VIRAL TREATMENT FOR CHRONIC ANTERIOR UVEITIS

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Financial Disclosure

I have no relevant financial or nonfinancial relationships in the products or services described, reviewed, evaluated or listed in this presentation

Patient Case

- 34 YOWM presents for an office visit with concerns of an iritis flare up
  - Location: Left Eye
  - Onset: 1 week ago – faster vs. previous episodes
  - Duration: daily and constant
  - Frequency: recurrent, last episode 10/2019
  - Symptoms: blur, pain (5/10) when focusing, redness, worsening watering
  - Relief: none

History

- Personal Ocular:
  - Migraine aura w/o headache
  - Bilateral iritis – 2015
  - Bilateral Non-Granulomatous Ant. Uveitis OS 08/2018
  - Non-Granulomatous Ant. Uveitis OS 11/2018
  - Non-Granulomatous Ant. Uveitis OS 08/2019
  - Non-Granulomatous Ant. Uveitis OS 09/2020
  - No ocular/systemic meds and unremarkable family ocular history
  - NKDA, no drugs/alcohol/tobacco use
  - Unremarkable medical history
  - Hx of ACE/RF/Syphilis/TV/HLA-B27 tests

Entrance Findings

- Entering Uncorrected Vf:
  - OD: 20/20
  - OS: 20/20
- Entrance Tests:
  - Pupils: PERL, (JAPD)
  - EOM: SAFE OU
  - CVF: FTPC 02,05
  - CT ®Diat. sc: Onfix OU
Anterior Segment

<table>
<thead>
<tr>
<th>OD</th>
<th>OS</th>
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<tbody>
<tr>
<td>Lids:</td>
<td>Clear</td>
</tr>
<tr>
<td>Tear Film:</td>
<td>Clear</td>
</tr>
<tr>
<td>Conj:</td>
<td>Clear</td>
</tr>
<tr>
<td>Ant. Chamber:</td>
<td>Clear</td>
</tr>
<tr>
<td>Iris:</td>
<td>Deep &amp; Quiet</td>
</tr>
<tr>
<td>Angles:</td>
<td>Flat, no holes</td>
</tr>
<tr>
<td>IOP: GAT @ 1505</td>
<td>4x4 16mmHg</td>
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Posterior Segment

<table>
<thead>
<tr>
<th>OD</th>
<th>OS</th>
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<tbody>
<tr>
<td>Lens:</td>
<td>clear</td>
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<tr>
<td>Vitreous:</td>
<td>clear</td>
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<tr>
<td>Optic Disc:</td>
<td>0.35r, pink/distinct</td>
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<tr>
<td>Macula:</td>
<td>flat/dry</td>
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<tr>
<td>Vessels:</td>
<td>normal</td>
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<tr>
<td>Post. Pole:</td>
<td>unremarkable</td>
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<tr>
<td>Periphery:</td>
<td>no h/b/t 360</td>
</tr>
</tbody>
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Assessment and Plan

- **Recurrent Iritis OS**
  - 5th occurrence (onset 09/2020)
  - Unremarkable previous labs for clear systemic cause
- **Plan:**
  - Educate patient on findings and DWP prognosis, chronicity, and treatment options including observation
  - Speak with co-managing OMD - recommended Famciclovir 500mg PO TID x 7 days OR Valacylovir 1000mg PO 3x3 x 7 days then Valacylovir 500mg PO QD for management
- **If declined antiviral treatment:**
  - Prednisolone 0.1% x 7 days then step, Pred Acetate 2% x 7 days OS then taper 3x1 OD x 5 weeks
  - RTC 2 weeks for follow-up (pt unavailable for sooner appointment)

Uveitis

**Anterior Uveitis**

- "Inflammation of the middle layer of the eye. Affected structures include the iris and adjacent tissue, specifically, the ciliary body."

