Differential Diagnosis of Posterior Uveitis

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Introduction
- Classification of uveitis
- Common causes of posterior uveitis
- Clinical clues
  - History
  - Examination
  - White dot syndromes
- Management
  - Investigation
  - Treatment
- Assessment

Classification of Uveitis

Clinical Classification

Posterior uveitis
- Isolated posterior uveitis relatively uncommon
- Often associated with retinal vasculitis
- Symptoms include floaters and loss of vision
- Idiopathic
- Part of a systemic disease process
- Specific syndromes (including white dot syndromes)
- Very important as frequently results in loss of vision
- Systemic therapy is usually required

Anatomical Classification

Common ‘causes’ of non-infectious posterior uveitis
- Idiopathic
- Sarcoidosis
- Multiple sclerosis
- “White dot” syndromes
- Multifocal choroiditis
- V-K-H syndrome
- Behçet’s disease
- Birdshot
- Masquerade (primary NHL-CNS)

Table 2: Anatomical classification of uveitis.
(Adapted from Middleditch and IUSG reference)

Table 3: Proposed IUSG clinical classification of uveitis.

Common ‘causes’ of infectious posterior uveitis

- Toxoplasmosis
- Herpes viruses
  - VZV
  - HSV 1 and 2
  - CMV
- TB
- Syphilis
- Fungi

MUST exclude infection

Don’t forget about masquerade

History - clues

- Sudden / Insidious
- Unilateral / Bilateral
- Age
- Ethnicity
- Family history
- Systems enquiry e.g. oro-genital ulcers, CNS symptoms, preceding viral illness
- Colour vision
- Dark adaption
- Immunocompromised

Ocular examination - clues

- Unilateral / bilateral
- AC / vitreous inflammation
- Granulomatous / non-granulomatous
- Retinal / choroidal
- “White dot” syndromes
- Optic nerve involvement

White Dot Syndromes

- A group of disorders characterized by multiple whitish-yellow inflammatory lesions located at the level of the outer retina, retinal pigment epithelium, and choroid
- Frequently includes anything that gives white ‘dots’ in the fundus
- They present important diagnostic and therapeutic challenges
- History and examination findings extremely important
- Look for the clues
Associated Features

- Ocular and non-ocular
- Ocular include:
  - Uveitis (or absence of)
  - Vitreous cells / abnormalities
  - Retinal vascular changes
  - Macular changes
  - Disc changes
- Non-ocular
  - e.g. CNS signs and symptoms

The Dots

- Unilateral / bilateral
- Single / few / multiple / confluent
- Depigmented/pigmented
- Size
- Shape
- Natural history
- Acute vs. chronic
- Evanescent / persistent
- Response to treatment
- Fundal distribution
- Level
Management - Investigation
- Serological (don’t forget TB - IGRAs)
- Radiological
- Intraocular fluid analysis – infectious agent, NHL
- Imaging
- OCT
- Angiography - FFA, ICG
- Visual Fields
- Electrodiagnostics
- OCT
- B scan ultrasound

AC tap – what to look for
- Herpesviruses
  - HSV, V2V, CMV, EBV
- Toxoplasmosis
- 16S rRNA gene
- 18S rRNA gene
- Mycobacteria TB
- Syphilis
- IL-10/IL-6 ratio

AC Tap – How I do it
- Informed consent
- Cornea, iris, lens damage
- Hyphaema
- Infection
- Frequent topical LA
- Topical povidone iodine 5% to conjunctival sac
- Position patient on slit-lamp
- Assistant to lift up upper lid
AC taps at the slit lamp

- Retrospective study of 560 uveitis patients who underwent AC paracentesis at the slit lamp in the out-patient setting
- 510/560 paracenteses performed were undertaken using a 27-gauge needle attached to an insulin syringe, and an O’Rourke aqueous pipette was used for the rest
- Patients with undilated and dilated pupils were included

Results

- Two patients had an inadvertent injection of air into the AC using the pipette, with spontaneous resolution and no adverse outcome
- One patient had an allergic reaction to povidone iodine
- One patient had anterior lens capsule touch that was self-sealing but resulted in a tiny localised opacity. This was due to eye movement because of language difficulties. There were no long-term sequelae and visual acuity was not affected
- No patient had wound leak, hypotony, hyphaema or endophthalmitis

Management - Treatment

- What are we trying to achieve?
  - To improve vision?
  - To prevent further loss of vision?
  - To prevent any loss of vision?
  - Treatment or cure?
- Need to understand the underlying pathogenetic mechanisms
  - Are they the same at the beginning of the disease as compared to later on?

Management - Treatment

- Appropriate anti-infective agent
- Corticosteroid – dose, route
- Immunosuppressants including biologicals (evidence base)
- Anti-VEGF

Why determine disease activity and damage?

- Important when progression of disease is considered
- Uveitis is often relapsing with recurrent episodes of potentially reversible disease activity
- Effective therapy can limit the development of irreversible organ damage resulting from:
  - The disease process or
  - Secondary to drug toxicity or co-morbid conditions
- In view of the repeated episodes of activity that patients may suffer during the course of their disease, it is important to have measures of activity that allow the disease to:
  - Be monitored
  - Assess the response to therapy
  - Determine the need for further therapy
The routine use of activity and damage indices allows the clinician to account formally for each clinical feature, thus improving his treatment decisions. They provide a mechanism by which disease progression can be monitored. Index-generated scores may be a component of prognostic and outcome measures. Facilitates standardization of research, allows better comparison of data between centres and facilitate multi-centre trials. Outcome measures should include the patient's perspective of the effect of the disease and its therapy on physical and emotional function as well as financial status.

Assessing disease activity in uveitis

- Activity vs damage
- What are we treating?
  - Cystoid macular oedema, macular ischaemia, new vessels, optic disc disease, vitritis
- Is it treatable?
  - If so, how do we quantify an improvement?
  - What parameters should we measure?

Assessment of activity - response to therapy

- Clinical (SUN)
  - Acuity – BCVA, Snellen, logMAR, pinhole, near
  - Slit-lamp - AC activity, vitreous cells
  - Hand held lenses - CMO, retinal vasculitis
- Imaging
  - OCT
  - FFA / ICG
  - Electrodiagnostics
  - (B-scan ultrasound)
  - Quality of life
What impact does uveitis make on activities of daily living?

- Quality of life affected by:
  - Visual impairment
  - Any associated disease
  - Therapy - response, side-effects
  - Visual function does NOT = reading a Snellen chart at 6 metres using one eye at a time
  - Visual quality of life
    - VCM1 of VR-QOL (UK)
    - VFQ-25 / VF-14 (USA)
  - General health quality of life
    - SF-36/EQ-5D-5L