

Uveitis: Case Contemplations and Review

1 hour Continuing Education

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Description:

Uveal inflammation can present with significant ocular findings and is often associated with systemic conditions that may have a range of consequences to the human visual system. Early identification of anterior uveitis dramatically increases the likelihood of a favorable patient outcome. Clinical characteristics of uveitis will be reviewed, as well as a discussion of some presenting infectious and non-infectious systemic associations and testing options. Review of contemporary uveitis nomenclature and medication options will be discussed.

Learning Objectives:

- Recognize the clinical characteristics of anterior uveitis of the eye and possible systemic associations, and contemporary nomenclature
- Recommend serology and laboratory testing for individuals with uveitis, based on specific reported history, associated general symptoms, and demographics
- Discuss appropriate management of uveitis, including topical and systemic treatment considerations

Outline:

Case-based presentations and review of various causes and associations of uveitis with an emphasis on anterior uveitis findings

I. Uveitis: Clinical evaluation

A. Complete history

- Crucial in many cases to assist in diagnosis and management
- MEDICATIONS – including glaucoma medications (elderly especially)

B. Review of Systems (ROS)- very important

- When suspicious of systemic association
- Aids in differential diagnosis and curating testing (eg, MERSI)

C. If uveitis expected, consideration “additional” history information:

- Sexual history (hx)
- Geographic hx/Travel hx
- Family hx
- Social habits
- Exposure to contagious disease, Other

D. Complete exam with careful anterior chamber evaluation, tonometry and DFE

E. Post-exam work-up as appropriate – integration

- Demographics, findings and ROS

II. Case One

A. Pertinent considerations: History – 38-year-old white female

- Chief complaint
 - Pain with light in the right eye x 2 days and slightly blurry vision and redness
- Past ocular history
 - Red eye: other eye (OS), similar occurrence ~ 1.5 years prior
 - At that time, took medication for about 2 weeks, name of medication and timing unsure. RESOLVED
- ROS: (+) Fatigue (constitutional), (+) Stressed (psychological), (+) Allergy symptoms w/some sneezing (allergy/environmental)

B. Exam findings –

- Prelims: 20/30-1 OD, 20/15 OS (w/ consensual pain response), unequal pupils
- Slit Lamp
- IOP: iCare: 10mmHg OD/ 15mm Hg OS

C. What are the challenges here?

- Systemic History ?
 - ** Hx: ankylosing spondylitis and PCP
 - AND PREGNANT w/ Gestational DM ? Unlikely for retinopathy
- Posterior Segment: Do we dilate to evaluate fundus?
- What about posterior uveitis risk?
- Other complications and risks – MEDICATION management considerations?

III. Uveitis HALLMARKS - Identify these features

A. Cell (WBC) and Flare

B. Other potential clinical characteristics

- Fine keratic precipitates (KP) vs. Mutton fat/Granulomatous KP
 - * Risk of Fibrin or plasmoid aqueous
- Injection considerations: Ciliary (Circumlimbal) Flush
- “Arlts Triangle”
- Iris changes – Atrophy and/or nodules (*Koeppe or Busacca Nodules*)
- Pupils: Miotic, may be irregular (synechiae)
- Synechiae: Posterior vs. Peripheral
 - Glaucoma concern increases with level of synechiae (*and chronicity*) ? IOP
- RARE: Uveitis, Glaucoma, Hyphema (UGH) syndrome

IV. Uveitis Description considerations

- A. *Different names*: Iritis/iridocyclitis/intermediate uveitis /panuveitis /vitritis /retinitis/choroiditis/neuroretinitis/chorioretinitis/retinochoroiditis
- B. Based on presentation of the TYPE of keratic precipitates (KP):
 - Granulomatous –Larger, wet, “mutton-fat” clusters of WBC
 - Nongranulomatous – Smaller, fine, dry, discrete WBC
- C. Based on presentation “timing”
 - Acute versus Recurrent versus Chronic

