Management of the Patient with Double Vision

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Objective

Describe the management of binocular diplopia.
Outline

I. Determining Alignment
II. Is it Isolated?
III. Specific Causes of Diplopia
   i. Sagging Eye Syndrome
   ii. Cranial Nerve Palsies
   iii. Thyroid Eye Disease
   iv. Myasthenia Gravis
   v. Unknown
Diplopia

Monocular

uncorrected astigmatism

corneal scar
cataract
subluxed lens / implant
epiretinal membrane
palinopsia
Diplopia

Monocular - Assessment

pinhole
refraction
corneal topography
slit lamp exam
funduscoppy
Monocular Diplopia

Neurologic
Assessment of Misalignment

Objective Methods

• cover - uncover (tropia) + prism

• cross - cover (phoria) + prism

• Hirschberg (I don’t want to hear it!)
She has

1. Esophoria
2. Esotropia
3. Exophoria
4. Exotropia
He has

1. Esophoria
2. Esotropia
3. Exophoria
4. Exotropia
Is it Isolated?

Any other neurologic symptoms or signs?

Multiple Cranial Nerves?
71 you WF c/o diplopia for at least several months.
Denies variability, ptosis, other muscle weakness
Exam: mild ptosis OU, full ductions & versions

Most consistent with:
1. Myasthenia Gravis
2. Sagging Eye Syndrome
3. Thyroid Eye Disease
4. 6\textsuperscript{th} nerve palsy
Measured:

- Rectus pulley locations
- Lengths of LR-SR band ligament & rectus muscles
- Facial features

LR-SR Band
Sagging Eye Syndrome

Prevalence in Adults with Diplopia

- All new pts age>40, 2015-2020
- 945 pts, mean 66.5
- SES 31.4%, older (71) & female (60%)
- SES 4.7% age < 50, 61% age > 90
- Cyclovertical component 65%

Sagging Eye Syndrome

Management

– Consider myasthenia (can mimic anything!)
– Re-measure at least once
– Prism usually effective
– Strabismus surgery
Most consistent with:
1. Myasthenia Gravis
2. Sagging Eye Syndrome
3. Thyroid Eye Disease
4. 3rd nerve palsy
Most consistent with:
1. Myasthenia Gravis
2. Sagging Eye Syndrome
3. Thyroid Eye Disease
4. 3rd nerve palsy
3rd Nerve Palsy

Management

▪ Urgent MRI/MRA or CT/CTA

▪ If normal, consider catheter angiogram if high suspicion

▪ If age > 50, probably microvascular
  ▪ See them in 6 weeks to be sure improving
Most consistent with:
1. Myasthenia Gravis
2. 3\textsuperscript{rd} nerve palsy
3. 4\textsuperscript{th} nerve palsy
4. 6\textsuperscript{th} nerve palsy
Most consistent with:
1. Myasthenia Gravis
2. 3\textsuperscript{rd} nerve palsy
3. 4\textsuperscript{th} nerve palsy
4. 6\textsuperscript{th} nerve palsy
4\textsuperscript{th} or 6\textsuperscript{th} Nerve Palsy

Management

- If age > 50, probably microvascular
  - See them in 6 weeks to be sure improving
  - If no better, MRI

- If < 50, MRI (tumor, MS, other)

- 4\textsuperscript{th} n could be old & decompensating

- Consider myasthenia if variable or not improving
Most consistent with:
1. Myasthenia Gravis
2. Sagging Eye Syndrome
3. Thyroid Eye Disease
4. 6th nerve palsy
Thyroid Eye Disease

Management

- Stop smoking!
- Prism
- Strabismus surgery

- Teprotumumab (Tepezza)
  - Insulin-like growth factor-1 inhibitor
  - 8 intravenous infusions (21 wks total)
  - In the US: total cost 120K-225K!
Clinical Photographs of a Patient in the Teprotumumab Group

Baseline

24 Wk after Initial Dose

CC: A 56-yo-WM c/o diplopia X 1 week

Exam:
VA: 20/20 OU, Pupils: 4 → 2, brisk, no rapd
Motility: mild deficit in depression OD, RHT in downgaze

Most consistent with:
1. Myasthenia Gravis
2. Sagging Eye
3. Thyroid
4. 6th nerve palsy
Myasthenia Gravis

Management

- Sleep or Rest test
- Ice test
- Acetylcholine Receptor Antibody
- Electromyography
Myasthenia Gravis

Management

- Get Neurologist involved!
- Chest CT r/o thymoma
- Pyridostigmine: 30 mg TID, increase to 60 mg TID
- Corticosteroids
- Mycophenolate Mofetil, Azathioprine, IVIg
Diplopia: “Unknown”

Management

- Hopefully, rare occurrence!
- Doesn’t fit any particular pattern
- MRI, ACHR Ab normal (still could be MG)
- Still could be MG
- Repeat exam every 6-8 weeks, try pyridostigmine trial
- Sometimes repeat imaging
Summary

1. Make sure it's not monocular!

2. Must determine the pattern of misalignment.

3. Consider Myasthenia in every patient with double vision or ptosis.
Thank-you for your attention.