Diagnostic Retinal Surgery in Uveitis
E. Mitchel Oprencek, MD

The Retina Group
Clinical Associate Professor of Ophthalmology
The Ohio State University
Columbus, Ohio

Uveitis Diagnosis

- **HOPI**
  - Age
  - Trauma
- **POHx**
  - Acute/Chronic
  - Response to Rx
- **PMHx**
  - Systemic Disease
  - Uveitis Survey

- **Physical Exam**
  - Systemic Disease
  - Skin, Nails, Joints
- **Ocular Exam**
  - Location (Ant/Post)
  - Granulomatous
- **Laboratory Tests**
  - Routine
  - Specific

- What if multiple W/U negative?
Uveitis Diagnosis

• What if multiple W/U negative?
• What if “Pattern Recognition” fails?

Uveitis Diagnosis

• What if multiple W/U negative?
• What if “Pattern Recognition” fails?
• What if?
  – Bilateral
  – Sight-threatening
  – Progressive and medically unresponsive
  – Posterior Uveitis
  – You need to know neoplastic, immune, infectious, degenerative to modify Rx

Diagnostic Retinal Surgery

CMV Retinitis
Diagnostic Retinal Surgery

- Vitreous Biopsy
- Retinal Biopsy
- Chorioretinal Biopsy
- Subretinal Biopsy
- Enucleation

Uveitis - Surgery

Diagnostic – Vitreoretinal
- Vitreous Biopsy
- Retinal Biopsy
- Chorioretinal Biopsy
- Subretinal Biopsy
- Enucleation

Diagnostic Enucleation
Diagnostic Vitrectomy

- **Cultures:**
  - Bacterial
  - Fungal

- **PCR: Polymerase Chain Reaction**
  - HSV
  - VZV
  - CMV
  - Toxoplasma
  - Bartonella
  - TB
  - Syphilis
  - Lyme
  - Whipple's

Endophthalmitis

Endogenous Endophthalmitis
Diagnostic Retinal Surgery - Principles

- Biopsy tissue at the border between active disease and healthy retina
- Avoid major choroidal and retinal vessels
Diagnostic Retinal Surgery - Principles

- Biopsy tissue at the border between active disease and healthy retina
- Avoid major choroidal and retinal vessels
- Select lesions in the superior fundus for tamponade
- Nasal locations lessen risks of macular hemorrhage
- Retinal biopsy for posterior, sensory retinal disease
Diagnostic Retinal Surgery - Principles

- Biopsy tissue at the border between active disease and healthy retina
- Avoid major choroidal and retinal vessels
- Select lesions in the superior fundus for tamponade
- Nasal locations lessen risks of macular hemorrhage
- Retinal biopsy for posterior, sensory retinal disease
- Chorioretinal biopsy for anterior, chorioretinal disease

Retinal Biopsy

- Goals: Differentiate infectious, immune, neoplastic and degenerative processes
- Indications: Unresponsive uveitis with VA <20/200
  - Result will change Rx
  - Alternative to anucleation
- Technique: Localize, TPPV, Trap Door, Diathermy, Excise Tissue, AFGE, Close and Cryo
- Complications: RD, VH, Heme, Cat, Leak, Hypotony, Tear
- Specimen: ¼ Glutaraldehyde (EM and Light Microscopy)
  - ¼ Culture
  - ½ OCT (Frozen Sections)

Chorioretinal Biopsy

- Goals: Differentiate infectious, immune, neoplastic and degenerative processes
- Indications: Unresponsive uveitis with VA <20/200
  - Result will change Rx
  - Alternative to anucleation
- Technique: Localize, TPPV, Trap Door, Diathermy, Excise Tissue, AFGE, Close and Cryo
- Complications: RD, VH, Heme, Cat, Leak, Hypotony, Tear
- Specimen: ¼ Glutaraldehyde (EM and Light Microscopy)
  - ¼ Culture
  - ½ OCT (Frozen Sections)
Patient: KC 36 year old WM

- **CC:** Decreased VA OD
- **HPI:** 2/92 One day Hx of decreased VA
- **PMHx:** 5/91 CML s/p BMT
- **Meds:** Prednisone, Imuran, CSA, Amphotericin B
- **PE:** Aspergillus sinusitis
Ocular Exam - KC

- VA OD - 20/25
- VA OS - 20/20
- SLE OD - KP, 2+ Vit Cell
- SLE OS - WNL
- FE OD - "Brushfire" retinitis
- FE OS - Small peripheral lesion
- Labs - Immunocompromised
- DDx - ?