Acute Causes

1. Idiopathic
   - Most common
2. Autoimmune
   - HLA-B27-related: ankylosing spondylitis, arthritis, etc.
3. Trauma
   - Including post-surgical
4. Viral/Bacterial Infections
   - Lyme Disease, Influenza, Chlamydia, adenovirus, etc

**NON-EXHAUSTIVE LIST OF CAUSES - WORK-UP/CASE HISTORY IS IMPORTANT**
**Chronic Causes**

1. JIA
   - Most commonly in young females
2. Fuchs heterochromic iridocyclitis
   - Similar to JIA
3. Sarcoidosis
   - Most common in African Americans and those of Scandinavian descent
4. Herpes Simplex/varicella zoster
5. Syphilis
6. Tuberculosis

**Diagnosis**

- **Signs**
  - Most common: cells and/or flare in the anterior chamber, ciliary flush, keratic precipitates (KP)
  - Fine KP, small non-granulomatous KP, granulomatous KP
  - Less Common/Other: low IOP, fibrin, hypopyon, iris nodules, iris atrophy, iris heterochromia, iris synechiae, and band keratopathy

- **Symptoms:**
  - Acute: pain, redness, photophobia, excessive tearing, decreased vision
  - Chronic: decreased vision, periods of exacerbation and remission

**Critical Lab Tests**

- HLA-B27 for autoimmune
- PPD or IGRA for TB
- RPR, VDRL, FTA-ABS for syphilis
- Lyme (usually in endemic areas)
- Chest x-ray or CT for sarcoid and/or TB

**Treatment/Follow-Up**

- Cycloplegic: improve comfort, prevent synechiae
  - Cyclopentolate 1% TID for mild-moderate inflammation
  - Atropine 1% BID/qid for severe inflammation
- Topical Steroid w/ taper: control inflammation
  - Prednisolone Acetate 1% q1-6h depending on severity of inflammation
- Treat underlying systemic condition to avoid recurrence
- Follow-up every 1-7 days in acute phase, 1-6 months when stable
  - Start steroid taper and once inflammation is resolved
  - d/c cycloplegic once inflammation starts to improve

**Additional Treatment Considerations**

- May need stronger drop or more frequent dosing for severe inflammation
- Consider loading dose or FML 0.1% ointment at night
- Treat secondary glaucoma or IOP spike as indicated
  - Avoid pilocarpine

**Herpes Zoster**
**Etiology**

- Varicella zoster virus
  - Likes to live within CN V; more common within V1 but can occur along V2 and/or V3
  - Chicken pox in children
  - Shingles in adults (reactivation of latent virus)
- T-cell mediated immune response
  - Spread via direct contact with respiratory secretions or skin lesions

**Diagnosis**

- Typically diagnosed based on clinical presentation
  - Skin redness, rash, and/or lesions that respect vertical midline
  - Patients may report prodromal symptoms of general malaise, fever, and headache for up to 5 days before signs present
  - CLASSIC: Hutchinson sign

**Treatment**

- 800mg PO 5x/day x 7-10 days
- 500mg PO TID x 7 days
- 1000mg PO TID x 7 days
Recurrent Iritis due to HSV or VZV

- Anterior chamber inflammation found in ~10% of patients with HZO
  - Diagnosis is straightforward with skin lesions; more difficult in its absence
  - May have more prodromal symptoms
  - Commonly may have iris atrophy, sectoral TIDs, and/or decreased corneal sensation
  - Key to diagnosis is anterior chamber paracentesis followed by PCR testing to confirm varicella particles

Current Pathophysiology Thought

- Varicella/Simplex particles at sub-clinical levels reside in anterior chamber → times of stress cause reactivation of particles → recurrent episodes of uveitis
  - HSV more common in younger patients
  - VZV more common in older patients

Antiviral Treatment

- Van der Lelij et al. propose treating the anterior uveitis according to the most current methods (e.g. topical steroids with taper and cycloplegics) followed by a long steroid taper and prophylactic antiviral treatment
  - Consider tapering steroids over 1-2 month period (e.g. BID x 1 month, then QD x 1 month)
  - Acyclovir 400mg PO BID or Valacyclovir 500mg PO QD to reduce recurrence
  - Emmett Cunningham Jr, M.D., Ph.D recommends Valacyclovir as the drug yields 3-4x higher circulating levels vs. acyclovir
  - He also mentions topical acyclovir ointment, however it is difficult to obtain in the U.S.

Managing My Patient

- Unfortunately the patient declined the use of oral medication due to anxiety and self-described PTSD involving the use of oral medication
  - He also stated, “absolutely no way is a needle going into my eye.”
  - Discussed likely cause of chronicity and to consider anterior chamber paracentesis with PCR testing, and prophylactic antiviral treatment in the future.

Importance

- Strongly consider viral cause as differential diagnosis in cases of chronic or recurrent anterior uveitis with unremarkable traditional lab tests
- Consider ant. chamber paracentesis with PCR testing
- As optometrists, YOU already know the treatment for the individual conditions...now combine them
- May improve patient retention and remove need for referral, especially in patients who have difficulty with travel

Thank You to VA Doctors, Staff, and Student Interns
References

Iris Lesions: A Cyst-ematic Approach

By Natalie Kulaga, O.D.

