Third Nerve Palsy Caused by Giant Cell Arteritis in an Elderly Hispanic Female

Abstract

Although giant cell arteritis is a rare etiology of a third nerve palsy, it is crucial to be able to identify, understand and manage these patients promptly to decrease the risk of vision loss.

I. Case History

Patient demographics
- 70 yo Hispanic female

Chief complaint
- Complaint of droopy eyelid and periorbital pain of the left eye for three days. Her symptoms have been getting progressively worse. She rates the pain as 9/10 and described it as a dull ache that extends to the forehead and temporal region
- She denies double vision or a decrease in vision
- She reports falling two days prior to onset of symptoms. She denies hitting her head during the fall, however she reports that she was not able to stand up until she received help the next day from a family member
- She visited her primary care provider (PCP) two days after onset of symptoms, who directed her to our clinic

Medical history
- Diabetes mellitus Type 2
- Hypertension
- Hypercholesterolemia

Ocular history
- Cataract Extraction OD
- Cataract Extraction OS
- Dry Eye Syndrome OD, OS

Medications
- Terbinafine
- Aspirin
- Metformin
- Lisinopril
- Klor-Con 10
- Gabapentin
- Furosemide
- Famotidine
- Clopidogrel
• Carvedilol
• Atorvastatin

Allergies
• Penicillin

II. Pertinent findings

Initial Exam (Day 1)
• Distance unaided Visual Acuity:
  OD: 20/25 PH: NI
  OS: 20/40\(^2\) PH: NI (with lid holding)
• Pupils: PERRL (-) APD
• EOMs: FROM OD (photo OU)
  Moderate exotropia present, moderate adduction, elevation and depression deficits OS
• CVF: FTFC OD, OS with lid holding
• Slit lamp findings:
  \textit{Anterior}: OD-centered PCIOL
  OS-total ptosis with lower lid lag (photo OU), PCIOL with 1+ PCO
  \textit{Posterior}: OD-pseudo pallor of optic nerve, small heme at inferior/nasal part of
disc, AV nicking, scattered microaneurysms. (-) edema of optic nerve
  OS-pseudo pallor of optic nerve, (-) edema of optic nerve (photo OU)
• Intraocular pressures: 17 mmHg OD, OS
• Blood Pressure: 143/69 mmHg
• Blood sugar: 269 mg/dL as of that morning, HbA1C: 8.0 % as of 1 month prior

Patient was referred to ER for work-up to rule out GCA

Results from ER visit (Day 1)
• ESR: 52mm/hr
• Platelet count: 219 K/UL
• CT head scan without contrast: No acute intracranial abnormality

Follow-up exam (Day 4)
• Distance unaided Visual Acuity
  OD: 20/25 PH: NI
  OS: 20/40\(^2\) PH: NI (with lid holding)
• Pupils: PERRL (-) APD
• EOMs: FROM OD
  Moderate exotropia present, moderate adduction, elevation and depression deficits OS
• CVF: FTFC OD, OS with lid holding
Slit lamp findings:

**Anterior:** OD-centered PCIOL
- OS-total ptosis with lower lid lag, PCIOL with 1+ PCO, white mucous strands in tear film

**Posterior:** OD-pseudo pallor of optic nerve, small heme at inferior/nasal part of disc,
- AV nicking, scattered microaneurysms, (-) edema of optic nerve
- OS-pseudo pallor of optic nerve, (-) edema of optic nerve

- Intraocular pressures: 17 mmHg OD, 18 mmHg OS
- Blood Pressure: 170/90 mmHg

III. Differential Diagnosis

Primary differential diagnoses: Complete pupil-sparing third nerve palsy, complete pupil-involving third nerve palsy or incomplete third nerve palsy.

Potential etiologies of third nerve palsy: aneurysm, trauma, neoplasm, multiple sclerosis, microvascular ischemia secondary to diabetes, hypertension or giant cell arteritis

Other differential diagnoses: Orbital malignancy, syphilis

Secondary diagnosis:
- mild non-proliferative diabetic retinopathy OD
- dry eye syndrome OS>OD
- posterior capsular opacification OS

IV. Diagnosis and discussion

- Diagnosis- incomplete third nerve palsy without pupillary involvement secondary to giant cell arteritis (GCA)
  - Incomplete third nerve palsy due to presence of limited motility superiorly, nasally and inferiorly with total ptosis
  - Considered microvascular ischemia secondary to poorly controlled blood sugar and blood pressure as the etiology
  - Need to rule out GCA based on patient demographics and new onset of periorbital pain
  - Referred patient to ER for GCA work-up including Westergren SED rate (ESR), C-reactive protein (CRP) and platelet testing, temporal artery biopsy
  - ER doctor did not order temporal artery biopsy for this patient
  - SED rate and platelet results were elevated. Patient was diagnosed with giant cell arteritis by ER doctor and referred to PCP for management
  - Patient needs to be monitored closely to rule out pupillary involvement, which can may be delayed by 5-7 days
  - CT scan was performed on this patient, however current literature recommends MRA/MRI patients with third nerve palsy to rule out mass or aneurysm
Indication for MRA/MRI increases if patients fails to have complete motility involvement, symptoms do not resolve in 6-8 weeks, show signs of aberrant regeneration or have pupillary involvement

- It would be prudent to run MRA and MRI on this patient because of her recent fall just prior to onset of symptoms

V. Treatment

- Giant cell arteritis is treated with corticosteroids
- Typically a high dose of intravenous methylprednisolone, followed by 80-100 mg/d po of prednisone is recommended
- Immediate treatment is important to decrease risk of vision loss associated with arteritic anterior ischemic optic neuropathy
- Our patient was treated initially with 20 mg/d po of prednisone. The ER physician may have prescribed a lower dose of prednisone to reduce the potential risk of diabetic complications
- Our patient was referred to her PCP for management
- Recovery after onset of treatment is relatively rapid
- It can take several days to resolve compared to third nerve palsy secondary to microvascular ischemia, which can take 3-4 months to resolve

VI. Conclusion/Clinical Pearls

- Monitor for pupillary involvement for up to seven days
- Laboratory testing to determine ESR and CRP levels should be performed on all patients greater than 50 years who present with a third nerve palsy to rule out GCA
- Not all patients with GCA will have periorbital pain, scalp tenderness or jaw claudication at initial exam
- Prompt diagnosis and treatment is vital in decreasing risk of vision loss
References

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