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Ocular Exam - KC

- VA OD - 20/25
- VA OS - 20/20
- SLE OD - KP, 2+ Vit Cell
- SLE OS - WNL
- FE OD - "Brushfire" retinitis
- FE OS - Small peripheral lesion
- Labs - Immunocompromised
- Dx - CMV retinitis
- Rx - GCV then Foscarnet & reduce immunosuppression
Clinical Course - KC

- Progressive retinitis despite two antiviral agents with 20/400 VA and a contralateral retinitis

- What next?

- Retinal Biopsy

Retinal Biopsy

- No CMV
Retinal Biopsy

Positive CMV Control

Negative Retinal Specimen

Clinical Course - KC

• Modified Rx -
  Discontinue antivirals
  and start Trimethoprim
  –Sulfamethoxazole

• Resulting Clinical
  Response - Resolution
  of bilateral retinitis but
decreased VA OD due
to optic nerve and
macular

Toxoplasmosis in
Immunocompromised Hosts
Patient: MH 70 year old WF

- **CC:** Decreased VA OD
- **HOP:**
  - 5/94 – Iritis and retinal vasculitis with W/U neg and Pred Rx
  - 7/94 – Uncontrolled diffuse uveitis and retinitis
  - 9/94 – Diagnostic vitrectomy/STK – Negative
  - 10/94 - Consult
- **PMHx:** Negative
- **Meds:** Prednisone 40 mg
- **ROS:** Negative
- **PE:** Negative

Ocular Exam - MH

- **VA OD** – 20/200
- **VA OS** – 20/20
- **SLE OD** – 3+ Cell in A/C and Vitreous
- **SLE OS** – Quiet
- **FE OD** – Multifocal retinitis
- **FE OS** – WNL

- **Labs** – Positive ACE and Ga Scan but Neg Lung Bx
Ocular Exam - MH

- VA OD – 20/200
- VA OS – 20/20
- SLE OD – 3+ Cell in A/C and Vitreous
- SLE OS – Quiet
- FE OD – Multifocal retinitis
- FE OS – WNL

- Labs – Positive ACE and Ga Scan but Neg Lung Bx

- DDx - ?
Ocular Exam - MH

- VA OD – 20/200
- VA OS – 20/20
- SLE OD – 3+ Cell in A/C and Vitreous
- SLE OS – Quiet
- FE OD – Multifocal retinitis
- FE OS – WNL

- Labs – Positive ACE and Ga Scan but Neg Lung Bx

- Dx – ARN vs Sarcoidosis
- Rx – ACV and Prednisone

Clinical Course - MH

- Rapid progression of the multifocal retinitis despite Rx

- What next?

- Retinal Biopsy
Retinal Biopsy

Toxoplasmosis

Clinical Course - MH

- Tissue Diagnosis: Toxoplasmosis with secondary ARN from periocular steroid
- Modified Rx: Pyrimethamine, Clindamycin and folic acid
- Resulting Clinical Response: Resolution of retinitis with macular scar and CF VA
Patient: JT 45 year old WF

- **CC:** Bilateral decreased VA
- **HPI:**
  - Ten year history of active multifocal chorioretinitis
  - Treated with multiple courses of topical, regional and oral corticosteroids
  - 8/89 CF VA due to optic neuritis
  - 2/90 Decreasing VA OS on prednisone
  - 2/90 Consult
- **PMHx:** WNL
- **Meds:** Prednisone
- **ROS:** Negative
- **PE:** WNL

