Management of Behcet's Iritis in a 31 Week Pregnant Patient

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Disclosure Statement:
Nothing to disclose

Case History
- L.T. a 34 year old Hispanic female
- CC: Pain and pressure behind right eye x 3 days, lots of computer work was done the first two days, clear watery discharge
- POH: No prior episodes. Patient sees a retinal specialist annually to monitor lattice degeneration in both eyes; no contact lens wear
- PMH: Patient is 31 weeks pregnant and has a history of Behcet's syndrome.

Medical History
- Patient had approximately 40 oral ulcers and additional vaginal ulcers and had to be hospitalized for Behcet's six years ago. Her treatment for Behcet's continued for one year taking imuran and colchicine. She used systemic steroids for six months.
- Medications: Prenatal vitamins

Pertinent Findings
- Distance VA with glasses: 20/20-1 OD, 20/20 OS
- Miotic pupil OD, EOM intact, Fields Full
- SLEX: 3+ conjunctival injection OD with mild microcystic corneal edema and 2+ cells in the anterior chamber OD. Left eye was unremarkable.
- IOP: 12 mm Hg OD, 16 mm Hg OS
- Dilation with 1% tropicamide only
- DFEX: Normal optic nerve appearance, normal retinal vessels, Inferior lattice degeneration in both eyes.
Diagnosis and Discussion

- Diagnosis: Iritis probably secondary to Behcet's Syndrome based on patient history

Behcet's Disease

- A chronic, relapsing, occlusive vasculitis of unknown etiology
- Incidence: 80-300 cases per 100,000 inhabitants in Turkey; 8-10 per 100,000 in Japan; 0.4 per 100,000 in the United States
- Typical age of onset, 25-35 years, but can develop as young as 10-15

Oral Ulcers

- Can occur on the lips, gums, palate, tongue, uvula, and posterior pharynx
- White ulcerations with red rims, 2-15 mm in size
- Recur every 5-10 days or every month
- Last 7-10 days then heal without much scarring

Oral Ulcers

- Recurrent oral aphthous ulcers (at least 3 or more times per year) plus two of the following criteria:
  - Recurrent genital lesions, 80%
  - Ocular inflammation, 70%
  - Skin lesions, 70%
  - Positive cutaneous pathergy test, 40%

Behcet's Disease

- Systemic vasculitis occurs in 25% of BD patients affecting any size artery or vein in the body.
- Arterial occlusion, aneurysm, venous occlusion, and varices.
- Cardiac involvement in 17% of patients: granulomatous endocarditis, myocarditis, endomyocardial fibrosis, coronary arteritis, and pericarditis
Cardiac Involvement

- Inflammation of the heart valves, heart muscle and sac surrounding the heart
- Fibrous changes to the heart valves or walls of the ventricles leading to restriction of the ventricular cavities.
- Inflammation of the coronary artery walls

Behcet's Disease

- Neurologic involvement in up to 10% of BD patients.
- Areas of motor control frequently affected
- HA
- Symptoms such as strokes, palsies, and a confusional state may develop in 25% of patients.

Ocular manifestations of Behcet's disease

- Affects up to 70% of the patients with BD
- Often recurrent, nongranulomatous
- Causes severe vision loss in up to 25% of patients with BD
- More common in men and more severe in men
- Up to 80% of cases are bilateral

Behcet's Disease

- Pulmonary involvement: pulmonary arteritis with aneurysmal dilatation of the pulmonary artery.
- Arthritis in 50% of patients, 50% of these have knee involvement
- Gastrointestinal lesions (in 50% of patients) can include multiple ulcers involving the esophagus, stomach, and intestines.

Behcet's Disease

- Ten percent of patients with neuro-BD can have ocular disease: cranial nerve palsies, central scotomata caused by papillitis, visual field defects, and papilledema resulting from thrombosis of the superior sagittal sinus or other venous sinuses.

