Child with painful swollen eyelid
Daniel Freed, OD, MD

Description: The spectrum of preseptal cellulitis will be highlighted using this clinical case of a 4-year-old Hispanic female who presented to the clinic with a painful right eye. Visual acuities measured 20/40. Exam revealed swollen, warm, tender eyelids on the right and normal eyelids on the left. The patient's orbital CT scan, inpatient treatment course, and serial eye photos will be featured. This case will review the differential diagnosis of swollen eyelids and will discuss inpatient versus outpatient treatments. Team care for preseptal cellulitis will be emphasized using a flexible, patient-centered approach.

Outline:

I. Case History
   - 4-year-old Hispanic female
   - Chief complaint: Right eye pain
   - Ocular, medical history - healthy
   - Medications - none
   - No drug allergies

II. Pertinent findings
   - VA 20/40 each eye without glasses
   - Eyelids tender
   - Reported eye pain in upgaze
   - Laboratory studies - blood counts, chemistries
   - Radiology studies: Ct scan of orbits and sinuses
   - External photographs

III. Differential diagnosis
   - Primary/leading: Preseptal cellulitis
   - Others: Orbital cellulitis, allergic eyelid disease, Herpes simplex and zoster eyelid infections

IV. Diagnosis and discussion
   - Microbiology of preseptal and orbital cellulitis
   - Use of local antibiogram to help guide antibiotic choice

V. Treatment, management: For this case, inpatient IV antibiotics
Treatment regiment and response to treatment - follow-up photographs
Transition from inpatient IV antibiotics to outpatient oral antibiotics

VI. Conclusions / Summary

A. Review the spectrum of preseptal cellulitis versus orbital cellulitis
B. Antibiotic choices and consideration of resistance patterns
C. Sub-specialist input: radiology, ENT, infectious disease
Purple Tear Drops - A Curious Case of Misdirection

I. Case History

- Patient demographics - 49 year old Black Male
- Chief complaint – A purplish, distorted area of blur in one eye that looked like an upside down tear drop, or an almond that he had noticed for the past month, seemed relatively stable in size, appearance and severity, and was constant during that period of time.
- Ocular, medical history – No personal or family history of ocular disease; previously diagnosed with an anger disorder
- Medications - None
- Patient works as a security officer in a local hospital emergency department

II. Pertinent findings

- Best corrected visual acuity 20/40 OD, 20/20 OS
- EOMs SAFE, CF FTFC OD, OS, Pupils EERRLA (-)APD, color vision 7/7 OD, OS
- Large almond shaped area of distorted reported subjectively during visual acuity testing, and on Amsler Grid testing OD
- Visual field shows corresponding almond shaped central relative defect OD, OS few scattered depressions
- Macular OCT shows subretinal fluid central OD in shape of teardrop, small round area of subretinal fluid inferior temporal to fovea OS
- Fundus photos document size and shape of SRF

III. Differential diagnosis

- Initially – nutritional or toxic neuropathy due to complaint of new onset color vision changes in an adult
- Optic neuritis
- Optic neuropathy
- Retinal detachment
- Vitreous hemorrhage

IV. Diagnosis and discussion

- Central Serous Chorioretinopathy is an idiopathic condition that is traditionally believed to affect young adult males, typically with “Type A” personalities. It is typically a unilateral condition but can present in both eyes. In CSCR, fluid accumulates in the subretinal space, causing a sensory retinal
detachment. The most common symptoms are blurry central vision and distortion or metamorphopsia – color vision changes are not common especially not those involving a purplish hue. The condition typically is self-limiting and will typically resolve without treatment. If however no improvement is seen after 3 months or so of monitoring, then intervention may be warranted.

- The patient’s presenting complaint of purple colored distortion in a tear drop shape in one eye lead myself and my attending doctor to initially suspect far more insidious causes for his visual changes. The color vision complaint in particular concerned us, and we were thinking there were likely to be signs of optic neuropathy or neuritis, and that it may be of a toxic or nutritional etiology. As a result of this concern, we conducted a threshold visual field of both eyes after instilling dilating drops but before examining the retina. This yielded the discovery of a well circumscribed almond shaped central relative defect in the patient’s right eye, which we later found correlated well with the shape and size of the subretinal fluid in the right eye. There was a small, non-central defect in the left eye that likewise corresponded to the non-foveal subretinal fluid that was discovered there. The unique feature in this case is that the patient was so perfectly descriptive and that there was a clear clinical correlate for his description. However, the key detail that his vision was like looking through a purple cloud or bubble had us far more concerned about neurological and or demyelinating diseases.

V. Treatment, management

- The patient in this case presented with a complaint of blurry vision over that had an onset of about one month ago, so we decided to monitor him every four weeks with dilated fundus exams and serial macular OCTs to look for resolution. Our patient did progressively improve in both his reported symptoms and structurally we observed a reduction in the volume and area of subretinal fluid. Had the patient failed to improve after 1-2 months of improvement, he would have been referred out to a retina specialist to undergo potential treatment via PDT or focal laser.
- According to a meta-analysis conducted by The Cochrane Collaboration which involved review of 25 studies with 1098 eyes of 1098 participants, no one treatment emerged as a clear leader in terms of efficacy. The studies examined included Anti-VEGF injections such as Ranibizumab, Becacizumab; Photodynamic Therapy; Focal Laser; therapeutics such as beta-blockers and CALs; H. pylori treatment and nutritional supplements.

VI. Conclusion

- The take away points of this case are that sometimes, patient’s accounts of their symptoms can be far more accurate than we may give them credit for.
- Likewise, certain key symptoms such as a change in color vision, double vision, and many others can lead clinicians to leap to certain conclusions that may involve much rarer or more serious conditions, while overlooking more commonplace or benign presentations.
- Ultimately, it can be difficult in practice to know which key details in a patient’s report of symptoms are the most relevant to making the correct diagnosis of the underlying condition.
I. Case History
   a. Patient Demographics: 66 yoa white male
   b. Chief Complaint
      i. Red, watery left eye x at least 2 months
      ii. No improvement with antibiotic ointment or warm compresses
      iii. No pain but sometimes aches
   c. Ocular History / Medical History
      i. Ocular History
         1. Exudative ARMD s/p Avastin & Lucentis Injections Both Eyes
         2. Nonarteritic Anterior Ischemic Optic Neuropathy Right Eye
         3. Legal Blindness
         4. Mild Senile Cataracts OU
         5. Last Visit: 1 month prior
            a. OS red, swollen, yellow discharge
            b. Previously was somewhat tender, bothersome lower eyelid bump
            c. Had been using antibiotic ung from the nurse at retinal specialist x 1 month but ran out recently
            d. Dx bacterial conjunctivitis 2° to blepharitis
            e. Begin lid scrubs, warm compresses bid OU, erythromycin ung bid OS x 1 week then d/c
      ii. Medical History
         1. IDDM II, HTN, CAD, s/p Angioplasty, Transient Cerebral Ischemia
         2. Most recent lab work: normal except for slight increased WBC 11.9 (RR: 5-10)
         3. h/o colonic polyps/tubular adenoma 2005 & 2007
   d. Medications
      i. Current eye medications: Erythromycin ung bid OU
      ii. Current systemic medications: Insulin, Glipizide, Metformin, Simvastatin, Metoprolol, Lisinopril, Albuterol, Ibuprofen
II. Pertinent Findings
   a. Clinical
      i. Visual Acuities: 20/200 OD, 20/400 OS, PHNI
      ii. CVFs: full (note: kinetic VF ran on separate day, significant superior constriction left eye)
      iii. EOMs: full range right eye, slightly restricted inferior gaze left eye, no pain or diplopia
      iv. Pupils: equally round, reactive, no APD
   b. Physical
      i. Slit Lamp Examination:
         1. Right Side/Eye: essentially normal
         2. Left Side/Eye
            a. Adnexa: erythema, firm, nontender, slightly mobile elevated mass
            b. Orbits: left globe higher than right on comparison
            c. Lids/Lashes/Lacrimal: cyst of moll medial, normal lash structure, lacrimal gland normal on palpation
d. Bulbar Conjunctiva: 1+ diffuse injection (note: tr diffuse injection OD)
e. Palpebral Conjunctiva: multiple concretions inferior, engorged vasculature visualized in inferior fornix with extreme lid eversion and superior gaze
f. Cornea: 1+ SPK inferior
g. Anterior Chamber: deep and quiet
h. Iris: flat and intact

ii. Posterior Pole: noncontributory, stable h/o EARMD OU and NAION OD
c. Radiological Studies
   i. Multidetector helical CT, 2.5mm sections, before and after contrast
      1. Performed the next day as it was the afternoon and patient had eaten within 4 hours
      2. Findings
         a. Lobulated, homogeneously enhancing extraconal mass inferior aspect of left orbit, extends through infraorbital foramen, through orbital floor, extends adjacent to and lateral to left inferior rectus muscle, 1cm thick component anterior to left inferior orbital rim anterior to wall of left maxillary sinus (1.9cm wide)
         b. Orbital Dimensions: 3.3cm anterior-posterior, 2.6 cm transverse, 1.3cm craniorcaudad dimension of the extraconal component (~3cm when taking into account the portion within the left maxillary sinus)
         c. Mass widens and erodes left infraorbital fissure, adjacent bones do not show demineralization
d. Left ostiomeatal unit patent, no mass in ethmoid air cells or left nasal fossa; right side is patent and unremarkable
e. Mass effect of left intraconal structures from the extraconal mass, no rectus muscle invasion, globe and contents slightly deformed but intact, lacrimal gland normal

   ii. MRI with/without confirmed CT findings: homogeneously enhancing solid mass,
      1. Mass displaces left inferior rectus medially, extrinsic compression of globe without invasion, does not extend to the orbital apex
      2. Anatomic distribution suggests relation to the left infraorbital nerve

III. Differential Diagnosis
   a. Primary/Leading: Lymphoma to include MALToma
   b. Others: Metastatic Disease, IgG4-related disease, Nerve Sheath Tumor, Sarcoma, Granulomatous Process

IV. Diagnosis & Discussion
   a. Seen by orbital tumor specialist & neuro-ophthalmology / oculoplastics fellow 2 weeks later, admitted as an inpatient; ENT consulted
      i. Fine needle aspiration biopsy x4 (orbitotomy)
      ii. Open biopsy
      iii. Preliminary Pathology: B cell lymphoma
   b. Hematology consulted for staging and treatment as indicated
      i. PET scan ordered for 1 week later:
      ii. Primary vs Secondary lymphoma
      iii. Results: Primary, no other sites visualized
   c. Ocular Lymphomas Overview
      i. Hodgkin vs non-Hodgkin
d. Unique Features of Primary Diffuse Large B-Cell Orbital Lymphoma
   i. Epidemiology
   ii. Diagnosis & Staging
   iii. Treatment Guidelines
   iv. Prognosis
   v. Recommended Follow-Up

V. Treatment & Management Plan
a. Treatment Options
   i. Radiation
   ii. Chemotherapy
   iii. Surgical Excision
   iv. Combination
b. This patient’s management strategy:
   i. Bone marrow aspiration planned
   ii. Chemotherapy x 3 @ 3-week intervals
   iii. Repeat PET scan
   iv. Repeat CT orbits without contrast and kinetic HVF in-house at later date
c. Tx & response to Tx
   i. Prognosis: up to 100%
   ii. Recurrence: 30-50%, may recur in CNS

VI. Conclusion (Clinical pearls, take away points if indicated)
a. Nonspecific ocular complaints can mask diagnosis
b. Unresolving symptoms should be investigated further
c. Recurrence is possible; long-term follow-up is required

VII. Bibliography / Literature Review