Teaching Video *NeuroImages*: Macrosaccadic oscillations induced by horizontal head impulses

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Figure Brain MRIs

T2-weighted sagittal (A) and axial (B) brain MRIs show a huge epidermoid cyst at the fourth ventricle that compresses the brainstem and cerebellum.

A 33-year-old woman experienced chronic dizziness for 2 years. Examination disclosed gaze-evoked nystagmus and hypermetric saccades. Macrosaccadic oscillations (MSOs) were induced by a gaze shift and horizontal head impulses (video at Neurology.org). Brain MRI demonstrated a large ($3.8 \times 3.9 \times 5.3 \text{ cm}^3$) epidermoid cyst at the fourth ventricle that compresses the brainstem and cerebellum (figure).

MSOs are hypermetric saccades around the fixation point with intersaccadic intervals that are usually induced by a gaze shift, but may occur during attempted fixation or even in darkness. MSO occurs with pontine or cerebellar lesions that compromise either the omnipause neurons or fastigial nucleus input, to premotor burst neurons.^{1,2} Retinal slip following horizontal head impulses can also trigger MSO.

AUTHOR CONTRIBUTIONS

Dr. S.-Y. Choi analyzed and interpreted the data and video and wrote the manuscript. Dr. J.-H. Choi and Dr. Y.J. Choi analyzed and interpreted the data and video. Dr. K.-D. Choi conducted the design, interpreted the data, and revised the manuscript.

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DISCLOSURE

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Supplemental data
at Neurology.org

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