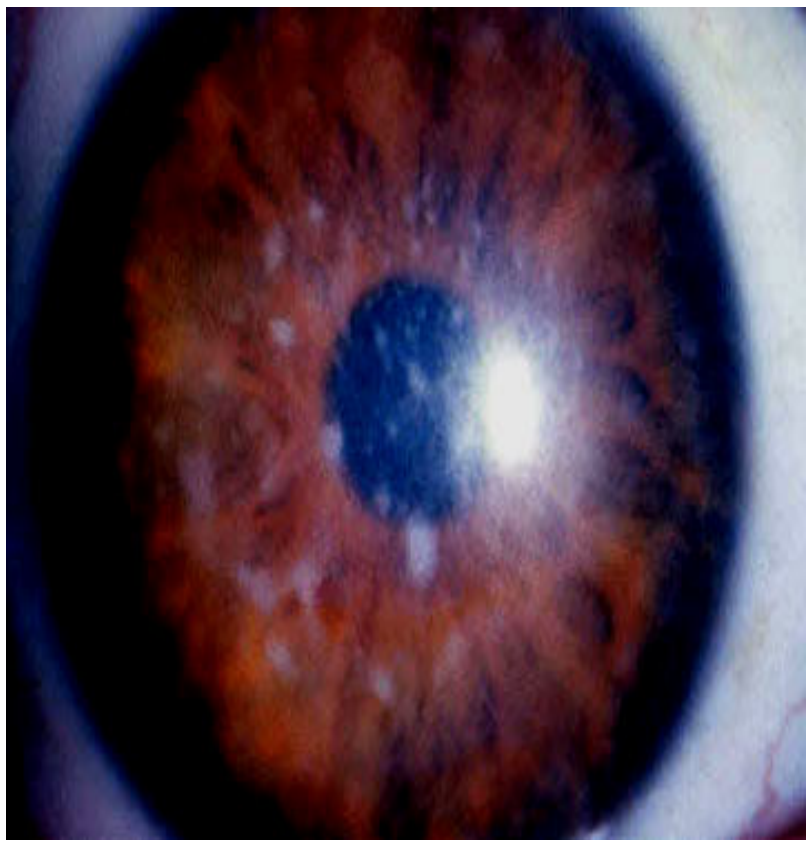
- Bilateral
- Around puberty
- Central area of cornea, chr. By discrete areas of opacity in sup. Areas of stroma
- Hyaline deposits b/w the cornel lamellae
- Symptom less without inflammation
- Progress slowly until visual impairment
- **Treat-** KP

