Impaired ipsilateral smooth pursuit and gaze-evoked nystagmus in paramedian pontine lesion

Figure Recording of eye movements and radiologic findings

(A) During the horizontal smooth pursuit in response to a target moving sinusoidally (Micromedical, IL; $\pm 15^\circ$ at 0.2 Hz), the rightward pursuit is interrupted by catch-up saccades while the leftward pursuit is normal. Upward deflection indicates rightward eye motion. H = horizontal eye position. (B through D) Diffusion-weighted axial (B) and T2-weighted axial (C) and coronal (D) MRIs show an infarction in the left paramedian middle pons (arrow). (E) Cerebral angiography reveals a dissecting aneurysm in the middle portion of the basilar artery (arrowhead). (F) Schematic diagram of the pons at the level of the motor nuclei of the trigeminal nerve. DLPN = the dorsolateral pontine nuclei; MCP = middle cerebellar peduncle; MLF = medial longitudinal fasciculus; motor nucleus of V = motor nucleus of the trigeminal nerve; NRTP = the nucleus reticularis tegmenti pontis; PMT = the cell group of the paramedian tracts.

VIDEO

Supplemental data at
www.neurology.org

A 27-year-old man developed sudden dysarthria and left-sided weakness and paresthesia. Gaze-evoked nystagmus (GEN) was evident in bilateral horizontal gazes (see the video on the *Neurology* Web site at www.neurology.org). Rightward pursuit was interrupted by catch-up saccades while leftward pursuit was normal (figure, A, and video). Saccadic eye movements and vestibulo-ocular reflex were normal. Brain MRI showed an infarction in the right paramedian middle pons and cerebral angiography revealed a dissecting aneurysm in the basilar artery (figure, B through E). Impaired ipsilateral smooth pursuit may result from damage to the dorsolateral pontine nuclei or nucleus reticularis tegmenti pontis while the cell group of the paramedian tracts may be a neural substrate for the generation of GEN (figure, F).^{1, 2}

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