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I have no financial conflicts of interest to disclose.

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Course Objectives

The goal of this lecture is to help clinicians identify which lesions are harmful or need treatment, versus lesions that can be safely monitored in order to improve patient outcomes.

Background on Iris Lesions

- Found in all races but mostly Caucasians
- Demographics (Shields Study) of 3680 cases from the U.S:
  - 96% Caucasian
  - 2% African American
  - 1% Hispanic
  - <1% Asian
  - <1% other races
- Wide range of ages at presentation
  - 12% of children <20 years old
  - 21% of young adults 21-40 years old
  - 36% adults aged 41-60
  - 31% of seniors 61+

Types of Iris Lesions
1) Cystic Lesions (21%)
   a) Come from either the stroma or pigment epithelium
      i) Iris stromal cysts
         1) Often require treatment or removal
      ii) Iris pigment epithelium cysts*
         1) Don’t usually require treatment and tend to remain stable

2) Solid Lesions (79%)
   a) Melanocytic
      i) Nevus (melanocytoma)*
      ii) Lisch nodule
   b) Nonmelanocytic (uncommon)
      i) Choristomatous (normal cells in an abnormal location)
      ii) Vascular
      iii) Fibrous
      iv) Neural
      v) Myogenic
      vi) Epithelial
      vii) Xanthomatous
      viii) Metastatic
      ix) Lymphoid
      x) Leukemic
      xi) Secondary
      xii) Non-neoplastic simulators

* = most common clinically

Cystic Lesions

Stromal Cysts
- Derived from front (stromal) part of iris
- Most common in pediatric patients
- Ablive during embryonic development
- Comprise 16% of iris cysts in children
- Arise during embryonic development
- Bulge in iris can trigger the clinician to worry about a tumor
- Worsen visual prognosis than with epithelial cysts
- Can be confused for a melanoma, especially if heavily pigmented and looks like a nodule
- Can enlarge and rupture!
- Pay attention in newborn infants: can grow in just a few weeks and cause photophobia and buphthalmos/pediatric glaucoma

Iris Pigment Epithelial Cysts
- Most common type
- Rarely symptomatic, don’t really affect vision
- Usually benign, translucent with brown specks
- Often multifocal and bilateral
- Sometimes associated with lip hemangiomas in the anterior chamber of the eye

Epithelial Downgrowth Cysts
1) When surface epithelial cells get “transported” inside the eye
   i.e. trauma or surgery
   - Can form immediately, or years after
   2) If cells inside the eye differentiate incorrectly into epithelial cells
   - Usually benign if contents remain enclosed
   - May grow aggressively if burst open
   - Often proteinaceous fluid inside (not entirely clear contents)
   - Can grow aggressively and cause blurry vision and anterior chamber inflammation

Case: 94 year old male
- Presented for routine eye exam; no complaints
- IOP normotensive, PERRLA
- H/o malignant melanoma L arm
- Lesion first noted 08/27/2015 on routine exam
- ~2.2mm in size, rounded edges
- Brown but not opaque; transilluminates on slit lamp exam
94 yo M, continued

- Gonioscopy: (Images A & B)
  - Cystic/fluid filled lesion with defined edges, displacing iris posteriorly.
  - Not intrinsic to iris or angle @7:00.
  - No visible dispersed pigment

- Referred to Casey Eye Institute for evaluation:
  - "UBM: relatively large, thin walled appearing cyst in the angle, does not appear to involve the ciliary body. No other lesions noted."
  - "Consistent with a dislodged iris pigment epithelial cyst"
  - Recommended to follow yearly w/ routine exams.

Images A & B of anterior segment OCT of iris cyst in a 94 yo white male.

Solid Lesions: Melanocytic

- Pigmented Nevus
- Melanocytoma
- Melanoma with angle involvement

- Non-pigmented nevus (causing corectopia)
- Lisch nodules
- Iris melanoma (causing corectopia)

Images from AAO.org

Freckle vs. Nevus vs. Melanocytoma?

A. Freckle:
  a. Can be either solitary or multifocal, and rests just on the surface of the iris stromal surface.
  b. Usually <2mm in diameter.

B. Nevus:
  a. Penetrates deeper into the stroma, causing distortion of stromal tissue.
  b. Often cause corectopia/ectropion.

