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Abstract 22-05

Title: I kNOw Where My Eyes Go: A Case Study of Internuclear Ophthalmoplegia

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Introduction/Background: Internuclear Ophthalmoplegia, or INO, is a conjugate lateral gaze disorder characterized primarily by an impairment of adduction in the affected eye. Any brainstem lesion that results in damage to the medial longitudinal fasciculus (MLF) can cause an INO. The MLF is a myelinated tract that allows for the communication between the abducens nuclei and oculomotor nuclei, thereby playing a vital role in the coordination of horizontal eye movements.

Description: A 57-year-old male with a past medical history of hypertension, hyperlipidemia, hepatitis C, diabetes mellitus, and a previous history of stroke presented to the ED with acute-onset diplopia and gait instability. An initial NIHSS score of 3 was given for gaze palsy and right facial droop. For the patient's prior stroke in April 2022, he was treated with dual anti-platelet therapy for 21 days and was discharged with a Holter monitor that he only wore for 4 days. He additionally endorsed a history of alcohol, tobacco, and cocaine use. On exam, his left eye was down and out at midline and he had partial hemianopia in his L visual field. Of note, the patient displayed an inability to adduct his right eye with slight nystagmus of the left eye. A non-contrast head CT revealed chronic infarcts in the right cerebellum, right thalamus and paramedian pons. A brain MRI highlighted lacunar infarcts in the left posterior rim of the internal capsule and the right midbrain. He was treated with secondary stroke prevention and counseled regarding his substance use to reduce the risk of stroke recurrence.

Discussion and Conclusion: The patient described above had a classic case of internuclear ophthalmoplegia secondary to an infarction in the right midbrain (the location of the MLF). This is a condition in which the eye ipsilateral to the lesion cannot adduct and the unaffected eye displays nystagmus. While internuclear ophthalmoplegia is typically associated with demyelinating disorders such as multiple sclerosis, it is important to note that cases of INO can be caused by a variety of conditions ranging from infarctions, infections, trauma, and tumors. Moreover, the internuclear ophthalmoplegia seen in multiple sclerosis is often bilateral and seen in younger populations whereas INO secondary to ischemic disease are unilateral and more prevalent among the elderly, who are typically at a greater risk of stroke.

References: Feroze KB, Wang J. Internuclear Ophthalmoplegia. 2022 Jun 27. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. PMID: 28722999.