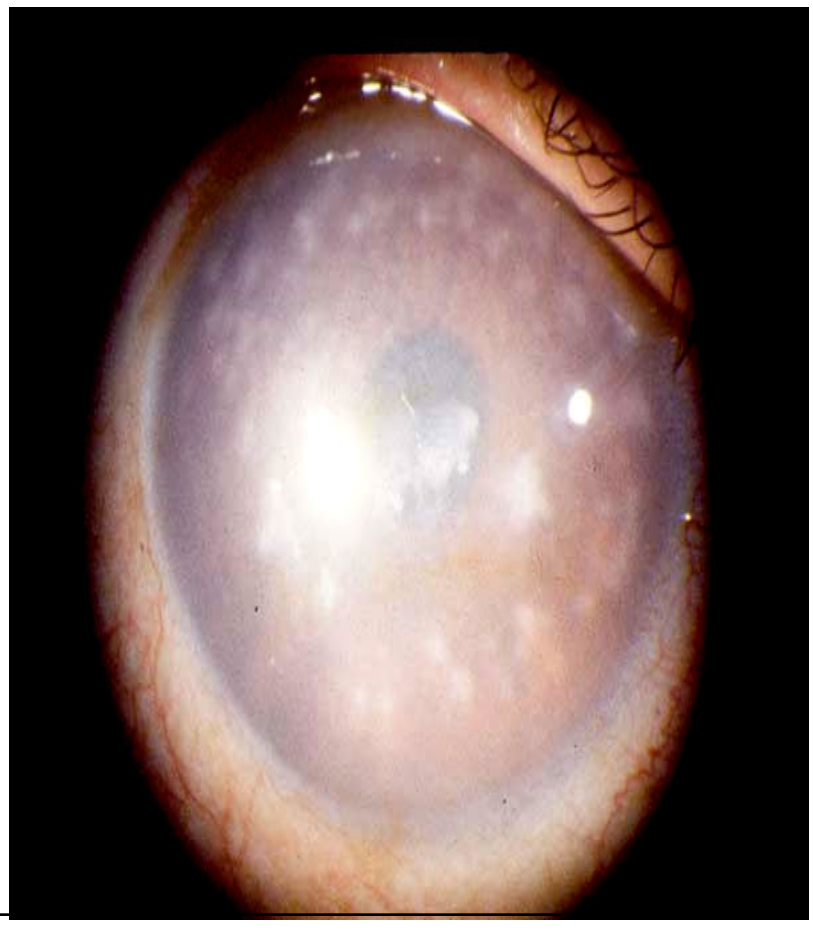
GRANULAR CORNEAL DYSTROPHY



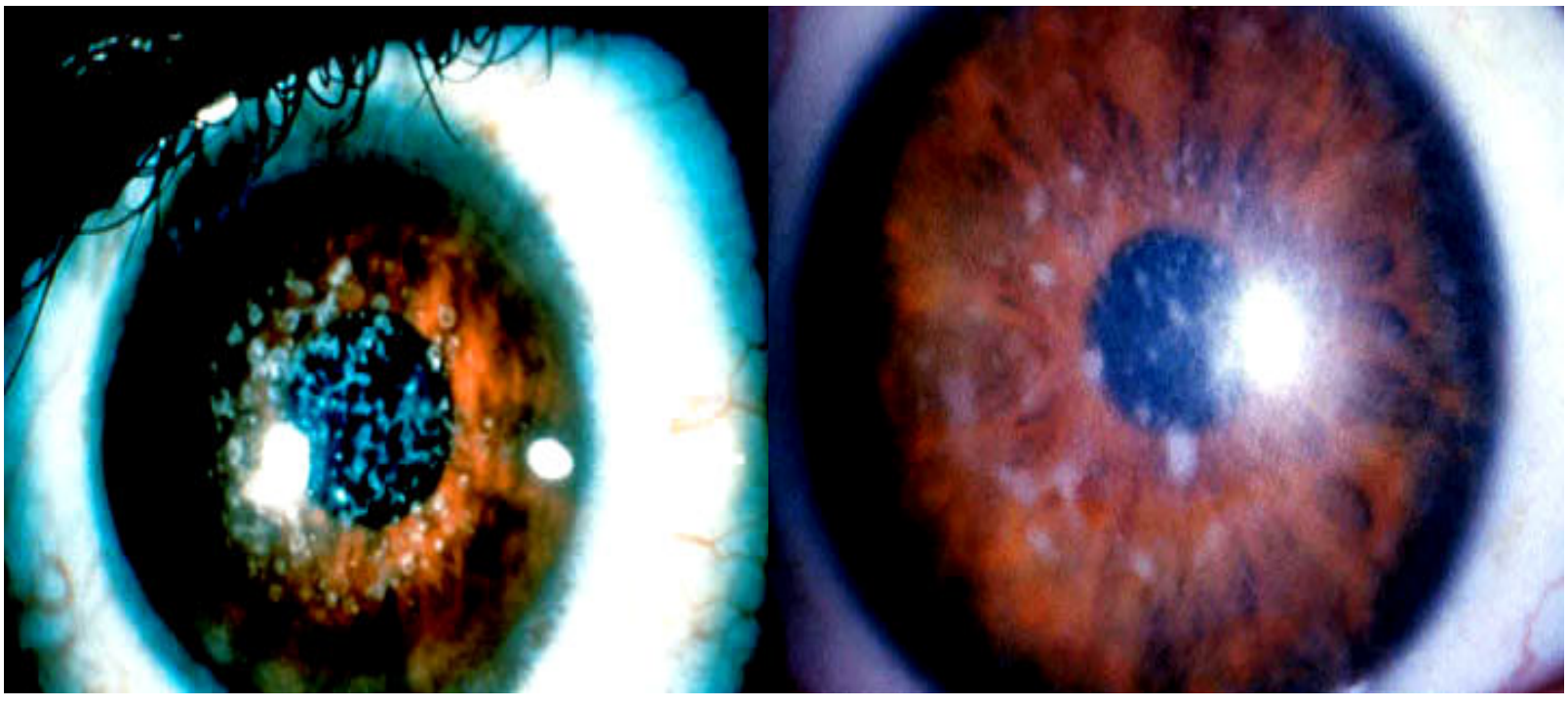


MACULAR CORNEAL DYSTROPHY

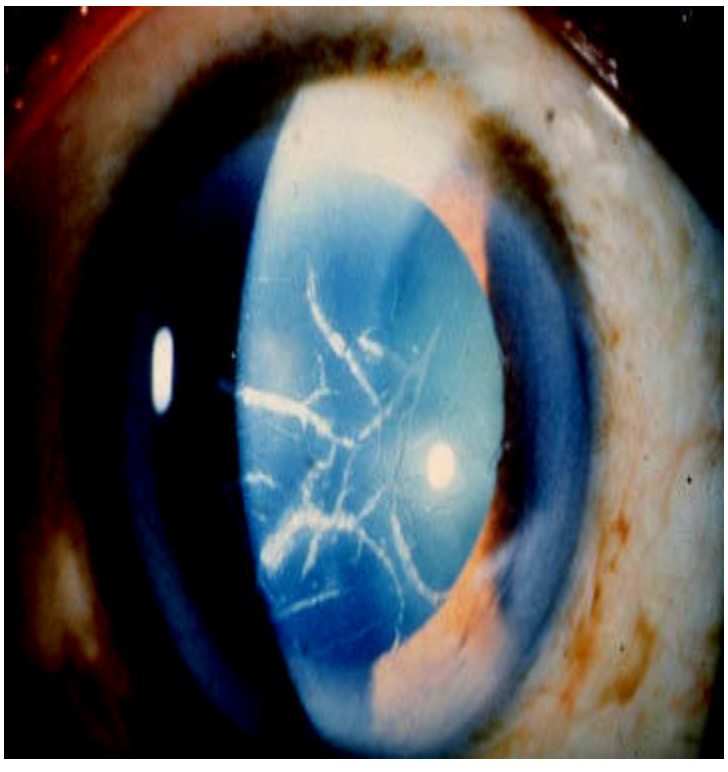


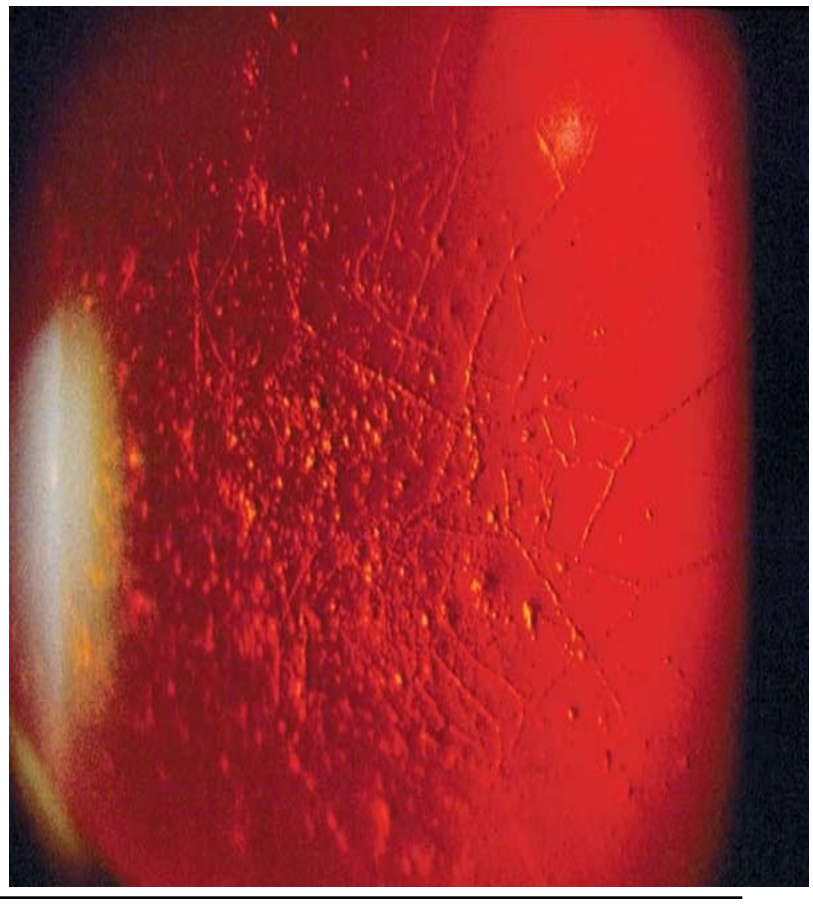


GRANULAR MACULAR



LATTICE CORNEAL DYSTROPHY





ENDOTHELIAL CORNEAL DYS

- **M/C Fuch's dys-**
- AD, seen in elderly
- m/c in females
- d/t changes in endothelium with formation of hyaline excrescences on DM (corn. Guttata)
- **TREAT**- Nacl 5% drop or ointment, bandage contact lens.
  -Pen KP

FUCH'S ENDOTHELIAL DYSTROPHY

- Stage of cornea guttata
- Stage of endothelial decompensation
- Stage of bullous keratopathy
- Stage of scarring