Horner’s Syndrome: When An Optometrist Needs to be a Detective

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Abstract

Horner’s Syndrome is a condition that can occur from an array of causes ranging from benign to life threatening. This case highlights a patient with Horner’s Syndrome developing after a left carotid artery dissection.

I Case History

A. Patient Demographics: 67 year old white male

B. Chief Complaint:
   1. Presents for comprehensive primary care exam
   2. Patient presented with complaints of redness and tearing OS

C. Ocular History:
   1. Distance and near vision blur OD<OS

D. Medical History:
   1. Left Carotid Dissection (3/24/14)
      Neuroimaging (12/19/13) noted new mass in left neck and CT scan showed mass infiltrating into the Sternocleidomastoid muscle. The mass was encircling the left carotid artery at the level of the thyroid cartilage.
   3. Malignant Neoplasm of Lymph Node: vocal cord paresis
   4. Aortic Valve Replacement: (10/2010)
   5. Right frozen shoulder
   6. Tonsillectomy

E. Medications:
   1. Clopidogrel Bisulfate: 75mg TAB mouth once a day
   2. Cyanocobalamin: 1000mg TAB by mouth
   3. Levothyroxine: 0.15mg TAB by mouth daily
   4. Minocycline HCL: 100mg CAP by mouth twice a day

II Pertinent Findings
A. Clinical Findings
   1. BCVA OD: 20/25-3 OS: 20/30+2

2. Pupil Testing:
   a) Pupil Size in Bright Light
      OD: 4 mm OS: 2 mm
   b) Pupil Size in Dim Light
      OD: 6 mm OS: 3 mm
   c) Pupil Size with Near Target
      OD: 4 mm OS: 2 mm
      (-)Near light dissociation (-)RAPD

3. Motilities: full and comitant no pain and no diplopia

4. CVF: full all meridian OD/OS

5. Anterior Segment
   A. (+) Ptosis OS
      OD: MRD 1: 5mm MRD 2: 8mm
      OS: MRD 1: 2mm MRD 2: 8mm

Conjunctiva: OD: clear OS: trace diffuse bulbar conjunctival injection
Cornea: OD: mild SPK OS: Dense SPK; instant TBUT OU

B. Goldmann Tonometry OD: 14mmHg OS: 13mmHg Time: 2:05pm

C. Dilated Fundus Exam
   a) Posterior Pole: Unremarkable: C/D ratio: OD: 0.35 OS: 0.30 pink, healthy rim, distinct margins
   b) Periphery: Unremarkable

B. Additional Testing
   1. Color Vision Ishihara
      OD: 14/14
      OS: 14/14

   2. Red Cap Desaturation
      OD: 100%
      OS: 100%

C. Imaging
1. Anterior Segment Photos taken to document (+)Ptosis OS

2. Fundus Photos taken

3. Humphrey Visual field 30-2
   OD: fair reliability, scattered defects (-)neurological defects
   OS: fair reliability, scattered defects (-)neurological defects

4. Macula OCT with rNFL Analysis
   OD: average thickness 209 microns; within normal limits
   OS: average thickness 221 microns; within normal limits

III Differential Diagnosis

A. Primary/Leading Diagnosis:
   1. Post ganglionic Horner’s Syndrome

B. Other Differentials:
   1. Third Nerve Palsy
   2. Argyll Robertson Pupil
   3. Adie’s Pupil

IV Diagnosis and Discussion

Left Horner’s Syndrome

A. Neuroimaging from (12/19/13) noted new mass in left neck and CT showed mass infiltrating into the Sternocleidomastoid Muscle. The mass was encircling the left carotid artery at the level of the thyroid cartilage. Patient had a left neck dissection on 3/24/14.

B. Patient’s clinical findings support the characteristics of a Horner’s Syndrome. Patient has a ptosis OS and MRD values indicate significant ptosis. Pupil sizes in light, dim, and near suggest a sympathetic denervation OS.

C. Patient presented with complaints of redness and tearing OS. Clinical findings showed trace bulbar injection with tearing and SPK OS. Research supports an association between Horner’s with inability to close the eyelid, increased tear viscosity, and redness in conjunctiva.

D. Patient does not report neurological symptoms specifically brain stem associated neurological symptoms. Visual field, color vision, red cap desaturation, and fundus evaluation were unremarkable OU.

E. Further pupillary testing is necessary with Iopidine to further confirm diagnosis. Iopidine testing for confirmation was delayed until next follow up due to the high likelihood of false negatives close to the start of the condition.
V Treatment and Management

A. Continue to monitor patient for changes or progression. Patient was scheduled for a 2-3 month follow up to assess stability and for Iopidine testing.

B. Patient is currently not being followed by neurologist and patient was educated to be followed by a neurologist and to seek immediate medical attention if notes visual or ocular changes or if develops neurological symptoms.

VI Conclusion

A. Horner’s Syndrome can be caused by any interruption along the Oculosympathetic pathway and is characterized by ptosis, miosis and anhydrosis.

B. Upon taking a thorough clinical history and reading over primary care notes, it was concluded that this patient’s Horner’s syndrome was iatrogenically caused by the removal of the invading mass surrounding his left carotid artery.

C. It was important to differentiate in this case whether the Horner’s syndrome was caused by the tumor or the neck dissection. As per the history, the timeline of events as well as clinical documentation on the patient, the patient’s symptoms of the ptosis initially started post the dissection.

D. The patient’s only complaint was redness and tearing OS, the affected side, so in this case it is crucial to assess and determine if there is an association between these symptoms with Horner’s Syndrome. This is a relationship that is not heavily documented in clinical based studies but, there is research that supports an association between Horner’s with inability to close the eyelid, increased tear viscosity, and redness in conjunctiva. These symptoms are attributed to increased arteriolar and venous dilation.

E. When a Horner’s Syndrome is presented to the Optometrist, the history as well as supporting documentation is crucial in determining diagnosis and management. It is important to review the anatomy of the Oculosympathetic pathway as well as the clinical findings associated with lesions located at various positions along the pathway.

F. A thorough work up including pupil measurements in dark and light setting as well as extraocular motor testing is important. Pupil measurements will help in differentiating the case with other pupillary anomalies like Third Nerve Palsy, Argyll Robertson and Adies pupil.

G. Furthermore, neurological in office testing should be done like Ptosis documentation, visual field, color vision, and red cap desaturation. Based on the results of history, clinical presentation, in office testing, the clinician can determine the need for more imaging to rule out any life threatening causes of Horner’s.