- D. Based on severity
 - Mild, Moderate, Severe/ Asymptomatic vs. Symptomatic
- E. Historical Classification: *International Uveitis Study Group (IUSG)* ? LOCATION
 - Anterior Uveitis: primary site of inflammation = Anterior Chamber (AC)
 - Intermediate Uveitis: primary site VITREOUS
 - Posterior Uveitis: primary site is RETINA or CHOROID
 - Panuveitis: No “primary sites” all areas involved
- F. “Additional” systems from the *International Uveitis Study Group (IUSG)* consider classifying based on the pathophysiologic mechanisms/ etiology
 - Infectious: Viral, bacterial, fungal, protozoan, etc
 - Non-infectious: Traumatic (including post-op), Systemic
 - Masquerade: Neoplastic, Non-neoplastic
 - Leading causes: Trauma (including surgery); for non-traumatic causes, idiopathic and HLA-B27 diseases primary association
- F. Most recent recommendation for Uveitis clarification

V. When do we want to consider a work-up for patients?

- A. SEVERE presentations without other known etiology
- B. BILATERAL uveitis ? OR evidence/suggestion condition was previously in other eye
- C. Granulomatous uveitis
- D. Significant ocular/med history or symptoms/findings related to ROS
 - *New rashes, swelling, aches/pains or malaise*
 - History: (+) Family, contagious disease exposure, risky social habits, travel hx
 - Or if additional CLINICAL risk findings noted during exam with careful health evaluation, tonometry and DFE

VI. Case TWO

- A. History – 39-year-old Hispanic male
 - Pertinent considerations: c/o blurry vision at distance and near
 - Mod pain and photophobia OU, in addition to burning, itching and redness
 - H/o of TRAUMA - construction debris 1.5 weeks ago “washed out” with water entering” eye” starting event – presented to PCP
 - PERSISTANT irritation over 1.5 weeks despite visit to PCP 1 week prior - management of Tobramycin prescribed by PCP
 - ROS- no symptoms plus Medical, Family and Social History reviewed
- B. Exam findings – Initial visit
 - Preliminary – VA 20/25 OD, 20/20 OS
 - Slit Lamp
 - Dilation: (-) Commotio retinae or findings in post. segment of inflammation
- C. Tentative Diagnosis and initial management
 - Cycloplegia
 - Steroid management
- D. Exam findings – Follow-up/ Multiple visits
 - Worsening of vision, Worsening of AC reaction OD and OS

- Compliance and medication considerations

- Spill-over versus systemic involvement

- Associated systemic findings over time
- Modified course

E. Final assessments, Evaluation and Management

- Due to worsening symptoms with reported compliance: Recommended Testing
 - Ocular symptoms
 - Systemic findings
- Serology:
 - CBC with differential, sedimentation rate (ESR) and
 - HLA B27
 - Antinuclear antibody (ANA)
 - Angiotensin Converting Enzyme (ACE)
 - Serum lysozyme
 - EIA vs. RPR/FTA-ABS
 - Liver function tests
- Additional Lab Tests:
 - PPD w/anergy panel (Current standards have changed)
 - Chest X ray
- Interprofessional Communication: PCP completed blood work, ordered ADDITIONAL tests beyond recommended, had not shared results with patient or initiated treatment

VI. To identify Differentials Diagnosis and Guide Testing/Treatment- *consider features*:

- A. Patient Demographics including age
 - Gender
 - Race/Region/Descent
- B. Location of inflammation
 - Unilateral/Bilateral
 - Anterior/Intermediate/Posterior/Panuveitis
- C. Characteristics of inflammation ? eg, *granulomatous* vs. *non-granulomatous*
- D. Duration, onset, and course
- E. Etiology of the inflammation

VII. Anterior Uveitis: Etiologies

- A. Differential diagnoses:
 - Most common = Idiopathic (50%) or trauma
- B. Infectious considerations: *Herpes Simplex Virus, Herpes Zoster Ophthalmicus (Varicella), Syphilis, Lyme, Tuberculosis (TB), Toxocariasis, Bartonella henselae, etc*
- C. Noninfectious considerations to be discussed:

- o Most Common: Idiopathic (50%), Trauma and “controlled trauma” □ post-operative
- o HLA-B27 associated conditions (P.A.I.R.), JIA/JRA (chronic), Glaucomatocyclitic crisis (GCC)/Posner Schlossman Syn (*Question if truly non-infectious*), Heterochromia Iridocyclitis (chronic)/ Fuchs’ heterochromia, Behçets, Vitamin D deficiency
- o Sarcoidosis:
 - i. *Chronic, usually granulomatous (mutton-fat KP)*
 - ii. **Constant low-grade cell/flare** □ **SYNECHIAE**
 - iii. X-Ray specific finding: Bilateral Hilar Lymphadenopathy
 - iv. Posterior segment finding potential: Vasculitis, PRE-RETINAL hemorrhage (boat), Fluorescein Angiogram (FA):
- o Less common/Other Noninfectious considerations: Multiple sclerosis (MS), VKH, Kawasaki disease (potential dx manifest in young children), White dot syndromes, Lens-induced/Phacomorphic, Other various autoimmune diseases, Drug-induced, Sympathetic ophthalmia (SO)

