8.12.3. Degenerative Changes in the Cornea (II): Stromal Degenerations (I)

Senile furrow degeneration
- older persons
- appearance of peripheral thinning in the lucid interval of a corneal arcus
- usually more apparent than real

Crocodile shagreen
- bowman layer is thrown into ridges and may be calcified
- level of Bowman layer
- anterior crocodile shagreen
  - bilateral
- central corneal opacity
  - mosaic, polygonal, gray opacities
  - separated by clear zones
- posterior crocodile shagreen
  - deep stroma near descemet membrane

Polymorphic amyloid degeneration
- bilaterally symmetric
- appears late in life
- slowly progressive
- mid- to deep stroma
- axial
- stellate flecks or irregular filaments (polymorphic)
  - usually one predominates
  - gray to white
  - somewhat refractile
  - appear translucent in retroillumination
  - intervening stroma appears clear
- visual acuity is usually normal
- amyloid
- acquired (secondary localized) corneal amyloidosis
  - etiology
    - corneal inflammation (eg, trachoma, leprosy [hansen disease], phlyctenulosis)
    - intraocular disease (eg, uveitis, retinopathy of prematurity)
    - trauma
    - advanced cases
      - keratoconus
  - raised, yellow-pink nodular masses
- conjunctival amyloidosis

Lipid keratopathy
- yellow or cream-colored lipid deposition in superficial or deeper cornea
  - cholesterol
  - neutral fats
  - glycoproteins

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- etiology
  - rare
    - primary lipid keratopathy
  - after prolonged corneal inflammation with scarring and corneal vascularization
    - secondary lipid keratopathy
- treatment
  - indications
    - compromised cosmetic appearance
    - decreased vision
  - reduce corneal neovascularization and lipid deposition
    - argon laser treatment with and without fluorescein
    - photodynamic therapy with verteporfin
    - subconjunctival and topical bevacizumab
- also causes corneal arcus
- differential diagnosis
  - Schnyder corneal dystrophy
    - rare
    - autosomal dominant
    - bilateral corneal opacification resulting from accumulation of cholesterol and lipid

White limbal girdle of Vogt
- 2 types
- type I
  - narrow, concentric, whitish superficial band
    - chalklike opacities and small clear areas
  - along the limbus in the palpebral fissure
  - lucid interval
  - early calcific band keratopathy
- type II
  - older patients
  - small, white, flecklike, and needlelike deposits
  - nasal and temporal limbus
  - no lucid interval
  - elastotic degeneration of collagen +- particles of calcium

Corneal arcus
- etiology
  - involutional change (modified by genetic factors)
    - most common
  - hyperlipoproteinemia (low-density lipoproteins)
    - especially <40 years
    - prognostic factor for coronary artery disease in this age group
  - congenital anomaly (arcus juvenilis)
    - only a sector of peripheral cornea
    - not associated with abnormalities of serum lipid
  - Schnyder corneal dystrophy
- prevalence
  - 50-60 years
    - 60%
  - 80 years
    - 100%
  - higher in the black population
- clinical presentation
  - starts at the inferior and superior poles
    - can involve entire circumference
  - hazy white appearance

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  - sharp outer border
  - indistinct central border
  - denser superiorly and inferiorly
  - lucid interval
  - adjacent to Bowman layer & Descemet membrane
  - unilateral arcus
    - rare
    - contralateral carotid artery disease
    - ocular hypotony

Cornea farinata
- involutional change
- autosomal dominant
- many subtle dot-shaped and comma-shaped opacities
  - best seen in retroillumination

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- deep corneal stroma
- lipofuscin
- does not affect vision

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