Ocular manifestations of Behcet's disease

- Regardless of severity, can spontaneously resolve without treatment
- Ocular involvement is initial presenting problem in 10% of patients
- Transient hypopyon in 25% of cases BD uveitis
- Additional anterior segment findings of BD include less commonly: cataract, episcleritis, scleritis, conjunctival ulcers, and corneal immune ring opacities
Ocular manifestations of Behcet's disease

- Most common form of BD uveitis in children and adults: an obliterating, necrotizing vasculitis affecting fundus arteries and veins
- Posterior manifestations include branch retinal vein and/or branch artery occlusions,
- Vascular sheathing with vitritis and associated cme

Retinal ischemia can lead to the development of retinal neovascularization and even of neovascularization of the iris and neovascular glaucoma.

Optic nerve affected in 25% of patients: optic papillitis or progressive nerve atrophy secondary to vasculitis of arterioles supplying the nerve
- 30% of patients with ocular involvement have neurologic involvement
- Patients presenting with sight threatening posterior segment involvement require systemic corticosteroids (1.5 mg/kg/day of prednisone with a gradual taper) + immunomodulatory therapy.

Differential Diagnosis

- HLA-B27 associated (acute): 47% with no systemic condition
- Reactive arthritis syndrome
- Sarcoidosis
Differential Diagnosis
Vasculitides

- Wegner granulomatosis
- Polyarteritis Nodosa
- Systemic Lupus Erythematosus

Differential Diagnosis

- Necrotizing herpetic retinitis can mimic occlusive BD retinal vasculitis.

FDA pregnancy drug categories

- Category A: No risk to human fetus
- Category B: No risk to animal fetus
- Category C: Adverse effect on animal fetus, benefits may outweigh risk
- Category D: Human fetal risk, benefits may outweigh risk
- Category X: Studies in animals or humans have demonstrated fetal abnormalities and/or there is positive evidence of human fetal risk, risks outweigh benefits
- Category N: not classified

Category B medications in ophthalmic practice

- Brimonidine but not for use during lactation (CNS depression)
- Tobramycin Ophthalmic
- Acyclovir, famcyclovir, valcyclovir
- Oral antibiotics: erythromycin, azithromycin, cefadroxil, amoxicillin, amoxicillin/clavulanate, cephalexin, ceftaclor
- Erythromycin ointment
- Alcaftadine (Lastacaft)
**Category D medications in ophthalmic practice**

- Antibiotics: doxycycline
- Analgesics: ibuprofen, aspirin

**Additional Recommendations**

- Anesthetics and dyes are considered safe
- Routine dilation not advised
- Avoid topical NSAIDS during third trimester
- Avoid Beta Blockers during the first trimester
- During the last two trimesters, use a 0.25% concentration BB, discontinue 72 hours prior to delivery

**Additional Recommendations**

- Bactrim (Sulfamethoxazole/Trimethoprim) category C but not recommended for use in nursing mothers due to potential for nephrotoxicity

**Treatment**

- Pt was prescribed lotemax qid with punctal occlusion.
- Pt was prescribed tropicamide tid with punctal occlusion.
- Patient was scheduled to see a corneal specialist in one week or me sooner if eye worsens.
- Urgent referral was made to rheumatology with request to coordinate care with OBGYN if oral meds are required.

**Additional**

- Patient returned to clinic three days later.
- CC “Eye pain is worse”. Using lotemax qid, pt was unable to fill tropicamide rx
- SLEX: Grade 3 cells OD with small hypopyon
- Plan: Discontinue lotemax, use Durezol qid with punctal occlusion, do not fill tropicamide rx
- See cornea specialist in 5 days
5 days later in cornea clinic

- CC: Eye is better but having some joint stiffness
- SLEX: grade 1 cells and no hypopyon, cornea clear
- PLAN: Taper Durezol, TID OD for one week, then BID
- F/U with OB-GYN as scheduled for their input regarding topical steroid in setting of pregnancy
- F/U with Rheum for systemic evaluation (pt with joint stiffness in addition to iritis)
- RTC in 2 weeks

2 weeks later (18 days after start of Durezol) in cornea clinic

- Pt has stopped using Durezol.
- Iritis resolved.
- Plan: D/C Durezol
- See OB/GYN as scheduled and rheumatologist for joint stiffness.
- RTC in 3 months

VI.

