Grand Rounds
Anthony DeWilde, OD

Patient 1

72 year old African American male
Blur OD x 3 months
Last eye exam 10 years ago

Ocular History

Mixed Mechanism Glaucoma
S/P LPI OU
Was on Xalatan qhs OU – no longer taking
Blunt trauma OD

Medical History

HTN
Anemia
CVA x 2
Hyperlipidemia
Kidney Disease

Medications

Amlodipine
Atenolol
HCTZ
Simvastatin
ASA

Exam

BCVA OD: 20/320, OS: 20/25
+APD OD
Anterior Segment Normal
Except Mid NS OU
Exam

Gonio: Narrow with old PA8
S/P LPI OU
IOP 14/14

Posterior Segment

Optic Nerve
0.75 OD - Pallor
0.90 OS
No maculopathy
No vasculopathy
Peripheral retina normal

Pallor Vs. Excavation

Pallor Vs. Excavation
Differential

- Glaucoma
- Other Optic Atrophy
  - Traumatic
  - Compressive
  - Inflammatory

What Tests?

- VF?
- OCT?
- Imaging?
New Differential

- Glaucoma
- Compressive Lesion
- CVA

MRI

Diagnosis

Pituitary Adenoma – 2.5 x 1.6 cm

Treatment

- Monitor only
- Due to other health factors
- Patient reports vision is fine

Pituitary Tumors

- Hormone-Producing
  - Prolactinoma
  - Growth Hormone Secreting
  - ACTH Secreting (Cushing’s)

- Hormone Inactive
- Size
**Treatment**

**Goals**
- Normalize hormone levels
- Pituitary gland function
- Reduce signs/symptoms of tumor

**Medication (Micro)**
- Bromocriptine – Dopamine agonist
- Hormone stabilization

**Surgery (Macro)**
- Transsphenoidal
- Transcranial

**Take Home**
- Check both eyes
- Pituitary vs. Glaucoma
- Pallor vs. Excavation
- Urgency

**Patient 2**
- 72 YO Hispanic Male
- Blur OD/OS - Worse at night
- IOP 16/14
- BCVA 20/40, 20/30
- Removal of tumor on “Left Optic Nerve” x 1990
Patient 2

Anterior Segment Unremarkable except

2+ NS OU

Patient 2

Anterior Segment Unremarkable except

2+ NS OU

Patient 2

Patient 2
Old or new??

Patient 2 Followed by Endocrinology

Tumor resected

Cataract removed

"The best place to find a brain tumor is a glaucoma clinic"
Patient 3

59 Y/O White Male

Medical HX

HTN, COPD, Arthritis, Kidney Failure, Peripheral Vascular Dz, Anemia, Carotid Artery Stenosis, Hyperlipidemia, Amputee – Bilateral

Medications:

HCTZ, Norvasc, Lopid, Metoprolol, Lisinopril, Simvastatin, Warfarin

Examination

Blur for 1 month

BCVA: 20/100 OD, 20/40 OS

+ APD OD

IOP 6/10

Anterior Segment:

Mild Cataract OS>OD

Posterior Segment

Sclerosed Central Retinal Artery

Mild ONH nerve pallor

Retina appears perfused

Lessons Learned

“Classic” Presentation of CRAO

Giant Cell Arteritis

Consider Ophthalmic Artery

Neovascularization

Risk to Brain and Heart

Have a Heart
**Lesson #1**

“Classic” Presentation of CRAO

Presentation of CRAO after reperfusion

**Differential Diagnosis**

Central Retinal Artery Occlusion

Ophthalmic Artery Occlusion

Ocular Ischemic Syndrome

Giant Cell Arteritis

**Lesson #2**

5% of CRAOs are from Temporal Arteritis

**Additional Tests**

ESR = 31 (slightly elevated)**

CRP = 0.5 (normal)

CBC = Abnormal RBC, HCT, HGB (Anemic)**

Carotid Doppler

Carotid Angiography
Carotid Doppler Results

- Stent in the right, distal common carotid artery
- Interval occlusion of the common carotid artery
- Degree of stenosis in the right internal carotid artery cannot be measured
- Low flow to internal carotid

