TRAUMATIC GLAUCOMA

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COPE 31940-GL

Demographics of Traumatic Glaucoma

- 85% of ocular injuries occur in males
- **Children:** 70% domestic accidents, play or sports
- **Young adults:** MVA, occupational trauma, assault
- **Elderly:** falls
- Blindness due to ocular trauma is 4x higher in African American males

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Why is it important?

- African American Patients with Hyphema:
- Ocular emergency
- Sickle cell screening
- IOP should not exceed 24mmHg for more than 24 hours!
- Avoid acetazolamide
  - Creates anterior chamber acidosis
  - Increa

IOP	Duration	Sickle Cell?
50	5	N
35	7	N
24	1	Y

IOP Tolerances

IOP	Duration in Days	Sickle Cell?
50	5	N
35	7	N
24	1	Y

Causes of Traumatic Glaucoma -Non- Penetrating

1. Inflammation:
   - Swelling of the ciliary body
     - Closed angle
     - Reduction in aqueous production
   - Obstruction of the trabecular meshwork with WBC and protein
   - Direct TM inflammation
   - PAS[LATE]
   - Pupillary block
   - Neovascular glaucoma[LATE]
     - Closed angle

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Causes of Traumatic Glaucoma -Non- Penetrating

2. Hemorrhage/Hyphema
   - TM obstruction with RBC and fibrin
   - Clot causes pupillary block
3. Ghost cell Glaucoma
   - TM obstruction with degenerated RBC
4. Hemolytic Glaucoma/Hemosiderotic Glaucoma
   - Macrophages obstruct TM
   - Siderosis of TM

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Causes of Traumatic Glaucoma -Non- Penetrating

5. Angle Recession LATE
6. Lens
   - Subluxation/dislocation -pupillary block
   - Traumatic cataract -pupillary block
   - Phacolytic cataract- TM Obstruction
   - Lens particle glaucoma- TM Obstruction LATE
7. Forward displacement of the lens-iris diaphragm
   - Pupillary Block

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Causes of Traumatic Glaucoma -Penetrating

- Inflammation
- Anterior chamber collapse
- Lens damage
- Epithelial down-growth
- Siderosis
- Chalcosis
- Chemical Burns
  - Alkaline
  - Acid

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Case 1: Mr. TW The Truck Wrench Guy

- Primary Exam
  - CC: Annual exam
  - Pain on down and left gaze
- Demographics
  - 49 year old black male
  - Assaulted with a truck wrench 1990
  - Orbital Blow out fracture with reconstruction left side
  - OS affected

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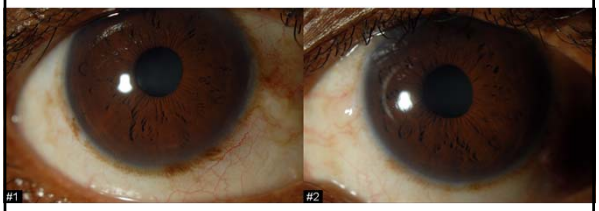
Case 1 Mr. TW External Images

- Note slight pupil asymmetry



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Case 1: Mr. TW

- Exam Findings and Analysis
  - VA: OD 20/15 and OS: 20/20
  - IOP: OD 12 mmHg and OS 21 mmHg
  - Negative Sickle Cell

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Case 1 Mr. TW Gonioscopy

- Inferior angle OS

Angle Recession

- Tear in ciliary muscle layers
- Cleft in CBB
- High incidence in blunt ocular trauma
- Glaucoma may occur LATE
- Glaucoma is fairly rare
- Fellow eye at 50% risk

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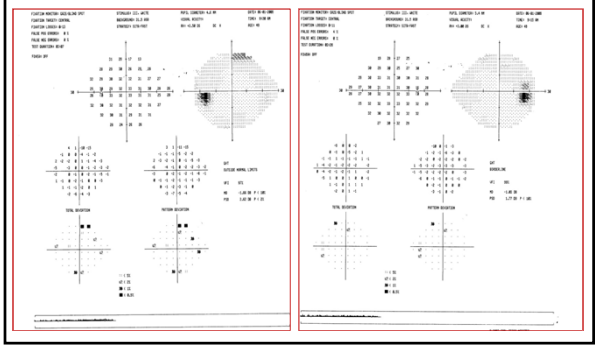
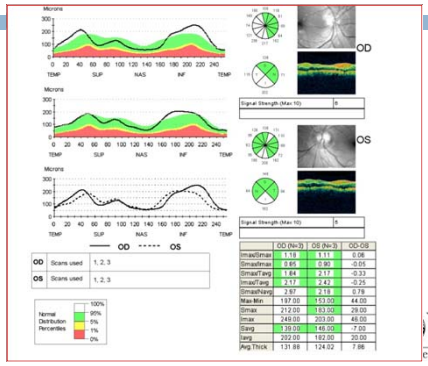
Case 1 Mr. TW Visual Fields



Case 1 Mr. TW OCT of the NFL



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Case 1 Mr. TW Decision Making/Analysis

- Does he *have* glaucoma?
  - Diurnal Curve?
  - Pressure spikes?
- How much Nerve fiber layer loss can we tolerate?
- Costs?
- Compliance?
- Quality of Life?
- Patient's choice?