Recommendations/considerations for prescribing during pregnancy

- Use the least medication possible
- All steroid drops have the same safety profile for pregnancy
- Use punctal occlusion
- Use mydriatics only when necessary during pregnancy and not at all during lactation
- Consult with OB/GYN/Rheumatologist
- When prescribing durezol, make sure pharmacy has it!

References

- American Behcet's Disease Association Website


- Trad, Michael J. Some Ophthalmic Drugs Not Safe For Use in Lactating or Pregnant Women. Primary Care Optometry News 2008, Jan.
  - http://www.healio.com/optometry/therapeutics/new s/pmt/primary-care-optometry/news/%7B8dfe65c0-ae72-4ca6-9e06-990e9e8a625a%7D/some-ophthalmic-drugs-not-safe-for-use-in-lactating-or-pregnant-women
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Second Eye, Separate Day Surgery

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Disclosure Statement:
Speaker: Alcon
Clinical trial sub-investigator: Allergan, AMO, Aquesys, Calhoun, CXL-USA, Glaukos, Ophtec
Initial Evaluation

- History:
  - JR, 47 year-old Caucasian woman from North Dakota
  - Chief complaint: distance blur, interested in decreasing her dependence on glasses and contacts
  - Family history: unremarkable
  - Patient medical history: multiple corneal abrasions
  - Medications: Restasis bid OU, Refresh Optive qid OU, Wellbutrin
  - Allergy: Codeine

Initial Evaluation

- Slit Lamp Evaluation OU:
  - Adnexa: normal
  - Lids: normal
  - Conjunctiva: white and quiet
  - Cornea: normal, no ABMD or thinning
  - Anterior chamber: deep and quiet
  - Iris: normal
  - Lens: clear

- IOP: 17, 17 mmHg OD, OS
Initial Evaluation

- UCVA: 6'/200 OD, 8'/200 OS
- CVF: FTFC OD, OS
- EOM's: FROM OU
- Pupils: ERL, 5.2mm scotopic OU
- Cycloplegic refraction:
  - OD: -10.25+0.50x104, +1.50, 20/20, J1°
  - OS: -8.75+0.75x135, +1.50, 20/20°
- Pachymetry: 499 microns OD, 497 microns OS
- Keratometry: 44.25/45.12 x 092, 44.50/45.37 x 107

Initial Evaluation

- Assessment
  - High myopia
  - Regular astigmatism
  - Thin central corneal thickness OU
- Plan
  - R/B/A discussed including LOV/eye, need for removal, enhancement, still need glasses, risk of cataracts or retinal detachment.
  - Understands post-op need for readers.
  - Visian ICL OD per request, then evaluate OS.
  - Target: distance.
Visian Implantable Contact Lens

Ultrasound Biomicroscopy
Clinical Course

• 12/17/13
  – Yag Peripheral Iridotomy OU after 1 gtt Pilocarpine 2.0%
• 12/18/13
  – Visian ICL (-10.50) OD
    _ * 
• 12/19/13
  – Visian ICL (-9.00) OS
    _ * 

Evaluation

• Slit Lamp Evaluation (urgent evening visit 12/19/13):
  – Adnexa/Lids: normal
  – Conjunctiva: white and quiet
  – Cornea: healing incisions at noon/9:00 OU
    • 3+ MCE OD
  – Anterior chamber: deep /1+ cell OU
    • Crowded angle OD
  – Iris:
    • Anterior bowing OD
    • Normal OS
    • Patent supranasal/supertemporal peripheral iridotomy OU
  – Lens: clear
  – OD: substantial ICL vault OD
  – OS: normal vault OS
• IOP: 50, 19 mmHg OD, OS
Final Follow Up

- 3/12/14
  - UCVA: 20/20, 20/20
  - -0.75+0.75x090, -
  - 0.50+0.75x110
  - +1.50 OU
  - IOP: 21 mmHg OU
  - Extremely happy

Conclusion

- Ultrasound Biomicroscopy useful
  - Sulcus-to-sulcus to select ICL length
- Vault
  - 1-1.5 central corneal thickness ideal
- Patent peripheral iridotomy
  - Return to laser if not patent
  - Not the only consideration
- Elevated IOP
  - Tonometry essential in post operative care
  - Listen for symptoms
  - Early – angle closure, pupillary block
  - Late – steroid response
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Thickening of the ELM on SD-OCT: A novel method of detecting early Stargardt’s disease and prognosis of the disease

American Academy of Optometry
Grand Rounds
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I. Case History

• Patient demographics: The case report describes a 15-year-old young woman who presented to the clinic in 2012. She had an older sister who at 16 years old lost vision within a year of diagnosis of Stargardt's disease.
• Initial Presentation: Presented for a routine assessment. No significant visual complaints.
• Ocular History: Unremarkable
• Medical History: Unremarkable
• Family History: Sister has ABCA4 gene mutation positive diagnosis of Stargardt’s disease

II. Pertinent Findings in 2012

• VA: 20/20-1 OD/OS
• Pupils: ERLL (-) RAPD
• Refraction: +1.00 -0.50 x 016 OD, and +1.50 -0.50 x 176 OS
• Anterior segment: unremarkable
• Posterior Segment
  OD: Early parafoveal RPE mottling, subtle pisciform retinal flecks, foveal reflex present. Optic nerve healthy, retinal vessels, periphery unremarkable
  OS: Early parafoveal RPE mottling, subtle pisciform retinal flecks, foveal reflex present. Optic nerve healthy, retinal vessels, periphery unremarkable
• SD-OCT (see figure 1a below): Small area of attenuated ellipsoid layer adjacent to foveola nasally, Ellipsoid otherwise intact. (+) thickening and hyper-reflectivity of the external limiting membrane (ELM) in the central maculae with an intact Ellipsoid layer underneath.
• Fundus autofluorescence imaging corroborated parafoveal hyper-fluorescent lesions corresponding to the RPE defects on the SD-OCT; hyper-fluorescent pattern in both eyes was parafoveal and contained within the vascular arcades. The foveola showed no abnormalities.
• Humphrey visual field (HVF) 10-2 SITA STD
  OD: overall central depression (12 degrees horizontal and vertical area of depression) MD: -7.11 dB (p<1%) and PSD: 3.06dB (P<1%)
OS: overall central depression (8 degrees vertical x 12 degrees horizontal area of depression) MD: -7.63dB P<1%; PSD: 4.13dB P<1%

III. Pertinent Findings in 2015
- Case presentation unchanged although now she is using visual aids for reading and computer
- BCVA 20/40 OD and OS
- PUPILS and Refraction unchanged
- Anterior Segment unremarkable
- Posterior Segment:
  OD: Parfoveal RPE mottling, increase in parafoveal pisciform retinal flecks, refractile flecks present, foveal reflex present Optic nerve healthy, retinal vessels, periphery unremarkable
  OS: Early parfoveal RPE mottling, subtle pisciform retinal flecks, foveal reflex present. Optic nerve pallor evident. Retinal vessels, periphery unremarkable
- SD-OCT (see figure 1b below):
  OD: Prominent ELM thickening directly in foveal pit; preserved ellipsoid layer directly underneath. Outer retinal layer thinning adjacent to foveal pit. Intact ellipsoid, ELM and RPE about disc diameter away from center of fovea.
  OS: Prominent ELM thickening within foveal pit; preserved ellipsoid layer; minimal outer retinal layer involvement adjacent to the foveal pit – attenuation of ellipsoid layer but it is present.
  Progression: OD: Central thickness decreased by 25um; nasal to center decreased by 20 um; temporal to center less significant change 10um . OS: Central thickness decreased by 10um; nasal to center decreased by 3 um; temporal to center less change of 10um – OS much less change than OD – also much less change in ELM thickness appearance and outer retinal pathology.
- Humphrey visual field (HVF) 10-2 SITA STD:
  OD: overall central depression (12 degrees horizontal and vertical area of depression) MD: -7.71 dB (p<1%) and PSD: 4.73dB (P<1%) – worsening of PSD – central fixation points same sensitivity; points directly to fixation have deeper defect than prior
  OS: overall central depression (12 degrees vertical x 14 degrees horizontal area of depression) MD: 8.46 dBp<1%; PSD 4.08 P<1%. Larger area of defect, Depth of loss similar
  Progression: OD shows some change from baseline corresponding to thinning and atrophy outer retinal layers adjacent to fovea. OS: larger area of decreased sensitivity.

IV. Diagnosis:
- Diagnosed with autosomal recessive Stargardt’s disease in 2013
- Recently sent for genetic testing to distinguish the gene that is showing a slower progression of the disease compared to the gene identified in her sister

Discussion and unique characteristics
• Stargardt's Retinal Dystrophy (STGD) is the most common cause of juvenile onset macular degeneration with an estimated prevalence of 1 in 8,000-10,000 and a genetic disorder linked to the ABCA4 gene.
• It is often identified by yellow-white drusenoid or pisciform retinal lesions over the macula that are progressive; leading to development of photoreceptor (PR) damage and geographic atrophy resulting in significant reduction of visual acuity to 20/400 by the mid-teens.
• There have been over 490 disease-associated variants of ABCA4 gene discovered – many have different phenotypes and clinical presentation making prognosis difficult to estimate without knowing the exact genotype.
• There is currently no cure for STGD but new treatments are in the pipeline and gene therapy clinical trials are becoming more popular.

SD-OCT in EARLY STARGARDT’S DISEASE

• Early signs of STGD in the macula on SD-OCT have only started to be explored in the literature and there has been new development around the potential importance of a thickened and hyperreflective ELM on the SD-OCT.
• A may demonstrate the earliest sign that can be seen on SD-OCT in a patient with diagnosed with Stargardt’s disease.
• In this case, it corresponded to a decrease in paracentral sensitivity on HVF 10-2 preceding patient-reported visual impairment. Fundus AF imaging failed to detect central lesions but was the best at showing progression over the 12 month period.
• The significance of the thickening is unclear however it has been hypothesized that the increase in ELM thickness is from a response of the Muller cells to structural changes within the photoreceptors secondary to ABCA4 protein dysfunction.
• The thickening appears to be unique to STGD and has not yet been reported in other retinal degenerations – this may help to distinguish this disease from other retinal degenerations earlier.
• Longitudinal studies have shown that the ELM thickness decreases with an increase of age of developing Stargardt’s.
• There also appears to be an association between the thickness of the ELM and the stage of the disease – in earlier stages of the disease the ELM appears thickened – as the disease progresses, ELM thickness decreases.
• When the ELM is thickened, an intact ellipsoid (inner segment/ outer segment junction line) is often seen underneath – the ellipsoid layer appears to become attenuated before the ELM.

Significance of the SD-OCT in this case:
• In 2012 16 yo SM presented with no visual symptoms but fundus examination revealed early signs of stargardt’s disease.
• SD-OCT showed thickened ELM and intact ellipsoid layer in the fovea of both eyes.
• Over the course of three years – the ELM lost some thickness (OD more than OS) but appeared to be protective of the ellipsoid layer in the photoreceptors in both eyes such that vision in both eyes was still functional despite the macular atrophy occurring in both eyes.
• The longitudinal pattern seen in this patient may be representative of a certain gene type of the ABCA4 genetic condition that represents a slower progression of vision loss.
Detecting and monitoring changes in the ELM may help with counseling around prognosis of the disease and help direct participation into appropriate gene therapy trials.

IV. Conclusions and Take Away Points

- Central macular ELM thickening on SD-OCT may be an early marker of the STGD disease process before VA is affected.
- SD-OCT and evaluation of the ELM may provide a novel opportunity to diagnose STGD earlier in the disease process and to also identification of the prognosis of the disease.
- Use of high resolution SD-OCT may also influence new managements of this devastating retinal dystrophy.

Figure 1:

2012: SD-OCT image showing thickened ELM in patient with no decrease in VA

2015: Slightly less thickened ELM; slightly attenuated Ellipsoid, but BCVA maintained to 20/40 despite loss of layers adjacent to fovea.
REFERENCES: