

## *Glaucoma Grand Rounds: A Case Based Discussion of Different Types of Glaucoma and the Clinical Management*

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1. Case # 1 Elevated IOP and corneal edema
  - a. HPI
  - b. Exam
  - c. Fields
  - d. Course
    - i. Maximal topical therapy
    - ii. Netarsudil added as therapy, pt reports blur after one use
    - iii. Reticular corneal edema noted on exam
    - iv. Netarsudil discontinued, corneal edema progresses
    - v. Dsaek

### Discussion

#### Netarsudil

1. clinical trials: Rocket 1-4 and Mercury 1,2,3
2. Mechanism of action
3. Side effects of medication

#### Netarsudil corneal effects:

1. It is hypothesized that ROCK inhibitors could play a part in both increasing cell adhesion and proliferation in the corneal endothelium
2. This would allow for the preservation of corneal endothelial cells and the slowing of apoptosis.
3. Successful clinical trials have been performed to show the positive effects of Rho kinase inhibitors on the corneal endothelium
4. The cause of “honey comb” corneal edema is unknown, but multiple case reports have now been published
5. Cornea verticulatta

2. Case #2 A patient with a blurry spot

- a. HPI- spot in vision OS
    - b. Benign exam and Rx for Lotemax dispensed
      - i. Pt calls doctor after 2 weeks without improvement
      - ii. Tobradex Rx issued over phone
        - 1. 1 week later pt presents to another doctor with drastic enlargement of the spot in his vision
        - 2. IOP 60 OU
    - c. Visual Field
    - d. Optic nerves
    - e. Course
      - i. Discontinuation of steroids
        - 1. Subsequent VF slight improvement
      - ii. Pt controlled on topical medication
  - Discussion
    - Small optic nerve size and difficulty of diagnosis
    - VFs in normal tension glaucoma that are symptomatic as “spot
    - Steroid response glaucoma
      - Durezol>Dexamethasone>Prednisolone>Rimexolone>Lotemax>Fluoromethalone
      - Most common after topical, periocular or intraocular administration.
      - Can also occur after intranasal, inhalational, systemic use and dermatological application.
      - Intraocular pressure (IOP) rise usually occurs 3 -6 weeks following topical steroid use, however, may occur earlier.
      - Increased production and decreased destruction of the extracellular matrix of the trabecular meshwork. There is increased deposition of glycosaminoglycans, fibronectin, elastin and Type IV collagen and reduced activity of matrix metalloproteinases.
3. Case #3 Unilateral normal tension glaucoma
- a. HPI
  - b. Exam
  - c. Fields

d. Course

- i. Pt started on Alphagan BID OD
- ii. OD stable defect for several years, OS never progresses
- iii. MRI reveals Dolichoectasia of the right internal carotid artery causing compression of optic nerve

Discussion

Incidence

Treatment options

4. Case #4 Let there be LiGHT ...

- a. HPI: 48 yo woman referred for glaucoma. IOP was elevated at 24 mm Hg in both eyes with thin CCT. She has moderate cupping OU with large nerves and normal VF tests. There is no APD and the family history is unrevealing.
- b. Exam
- c. Fields
- d. Course
  - i. Pt started on medical treatment but noted to have severe reaction to several drops
  - ii. Pt offered drops, laser, glaucoma surgery
  - iii. Randomized Control Trials in glaucoma laser treatment eg GLT, LiGHT
  - iv. SLT vs ALT vs MLT
  - v. Role in LTG?

5. Case #5 The Xen, When and Venn of Glaucoma

- a. HPI: 71 yo woman referred for glaucoma. IOP was elevated at 35 mm Hg in the left eye with normal CCT. She is on multiple medications and has had prior SLT. Her VF test is unremarkable but her OCT shows asymmetry and she has an APD in the left eye. She has severe cupping in the left more than the right.
- b. Exam
- c. Fields
- d. Course
  - i. Pt offered laser, cataract and glaucoma surgery

- ii. Pt diagnosed with stage 4 breast cancer with mets.  
How do we decide which treatment is best
- iii. Xen gel stent placement – ab externo

#### 6. Case #6

- a. HPI: 71 yo woman referred for glaucoma. IOP was elevated at 35 mm Hg in the left eye with normal CCT. She is on multiple medications and has had prior SLT. Her VF test is unremarkable but her OCT shows asymmetry and she has an APD in the left eye. She has severe cupping in the left more than the right.
- b. Exam
- c. Fields
- d. Course
  - i. Pt offered laser, cataract and glaucoma surgery
  - ii. Pt diagnosed with stage 4 breast cancer with mets.  
How do we decide which treatment is best
  - iii. Xen gel stent placement – ab externo

#### 7. The Ophthalmologists Husband

- a. HPI: 65 yo male referred for low tension glaucoma from an ophthalmologist. IOP was elevated at 21 mm Hg in the right eye and 22 mm Hg in the left eye with normal CCT. His sister has severe end –stage glaucoma with vision loss on multiple medications. She has had prior SLT and lost vision after a tube shunt due to hypotony. His VF test is remarkable for paracentral visual field loss that matches his OCT. After several tries with various glaucoma drops, a trabeculectomy with MMC was performed in both eyes. His IOP was noted to be consistently in the low normal range however he continue to demonstrate optic nerve disc hemorrhages.
- b. Exam
- c. Fields
- d. Course
  - i. Pt offered micropulse laser, Xen or Tube surgery
  - ii. Low Tension Glaucoma workup
  - iii. Pathophysiology

- iv. Review of RCTs in LTG – CNTGS, LoGTS
- v. Next Step?