A Novel Cause of Inferior Olivary Hypertrophy

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Case/Discussion

Inferior olivary hypertrophy (IOH) develops with lesions affecting the Guillain Mollaret triangle (GMT) otherwise known as the dento-rubro-olivary triangle. The triangle connects deep cerebellar nuclei, contralateral red nucleus, and inferior olive through the superior cerebellar peduncle, central tegmental tract, and inferior cerebellar peduncle, respectively.¹ Lesions are typically caused by arteriovenous malformation (AVMs), hemorrhages, infarcts, demyelination, or tumors,² and IOH occurs with a lack of GABAergic inhibition.³ Inferior olivary hypertrophy develops contralaterally with a cerebellar lesion and ipsilaterally with a brain stem lesion.

Here we describe a patient with a supratentorial glioblastoma multiforme (Figure 1) who was incidentally found to have an ipsilateral IOH (Figure 2) on routine imaging follow-up. Theories to explain ipsilateral IOH include a microscopic tumor infiltration of the triangle, radiation-induced injury to the integrity of the GMT, or as a result of

Figure 1. Large left temporal glioblastoma multiforme (GBM) lesion.

Figure 2. Left-sided inferior olivary hypertrophy.

a previously unknown supratentorial association of the GMT. Inferior olivary hypertrophy cannot be explained by mass effect on an ipsilateral red nucleus in this case.

Patients should be counseled on symptoms of oculopalatal tremor and cerebellar ataxia contralateral to the IOH that emerge in weeks⁴ and resolve within 2 years. Anticipation of IOH will prevent the neurohospitalist from pursuing workup for an erroneous differential of infarct or malignancy.

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Authors' Note

Joseph Zachariah had full access to all data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis

Declaration of Conflicting Interests

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