CASE HISTORY

- 60 YO AA male
- Needs new safety Rx; No c/o difficulty with his current Rx
- Current Rx
  - OD: +0.25-0.25 X 090
  - OS: +0.25-0.50 X 088
  - Add: +2.25 OD & OS
- Past & current medical history
  - High cholesterol since 5 yrs
- Past & current ocular history
  - Insignificant
- Medications
  - Zocor for high cholesterol

ENTRANCE TESTS & EXAM

- VA w Rx: OD & OS: 20/25; 0.50 M @ 40 cm
- EOM: FROM OD & OS
- CVF: FTFC OD & OS
- Pupils: PERRL; (⁻) APD
- Cover test: No phoria/tropia distance & near
- Refraction:
  - OD: +0.25-0.75 X 090 (20/20)
  - OS: +0.25-1.00 X 090 (20/20)
  - Add: +2.25 (0.37 M @ 40 cm)
- Slit lamp exam: unremarkable OU except for Early NSC OU
- IOP: 18 mmHg OD & OS @ 10.05 am
- DFE: 0.75/0.75 OD; 0.65/0.65 OS; rest unremarkable OU

ASSESSMENT & PLAN

- Glaucoma suspect OU (OD>OS) based on ONH appearance. Advised to RTC for glaucoma work-up (IOP check, pachymetry, Humphrey visual field, and OCT)
- Astigmatism OU; Presbyopia. Spec Rx released today for full-time wear. Make safety glasses with the same prescription.

2 WEEK RETURN VISIT

- Pt here for glaucoma tests
- OS: c/o knot in the lower lid medially since 1 week; no pain; no redness; just popped up
- Glaucoma work-up done (results attached)
- IOP: 16 mmHg OD & OS @ 10.20 am
- Assessment & Plan
  - Glaucoma suspect based on ONH appearance OU (OD>OS) with OCT showing borderline changes in one clock hour OD & OS; HVF showing generalized depression OD & incomplete biarcuate scotoma OS; Pachymetry showing average corneal thickness OD & OS. Advised to RTC in 6 months for IOP check.
  - Chalazion lower lid medially OS; Advised to do warm compresses bid OS and Rxed Ocusoft lid scrubs bid; If getting worse, RTC imm.

HUMPHREY VISUAL FIELD 24-2
10 MONTHS LATER…..

• PI RTC to get his glasses adjusted
• Informs that he went to his PCP about the knot
• PCP referred him to a local ophthalmologist for chalazion removal
• Ophthalmologist refers him to an oculoplastic surgeon for chalazion excision due to its proximity to the tear drainage duct
• 1st Oculoplastic surgeon appt
  • Left orbital mass/cyst
  • Need for removal to rule out neoplasm; schedule orbitotomy
• 2nd Oculoplastic surgeon appt in 1 week
  • Left anterior orbitotomy revealed the mass to be diagnostic of B-cell non-Hodgkin lymphoma
  • Referral to cancer center to find the origin of the lymphoma
• 3rd Oculoplastic surgeon appt in 1 week
  • VA good OS; swelling has decreased OS; using lubricating ointment qhs OS
  • Still unsure of the origin of the lymphoma

LATEST FINDINGS

• Origin of the lymphoma was bone marrow
• Undergoing Tx of Rituxan (Rituximab) with Acetaminophen at the Montgomery Cancer Center
• Diagnosed with Hepatitis C in a couple of months
• Undergoing Tx for Hepatitis C at the UAB Medical center
• Having frequent blood work done
• Lost for follow-up

DISCUSSION

• Lymphomas are the most common primary orbital tumors in adults >60 yrs of age. It accounts for 11% of all orbital tumors and 55% of malignant tumors.
• Primary diffuse large B-cell lymphoma (DLBCL) represents the 2nd most common lymphoma occurring in the orbit after MALT (Mucosa-associated lymphoid tissue) lymphoma.
• Most frequent clinical presentation of orbital lymphomas: palpebral or orbital mass and exophthalmos
• One study found that most orbital lymphomas were in the supero-temporal quadrant and superior rectus muscle was the most commonly involved structure

DISCUSSION-CONTD

• DLBCL of the bone marrow is usually treated with rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP chemotherapy, 3 week standard schedule)
• Overall risk of lymphoma related death secondary to DLBCL has been reported as 38%
• One study found out that of all the clinically diagnosed chalazia, 6.4% were misdiagnosed of which 1.4% were malignant, 0.2% premalignant, and 4.8% were benign conditions
• Sebaceous cell carcinoma was the most commonly missed malignancy followed by basal cell carcinoma
CONCLUSION

