Tongue Deviation in Acute Ischemic Stroke

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A 44 years old right handed male admitted with diagnosis of acute onset right sided hemiplegia with UMN 7th cranial nerve palsy and tongue deviation to same side because of involvement of left supranuclear fibres of right hypoglossal nerve (Figure 1a). MRI brain shows hyperintense area on diffusion weighted (Figure 2a) (DW) images and hypointense on (Figure 2b) ADC images in left lentiform nucleus and left fronto-parietal periventricular white matter area suggestive of early subacute infarct. Figure 1b shows minimal deviation of tongue to right on 7th day of discharge.

The motor neurons that exert voluntary control of tongue are located in precentral gyrus near the sylvian fissure. These neurons give rise to corticobulbar fibers that course through the internal capsule and then descend with the pyramidal tract into the 12th cranial nerve nuclei located in dorsal and medial part of medulla. The fibres then leave the medulla and passes through the hypoglossal canal to innervate tongue. Supranuclear innervation is mainly from the contralateral cortex.¹ Thus affection of right hypoglossal nerve by involvement of left supranuclear fibres in this case explains tongue deviation on side of hemiplegia.

In a study by Umapathi T et al, tongue deviation occurred in 29% of cases with unilateral stroke. Deviation of tongue was always towards the side of limb weakness and occurred with UMN seventh cranial nerve palsy.²

References


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