C. Melanocytoma:
  a. Subset of iris nevus
  b. Darkly pigmented, dome-shaped lesion with little to no ectropion.
  c. "Mound of black sand"
  d. Can seed into the angle or onto the iris stroma

All are benign.

Images from Mann-Grandstaff VAMC

Iris Melanoma

- Located in inferior quadrant most often
- Mean diameter: 6.2mm
- Mean depth/thickness: 2.3mm
- Partially or completely pigmented in 90% of cases
- Metastasis in 5% at 5 years, 9% at 10 years, and 11% at 20 years
- Main predictive factors for metastasis:
  1) extracocular extension
  2) elevated intraocular pressure

Images from VAO.org

Determining risk: Nevus → Melanoma

A. age: younger than 40 years old
B. blood: presence of a hyphema*
C. clock hour of mass inferiorly
D. diffuse growth pattern*
E. ectropion
F. feathery margins

*The most powerful factors

- Tumor seeding into the anterior chamber angle and onto the iris stroma are also important.
- Transformation of suspicious iris nevus to melanoma occurred in 4% by 10 years and 11% by 20 years.
Confirming the Diagnosis

Properly identify location and origin:

1. **Thorough history**
   a. Intraocular foreign bodies? Past surgeries?
   b. If a cyst appears suddenly, worth asking about prostaglandin analogs (latanoprost, bimatoprost, etc): they can make cysts bigger

2. **Complete exam**
   a. Gonioscopy
   b. Anterior segment imaging

Good rule of thumb: Whatever method you use, be able to scan the whole cyst/lesion so there are no surprises

Lesions with solid components to it can be further evaluated with MRI or biopsy to confirm malignancy

Imaging Strategies

**A. Anterior segment OCT**
- Helpful to track size over time: repeatedly scanning the same area
- Drawbacks: dark irides or large/dark cysts can block the signal

**A. High-resolution ultrasound biomicroscopy (UBM)**
- Good for visualizing thin walls and hollow cavities (fluid-filled lesions) or opaque and solid masses (malignancies)
- Scans around the peripheral iris/angle: picks up what OCT can miss
- Helps surgeons with planning surgery: extent of cyst and the type of tissue before removal
- Drawbacks: not easily accessible in most offices, needs a water bath immersion, and longer/more skill to acquire images

Complications

**A. Visual/Ocular**
- Iritis, angle closure/glaucoma
  i. Pigment dispersion syndrome, plateau iris
- Focal cataract, lens subluxation, corneal edema
- Pain, blurred vision, photophobia
- Amblyopia (in children)

**B. Systemic**
- Metastasis
  i. Primary site is most often:
   1. Lung
   2. Colon
   3. Breast
   4. Kidney
   5. Skin
- Death (rare)

Treatment/Management

**Non-malignant cysts/lesions:**

A. Can usually just be observed
A. Monitor unless causing other issues in the eye:
   a. High IOP/angle occlusion
   b. Leakage causing inflammation
   c. Rubbing against the cornea causing endothelial decompensation
A. When removal is indicated:
   a. All debris related to the cyst must be removed
   b. Some require multiple removers to get them all
   c. Risk of growing back more aggressive
   d. Why through imaging for recurrence is crucial

**Removal Strategies:**

1. Partial lamellar iridocorneal trabeculectomy
   - Remove the areas the cyst is touching
   - Avoid breaking the cyst itself
2. Cyst aspiration: evacuation with injection of alcohol
   - Scleral incision/bite with injection to fill the remaining epithelial cells
   - Then cryotherapy at the edge by the limbus to prevent future ones
   - Can be completely frozen (if peripheral enough)
3. Stromal cysts in children:
   - Enucleation
   - Nd:YAG or Argon laser
   - Excision (last resort)

**Iris melanomas/malignancies**

A. Surgical resection
A. If tumor is confined to 3-4 clock hours, and without seeding
A. Plaque radiotherapy
A. If tumor is large and with seeding
   a. Keeps eye intact w/o entering anterior chamber
   b. If plaque covers cornea, amniotic membrane is placed first to protect cornea
   c. Iodine “seeds” placed in the plaque for targeted radiation
A. Enucleation
A. If there is uncontrollable secondary glaucoma or pain
A. Non-invasive, single session treatment option
A. Comparable outcome to brachytherapy
A. Good visual outcome in preliminary studies

CyberKnife equipment

Melanoma before CyberKnife treatment (A, B)
Melanoma regression 2yrs after CyberKnife treatment
49 year old female with 8x4x3mm iris melanoma (g). Peritomy (a) was performed prior to amniotic membrane placement onto cornea (b) prior to placement of plaque and suturing in place (c). Conjunctiva/Tenons was then placed over the plaque and sutured in place (d). Temporary tarsorrhaphy was performed during treatment (4 days). Image (h) 4 months following brachytherapy.