Ocular Exam – JT

- **VA OD:** CF
- **VA OS:** 20/20
- **SLE OD:** WNL
- **SLE OS:** WNL
- **FE OD:** Multifocal chorioretinitis, optic atrophy and scarring
- **FE OS:** MCP and macula threatening chorioretinitis
- **Labs:** Neg
- **NEI Consult:** Idiopathic vs Infectious MCP
- **Rx:** Prednisone

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Clinical Course - JT

- 6/91 – Progressive cecocentral scotoma OS despite oral prednisone
- What next?
- Chorioretinal Biopsy

Chorioretinal Biopsy

- Chorioretinal Specimen
- Mononuclear Cells
Clinical Course - JT

- **Tissue Diagnosis:** Sympathetic Ophthalmia
- **Modified Rx:** CSA and ST Kenalog
- **Resulting Clinical Response:**
  1/11 Twenty years on low-dose CSA has maintained a remission in her disease w/o toxicity or steroid side effects.
- **PMHx:** The patient initially denied any eye trauma but with further questioning...she had “complicated” strabismus surgery as a child.

Patient: KA 51 year old WM

- **CC:** Decreased VA OU
- **HPI:**
  - 5/96 – Iritis
  - 8/96 – MCP vs APMPPE
  - 12/96 – Active APMPPE
- **PMHx:** CABG
- **Meds:** ASA, Prednisone 100mg
- **ROS:** Mild arthralgias
- **PE:** Healthy

Ocular Exam - KA

- **VA OD:** 20/20
- **VA OS:** 20/20
- **SLE OD:** Quiet with PS
- **SLE OS:** Quiet with PS
- **FE OD:** Multifocal choroidal lesions
- **FE OS:** Multifocal choroidal lesions
- **Labs:** Negative – CXR, CBC, ESR, ACE, HIV, A29
Ocular Exam - KA

- VA OD: 20/20
- VA OS: 20/20
- SLE OD: Quiet with PS
- SLE OS: Quiet with PS
- FE OD: Multifocal choroidal lesions
- FE OS: Multifocal choroidal lesions
- Labs: Negative – CXR, CBC, ESR, ACE, HIV, A29
- DDx: ?
Ocular Exam - KA

- VA OD: 20/20
- VA OS: 20/20
- SLE OD: Quiet with PS
- SLE OS: Quiet with PS
- FE OD: Multifocal choroidal lesions
- FE OS: Multifocal choroidal lesions

- Labs: Negative – CXR, CBC, ESR, ACE, HIV, A29
- DDx: APMPPE vs Serpignious

Clinical Course - KA

- 3/31/97
  - Add CSA & Pred 100mg
- 5/20/97
  - Active APMPPE
  - Pred Pulse
- 6/20/97
  - Active APMPPE
- 7/01/97
  - NEI Consult
  - APMPPEGIOUS

- 7/18/97
  - Add ACV 800mg 5 x day

- 12/01/97
  - Stable for 5 months

- 12/17/98
  - Active disease
  - Pred pulse
  - Subtenons kenalog
Clinical Course - KA

- 7/01/98
  - CSA, Prednisone 100mg and ACV
- 12/02/98
  - CE IOL OD
- 2/01/99
  - Active OU
  - Pred pulse
Clinical Course - KA

- 5/15/99
  - Active APMPPIGENOUS
  - 20/40 OD and 20/40 OS
  - Macula threatening

- What next?
- Vitreous Biopsy
- RPE Biopsy
- Chorioretinal Biopsy
**Clinical Course - KA**

- **Tissue Dx:**
  - T cell lymphoma

- **BMBx:**
  - T cell lymphoma
  - WBC 28,000

- **Modified Rx:**
  - Several clinical courses and trials chemoRx
  - Ocular radiation

**Clinical Course - KA**

- **Resulting Clinical Response:**
  - Initial systemic remission
  - 1/10/00 Bilateral dense vitritis
  - Diagnostic vitrectomy
  - Monoclonal T Cells
  - Autopsy