Co-Management For The Practicing Optometrist

Presented By Missouri Eye Institute, LLC
Springfield • Branson • Joplin

Intravitreal Injections

- Expect vision to be blurred until medication absorbs
  - Avastin and anti-VEGF meds: overnight
  - Triamcinolone: 2-3 days until it drifts inferiorly, but can last for 6 to 8 weeks

Post-Operative Retinal Complications

Intravitreal Injections

- Immediate pain: lasts a few minutes to hours
- Delayed pain: after anesthesia wears off
  - Corneal abrasion: severe pain, like welding burn
    - Betadine is the likely culprit
    - Pressure patch and oral pain medications are appropriate

Intravitreal Injections

- Transient increase in intraocular pressure
  - Will decrease after a few minutes
- Triamcinolone can cause long-term IOP spike
  - 30% will have spike
  - Risk increases with increasing injections and shorter time between injections
  - May require filtering surgery to alleviate
Intravitreal Injections

- Endophthalmitis
  - Starts on the first day post-injection
  - Symptoms include pain, blurry vision, and conjunctival injection
  - Requires prompt evaluation
  - Most do well with treatment, but 20% do not

Intravitreal Injections

- Posterior Vitreous Detachment
  - All patients with multiple injections will eventually develop posterior vitreous detachments

- Rare Complications
  - Vitreous hemorrhage
  - Retinal tears or detachments
  - Choroidal hemorrhage
    - Photophobia
    - Headache

Vitrectomy

- Cornea
  - Persistent Corneal Abrasion
    - Related to PRP and complete conjunctival periotomy
    - May require corneal transplant
    - 3% of diabetic vitrectomies will require penetrating keratoplasty

Vitrectomy

- Glaucoma
  - Ghost Cell Glaucoma
    - Related to PRP and complete conjunctival periotomy
  - Silicone Oil
    - Droplets in angle
    - Pupillary Block
      - Inferior iridotomies
  - Gas
    - 26-37% immediate post-operative
    - No gas/air bubble
    - Macular hole
    - 6-12 months
    - Lens touch at vitrectomy

Vitrectomy

- Cataract
  - 72% have significant nuclear sclerosis at two years
    - No gas/air bubble
  - 100% with prolonged gas
    - Macular hole
    - 6-12 months
    - Lens touch at vitrectomy
Vitrectomy
• Post-operative vitreous hemorrhage
  – 20% in diabetic vitrectomy
  • First day to a few weeks
  • Air/fluid exchange in office if it does not clear
• Retinal Detachment
  – Risk is 3-7%
  – Can present as tears or proliferative vitreoretinopathy

Vitrectomy
• Rare Complications
  – Endophthalmitis
    • Rate of incidence is 0.07%
  – Sympathetic ophthalmia
    • Rate of incidence is 0.06%

Scleral Buckle
• Redetachment
  – 10-15% occurrence
  – Usually happens in first three months
  – Peak risk is at five weeks
    • Proliferative vitreoretinopathy (PVR)
    • No prophylaxis

Scleral Buckle
• Infection
  – 1% occurrence
  – Can occur in few days to months to years, but usually two weeks to two months
    • Pain
    • Signs:
      • Purulent discharge
      • Subconjunctival hemorrhage
      • Granulomas and fistula formation
      • Conjunctival retraction
      • Vitreitis
      • Proptosis

Scleral Buckle
• Extrusion of buckle element
  – Patient will present with pain and redness
  – Usually occurs months/years after the procedure
  – Must remove element because closure will not work
  – Redetachment rate is 33-34%
    • More time since procedure to removal lowers rate of redetachment

Scleral Buckle
• Choroidal Detachment
  – Serous or hemorrhagic
  – Up to 40%
  – Hypotony at drainage
  – Vortex Vein obstruction
  – Increases with age

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  – Hypotony at drainage
  – Vortex Vein obstruction
  – Increases with age
• Malaise and low-grade nausea
• Usually resolves in a few days to weeks
• Steroids—topical and oral
• Cycloplegics to rotate iris/lens diaphragm posteriorly to prevent or relieve angle closure
• Drain choroidals if they remain kissing for more than a few days
• Hemorrhagic choroidals
  – Older and highly myopic eyes
  – Severe pain and nausea

• Cystoid Macular Edema (CME)
• 25% by angiography at 5 weeks post-operative
• Steroids
  – Topical, Subtenon’s, oral, or intravitreal
  – Avastin

• Macular Pucker
  – 3-17% incidence
  – Pre-operative PVR
  – Total retinal detachment
  – Pre-operative vitreous hemorrhage

• Motility Abnormalities
  – 80% in the first few weeks
  – 4% long-term
• Treatment
  – Prisms
  – Muscle surgery
  • Difficult because of scarring
• Noplopia is worse than diplopia