**Brachytherapy**

**Prognosis and Outcomes**

- Complications following resection:
  - Hyphema, vitreous prolapse, dislocated lens, cataract, iridocyclitis, macular edema, secondary glaucoma, and retinal detachment
  - Most primary tumors of the iris are benign
  - Iris melanomas usually have better prognosis than ciliary/choroidal melanomas
    - Generally good survival rate
  - Most tumors exhibit a smaller melanoma basal dimension and a lower rate of tumor-related metastasis and death
  - Mortality rate ranges from 0%-11%, depending on:
    1. Cell type
    2. Presence/absence of metastases
    3. Ciliary body involvement
      - If ciliary body is not involved, mortality rate is 0%-3%
    4. Metastasis: Occurs in 2%-10% of all iris melanomas
      - Higher rate of metastasis with ciliary body involvement

*A significant correlation between poor visual outcome and poor preoperative visual acuity and preoperative irradiation has been observed*

**References**

PULLING THE PLUG ON DRY EYE: MANAGING THE SPECTRUM OF DRY EYE DISEASE

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Cornea and Contact Lens Resident 2020-2021
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DISCLOSURES

The presenter, Dr. Jasmeen Bhangu, OD, has no financial interest or relationship with any companies, products, or pharmaceuticals mentioned in this presentation.

COURSE DESCRIPTION

This course presents a case of a patient referred in for management of refractory dry eye disease (DED) and provides an overview of the multifactorial nature and treatment of DED.

COURSE OBJECTIVES

By the end of the presentation, attendees will be able to:
1. Define the multifactorial nature of dry eye disease
2. Differentiate etiological factors in dry eye disease based on subjective and objective examination data
3. Identify and utilise appropriate diagnostics in the management of dry eye disease

CASE PRESENTATION

46-year-old Asian Female referred for dry eye evaluation and possible treatment with punctal plug
- History of chronic, refractory dry eye
- Referring opthmetrist prescribed topical immunomodulating therapy: Restasis BD OU
- Patient self-d/c as she wasn’t noticing a difference but reported aggressive lubrication with PFATs
- Additionally, patient reported trying lid scrubs without compliance
- Patient complaining of “constantly changing glasses prescription” and “vision that doesn’t ever feel quite right” in addition to increasing contact lens intolerance

RELEVANT EXAMINATION FINDINGS

- Presenting distance VAs:
  OD/OA/OU: 20/40
- All other entrance testing unremarkable
- Posterior segment: unremarkable
- Anterior segment:
  - Lids: Significant and multiple inspissated glands OU
  - Marx Line: moderate UL/LL OU
  - Lid wiper: mild OD, moderate OS UL/LL
  - Lashes: Grade 2 squamous blepharitis UL OU
  - Bulbar conjunctiva: inferior grade 1 lissamine green staining OD and N/T grade 1 lissamine green staining OS, and moderate temporal conjunctival chalasis
  - Palpebral conjunctiva: grade 2 papillae LL OU with scattered inf concretions OU
  - Cornea: Diffuse, grade 4 SPK OU, reduced sensitivity OU
  - Korb-Blackie Lid Light Test: negative OU
  - Inflammadry: strong positive OU
CORNEAL ESTHESIOMETRY

- What are we evaluating?
- Function of ophthalmic branch of trigeminal nerve
- Qualitative method: cotton wisp
  - results will be either (+) or (-) corneal sensitivity
- Quantitative method: Cochet-Bonnet esthesiometer
  - The shorter the length, the more decreased corneal sensation
  - Nylon filament fully extends to 6 cm and retracts into device

NO REFRACTION FOR YOU!

DRY EYE IS MULTIFACTORIAL

"Dry eye is a multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film, and accompanied by ocular symptoms, in which tear film instability and hyperosmolarity, ocular surface inflammation and damage, and neurosensory abnormalities play etiological roles."\(^{10}\)

AQUEOUS DEFICIENT OR EVAPORATIVE?