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Case 1. Mr. TW Assessment of Glaucoma

- Early/Moderate/Advanced
- When is the onset of "traumatic glaucoma"?

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Case 1Mr. TW Treatment and Management

- Does angle recession respond to topical medication?
- Lumigan® Prophylaxis
- First Follow up visit:
  - Doing well
  - Instilling drops in BOTH eyes
  - IOP OD 8 mmHg and OS 8 mmHg
- Second Follow up visit:
  - Seen by a colleague
  - Stops Lumigan ®

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Case 1Mr. TW Treatment and Management

- Third Follow up Visit:
- Patient unhappy with current level of "non-treatment"
- 3 weeks after ceasing drops
- IOP OD 12 mmHg OS 27 mmHg
- Wants a "cheaper" alternative than Lumigan®
- Generic Beta Blocker prescribed
- Generic Prostaglandin now available!

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Case 1 Mr. TW Follow up and Outcome

- Patient continues with Beta Blocker
- Seen every 6 months
- Doing well

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Case 2 Mr. JS The Multiple Shiners

Courtesy Joe Sowka OD Dipl

- Primary Exam
  - Routine Eye Exam, needs new glasses
  - Remembers several "shiners"
  - Smoker since age 14
  - General heath and family health non-contributory
- Demographics
  - 54 year old white male

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Case 2 Mr. JS Exam Findings and Analysis

- VA OD 20/20 and 20/20 OS
- CFF: sup-nasal defect noted OD
- IOP OD 29 mmHg and OS 14 mmHg

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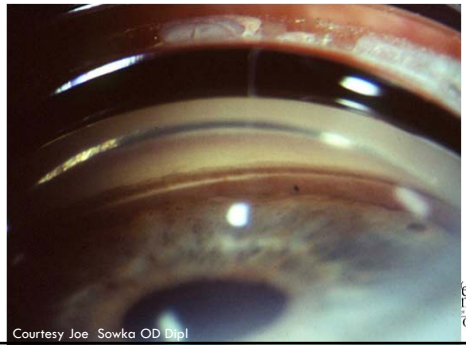
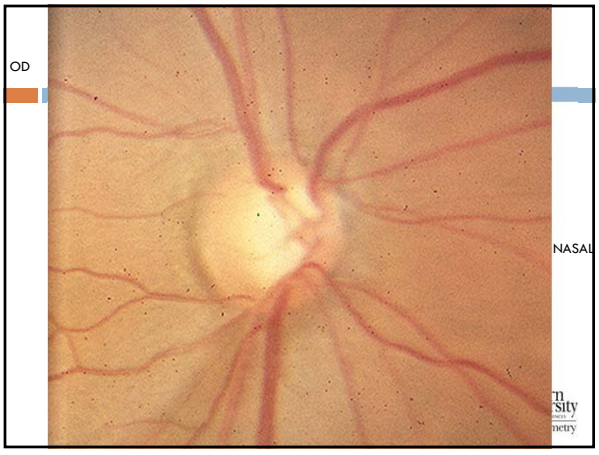
Case 2 Mr. JS Gonioscopy





Case 2 Mr. JS Optic Nerve Image

- CD ratio?
- Inferior temporal notch
- Corresponding NFL dropout
- Peri-papillary atrophy

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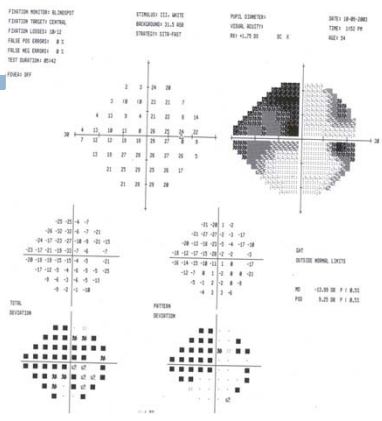
Peri-Papillary Atrophy

- Mere presence does not indicate POAG
  - Common in MY
  - Aging
  - Ocular disease eg. histoplasmosis, Stargardt's, VKH, MEWDS and X-linked retinitis pigmentosa, angioid streaks
- Reflects vascular condition
- Two zones A and B:
  - Zone B closest to cup – absolute scotoma
  - Zone A leads – relative scotoma
- Careful with OCT!
- When seen in Normal tension glaucoma:
  - increased risk for progression