Follow – Up

1 month later (2 months after start of blur)
Very sluggish pupil and VA Hand Motion
5 month follow-up:
- Dense, hypermature cataract
- Neovascularization of the Iris
- Neovascularization of the Angle 360 degrees

Lesson #3

Consider an Ophthalmic Artery Occlusion/OIS

Lesson #4

CRAO can develop anterior segment NV

Lesson #5

Increased risk for CVA/MI
Risk for Heart Attack is greater

Treatment

- Avastin for Neovascularization
  - Didn’t help regress NV
- Otherwise, monitor only
  - Goal of this eye is no pain
- Still weighing Risk/Benefit of Cataract Extraction
Lesson #5

AHA and ASA recommend urgent referral
CRAO/BRAO requires ER visit

Lesson #5

Amaurosis Fugax requires ER visit

Lesson #5

Asymptomatic retinal embol??

Lesson #5

TIA used to mean timing
TIA now means location
Eye is part of the Central Nervous System

Lesson #6

Compassion

Patient 4

30 year old white female
CC: Headache and vision loss
H/O vision loss OD, diplopia
Improved now
Currently on:
Diamox
Butalbital

BCVA 20/40 OD, CF OS
APD OS
Confrontation VF Full OD, Limited OS
Color Vision: 10/10 OD, 1/10 OS
Anterior Segment Unremarkable

Differential
Papilledema
Intracranial Hypertension
Malignant Hypertension
Space Occupying Lesion
Cerebral Venous Thrombosis

Inflammatory
Infectious vs Non-infectious
ONH Drusen
Uveitis
Optic Neuritis??
62 inches (157 cm)
462 lbs (210 kg)
BMI 85
BP: 110/80

MRI Normal
LP – 490 then 310
Normal opening pressure up to 250 mm H₂O
in obese patients

1 Month Later...
BCVA 20/20 OD, 20/200 OS
S/P VP shunt x 1 month
On Diamox still
OD swollen, OS swollen and atrophic

8 years later...
no Diamox
20/20 OD - minimal VF loss
20/200 OS - stable VF loss
Idiopathic Intracranial Hypertension

Old names:
- Benign Intracranial Hypertension
- Pseudotumor Cerebri

Why is one eye 20/20 and the other 20/200?

Idiopathic Intracranial Hypertension

1 in 100,000 people

Young women

10% overweight = 13x more likely

Causes are unknown
**Idiopathic Intracranial Hypertension**

Symptoms are varied
- Asymptomatic
- Headache
- Blurred vision
- Diplopia
- Nausea

Diagnosis of exclusion:
- MRI/MRA/MRV
- Lumbar Puncture
- Blood Pressure

**Treatment**
- Weight loss
- Diamox
- VP shunt

**Patient 5**

74 YO WM
C/O Blur
No pain or discomfort

**Patient 5**

BCVA 20/40 OD/OS
Anterior Segment normal except
2+ NS OU

**Diagnosis:** Cataract
But...what about this?

Nevus OD - 2007

Fast forward to 2013
Patient 5

Small Choroidal Melanoma

Risk Factors
1. Tumor thickness greater than 2.0 mm
2. Subretinal fluid
3. Visual symptoms
4. Orange pigment
5. Posterior tumor margin touching the disc
6. Lack of drusen


Patient 5

Treated with Radioactive Plaque Therapy
Developed Radiation Retinopathy
Optic nerve edema, Macular edema
Treated with Anti-VEGF
COMS

Small Melanoma
≤ 2.4 mm height
5-16 mm diameter

COMS

Small Melanoma
5-year all cause mortality = 6%

COMS

Medium Melanoma
2.5–10 mm height
≤16 mm diameter

COMS

Medium Melanoma
Mortality with enucleation = 19%
Mortality with brachytherapy = 18%

COMS

Large Melanoma
>10 apical height
>16 mm diameter

COMS

Large Melanoma
Mortality with enucleation = 43%
Mortality with enucleation and pre-op radiation = 38%
COMS

