Ophthalmmic Pathology in a 16 year old Hispanic Male Concussion Patient

“Can my concussion cause a rash?”

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Case History Day 1

- Patient is a 16 year old Hispanic male that initially presented to the Emergency Room one day after sustaining a right-sided head injury associated with a brief loss of consciousness during football practice.

- Presenting symptoms (At ER):
  - Severe frontal retro-orbital headache
  - Achy, throbbing forehead pain radiating into his eyes
  - Photophobia
  - Hyperacusis
  - Dizziness
  - Neck pain and Cervical spine tenderness

- Unremarkable non contrast CT of head and cervical spine

- Unremarkable PMH

- Patient diagnosed with a concussion at ER based on clinical signs/symptoms

Source: Radiopedia
Day 3

- Re-evaluated at the ER due to:
  - Progressing Right Eye pain and headache
  - Nausea and vomiting
  - New painful rash over the right face
  - Severe right-sided facial pain
  - Photophobia bilaterally (R>L)

- Infectious Disease consulted
Labs (Day 3)

CBC
- H/H: wnl
- WBC: wnl
- Diff:
  - neutrophils: 75%
  - lymphocytes: 15.8%

BMP WNL

HSV swab pending

HIV testing negative

Urine GC/Chlamydia negative

Referred for Follow up at Concussion Clinic, Ophtho, along with ID clinic FU
Physical Exam (Day 6)

- **Gen:** Slight distress, well-appearing
- **Skin:** *erythematous maculopapular rash in a dermatomal pattern on right forehead with vesicles on an erythematous base*
- **HEENT:** extra ocular movements intact, pupils equally round and reactive to light and accommodation, no scleral icterus, **Swelling, lack of involvement of cornea, severe photophobia on right**
- **Neck:** non-tender over cervical spine, full range of motion, with end range stiffness
- **Psychiatric:** WNL
- **Neurologic:** Cranial nerves II through XII clinically intact. **Severe tenderness along V1 dermatome.** Motor and sensory neurologic testing intact in all 4 extremities. Normal muscle bulk and tone throughout, DTR’s +2/+2 symmetric in all 4 extremities Normal gait. Strength 5/5.
- **VOMS Deferred due to severe oculomotor symptoms.**
- **BESS testing:** double leg-0 errors, tandem-2 errors, single-deferred
- **MSK:** moving all extremities equally, full strength, no atrophy
Testing (Cont)
Day 6

SCAT Score: 80

King Devick
Deferred due to ocular pain

Bertec Force Plate Testing
Mild abnormalities vestibular neuromuscular testing

ImPACT Testing
Deferred due to severe symptoms

Exercise Tolerance Testing
Deferred due to severe symptoms
Differential Diagnosis

- Herpes Zoster Ophthalmicus
- HSV 1
- Preseptal Cellulitis
- Orbital Cellulitis
- Atopic Dermatitis
- Eczema Herpeticum
Final Diagnosis

Diagnosis: Mild traumatic brain injury with associated morbidity of transient immunosuppression causing Herpes (VZV) Zoster Ophthalmicus.
Treatment (Day 6)

- **Concussion Clinic Treatment:**
  - Neurontin 300mg capsule 1PO tid for pain
  - Vestibular/cervical spine rehab exercises and stretches
  - Benadryl OTC ointment and Benadryl 25-50mg PO PRN at bedtime for itch
  - Ondansetron ODT 4-8 mg PO prn (used week 1-2 only)

- **Ophthalmology Treatment:**
  - Erythromycin 5 mg/ GM ointment
  - Prednisone Acetate 1% suspension

- **Infectious Disease Treatment:**
  - Acyclovir 800 mg 1 tab PO qid x 14 days
Course (Week 2)

Improvement in Symptoms

- Photophobia
- Headache
- Rash
- SCAT Score: 50
- Begins Part Time School

Testing

- King Devick
  Vision I: 16.25 II: 16.84 III: 18.06
- ImPACT approaching baseline
- AR Step 1 Tolerated
**Week 3**

**Improving Symptoms**
- SCAT: 30
- Tolerating half time school

**Testing**
- KD Vision I: 13.94 II: 14.72 III: 14.50
- ImPACT baseline
- AR Step 3
- NPC normal

**Week 5**

**Asymptomatic**
- SCAT: 0
- Transitioning to full time school

**Testing**
- Tolerates AR Step 5 (Maximum Exertion)
- Cleared for non contact sports
Return to Play

Week 7
- Patient tolerating school full time
- Tolerating progressive return to low risk sports per concussion guidelines.
- MRI brain normal
Week 11

Cleared by ID and Ophthalmology
Continued clearance for contact sports
Final Thoughts

2. Additive effect of HZO and concussion on visual symptoms.
3. HZO and complication of concussion treatment and/or delay in recovery.