Uveitis Review for the OKAPS...

What you should and should not know!

By: Armando L. Oliver, MD
Ocular Immunology and Uveitis Specialist
Vitreoretinal Surgeon
Assistant Professor, UPR
Disclaimer...

- The information you are about to whiteness has been oversimplified for the purpose of passing the OKAPs, boards, etc…
- Some of this information sounds OK, and you may have been brought up to believe is true, but it isn’t!
- Using this information for real life patient management may have deleterious consequences.
- Contrary to popular believe, I’m not insane!
Anterior Uveitis
Acute Anterior Uveitis

- AKA: Acute Recurrent Alternating Anterior Uveitis
- Pain, Redness & Photophobia.
- HLA-B27 Associated 50-86% cases.
  - Ankylosing Spondilitis, Reiter’s, Psoriatic Arthritis, Inflammatory Bowel Disease Spondiloarthropathy.
- Most common cause of hypopion uveitis on an angry (red) eye.
- Hypopion Uveitis with white eye, mouth and genital ulcers = Becet’s.
Fuch’s Heterochromic Iridocyclitis

- The name holds true!
- Unilateral chronic uveitis with stellate KPs
- Needs no steroid treatment for the uveitis.
- Needs no cycloplegia, does not form synechiae.
- Increased incidence of POAG and cataracts!
- Amsler sign: Patogneumonic. Filiform hemorrhage on the site opposite to the paracentheses during cataract surgery.
Heterochromia, Cataract, Good Dilation
Stellate KPs 3/3 of endothelium
Juvenile Idiopathic (Rheumatoid) Arthritis

- Iridocyclitis most common on patients with:
  - Pauciarticular presentation (4 or less joints)
  - ANA+
- Patients with above criteria must be screened q3 months x 7 years.
- Associated Findings:
- If not adequately suppressed patients may go pysical in a short period of time.
Note: White eye, White cataract, Band Keratopathy, Posterior Synechiae

Personal Note: Mostly avoidable with early aggressive treatment!
TINU

• Tubulointerstitial Nephritis & Uveitis Syndrome.
• Guess What?!
  – First, you get a tubulointerstitial nephritis.
    • Microhematuria, malaise, fever, etc...
  – Then you get uveitis.
    • Bilateral, Acute, Non-Granulomatous
    • Responds well to Topical Steroids.
• Common in children!
Granulomatous Uveitis

- Non-pathological term used to describe uveitis that has:
  - Mutton Fat KPs
  - Koepppe or Busacca Nodules
  - Giant Cell Deposits
- These uveitis are generally of chronic or infectious nature.
- Tend to present insidiously with decreased vision more common than with pain, redness and photophobia.
- DDx includes:
  - Sarcoidosis, Tb, Syphilis, Toxoplasma, HSV, VZV, VKH, Sympathetic Ophthalmia and idiopathic.
Koeppe Nodules

Busacca Nodules

Posterior Synechiae
& Iris Bombè
Herpes Simplex Virus Uveitis

• Unilateral Granulomatous Uveitis with Iris transillumination defects in a patient that suffers recurrent cold sores who has corneal aesthesia and possibly, high IOP and a corneal stromal haze.

• Treatment:
  – Acyclovir 400mg 5times/d, Pred Forte and Atropine.

• Note: Acute if treated very early otherwise may become chronic.
HSV Uveitis

Iris Atrophy 360
Herpes Zoster Virus Uveitis

• Unilateral Granulomatous Uveitis with Iris transillumination defects in a patient that suffered V1 shingles that likely affected the nasociliary nerve, who may have corneal aesthesia and possibly high IOP and possibly a corneal stromal haze.

• Treatment:
  – Acyclovir 800mg 5times/d, Pred Forte and Atropine.

• Note: Look at the fundus and R/O Acute Retinal Necrosis.
Zoster Uveitis

Note: Segmental Iris Atrophy
Uveitis that may have high IOP upon presentation.

• DDX for the OKAPS:
  – HSV & VZV
  – CMV
  – Toxoplasma
  – Posner-Schlossman Syndrome (Dx of Exclusion)
    • Rare in real life, common in the OKAP!

After the initial presentation, the differential of glaucoma in uveitis patients includes: anterior synechiae, bombè, steroid response, and pigment deposition (HSV/VZV).
Intermediate Uveitis
Intermediate Uveitis

- AKA: Pars Planitis
- Findings: Bilateral, Snow Banking, Snow Balls, (Band Keratopathy in children).
- Systemic Associations: Multiple Sclerosis
- Ophthalmic Associations: Optic Neuritis
- Does not need treatment if VA > 20/40
- Complications:
  - CME: Most common cause of visual loss
  - Posterior (and anterior) Sub-Capsular Cataracts
- Tx: Steroids (sub-Tenon’s > Oral > Topical)
Posterior Uveitis
Definitions

• Retinitis:
  – Fluffy white retina with diffuse borders and lots of vitritis.

• Choroiditis:
  – Yellow or grey retinal elevation with demarcated borders and no vitritis.

• Chorioretinitis:
  – Choroiditis with a little vitritis.

• Old Choroiditis:
  – Punched Out Scars, may vary in size & shape.
Definitions

• Plaque:
  – A lesion approximately 1DA.

• Spots & Dots:
  – Lesions approximately 100-200 microns.
Definitions

• **Focal:**
  – Single lesion, may be localized like in Toxoplasma or spread like CMV retinitis.

• **Multifocal:**
  – Multiple lesions, I.e: MEWDS.

• **Diffuse:**
  – Sympathetic Ophthalmia.
Choroiditis and Chorioretinitis
Which is the unilateral one?

MEWDS:

Multiple Evanescent White Dot Syndrome.

• Multiple dots that subsequently disappear are required for the diagnosis!

• Has a good prognosis, without treatment!

• Late wreath pattern fluorescein.
Multiple Evanescent White Dot Syndrome
Multiple Evanescent White Dot Syndrome
Multiple Evanescent White Dot Syndrome
OK lets talk about choroiditis!
Which is the purest form of choroiditis?

- OHS: Ocular Histoplasmosis Syndrome
- Classic triad of:
  - Peripapilary atrophy
  - Punched Out Chorioretinal Lesions
  - Macular CNVM
- By definition: No vitritis.
- For more info ask the expert: Dr. Feinberg
Ocular Histoplasmosis

Note: PPA, Choroiditis in different stages!
Multifocal choroiditis with panuveitis syndrome.

- OHS + Vitritis = MFC PU
- The lesions are somewhat smaller and more peripheral than OHS, if untreated may look like large dark plaques.
- Needs chronic systemic treatment or may loose peripheral vision over the years.
- Sub-retinal fibrosis variant 2ry to CNVM.
Multifocal Choroiditis with Panuveitis Syndrome

Multifocal Choroiditis
PIC

Punctate Inner Choroiditis

- As the name (choroiditis) implies, has no vitritis.
- Bilateral, macular dots, (puncta = dot).
- High risk for CNVM.
- May follow a uniphasic course which is better off if treated with systemic steroids.

Note: Whether PIC exists or not is controversial among uveitis specialists, I doubt they would ask this one. I have seen it, I understand it; therefore, I am a believer!
Now...

Two syndromes with early blockage and late leakage...
APMPPE
Acute Posterior Multifocal Placoid Pigment Epitheliopathy

- Bilateral, confluent plaques deep to the retina.
- Early blockage, late staining of the entire lesion.
- In the OKAPs patients may get a cold or flu!
- Good prognosis, no treatment needed!
Acute Posterior Multifocal Placoid Pigment Epitheliopathy

Can sometimes look like Serpiginous… but…
Acute posterior multifocal placoid pigment epitheliopathy

Early phase hypofluorescence  Late phase hyperfluorescence of the entire lesion!

Note: These are two different eyes.
APMPPE

Placoid Lesions  Early Hypo-fluorescence  Late Hyper-fluorescence

Late hyper-fluorescence of the entire lesion!
Serpiginous Choroiditis

- Bilateral Serpentine/Ameboid choroidal lesions that most of the time emerge from the optic nerve.
- Follows a relapsing and remitting course.
- If the fovea becomes involve the prognosis is poor. No kidding!
- Early blockage, late staining at the border of the lesion!
- Tx: Cyclophosphamide x 1yr with oral prednisone for acute suppression of the lesions.
Serpiginous Choroiditis
Serpiginous Choroiditis

Early Blockage

Late staining at the border of the lesion.
Now 2 very similar panuveitis syndromes which differ on the systemic manifestations!
Vogt Koyanagi Harada

Bilateral Granulomatous Panuveitis with serous RD

- Latinos, asians, arabs and american indians.
- IVFA: Stars in the night appaerance
- Alopecia, Poliosis, Vitiligo,
- Meningismus, Tinitus, Sensorineural Hearing loss
- Tx: Systemic prednisone.
VKH

Note: Multifocal pinpoint leakage
VKH

Note: Poliosis
Sympathetic Ophthalmia

Bilateral Panuveitis with Dalen-Fuchs Nodules, in a patient with history of eye surgery or trauma to one eye.

- Pathology: Choriocapillaris is spared
- Ophthalmic findings virtually indistinguishable from VKH
- May have serous RDs just like VKH
- Fundus findings indistinguishable from VKH in the late phases
- Follows a chronic course, needs prednisone and immunosuppression.
Sympathetic Ophthalmia

Dalen-Fuchs Nodules
Finally...

*a retinochoroiditis*...
Birdshot Retinochoroidopathy

- Bilateral Retinochoroidopathy:
  - A choroiditis with more vitritis and uveitis than it should really have (may have some cells & flare)!
- Initially may lose VA due to CME.
- Subsequently, (after many years) they suffer diffuse outer retinal dysfunction with centripetal (peripheral to posterior) loss of visual field.
- Tx: Oral Prednisone & Steroid Sparing if needed.
- F/U: Annual HVF, GVF & ERG
Birdshot Retinochoroidopathy

- **Bilateral Retinochoroidopathy:**
  - A chronic posterior uveitis characterized by vitritis and multiple ovoid, orange to cream colored, hypopigmented spots occurring in the posterior pole and mid-periphery of the retina.
- **CME is a mayor cause of VA loss:**
  - ~20% prevalence upon presentation
  - ~50% cumulative incidence at 5 years.
- **Subsequently, (after many years) they suffer diffuse outer retinal dysfunction with centripetal (peripheral to posterior) loss of visual field.**
Birdshot Retinochoroidopathy

- HLA-A29 gene has been reported to have a relative risk of 50 - 200 for this disease!
**Birdshot Retinochoroidopathy**

- **Treatment:**
  - Immunosuppressive therapy reduces the risk of CME, which is an important cause of visual acuity loss.
  - Low dose oral corticosteroids (10mg or less), *does not* seem to prevent the occurrence of CME.
  - Immunosuppressive therapy may reduce the risk progressive diffuse retinal dysfunction.

Now, two focal retinitis that differ on the clinical scenario...
**Toxoplasma Retinitis**

- Unilateral Focal localized retinitis with lots of vitritis, “light at the end of the fog”, in an ambulatory patient.
- Granulomatous A/C findings.
- **Tx:**
  - Pyrimethamine/Sulfadiazine
  - Clindamycin
  - Zithromax
  - Bactrim (1-2) DS qid.
  - Please do not forget Pred Forte and Atropine (nothing personal)!
Toxoplasma

Light at the end of the fog...
Focal Retinitis

Toxoplasma until proven otherwise!
Candida Retinochoroiditis

- In the OKAPS: Focal Retinochoroiditis.
  - Unilateral Focal localized retinitis with some vitritis, in a bedridden patient on TPN.

- In real life: Bilateral Large Multifocal Choroiditis & Chorioretinitis.
Candida Chorioretinitis

In the OKAPS it will likely have more “fluffy stuff” in the vitreous!
Sarcoidosis

- Systemic Disease
  - Lungs, Skin, CNS, Uveitis, Optic Nerve, Lacrimal Gland, etc...
- Non-Caseating Granulomata
- In the OKAPs: Candle Wax Drippings!
  - Severe Venous Sheathing!
- In real life:
  - Granulomatous uveitis, Panuveitis, Multifocal Choroiditis & Intermediate Uveitis with snowballs but without Snowbanking.
  - In theory can mimic many forms of uveitis
- Most common eye manifestation:
  - Keratoconjunctivitis sicca!
Sarcoidosis

• Chest X-Ray
  – 90% sensitive!

• Other tests, neither sensitive nor specific, but otherwise good tests!
  – ACE & Lisozyme!
Sarcoidosis

Atypical Optic Neuropathy

“Without the (typical) symptoms of Optic Neuritis”

Diagnose with...

CXR

Rx

Prednisone
Sarcoidosis

Candle Wax Drippings
Syphilis

- A treponema that can mimic any form of:
  - Scleritis
  - Uveitis:
  - Retinitis
  - Choroiditis: Think, all of the white dot Syndromes!

- Therefore all of the above must always get an FTA-Abs (positive for life)!

- Nothing Personal!
Syphilis

- Most Uveitis:
  - Secondary Stage

- Most Retinitis:
  - Latent Secondary Stage

- Treatment needed:
  - IV Penicillin: As in tertiary stage!
Syphilis

• Can also Cause:
  – Interstitial Keratitis (congenital syphilis)
  – Argyll-Robertson Pupil (tertiary syphilis)
    • Accommodates but does not react!
  – Optic Neuropathy
    • Mostly Atypical
  – CN III & CN VI palsies
  – Visual Field Defects
    • Gummae in the brain.
Syphilis

Your neighbor can have it!
Syphilis

Retinitis: “Pseudo Retinitis Pigmentosa” common in BUMC.
Syphilis

Iris Roseolae: Rare in real life!
Lyme Disease

- Close relative of Syphilis, a spirochette!
  - Borrelia Burdoferi
- Your neighbor can also have it!
- Can cause:
  - Interstitial Keratitis, just like Syphilis!
    - Non-Congenital, this is different!
  - Granulomatous Uveitis:
    - Just like Syphilis!
  - Intermediate Uveitis:
    - Guess what?, just like syphilis!
Lyme Disease

Erythema Chronicum Migrans

Your neighbor!
Tuberculosis

- Rare cause of Uveitis in the USA
- Overstated historically as a cause of uveitis!
- Likely ocular manifestations:
  - A Multifocal Choroiditis or Granulomatous Uveitis on someone with Active Pulmonary Involvement.
  - Focal Retinal Tuberculoma (possible & rare).
- Scleritis:
  - Rare cause of scleritis, does not need lung involvement because it occurs due to direct contact through the eye surface, can be caused by atypical mycobacteria.
A few more things...
Acute Retinal Necrosis

- HSV/VZV associated focal, rapidly spreading retinitis that usually starts in the retinal periphery and may turn bilateral.
- Tx: Acyclovir, Valacyclovir, Foscarnet.
- May become complicated with RRD
  - OKAP Tx: PPV & Silicone Oil.
Acute Retinal Necrosis

This is an emergency, needs treatment STAT!

Occluded Arteriole
Active border of retinitis
Non-Granular, unlike CNV
Toxocara Canis

• Answer to the OKAP question where you see a granuloma possibly in the periphery connected to the optic disk by a vitreous traction band.

• Etiology:
  – Dog roundworm ingested by children who eat dirt (pica).
  – Average age 7.5 years.
  – Typically **no eosinophilia**, unlike Visceral Larva Migrans, which is the systemic version of this.
  – Tx: Ocular disease: Prednisone if active.
Toxocara canis

Note the connection to the optic nerve!
Briefly…

HIV eye disease…
CMV Retinitis

- Common with CD4 < 50.
- Rare CD4 > 100
- Treatment:
  - Zone 1: Ganciclovir Implant
  - Zone 2 & 3: Valgancyclovir
- Three principal patterns:
  - Fulminant/Hemorrhagic/Edematous/Posterior
  - Indolent/Granular/Peripheral
  - Severe Vascular Sheeting (Frosted Angitis)
- Spreads slowly (1/2 DD in 3 weeks).
**Background HIV Retinopathy**

- Common on patients with low CD4 counts (<50 cells/mcL).