- TFOS DEWS II concluded that while these subtypes are distinct, they are still part of a spectrum of disease, rather than being distinct pathophysiological processes.
- Determining the predominant underlying etiology is useful in directing treatment strategies\(^{1}\)

ETIOLOGICAL FACTORS

Reported Risk Factors Causes of Dry Eye – Over 75

- Aqueous deficiency
- Anterior-year disease
- Atopic dermatitis
- Atrial fibrillation
- Asthma
- Atherosclerosis
- Burns
- Celiac disease
- Chemotherapy
- Crohn's disease
- Diabetes mellitus
- Drying of the eye
- Dry syndrome
- Eczema
- Escherichia coli
- Glaucoma
- Gastroesophageal reflux disease
- Gingivitis
- Graves' disease
- Herpes zoster
- HIV
- Hepatitis C
- Hepatitis B
- Hyperthyroidism
- Hypothyroidism
- Influenza
- Intestinal parasites
- Intraocular lens
- Juvenile arthritis
- Latex allergy
- Late and other traspothisis
- Mumps
- Myasthenia gravis
- Mutations in the gene for the ocular surface
- Myopia
- Myringitis
- Myocardial infarction
- Nephritis
- Neurofibromatosis
- Obesity
- Osteoarthritis
- Osteopenia
- Osteoporosis
- Paraplegia
- Parinaud's syndrome
- Periorbital edema
- Petechiae
- Peripheral arterial disease
- Peritrochanteric fracture
- Polychondritis
- Polycythemia
- Polymyalgia rheumatica
- Pneumonia
- Psoriasis
- Primary biliary cirrhosis
- Primary sclerosing cholangitis
- Prostatitis
- Pseudophakia
- Pulmonary edema
- Rheumatoid arthritis
- Rheumatoid spondylitis
- Pseudotumor cerebri
- Sarcoidosis
- Sclerosing cholangitis
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**LID WIPER EPITHELIOPATHY (LWE)**

- The lid wiper region of the eyelid is characterized as stratified squamous epithelium on the margin of the palpebral conjunctiva.
- Li, et al. concluded LWE was associated with decreased tear-film stability, contact lens wear, lid anatomy, and LIPCOF (lid parallel conjunctival folds).

**LINE OF MARX**

- Marx’s line is visualized as a thin strip, separating the keratinized cutaneous epithelium from the non-keratinized conjunctival epithelium.
- In patients with tear film instability and meibomian gland dysfunction (MGD), Marx’s line (ML) is often displaced anteriorly.
- Anterior displacement of Marx’s line may be used as a rapid screening for meibomian gland function.

**MEIBOMIAN GLAND DYSFUNCTION**

- Prevalence likely greater than we think.
- Some estimate a prevalence of up to 68%, with increasing prevalence with every decade of life.
- Meibomian gland dysfunction is defined as six or fewer functioning lower lid meibomian glands.
- 86% of dry eye has meibomian gland dysfunction (MGD) as an underlying cause.

**KORB-BLACKIE LID LIGHT TEST**

- Positive lid and light escaping the closed lids indicates a form of nocturnal lagophthalmos.
- Tends to be greater centrally.
- Transilluminates across glistening closed lids and observe whether light escapes.
ADDITIONAL TESTING

- Consider blood testing for autoimmune conditions in severe and refractory dry eye disease
- SLE, RA, Sjogren's associated with DED
- Commonly ordered blood tests ordered in management of dry eye
  - RF
  - ANA
  - Sjogren's antibody test (SS-A, SS-B)
  - Thyroid peroxidase antibodies (TPO)

VALIDATED TREATMENT OPTIONS

- International thermal pulsation treatment Lipiflow, iLux, TearCare
- Ice compresses provide external heat only
- Topical pated steroid therapy
- Topical immunomodulating therapy with cyclosporine or lifitegrast
- Analgesic serum drops
- Antibiotic drops or antibiotic serum drops
- Punctal plugs – consider only after determining whether inflammation is present and treating in true tear deficiency
- Ointment application (low dose desiccation, microprecipitate)
- Bandage and oral vitamin therapy

OUR PATIENT – WHAT DID WE DO?

- Initiated topical immunomodulating therapy with Cequa BID OU
- In-office lid exfoliation to debride the lid margins
- Recommended thermal pulsation treatment to address MGD
- Recommended at-home therapies: lid scrubs QD and hot compresses
- Defer refraction until improvement in ocular surface staining observed
- At follow up, visual acuity improved to 20/20 with existing spectacle lenses

IMPROVE SURGICAL OUTCOMES

- A study of 24 eyes of 24 patients randomized to control group or Lipiflow group

REFERENCE

THANK YOU!

Questions?