Palatal Tremor

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Neuroimaging

Figure 1: Axial NECT scan shows a large pontine hemorrhage extending into the midbrain.

This patient developed palatal tremor 2 years later.
Figure 2: Axial T2WI in a patient who developed palatal tremor 6 months after a midbrain bleed from a cavernous malformation shows a small mixed signal intensity lesion in the dorsal midbrain tegmentum.
Figure 3: Axial T2WI (same case as Fig. 2) shows enlarged olives with striking hyperintensity characteristic for classic hypertrophic olivary degeneration
Palatal Tremor

Continuous rhythmic movement of the soft palate
Persists in sleep and coma
Persists for life
Asymptomatic
Unilateral or midline
Palatal Tremor

Frequently associated with time-locked synchronous oculo-pharyngo-laryngo-respiratory muscle involvement

Latency 2 – 49 months mean 11 months post brainstem stroke

Pathophysiology, hypertrophy of the inferior olivary nucleus
Acquired Pendular Oscillations*

Symptomatic – oscillospsia
Time locked with palatal myoclonus
Suppressed in slow-wave sleep, present in REM sleep
Can be present only on eye closure
Senuoidal (pendular) wave form
vertical/horizontal/elliptical
Cold-caloric stimulation – no change
Full eye movements

*Frequently called ocular myoclonus
Figure 4. Direct current oculography showing vertical pendular ocular oscillations.
Figure 5. Schematic presentation of the main component of the ocular oscillations observed in the lateral form of OPM. They are reminiscent of ocular counter-rolling produced by head tilt about an anteroposterior axial lateral to the outer canthus of the eye (X).
Figure 6. The “myoclonic triangle.”
The Inferior Olive – (IO)

The observations support the view that the IO is the pacemaker

Histological evidence of hypertrophic degeneration

Normal IO cells have the capacity for spontaneous rhythmic discharges

PET: IO hyperactive – increased glucose uptake
Oculopalatal Tremor
Rhythmic Hyperactivity

Release or disinhibition of different primitive rhythms in branchial muscles (Yakolev 1956)

Rhythmicity on basis of denervation hypersensitivity of IO cells to transmitter (Matsuo & Ajax 1979)

IO cells produce rhythmic synchronized discharges under special conditions (Llinas 1984, Llinas & Yarom 1986)
Figure 7. EEG, EMG and EOG recorded during natural nocturnal sleep in patient 1. EEG (F, frontal; C, central); EMI (submental); EMG 2 (right facial); EOG 1 (right eye); EOG 2 (left eye).

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Time
References