• Watch out for eyelid swellings/cysts/masses!!
• Follow-up with patients closely
• When in doubt, send for biopsy and confirmation of diagnosis
• Have patients take pictures with their smart phones and send to the office e-mail address or call the office emergency/after hours phone number if noticing any change
• Have staff follow-up with these patients after a couple of weeks even if you do not hear from the patients

REFERENCES

Heerfordt-Waldenstrom Syndrome: a rare manifestation of neurosarcoidosis

Naida Jakirlic, OD, FAAO
Western University of Health Sciences College of Optometry

I. Case History
   a. Initial presentation
      i. 30 year old Mexican male c/o sudden onset left facial droop
      ii. POH: unremarkable
      iii. PMH: hypercholesterolemia
         1. Current medication: Lipitor 10mg PO QD
         2. NKA, NKDA
      iv. Assessment and management
         1. Assessed by ER physician
         2. Diagnosed with Bell’s palsy
         3. Given Rx for Valacyclovir 1g TID PO x 7 days and Prednisone 60mg PO to be tapered over 10 days
         4. Discharged from ER
   b. Second recurrence
      i. Patient returned to ER one month after initial presentation c/o new onset left facial droop after complete resolution of initial facial droop
      ii. Physical exam
         1. Complete left facial droop
         2. Body temperature: 101.4°F
         3. Skin: plaque-like lesions on bilateral flank area, left elbow, bilateral shins
      iii. Assessment and plan: recurrent left CN VII palsy of unknown etiology
         1. Laboratory: blood culture, CBC with differential, ESR, CRP, ACE, ANA, lysozyme, Lyme, RPR-VDRL, PPD
            a. Results: bloodwork non-contributory
         2. Chest X-ray
            a. Result: bilateral hilar lymphadenopathy
         3. Chest CT without contrast
            a. Result: mediastinal lymphadenopathy
         4. MRI of brain with and without contrast
            a. Result: bilateral CN VII enhancement (L>R)
      iv. Leading differential diagnosis: neurosarcoidosis
      v. Additional tests ordered:
         1. Lumbar puncture results:
            a. CSF WBC 25/µL (normal 0-5 µL)
            b. CSF ACE 9 units/L (normal: 0-2.5 units/L)
2. Endobronchial biopsy result: bronchial mucosa exhibits chronic inflammation
3. Mediastinal lymph node biopsy result: rare multinucleated giant cells
4. Gallium scan
   a. Whole body imaging performed 72 hours after IV administration of Ga-67 citrate, which is taken up by tumors and inflamed tissue
   b. Result: increased uptake in lacrimal and parotid glands, nasopharyngeal area, right lower hemithorax
5. Eye consult requested to r/o intraocular inflammation
   a. Eye exam findings
      i. BCVA: 20/25 OD, 20/30 OS
      ii. PERRL (-)APD
      iii. EOM’s full and comitant OU
      iv. Slit lamp exam
         1. Mutton fat KP's OU
         2. AC: 1+ cell OD, 2 cell OS, mild flare OU
         3. Anterior vitreous cells OU
      v. Applanation tonometry: 18mmHg OD, 16mmHg OS
      vi. DFE
         1. C/D: 0.2 OU with distinct borders, (-)ONH granuloma
         2. Macula: flat and clear OU
         3. Vasculature: normal caliber OU, no evidence of vasculitis OU
         4. Periphery: flat and intact 360 OU; no evidence of posterior segment inflammation OU
   b. Assessment and management
      i. Bilateral granulomatous anterior uveitis: start PredForte q1h OU and Cyclopentolate 1% TID OU, RTC 2 days f/u
      ii. Left CN VII palsy: start artificial tears QID OS and Lacrilube ung qhs OS
   c. Response to treatment
      i. Ophthalmologic
         1. Cyclopentolate discontinued 1 month after initial eye exam
         2. PredForte slowly tapered over a 2 month period
         3. IOP remained at baseline
         4. No evidence of cataract formation observed
      ii. Systemic
         1. Prednisone tapered over a 5 month period, with initial dose of 60mg PO x 3 days
II. Bell’s Palsy
   a. Acute unilateral peripheral facial nerve paralysis
      i. Inflammation of CN VII within facial canal leads to compression,
         demyelination, and disruption of blood supply
   b. Spontaneous resolution within 1-3 months
      i. 75% complete recovery
      ii. 15% satisfactory recovery with mild deficit
      iii. 10% permanent paralysis
   c. Proposed etiology
      i. Direct viral infection with HSV-1
         1. HSV-1 titers elevated in affected patients
         2. Studies failed to isolate viral DNA in biopsy specimens
      ii. Post-infectious immune-mediated neuropathy
   d. Single episode has 8% risk of recurrence
   e. Absence of additional neurologic symptoms
      i. Diagnosis of exclusion
      ii. Laboratory testing usually unnecessary
   f. Epidemiology
      i. Annual incidence: 15-30 per 100,000
      ii. Accounts for 70% of all CN VII palsies
      iii. M = F
      iv. Peak incidence at age 40
   g. Anatomy of CN VII
      i. Motor: muscles of facial expression, stapedius muscle to dampen sound
      ii. Parasympathetic: tearing (via greater superficial petrosal nerve) and
         salivation (sublingual and submandibular glands via chorda tympani)
      iii. Sensory: taste to anterior 2/3 of tongue via chorda tympani
   h. Evaluating CN VII function: motor component
      i. Orbicularis oculi: ask patient to squeeze eyelids shut tightly as you try to
         pry them open
      ii. Frontalis: ask patient to raise eyebrows vertically and scrunch them
         horizontally and look for inability to form vertical and lateral creases on
         the affected side
      iii. Orbicularis oris: ask patient to smile and whistle
      iv. Buccinator: ask patient to fill cheeks with air – look for inability to do so,
         and also lack of a well-formed nasolabial fold
      v. Stapedius: ask patient if they hear things louder on the side of the palsy
   i. Evaluating CN VII function: sensory component
      i. Place a sweet or salty substance on the anterior portion of the tongue on
         either side of the midline
   j. Peripheral vs. central palsy
      i. Motor neurons to forehead cross sides at level of the brainstem,
         therefore fibers going to one side of forehead come from both cerebral
         hemispheres
ii. Supranuclear (central) lesions will cause lower face paralysis only and will be accompanied with some weakness of extremities on the same side as the facial palsy

k. Treatment: accelerates resolution and promotes full recovery
   i. 70-80% recover spontaneously within 3 weeks of onset
   ii. Treatment should be initiated within 3 days of symptom onset – no benefit if initiated afterward
   iii. Antiviral: suppresses viral replication in nerve tissue
      1. Valacyclovir 1g TID PO x 7 days, or
      2. Acyclovir 400mg 5x.day PO x 7 days
   iv. Oral prednisone: reduces nerve edema in facial canal
      1. 60 mg PO x 5 days
      2. 40 mg PO x 5 days

l. Recovery with synkinesis (misdirected regeneration of nerve fibers): usually occurs after trauma or compression, but can occur after Bell’s palsy
   i. Motor synkinesis: misdirected fibers to muscles of facial expression
      1. Previously paralyzed side may appear contracted even though the muscles are weaker on affected side
      2. Eye closure results in contraction of lower facial muscles
      3. Smiling results in eye closure
   ii. Autonomic synkinesis (gustolacrimal reflex): lacrimation while eating

III. Differential diagnosis of recurrent and/or bilateral CN VII palsy
   a. Infectious
      i. Lyme disease (36% of bilateral CN VII)
         1. M>F
         2. Peak incidence 5-9 years and 55-59 years
         3. Initial symptoms can begin as late as 30 days after tick bite
      ii. Syphilis
      iii. Ramsay Hunt syndrome
         1. Varicella zoster infection of CN VII near the inner ear
         2. Pronounced prodrome of pain
         3. Vesicular eruption in ear canal and pharynx
      iv. Post-influenza vaccine
      v. HIV infection
      vi. Otitis media
         1. Gradual onset with ear pain and fever
   b. Inflammatory
      i. Sarcoidosis
      ii. Systemic lupus erythematosus
      iii. Sjogren’s syndrome
   c. Autoimmune
      i. Guillen Barre syndrome
         1. Ascending inflammatory demyelinating polyneuropathy
         2. Progressive palsy of voluntary muscles (legs, arms, trunk, face)
3. CN VII affected in 27-50% of cases
   ii. Multiple sclerosis
   iii. Myasthenia gravis
d. Neoplastic
   i. Acute leukemia
   ii. Acoustic neuroma

IV. Sarcoidosis review
   a. Definition: multisystem inflammatory granulomatous disorder
   b. Role of granulomas
      i. Confine pathogens
      ii. Restrict inflammation
      iii. Protect surrounding tissue
c. Sarcoid granuloma: collection of macrophages and epithelioid cells surrounded by lymphocytes
d. Unknown etiology: unknown antigen may trigger immune response
   i. Clustering of disease in early spring
   ii. Work related clustering (healthcare providers)
   iii. Can be transmitted via transplanted organs
   iv. Genetic and environmental circumstances both play a role in disease development
   v. Diagnosis of exclusion
e. Prognosis
   i. 2/3 undergo remission within a decade – most within 2-3 years
      1. <5% recur after 10 years of remission
      2. Recurrence can develop at any stage and in any organ
      3. Failure to regress within 2 years predicts chronic course
   ii. 1/3 have unrelenting disease leading to significant organ impairment
f. Prevalence
   i. 20-40 year olds
   ii. North European (Scandinavian) and US African American population
g. Mortality
   i. Pulmonary fibrosis can lead to respiratory failure
   ii. Cardiac involvement
   iii. Neurologic disease
h. Diagnostic tests
   i. Serum ACE
      1. Only serological marker recommended by world association of Sarcoidosis and other granulomatous diseases
      2. Normally present in vascular endothelium of many organs and in macrophages
      3. Produced in epithelioid cells of sarcoid granuloma
      4. Elevated in 60-90% of sarcoid patients
      5. Lacks sensitivity and specificity: normal ACE does not exclude presence of disease
6. False low values: patients taking ACE inhibitors or having recently undergone chemotherapy
7. Elevated ACE levels present in leprosy, hyperthyroidism, RA, TB, DM

ii. Serum lysozyme
1. One of the activation products of stimulated monocular phagocytes with bactericidal activity
2. Normally present in granules of monocytes, macrophages, and polymorphonuclear leukocytes
3. Elevated in various conditions, including active sarcoidosis
4. Maximum serum level increases significantly according to number of involved organs

iii. Biopsy of affected organ: multinucleated giant cells
iv. Chest radiograph: bilateral hilar adenopathy
v. Pulmonary function tests
vi. Gallium scan: Ga-67 citrate taken up at sites of active sarcoidosis
vii. Neuroimaging when neurological symptoms present: MRI most sensitive for localizing cerebral lesions
viii. CSF analysis
  1. Non-specific because similar findings are present in MS and SLE
  2. 1/3 of patients have normal CSF
  3. Elevated ACE levels also present in CNS infections and malignant tumors

i. Treatment
  i. Corticosteroids: 5-40mg daily
    1. First line of treatment
  ii. Methotrexate: 5-20mg daily
    1. Most commonly used steroid sparing drug
  iii. Hydroxychloroquine: 200-400mg daily
  iv. Azathioprine: 50-200mg daily
  v. TNF inhibitors

j. Affected organs
  i. Lung: 90%
  ii. Eyes: 25-80%
  iii. Liver: 60%
  iv. Skin: 25%
  v. CNS: 5-15%
  vi. Parotid glands: 6%
  vii. Heart: cardiac granulomas found in 5% clinically, 15% on autopsy
  viii. Kidneys
    1. Renal calculi: 10%
    2. Hypercalciuria: 40%
    3. Hypercalcemia: 11%
k. Ocular Sarcoidosis: can occur early in course of systemic disease, can co-exist with asymptomatic systemic disease, and can precede systemic involvement by a few years
   i. Anterior segment
      1. Lacrimal gland granulomas lead to keratoconjunctivitis sicca
      2. Conjunctiva: conjunctivitis and conjunctival granulomas
      3. Sclera: episcleritis and scleritis
      4. Cornea: band keratopathy and mutton fat keratic precipitates
      5. Iris:
         a. Koeppe’s nodule: inflammatory nodule at pupillary border
         b. Busacca nodule: inflammatory nodule on iris surface
   6. Anterior uveitis
   ii. Posterior segment
      1. Vitritis
      2. Intermediate uveitis
      3. Cystoid macular edema
      4. Periphlebitis: candle-wax exudates, can lead to NVD and NVE
      5. Exudative retinal detachment
      6. Choroidal granuloma

V. Neurosarcoïdosis: clinical diagnosis depends on presence of neurologic disease with confirmed multisystem sarcoidosis
   a. Cranial neuropathy: most common lesion and neurologic manifestation
      i. CN VII most common, then CN II
      ii. Papillitis
      iii. Papilledema
      iv. Optic nerve granulomas
   b. CNS granulomas: infratentorial lesions uncommon
      i. Hypothalamus
      ii. Pituitary gland: can lead to endocrine problems (diabetes insipidus, adrenopituitary failure, amenorrhea-galactorrhea syndrome)
      iii. Meninges
      iv. Spinal cord
      v. Cerebellum
   c. Hydrocephalus
   d. Seizures
   e. Elevated ICP due to inflamed meninges
   f. Diagnosis
      i. Definite
         1. Clinical presentation compatible with neurosarcoïdosis
         2. Exclusion of other possible causes
         3. Positive nervous system histology
      ii. Probable
         1. Clinical presentation compatible with neurosarcoïdosis
2. Laboratory support of CNS inflammation: high CSF protein, ACE, lysozyme
3. Exclusion of other possible causes
4. Evidence of systemic sarcoidosis

iii. Possible
1. Clinical presentation compatible with neurosarcoidosis
2. Exclusion of other possible causes

g. Differential diagnoses
   i. Infectious
      1. Leprosy
      2. TB
      3. Toxoplasmosis
      4. Syphilis
      5. Lyme
   ii. Inflammatory
      1. Wegener’s granulomatosis
      2. Vasculitis
   iii. Neurologic
      1. Stroke
      2. MS
      3. Acute demyelinating encephalomyelitis
   iv. Neoplastic
      1. Glioma
      2. Meningioma

VI. Heerfordt-Waldenstrom syndrome
   a. History
      i. AKA uveoparotid fever
      ii. Dr. Christian Heerfordt described group of symptoms in 1909
      iii. Dr. Jan Waldenstrom observed that syndrome was associated with Sarcoidosis in 1937
   b. Clinical signs
      i. Parotid gland enlargement due to granulomatous inflammatory reaction
      ii. Facial nerve palsy
      iii. Anterior uveitis
      iv. Fever
   c. Diagnosis: clinical signs and at least one positive diagnostic test for sarcoidosis

VII. Clinical pearls
   a. Bell’s Palsy is a diagnosis of exclusion
   b. A recurrent or bilateral CN VII palsy must raise suspicion for a systemic cause that needs to be ruled out
   c. The optometrist plays a vital role within the multidisciplinary team required for treating the various systems affected by Sarcoidosis

REFERENCES PROVIDED UPON REQUEST
A Very Complicated Red Eye: Managing Scleritis
Cayla Picklyk, OD
Northeastern State University

Patient Medical History
58 YOF
(+) IDDM (+) Crohn’s Disease (+) COPD (+) HTN
(+) Surgeries: cholecystectomy, colectomy, hysterectomy
(+ ) Adverse reactions: diphenhydramine, oral steroids, oral NSAID’s

Patient Medication List
Insulin aspartate, insulin detemir, furosemide, albuterol, metoprolol, ondansetron, promethazine, mirtazapine, nystatin, omeprazole

Ocular History
Background diabetic retinopathy OU
Nodular episcleritis treated with Pred Forte 1% Q2H
Compliance and follow up complicated by intermittent hospitalization for Crohn’s

Differential Diagnosis
Episcleritis vs Scleritis
1. Pain level/type
2. Nodule mobility (if present)
3. Nodule depth – optic section
4. Phenyl blanching

As you follow the patient note:
- Resolution with topicals?
- Acuity affected?
- Corneal involvement?
- R/O all other “itis’s”

Associated Conditions ~ 50%
10% of pt with IBD will develop scleritis
Connective tissue diseases (most common)
• Examples: Wegener granulomatosis, rheumatoid arthritis, ankylosing spondylitis, polyarteritis nodosa, relapsing polychondritis, reactive arthritis, systemic lupus
Selecting Initial Scleritis Therapy Based on Clinical Presentation

- **Idiopathic Inflammation <2+**
  - Initial therapy oral NSAID
  - Example Ibuprofen 400 MG QID

- **Idiopathic Inflammation >2+**
  - Initial therapy oral SAID
  - Example prednisone 1 MG/KG/Day with slow taper

- **Systemic etiology or necrotizing**
  - Referral to rheumatology for initial therapy of IMT
  - Example methotrexate

Systemic Inflammatory Response Syndrome (SIRS)

- Normal physiological response to inflammation
  - The body loses control of this normal response, over-exaggeration
- Multiple organs try to compensate causing them to dysfunction
- If the patient is unhealthy - resolution is uncommon, no successful therapies

NOTES: