8.13.9. Toxic & Traumatic Injuries (IX): Surgical Trauma

Conjunctival and Corneal Changes From Extraocular Surgery

- orbital surgery and trauma
  - conjunctival chemosis with prolapse
    - exposed conjunctiva should not be excised but rather be reposited
      - kept in place with
        - patching
        - mattress sutures
  - proptosis of the globe
    - exposure keratopathy
      - lubricants
      - eyelid patching or taping
      - moist-chamber dressings
      - temporary tarsorrhaphy

Corneal Endothelial Changes From Intraocular Surgery

- corneal hydration involves the following factors
  - stromal swelling pressure
  - barrier function of the epithelium and endothelium
  - the endothelial pump
  - evaporation from the corneal surface
  - IOP
- causes of endothelial damage
  - cataract surgery and IOL implantation
  - laser burns
    - iris photocoagulation
    - endothelial burns are usually dense white with sharp margins
    - in follow-up periods of ≤1 year, endothelial cell loss following laser iridectomy has not been found to be statistically significant

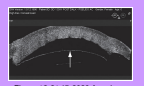
Corneal Epithelial Changes From Intraocular Surgery

- pathogenesis of epithelial breakdown
  - inadvertent intraoperative trauma to the epithelium by surgical instruments
  - desiccation of the epithelium through inadequate intraoperative hydration
  - toxic keratopathy resulting from excessive preoperative instillation of topical ophthalmic preparations (and their preservatives)
  - accidental instillation of preoperative periocular facial scrub detergents
- endothelial damage has a far greater effect on corneal edema than does epithelial damage
- damage to endothelium and/or Descemet membrane can result in epithelial edema
  - corneal surface becomes irregular
    - glare
    - photophobia
    - halos around lights
    - decreased vision
      - epithelial edema is more damaging to vision than stromal edema or scarring

Descemet Membrane Changes During Intraocular Surgery

- stromal edema
  - bowing and folding of Descemet membrane (striate keratopathy)
- Detachment of Descemet membrane
  - stromal swelling and epithelial bullae localized in the area of detachment
  - Descemet membrane can be stripped off the stroma during reintroduction of the keratome through the incision
  - membrane can be reattached with air tamponade
    - recurrence may require suturing

Figure 13-20 (© 2020 American Academy of Ophthalmology)



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Ophthalmology Mind Maps/Arman Mashayekhi, MD