COMS excluded tumors near optic nerve

Meta-analysis

5-year all cause mortality
Large = 53%  Medium = 32%  Small = 16%

Radiation Retinopathy

Exposure to External Beam Radiation or Brachytherapy
Usually within 6 months to 3 years
Can happen 15 years later

http://www.med.unc.edu

Radiation Retinopathy

Signs
Retinopathy similar to DM
Macular edema
Optic nerve edema

Symptoms
Typically asymptomatic
Can develop floaters and/or visual acuity loss
Radiation Retinopathy

Treatment
Monitor
Laser (local/grid or PRP)
Intravitreal triamcinolone
Intravitreal Anti-VEGF

Patient 6
64 year old WM
CC: Blurred vision OS - present since last year
+DM
BCVA: 20/25 OD, 20/40 OS
Anterior Segment Unremarkable

Patient 7
74 Y/O Hispanic Male
CC: Blurry vision
+DM, +CATARACT
BCVA: 20/40 OD, 20/25 OS

Impending Lamellar Macular Hole
Will discuss treatment later
Patient 7

Lamellar Macular Hole

Patient 8

65 Y/O WM
Progressive blurring
Affecting golf, reading

07/2014
20/20 OD, 20/25 OS
Anterior segment: Mild NS OU
Mild ERM OU

11/2014
20/20 OD, 20/50 OS
Mild ERM OD
Moderate ERM OS

02/2015
20/30 OD, 20/50 OS
Moderate ERM/VMT OD
Moderate ERM OS
Patient 8

08/2015
20/50 OD, 20/200 OS
Moderate ERM/VMT OD
Moderate ERM OS

Patient 9

75 Y/O WM
CC: Blur when reading
BCVA: 20/40 OD, 20/30 OS
PCIOL OU
Anterior segment unremarkable
Patient 9

Recent exam
VMT released w/o treatment
20/20 OD and OS

Patient 10

75 Y/O WM
CC: Blur OU
S/P PCIOL OU
COPD, DM, HTN
Anterior segment unremarkable

Patient 11

BCVA: 20/50 OD, 20/100 OS

Patient 11

Bilateral macular hole
Patient elected to not have treatment
COPD
Discussion

ERM
VMT
Lamellar Macular Hole
Macular Hole

Discussion

Historically diagnosed by combination of:
Fundus Appearance
Visual Acuity

Discussion

OCT changed accuracy of diagnosis
Better able to give prognosis
Better guidance for treatment
Better post-op monitor

ERM

Macular Pucker
Creates traction of retina
Can induce edema (typically cystic)

ERM

Blur
Distortion
Metamorphosis
Range of acuity
How many progress?
**ERM**

- Typically asymptomatic
- If acuity reduced to $\leq 20/40$, treat
  - ILM peel
  - ERM peel
  - Vitrectomy
  - "Cataract Surgery"

**VMT**

- Vitreous has firm adhesions at
  - ONH
  - Macular
  - Vitreous base (ora serrata)

**VMT**

- If vitreous detachment incomplete, can lead to VMT
- Distorted, blurred vision

**VMT**

- Treatment typically includes
  - Monitor only
  - Vitrectomy
  - Ocriplasmin (Jetrea)

**VMT**

- Jetrea
  - 25% of patients improved
  - 10% of placebo improved

- Have to weigh this with complications
VMT
Complications
- Conjunctival hemorrhage
- Photopsia
- Vitreous floaters
- Blurred vision
- Injection-related eye pain

VMT
Complications
- 6% cataract (9% placebo)
- 4% increased IOP (5% placebo)

Lamellar Macular Hole
- Not full thickness
- Atypical borders
- “Inverted Anvil”
- Acuity typically better
- Difficult to treat

Macular Hole
- Full thickness retinal break
- Acuity typically 20/100-20/200**
Macular Hole

Treatment
Vitrectomy
Broad ILM peel
Fluid gas exchange

Macular Hole

Complications
Cataract
Face down position
Lack of closure

Macular Hole

ILM Peel with No Face-Down Positioning


Macular Hole

68 patients with idiopathic full thickness macular hole
Vitrectomy, ERM/ILM peel, SF6
Reading position post-op (3-5 days)
Macular Hole

100% closure
Mean pre-op  20/100
Mean post-op  20/40
No complications

Patient 12

58 year old Black Male
C/O blur at near

Myopic
20/20 OD, 20/25 OS
Anterior Segment Unremarkable
No APD
IOP 17/17
Solar Maculopathy

Thermal Burn
Psych Diagnosis
Eclipse
Drugs

Solar Maculopathy

Adjustment Disorder
Alcohol Abuse
Inadequate Housing
Depressive Disorder
Tobacco Dependence
**Solar Maculopathy**

No ocular treatment - non progressive
Mental health referral?