• Refractive Error
  – Stabilizes at three months
  – Usually 2 to 3.5 diopters
  • Can occasionally be higher than 5 to 6 diopters
Patient Case #1

- 74 year old female underwent phacoemulsification with posterior chamber intraocular lens placement to the left eye on 08-01-12
- No complications but case was made more difficult by poorly dilating pupil (no breaks in capsule)
- 1-day post-op visit, incision intact, moderate corneal edema with uncorrected visual acuity 20/300, PCIOL well centered, anterior chamber deep and quiet, IOP 18 mm Hg
- 1-week post-op visit – seen by her optometrist - corneal incision healing well, edema resolved, VA uncorrected 20/150, IOP 14 mm Hg – “something strange in the eye”

Patient Case #1

- Diagnosis?
- Further Studies?
- Treatment options?

Patient Case #1

- Retained lens cortex temporarily behind iris but anterior to the IOL
- Extending about ½ to 2/3rds of the way across the pupil, obscuring the pupil and vision
- IOP was within normal limits, no significant anterior chamber inflammation
- Patient was kept on prednisolone qid and ketorolac qid

Patient Case #1

- 3 week post-op visit
- VA (corrected) improved to 20/50
- IOP stable at 14 mm Hg, anterior segment quiet
- Cornea clear and incision well-healed
- Patient stated vision still obscured and “blurry” in parts
- Residual cortex still present across ½ of pupil
Patient Case #1

- Further Treatment?

YAG laser ablation of residual cortex performed, patient tolerated procedure well
- 1 week post-laser VA(corrected) improved to 20/20
- IOP stable at 9 mmHg
- Anterior chamber deep and quiet
- Patient happy

Retained Cortex in AC

Management of Retained Lens Material in the Anterior Chamber

- Does not necessarily need surgical removal
- Size and type (cortex versus nucleus) of material important
- In general cortical material better tolerated and more likely to resorb than nuclear material; also less likely to incite inflammation and elevation of IOP
- Smaller fragments better tolerated
- Observation is warranted for smaller amounts of retained material
Management of Retained Lens Material in the Anterior Chamber

- Control inflammation with steroids or NSAIDs
- Add cycloplegics if necessary
- Control elevated IOP with appropriate medications
- If inflammation and/or elevated IOP not well controlled or if significant corneal edema develops, then consider surgical removal
- Can take many weeks to resorb

Surgical Intervention may be necessary if:

- Presence of large amounts of material or obstruction of the visual axis
- Uncontrolled medications
- Uncontrolled ocular hypertension
- Uncontrolled corneal edema
- Associated other problems (endophthalmitis, retinal problems)

Patient Case #2

- 75 year old male presented to his optometrist for “blurred” vision – right eye worse than left
- Underwent uncomplicated cataract surgery OU in 2010 (outside facility)
- Underwent YAG posterior capsulotomy (OD only) some time later for “blurred” vision – no improvement. According to the patient previous surgeon then told him “nothing more can be done.”

- Visual Acuity (best corrected) OD CF@4 feet, OS 20/60
- Anterior Segment WNL OU
- PCIOL well centered OU
- Open posterior Capsule OD only
- Fundus Exam – dense Asteroid Hyalosis OU
- Macula – WNL OU
Patient Case #2

- Marked white granular/calcific deposits on the posterior surface of the IOL OU
- Right posterior capsulotomy present
- Left posterior capsule intact
- Dense asteroid hyalosis OU
- Remainder of exam unremarkable OU

Asteroid Hyalosis

- Minute white, granular opacities composed of calcium-containing phospholipids in an otherwise normal vitreous
- Association with diabetes reported
- Overall Incidence of 1 in 200 persons
- Unilateral in 75% of cases
- Rarely causes a significant decrease in visual acuity

Calcification of Silicone IOLs in Presence of Asteroid Hyalosis

- Stringham et al. *Ophthalmology* Aug. 2010
- Reviewed 22 cases of calcification of silicone IOLs (8 different designs from different silicone materials)
- Presence of asteroid hyalosis was confirmed in 86.4% of cases
- Deposits were only found on the posterior surface of the IOL
- Well-described correlation, however not all patients with asteroid hyalosis and silicone IOLs develop calcification
- IF YAG capsulotomy increases risks of calcification

Calcification of Silicone IOLs

- Patient referred for evaluation of the IOL opacification/calcification and asteroid hyalosis, possible IOL exchange +/- vitrectomy
- Acrylic IOLs

Diagnosis?

Further Workup?

Treatment options?

Next step(s)?
Questions or Comments?

- Problem patients and when should they be sent back to operation surgeon.
- Usually best not to pre-determine with your patient that additional procedure needs to be done until you have spoken with the surgeon.
- Always best to discuss with your patient about having you provide all or part of their post-operative care before you send them for the initial surgical consult...so no surprise to patient when surgeon office brings up this possibility.

Sources: