

Case 12: DIPLOPIA & MULTIPLE SCLEROSIS (Slide CC11-3)

Note: Multiple Sclerosis is a tragic illness characterized by multiple neurologic abnormalities separated in space and time due to evolving waxing and waning plaques of demyelination in the CNS. In CASE 3 try to ignore the background of changing abnormalities and focus on our patient's newly occurring diplopia.

Chief Complaint: The patient is a 25 year old woman with a history of multiple sclerosis (MS) for the past two years who now presents with two weeks of diplopia.

History of Present Illness/Past Medical History: Two years ago, the patient was first seen by a neurologist for intermittent itching, numbness and weakness in her arms and legs. A workup including MRI, evoked potentials and LP was eventually diagnostic for MS. Since then, her symptoms continued to wax and wane.

She was last seen several weeks ago and had a slightly broad based gait, bilateral FNF intention tremor, marginally decreased vibration sense and brisk lower extremity reflexes with Babinski on the R. The patient now complains of continued parasthesias and weakness, and two weeks of **diplopia**.

Physical Examination: General Physical Exam - nl.

Neuro:

Mental Status: Normal except for somewhat labile affect.

CN: PERRL, Visual fields full, Visual acuity 20/20 bilat., fundi nl.

EOM: On horizontal gaze to the right, L eye does not adduct past the midline.

R eye has sustained end gaze nystagmus on abduction.

Normal left horizontal gaze.

L eye *can* adduct past the midline with convergence testing.

Face symm., Nl. sensation, Palate elev. symm., CN XI nl., Tongue mid.

Motor Strength: 5/5 on R. 4/5 L arm, 5/5 L leg.

Reflexes: Nl. 2+ symm., No Babinski.

Sensory: Decr. vib.sens. in left leg. Normal pain, temp. and light touch.

Coord: Nl. FNF, Heel Shin. Gait: Unsteady, wide based.

Questions:

1. Draw the appearance of this patient's eyes:
 - a. When she tries to look to the right
 - b. When she looks to the left
 - c. When looking at a pencil moving towards her face (convergence testing).
2. Which cranial nerves and which extraocular muscles are primarily used in 1 a, b and c.

3. What is the name of the pathway conveying information between the nuclei of CNs VI and III and how could a lesion in this pathway produce the above findings (ignore the nystagmus for now and just suppose the right eye can abduct normally).