Secondary Silent Thieves
Secondary Glaucoma’s

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Financial Disclosure

Glaukos
Bausch + Lomb
Alcon
Allergan
Reichert
Aerie

Johnson & Johnson
Shire
Sun Pharma
Equinox
32 year old male
CC: “I was told I am at risk for glaucoma”

BCVA: 20/20 OD 20/20 OS  No Meds

IOP: 30 OD; 30 OS

Pachymetry: 550 OD 550 OS

ONH Eval: 0.50/0.50 OD 0.55/0.55 OS
Pigment Dispersion Syndrome/PD-Glaucoma

Mechanism of Disease
- Abnormal Irido-zonular/Irido-lens contact
- Iris pigment deposited on Cornea, Lens, AC angle
- Concave Iris approach
  - Blinking Hypothesis
  - Blinking burps fluid from PC to AC causing high IOP in AC than PC
  - Pressure gradient causes the iris to bow concave with higher mid-lenticular contact in some people = Reverse pupillary block

Triad
- Elevation in IOP and IOP spikes secondary to pigment occlusion of physiologic outflow.

Approx. 35% of PDS progresses to PG

Disease less severe as patient ages and pigment release slows
What Is the Risk of Developing Pigmentary Glaucoma From Pigment Dispersion Syndrome?

YASMIN BILBIE, MD, RICHARD D. TAN, MD, MD, J. DOUGLAS CAMERON, MD, DAVID D. BRUGG, MD, AND DONALD F. TIPPS, MD

- CONCLUSION: The risk of developing pigmentary glaucoma from pigment dispersion syndrome was 10% at 5 years and 15% at 15 years. Young, myopic men were most likely to have pigmentary glaucoma. An IOP greater than 21 mm Hg at initial examination was associated with an increased risk of conversion. (Am J Ophthalmol 2003;135:794–799. © 2003 by Elsevier Inc. All rights reserved.)

Post-operative Consideration with Laser Peripheral Iridotomy

1. Controlling Post-Op Inflammation
2. IOP Spikes
3. Visual Disturbances
Controlling Post-op Inflammation

- 30-35% mild iritis 24 hours
- Topical corticosteroids QID x 5-7 days
- Continue GLC medication or add

IOP Spikes

- 9.8% @ 1 hour
  - > 8 mmHg increase in IOP above baseline
- 0.82% @ 2 weeks
  - > 8 mmHg increase in IOP above baseline

Visual Disturbances

- Shadows, ghost images, crescents, lines, blurring, halo’s, and spots
- More likely to occur if partially or fully exposed LPI’s

- 172 eyes - LPI’s
  - 8.9% - completely covered LPI
  - 26% - partially or fully exposed LPI
Visual Disturbances


Selective Laser Trabeculoplasty

Selectively targets and laser burns pigmented TM cells

Efficacy

SLT as 1st Line Treatment: 4% vs 7% vs 89% vs 0%

IO P Decrease (P re-Tx 25 mmHg)

SLT as 1st Line Treatment

- 1-2 mmHg
- 3-5 mmHg
- >5 mmHg
Primary Outcome - Quality of Life at 3 years
Secondary Outcome – Cost, cost-effectiveness, clinical effectiveness, and safety

Conclusions:
No significant difference in QOL
97% probability of SLT as 1st treatment being more cost-effective
SLT at target IOP 93% of visits vs 91.3% at target for meds

Pseudoexfoliation Syndrome/PXG-Glaucoma

Mechanism of Disease
Unknown Etiology
Ocular and Systemic condition
Excessive gray/white protein fiber-like material
Iris, lens/zonules, endothelium, ciliary body, Tm

Demographics
Increases with age, >50
Caucasian/Scandinavian patients
Bilateral in time
#1 cause of Secondary Glaucoma
Aggressive Glaucoma

Elevation in IOP and IOP spikes secondary to PseudoX mechanical rubbing and deposition in TM.