**Patient 13**

92 YO WM
CC: “Needs Driver’s Form Filled Out”

**Patient 13**

Ocular History
Cataract Surgery
Glaucoma Suspect

**Patient 13**

Medical History
Hypertension
Colon Cancer
Lung Metastasis?
Patient 13

VAcc 20/20, 20/25
Anterior Segment healthy except

~2MM amelanotic cystic growth
Pushing iris back
Gonio: 2 Feeder vessels

Posterior segment normal - no tumor
Large C/D ~ 0.6 OU
IOP 16/18

Diagnosis: Invasive Carcinoadenoma
Metastasis from Colon
Likely Metastasis to lung
Patient 13

Treatment: Hospice

Patient 13

Returned to clinic 2 months
New Hyphema
Stabilized
Goal is no pain

If eye tumor
Need to consider ophthalmic prognosis
Need to evaluate for metastasis

Patient 14

54 YO WM

Blur
Diplopia

Patient 14

BCVA 20/25, 20/20
EOM: Poor abduction OS
Not comitant
Anterior Segment Normal
No APD
**Patient 14**

**Bilateral Optic Nerve Edema**

**MRI**

**Lumbar Puncture**

**Blood Pressure**

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**Patient 14**

MRI - Inconclusive

Blood Pressure - 145/80

LP - Opening pressure Day 1 = 43

Day 2 = 36

+WBC

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**Patient 14**

LP Cytology - cancer cells

Diagnosis = Leptomeningeal Carcinomatosis

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**Patient 14**

Metastasis from esophageal cancer (rare)

More common from breast, lymphoma, leukemia

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**Patient 14**

Patient treated with systemic chemotherapy

Died 6 months later
Patient 15

35 YO WM
CC: “Black Sunspot Left Eye”
 Flashing lights around sunspot
 Acuity better with eccentric viewing

Patient 15

Anterior Segment normal
IOP 16/16
No APD
EOM full
Confrontation Full

Patient 15
Patient 15

White Dot Syndrome

Multiple Evanescent White Dot Syndrome (MEWDS)
Acute Posterior Multifocal Placoid Pigment Epitheliopathy (APMPEE)
Multifocal Choroiditis and Panuveitis (MCP)
Punctate Inner Choroiditis (PIC)
Birdshot Retinopathy

MEWDS

MEWDS typically affects young women (15-50)
1/3 have viral prodrome
Photopsias, dyschromatopsia
Temporal or paracentral scotoma

MEWDS different than others because:
Mild vitritis
ONH edema
Granular changes at macula

Patient 15

MEWDS

Treatment: Monitor only
Self-limiting disease
Typically full recovery
**Patient 16**

42 y/o white male

CC: Spots in vision OS for 7 days. Spots don’t move
No pain or discomfort
No family history
No ocular history

**Patient 16**

BCVA
20/30
20/400

EOM - Full
Confrontation - Full
P + RXN - No APD

**Patient 16**

IOP 15/15
Anterior Segment Normal

Retina:
White lesions throughout retina OS>OD

**Patient 16**

**Patient 16**
Purtscher’s Retinopathy (or Purtscher’s Like Retinopathy)
In a patient with Severe Alcoholism
Recent Acute Pancreatitis

Purtscher’s Retinopathy is rare
Often associated with trauma
60% bilateral
Purtscher’s Retinopathy

Can be associated with other conditions:
- Acute pancreatitis (100% bilateral)
- Connective tissue disorder
- Childbirth
- Renal disease

Purtscher flecken are pathognomonic findings:
- Polygonal areas of retinal whitening with a clear demarcating line

No known successful treatment:
- Often try IV steroids

Patient unlikely to recover visual acuity:
- Especially if nonperfusion

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