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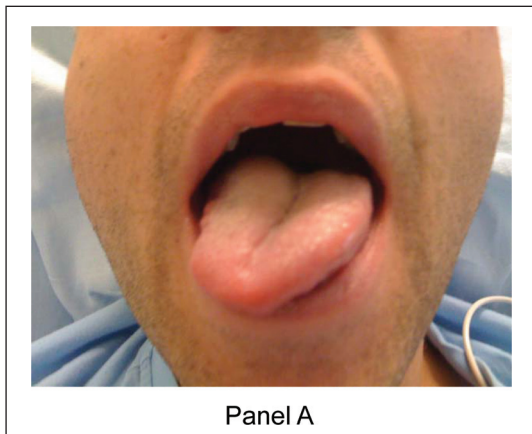
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Images in vascular medicine

Hypoglossal nerve palsy due to internal carotid artery dissection

Tobias Freilinger¹, Andreas Heuck², Michael Strupp¹
and Rainer Jund³



A previously healthy 35-year-old man developed right neck and shoulder pain following a judo training session. In addition, he experienced articulation problems and noticed deviation of his tongue to the right. He consulted an ear, nose and throat specialist (RJ) who did not detect any other abnormalities except for tongue deviation (Panel A). Neurological examination showed isolated right hypoglossal nerve palsy.

Magnetic resonance imaging (MRI) was performed: axial fat-saturated T1w (Panel B1) and T2w (Panel B2) sequences revealed an eccentric signal adjacent to a narrowed flow void (arrows) of the right internal carotid artery (ICA), which was hyperintense both on T1w and T2w, consistent with intramural hematoma; Panel B3 (T1w) shows a coronal view of the intramural hematoma (arrows) next to the narrowed ICA lumen (arrowhead). Based on these findings, a diagnosis of right ICA dissection was established. Duplex sonography of the right ICA and the other extra- and intracranial vessels did not show any hemodynamically relevant stenoses. Cranial MRI, including diffusion-weighted sequences, was without evidence of embolic infarcts. Laboratory and serological studies were unremarkable. Oral anticoagulation was performed for 6 months and then changed to aspirin. Under this regimen,

the tongue deviation disappeared completely within a few weeks.

The hypoglossal nerve is located in close proximity to the extracranial ICA. Therefore, in our patient, the (subadventitial) intramural hematoma caused compression and dysfunction of the right hypoglossal nerve, which innervates the ipsilateral muscles of the tongue. This leads to a deviation of the tongue to the affected (i.e. right) side, because the unaffected contralateral muscles function normally and push the tongue toward the weak side. On a coronal MRI, this is associated with an asymmetry of the posterior part of the tongue (Panel B4, arrowhead).

Cervical artery dissection is one of the most common cerebrovascular disease entities in young adults. Its etiology is not completely understood: it can occur after (minor) trauma – like in our case – but also spontaneously. Neurological manifestations include head and neck pain, cranial nerve palsies (preferentially in the setting of subadventitial hematoma localization), and – in the case of subintimal hematoma – embolic cerebral infarcts.¹

Summing up, although hypoglossal nerve palsy is a rare presentation of ICA dissection (< 10% of cases^{2,3}), this symptom, especially when occurring in young patients and/

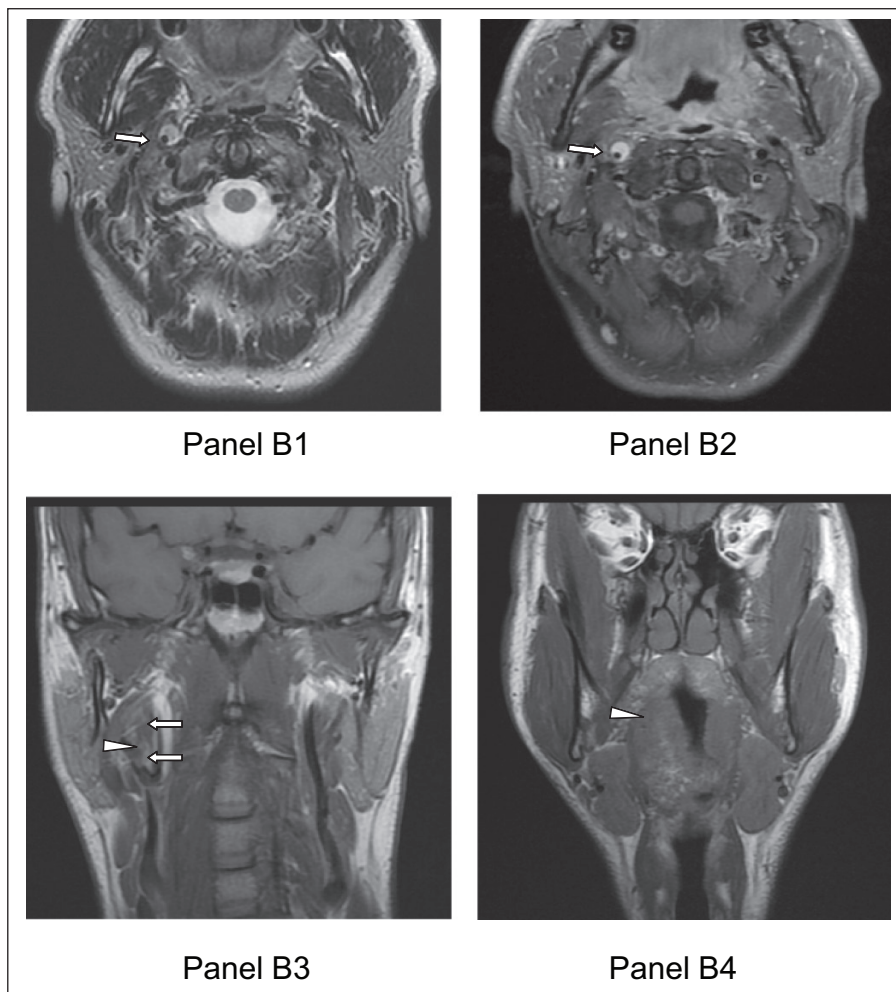
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or in association with head or neck pain, should prompt a search for ICA dissection, ideally by MRI of the neck.

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