Cataract Considerations in PXF

Dilate poorly
Weak zonules
IOP spikes
40 year old male
CC: "About 5 years ago I was hit in my left eye by a baseball when playing catch with my son. I had a lot of blood in my eye."
BCVA: 20/20 OD
20/20 OS
No Meds
IOP: 16 OD; 26 OS

ONH Eval: 0.45/0.45 OD
0.80/0.80 OS
Pachymetry: 550 OD
550 OS
Traumatic Glaucoma: Angle Recession

Mechanism of Disease
- Cleavage of ciliary body muscles
- Widening and deepening of angle
- Problems occur years after trauma
- 1st thought when encountering unilateral glaucoma
- 10-20% angle recession patients develop secondary glaucoma

Elevation of IOP and IOP spikes are secondary to trabecular meshwork scarring and sclerosis secondary to trauma

Traumatic Glaucoma: Angle Recession

Treatment

Topical GLC Medications
- Fair to poor response

Selective Laser Trabeculoplasty
- Poor response if recession > 180 degrees

Filtration Surgery
- Works well, but risks are high

Minimally Invasive Glaucoma Surgery
- May have to be aggressive

55 year old female
CC: “My eyelids itch all the time and my eyes seem to be red all the time. I will off and on use some drops that I was given years ago.”

BCVA: 20/20 OD
Meds: TobraDex PRN
20/20 OS

IOP: 29 OD; 30 OS
Pachymetry: 550 OD
550 OS

ONH Eval: 0.65/0.65 OD
0.65/0.65 OS

Gonio: Open to CB in all angles
Steroid Induced Glaucoma

Mechanism of Disease
- Outflow difficulty
- Glycosaminoglycan accumulation in the TM
- Loss of phagocytotic ability in TM
- Topical and oral corticosteroids can cause IOP rise
- Ointments/creams and inhaled steroids can cause IOP rise

2/3 of population is steroid responders
- Response is dependent on frequency and dose

Patients with POAG, myopes, and children are higher risk
74 year old female
CC: “My VA has decreased in my left eye. It always seems smoky and I seem to be sensitive to light.”

BCVA: 20/20 OD  
       20/80 OS

Meds: Cosopt bid

IOP: 13 OD; 28 OS

Pachymetry: 530 OD  
      535 OS

Gonio: Open to CB in all angles
Uveitic Glaucoma

"Hot" eye
- Injection
- Low/High IOP
- AC reaction
- Patient discomfort
- Photophobia
- Acute iridocyclitis

"Quiet" eye
- No Injection
- High IOP
- AC reaction
- Comfortable
- Chronic iridocyclitis
Uveitic Glaucoma

Classifications and Mechanisms

- Angle closure with pupil block
- Angle closure without pupil block
- Open angle
- Combination involving all of the above

Angle Closure with Pupil Block

Inflammatory cells, etc are released into AC and iris becomes sticky

Posterior synechiae form leading to iris bombe and posterior chamber pressure rises

Angle Closure without Pupil Block

Inflammatory cells, etc are released into AC and iris becomes sticky

Peripheral iris is pulled over the TM causing a progressive closure by peripheral anterior synechiae (PAS)
Inflammatory cells and infacility of proteinacious aqueous humor associated with flare

Trabecular meshwork outflow is impeded

1. Aggressively reduce inflammation

Steroid

2. Cycloplegia

Prevent and break posterior synechiae

Initially – atropine 1% or scopolamine ¼%

Additional Treatment – 10% Phenylephrine
3. Lower IOP

Beta-blockers, alpha-2 adrenergic agonists, and CAI's

Avoid miotics and prostaglandin analogs

Glaucomatocyclitic Crisis / Posner-Schlossman

- Unilateral Acute trabeculitis w/ high IOP (40-65)
- Mostly quiet eye, minimal A/C cell
- Stellate KP
- No ant. or post. synechiae
Thank You!

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