

Acquired Pendular Nystagmus after Intraventricular Hemorrhage

M Puderbaugh¹, DO; W Hsiao, MD¹; O Addoh¹, MBBS, PhD

1. University of Minnesota/ Physical Medicine and Rehabilitation Department

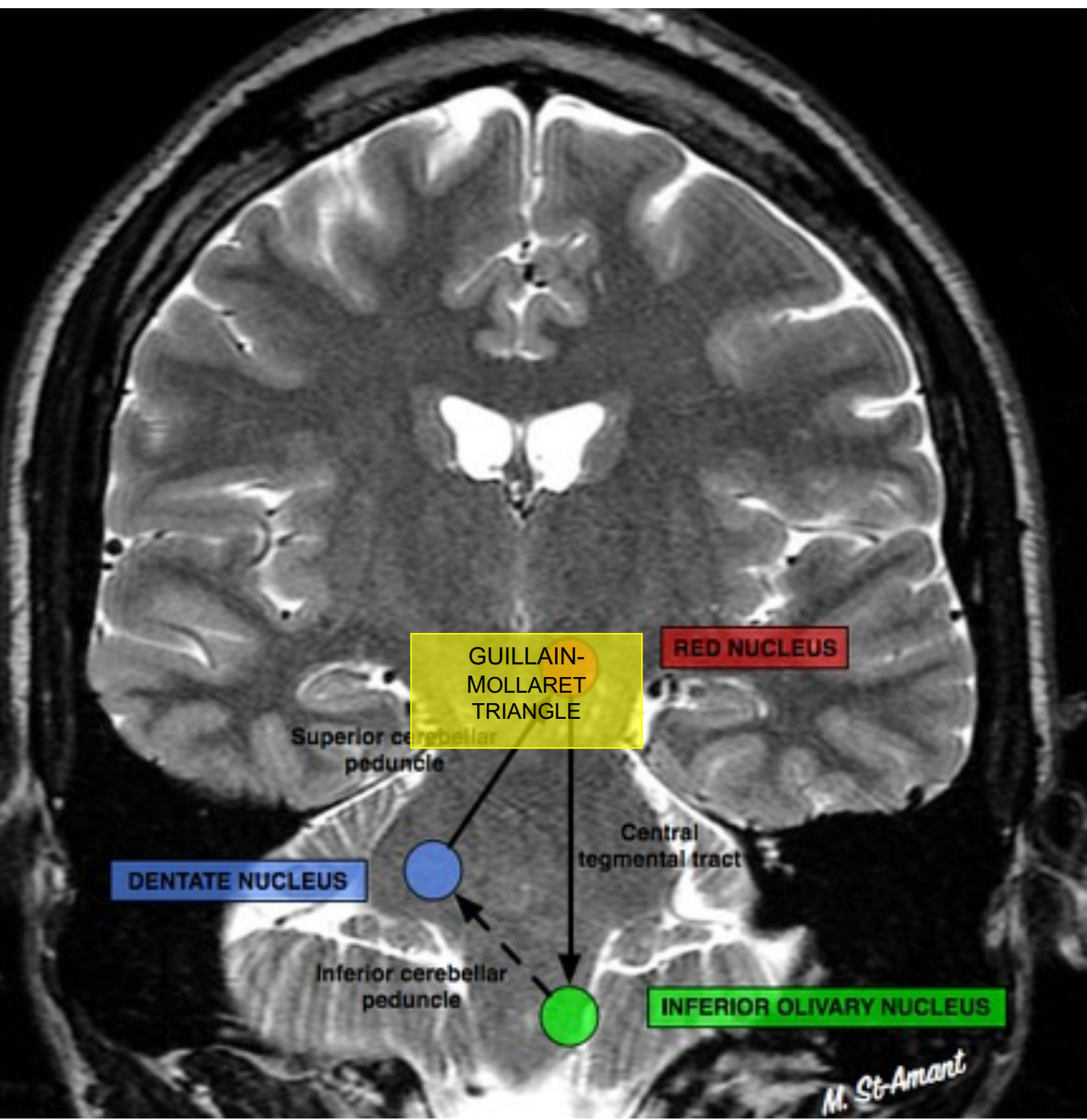
63 year old female with Intraventricular Hemorrhage found to have Acquired Pendular Nystagmus (APN).

Nystagmus can be a cause of significant disability and should be closely evaluated with treatment tailored appropriately.

This is the first known case of APN associated with IVH in an adult.

- A 63-year-old female, on anticoagulation due to artificial heart valves, developed intraventricular hemorrhage (IVH) secondary to supratherapeutic INR. She was treated with a temporary external ventricular drain while her INR was reversed and was stabilized, but still had persistent nausea and vomiting.
- She was admitted to inpatient rehabilitation and developed intractable nausea, vomiting, and worsening diplopia with oscillopsia limiting her participation in therapies. Repeat head CT showed resolution of IVH and did not show any new findings. Her symptoms were refractory to initial treatment options. Focused ocular exam noted nystagmus that was notable for horizontal, vertical, and torsional components, consistent with acquired pendular nystagmus (APN).
- Treatment consisted of gabapentin that was titrated up to 300 mg QID. There was noted improvement of her nystagmus and associated symptoms allowing her to participate in therapies and complete inpatient rehabilitation.

Types of Spontaneous Central Nystagmus					
Adapted from Strupp et al 2011	Downbeat nystagmus (DBN)	Upbeat nystagmus (UBN)	Acquired pendular nystagmus (APN)	Periodic alternating nystagmus (PAN)	Infantile (congenital) nystagmus
Direction of nystagmus (quick phase)	Downward, may be diagonal with lateral gaze	Upward	Mainly horizontal, may have vertical and/or torsional components	Horizontal	Mainly horizontal; may have torsional and small vertical components
Waveform (slow phase)	Jerk, constant, increasing, or decreasing slow-phase velocity	Jerk, constant, increasing, or decreasing slow-phase velocity	Pendular, sinusoidal slow-phase	Jerk, mostly constant slow-phase velocity	Accelerating slow-phases; foveation periods when the eye is transiently still
Special features	Increased intensity during lateral and downward gaze; sometimes influenced by convergence	Increased intensity during upward gaze; may convert to DBN on convergence	Associated with oscillations (e.g., palate) and with hypertrophic degeneration of the inferior olive	Changes direction every 90–120 s	Null zone, in which nystagmus is minimal; often suppressed with convergence
Sites of lesion	Cerebellum (bilateral floccular hypofunction); rarely lower brainstem lesions	Medial medulla, pontomesencephalic junction, rarely cerebellum	Pontomedullary, probably affecting areas of neural integrator for gaze holding	Cerebellum (nodulus, uvula)	Uncertain; some cases are associated with afferent visual system anomalies
Etiology	Cerebellar damage; idiopathic; often associated with bilateral vestibulopathy and neuropathy	Brainstem or cerebellar stroke and tumors; Wernicke's encephalopathy	MS, oculopalatal tremor due to brainstem or cerebellar stroke involving Guillain-Mollaret triangle	Cerebellar degeneration, cranio-cervical anomalies, multiple sclerosis, cerebellar tumors and stroke	Uncertain; may be associated with afferent visual system anomalies; hereditary in some patients (e.g., FRMD7 mutations)
Treatment	4-Aminopyridine, 3,4-diaminopyridine, baclofen (5 mg tid), clonazepam (0.5 mg tid)	Often transient, treatment often not necessary; baclofen (5–10 mg tid), 4-aminopyridine	Memantine (10 mg qid), gabapentin (300 mg qid)	Baclofen (5–10 mg tid)	Gabapentin (300 mg qid), memantine (10 mg qid)



Adapted from: <https://radiopaedia.org/articles/triangle-of-guillain-and-mollaret?lang=en>



Adapted from: https://www.youtube.com/watch?v=b4K0DmB_Ow&feature=youtu.be

- APN is a unique type of nystagmus characterized by horizontal, vertical, and torsional components. The nystagmus is thought to be secondary to damage to the neural integrator of gaze holding and is typically secondary to multiple sclerosis, brainstem or cerebellar stroke involving the Guillain-Mollaret triangle.
- While there have been reported cases of nystagmus with IVH in low-birth weight premature infants, APN has not been reported to be associated with IVH in the adult population.
- Treatment for APN can include memantine and gabapentin which are thought to help stabilize the neural integrator of gaze holding.

References:

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