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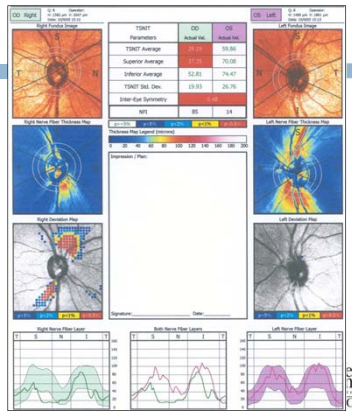
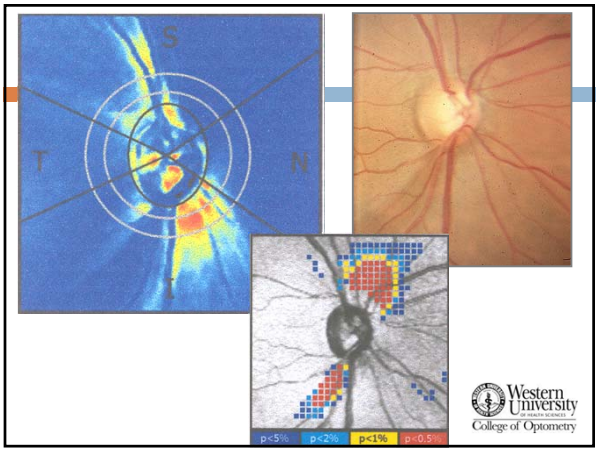
GDX Mr. JS





Case 2 Mr. JS Decision Making/Diagnosis

- Unilateral increase in IOP
- Angle recession and traumatic cleft to ciliary body
- Damage to the TM from scarring or sclerosis
- Impeded aqueous filtration
- IOP may spike weeks/months/years later

Case 2 Mr. JS Assessment of Glaucoma

- Early/Moderate /Advanced

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Case 2 Mr. JS Treatment and Management

- Usually fair-to-poor response to topical medication
- Which drugs (if any) to choose until surgery?
- Filtering surgery often the endgame

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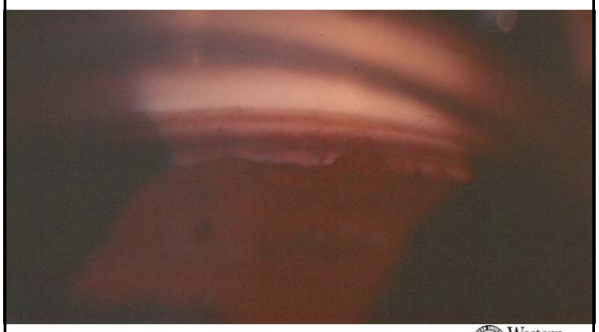

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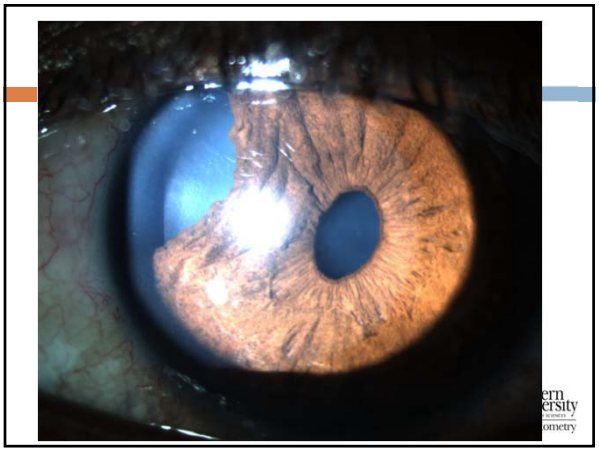

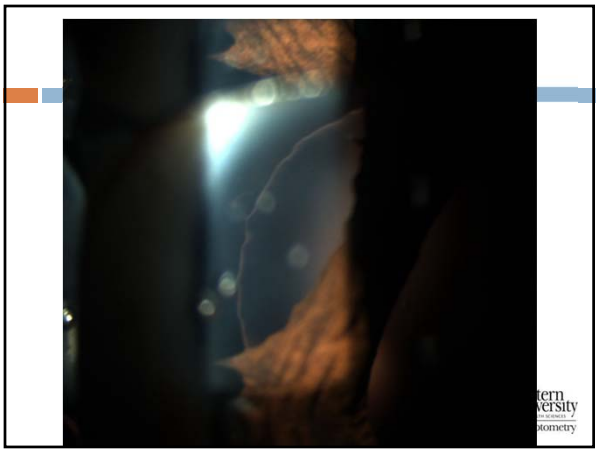

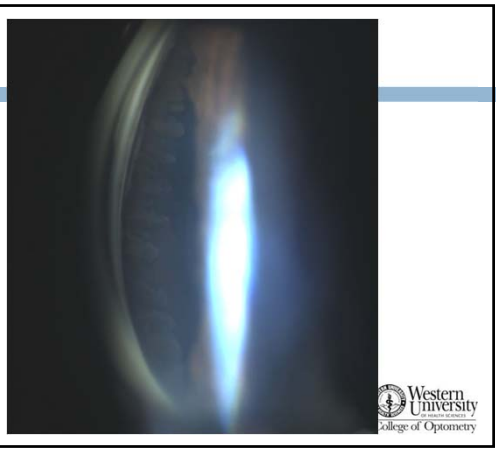

Discussion….

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