- If the diagnosis of CMVR is being considered, the patient should be observed in 2-3 weeks as CMVR may be expected to slowly progress in the absence of treatment.
Progressive Outer Retinal Necrosis (PORN)

- AKA: Herpetic Necrotizing Retinitis
- Etiology: HSV & HZV
- The “ARN” of the immunosuppressed.
- It represents a clinical emergency!
Progressive Outer Retinal Necrosis (PORN)

• Treatment Alternatives:
  – Foscarnet I.V.
  – Valtrex 1gm po tid.
  – Intravitreal Foscarnet.

• This is a very rapidly progressing retinitis!
• 67% of eyes are completely blind in 1 month!
Infectious Choroiditis of Systemic Origin

- They can all look the same!
  - Multifocal Choroiditis!
- As a general rule whatever the patient has at the moment of the active choroiditis phase is the diagnosis!
  - I.e. Candida, Criptococcus, Tb, PCP, etc…
  - No need to order CH50, Rheumatoid Factor, etc…
  - You get the idea!
Anecdote

- It was my first weekend of call as the Uveitis Fellow!
- The second year resident calls me!
- Hey doc, there is a patient with CMVR!
- Guess what?
Fundus appearance in the right eye (A) and left eye (B) after 2 days of therapy showing multiple choroidal lesions approximately 0.5 to 1.5 disc diameters in size as well as intraretinal hemorrhage within the arcades of both eyes.

Cutaneous cryptococcal rash consisting of multiple papules, some with an umbilicated appearance, which can masquerade as molluscum contagiosum.

Dermatopathologic biopsy specimen from a facial lesion demonstrating dense Cryptococcus neoformans with calcofluor white stain (original magnification x 340)

Fundus appearance (right eye [A], left eye [B]) following treatment with antifungal therapy for 3 weeks, showing partial resolution of choroidal lesions and hemorrhage.

Scleritis
Scleritis

- 50% Identified Etiology
  - 10% Infectious
    - Zoster (most common)
    - HSV, Lyme, Syphilis
  - 40% Systemic Disease
    - Rheumatoid Arthritis (most common)
    - Vasculitis: Wegener’s & PAN
    - IBD, Lupus & Relapsing Polychondritis
Anterior Scleritis

Two Sub-types:

- Nodular
- Diffuse
Necrotizing Scleritis

• In a red eye,
  – AKA (necrotizing with inflammation):
  – Poor life prognosis:
    • A Systemic Vasculitis is likely.

• Sleromalacia Perforans:
  – White eye necrotizing scleritis
  – Rheumatoid Arthritis Associated
Necrotizing Scleritis

Scleral Necrosis
Associated with poor life prognosis in the “older literature”.

Scleromalacia Perforans
Common in patients with RA
Posterior Scleritis

Patients typically present with proptosis, retrobulbar pain, gaze restriction and a visual field loss (from serous RD).
Posterior Scleritis

T-Sign
Scleritis

• **Treatment:**
  - Non Complicated Scleritis
    • NSAIDs (Indomethacin or Flurbiprophen), 33% response.
  - Systemic Steroids
  - Steroid Sparing Agents: CellCept, MTX, CSA.
  - “Eye Saving” and “Life Saving” Agents:
    • Cyclophosphamide & Chlorambucil
    - Never: Topical Steroids, Periocular/Sub-Tenon’s Steroids!

• **Posterior Scleritis:**
  - Always start with prednisone!
The last one....
I promise!....
Neuroretinitis

- Practical Definition:
  - Disk Swelling with Full Macular Scar
- First: Check BP if very high you have a diagnosis.
- Then, think infectious:
  - Borrelia (Lyme), Bartonella (Cat Scratch)
  - Syphilis (FTA-Abs), etc…
- Then, call Dr. Serrano, STAT!!!!!!
Neuroretinitis

Macular Scar