VIII: Labs and workup:

- D. Some “non-specific basics”: CBC with differential, ESR (Sed rate), HLA-B27/HLA B-5
- E. ANA = Antinuclear antibodies
- F. RF = Rheumatoid Factor
- G. ACE = angiotensin converting enzyme (*Sarcoid specific*)
 - o Also, serum lysozyme and/or chest X-ray
- H. EIA (Enzyme Immunoassays) and Assessments for Syphilis – one of each:
 - o *One non-treponemal antigen test*
 - i. Eg, non-treponemal antigen tests = VDRL and RPR
 - o *One “treponemal” antigen test*
 - i. Treponemal antigen test (“specific”) = FTA-ABS, TPHA, TPPA, EIA, etc
- I. Herpes family of virus (HSV): IgG v. IgE
- J. Lyme titer (western blot) □ Other: ELISA for Lyme IgG and IgM
 - o Cross reactivity with FTA-ABS
- K. QuantiFERON Gold/PPD with anergy panel/Chest X-ray for TB/ Culture for *Mycobacterium tuberculosis*
- L. Other specific infectious related etiologies/assessments: HIV and Toxo
- M. Challenging cases:
 - o Human lymphocyte antigen – B27 (HLA-B27)
 - i. 47% without systemic condition = tend to be male, uveitis at younger age, distinct type; ~1/4 sero neg. “spondyloarthropathy”
 - ii. (+) HLA-B27 = Ankylosing spondylitis (90%), Reactive arthritis (Reiters) (60-90%), Psoriatic spondylitis (50-75%), Inflammatory

bowel disease (50-70%), JIA/JRA in males (40-75%), Normal population (2-8%)

iii. Presentations: Recurrent, bilateral, alternating

- o General “newer” considerations □ Acute Anterior Uveitis (AAU): **
Vitamin D levels

N. Targeted cases □ RARE but specific RISK factors may present in history

- o JIA/JRA (*need ALL tests to type/categorize*) □ Rheumatoid Factor (RF),
Knee X-ray, ANA, HLA-B27 (“+” for type I and type II)
- o Behcets □ Skin puncture test, HLA B5 and HLA B12
 - i. CLINICAL Picture: Acute, *non-granulomatous*
 - ii. Hypopyon (classic but not common) □ iritis, retinal findings,
mouth and genital ulcers

iii. TRIAD: Can’t chew, can’t view, can’t _____

IX. Management/ Treatment Basics

- A. Identify and remove the antigen (treat underlying cause)
- B. Cycloplegia
- C. Steroids:
- D. TOPICAL
 - Comparing options – “soft” to “strong”
 - Taper if pt on steroid for more than a week OR initial intense dosing
 - Oral Steroids and Oral NSAIDS
 - i. Used if: Recalcitrant iritis, panuveitis, posterior BUT
 - ii. RULE-OUT infectious etiologies first (eg, TB)
 - iii. 20-100mg PO per day (anticipating prophylactic acid reducer rec)
 - Newer: Consideration of Role of Immunomodulators
- E. Discuss and consider ANTICIPATED improvement timeline □ Potential for
systemic/orals/others if more complicated

X. What’s “New”?

- A. Pts w/severe juvenile idiopathic arthritis-assoc uveitis □ if fail 1) conventional
immunosuppressive drugs including topical steroids and then 2) Methotrexate
 - Newer considerations of immunomodulators/biomodulators
 - May be used to treat other systemic auto-immune conditions
- B. Acute Anterior Uveitis (AAU)
 - Published in *Ocular Immunology and Inflammation*: Observational “case-
controlled” study of age and gender-matched “norms” without ocular or
systemic disease compared to patients with AAU □ *Serum 25-hydroxyvitamin
D quantified*

- Vitamin D Testing considerations: No differences were found in groups in regard to age or gender BUT... ☐ Serum vitamin D levels of the patients with AAU were SIGNIFICANTLY lower than control
- *Studies needed to assess efficacy of vitamin D supplementation in management of pts w/anterior uveitis*