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NEUROLOGICAL PICTURE

Glossoplegia in a small cortical infarction

We recently observed a patient with obvious contralateral tongue deviation with minimal lower facial paresis caused by a small cortical infarction confirmed by MRI. The small cortical lesion, causing obvious tongue deviation in our patient, was located lateral to the precentral knob which is known as a reliable anatomical landmark for the motor hand area. We were able to localise the cortical area for tongue movement to the most lateral part of the precentral gyrus lateral to the precentral knob.

A 63-year-old, right-handed man with a 1 year history of hypertension suddenly developed dysarthria. He was alert, fully oriented and cooperative. There was no decline in language function. On cranial nerve examination, he was found to have tongue deviation toward the right with minimal right facial paresis with forehead wrinkling (fig 1A). The masseter and temporal muscles were normal, and soft palate movements were symmetrical. Muscle strength in the extremities, in particular the right arm and hand, was not decreased. MRI of the brain (fluid attenuated inversion recovery image (FLAIR), T2 and diffusion weighted image (DWI)) showed a small cortical infarction in the precentral gyrus of the left frontal lobe (fig 1B-D). There were no other abnormalities in the cerebrum, brainstem or cerebellum, and magnetic resonance angiography showed normal findings. The tongue deviation and dysarthria gradually improved but persisted 2 months after stroke onset.

To our knowledge, this is the first report of obvious tongue deviation with minimal lower facial paresis caused by a small cortical infarction confirmed by MRI. In a previous study with supranuclear vascular lesions, the frequency of tongue deviation was 29%, and marked facial/brachial paresis or hemiparesis was usually associated.¹ To localise the cortical lesion in our patient, the anatomical marking shaped like an omega in the axial plane of the patient's MRI (fig 1B-D), termed the "precentral knob", was clearly identified in the precentral gyrus. The small ischaemic lesion, causing obvious tongue deviation in our patient, was located lateral to the precentral knob which is known to be a reliable anatomical landmark for the motor hand area.² Recently, a study reported that pure dysarthria was seen in six stroke patients with a small cortical stroke located lateral to the precentral knob on DWI.³ However, the area was not clearly defined as the motor tongue area causing pure dysarthria because contralateral tongue deviation was not noted in all six and the lesion for pure dysarthria was localised lateral to the precentral knob in only two of the five patients with ischaemic stroke. Furthermore, the lesion was not identified by

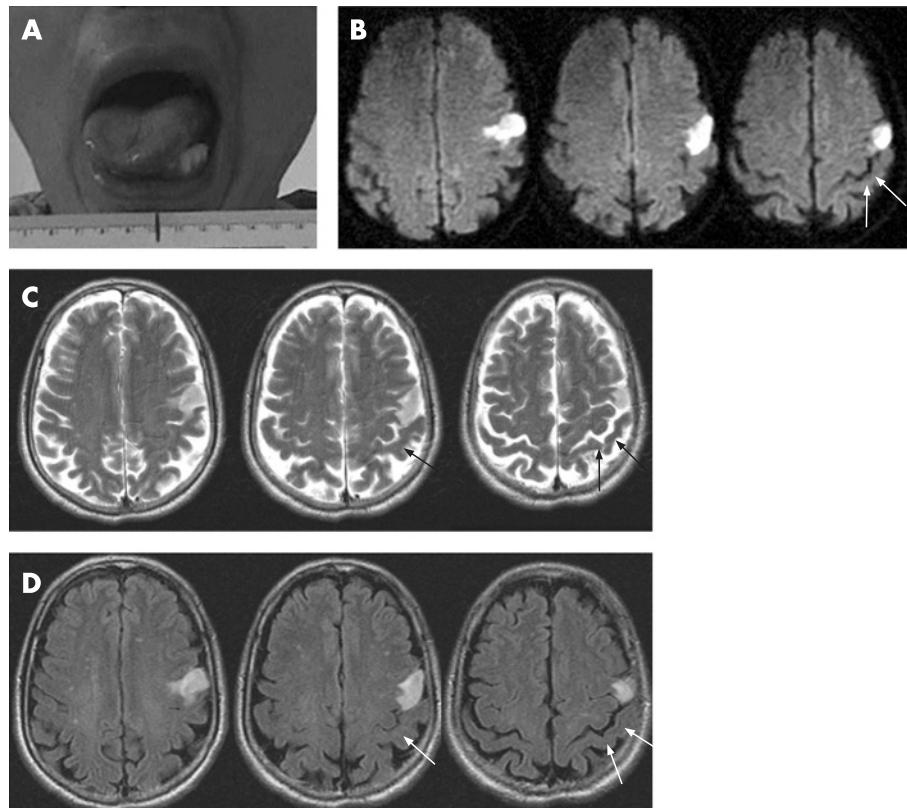


Figure 1 (A) The protruded tongue deviating to the right about 1.5 cm from the midline. (B) Diffusion weighted, (C) T2 weighted image and (D) fluid attenuated inversion recovery (FLAIR) magnetic resolution images of the brain showed a small cortical infarction in the precentral gyrus of the left frontal lobe. White and black arrows indicate the precentral knob representing the motor hand area.

conventional T2 weighted MRI in all ischaemic strokes. In contrast, on FLAIR and T2 weighted MRI, as well as DWI, in our patient, the precentral knob was clearly identified and we were able to localise the cortical area for tongue movement to the most lateral part of the precentral gyrus lateral to the precentral knob.

Sung-Sang Yoon, Key-Chung Park

Department of Neurology, Kyung Hee University, School of Medicine, Seoul, Korea

Correspondence to: Professor Key-Chung Park, Department of Neurology, Kyung Hee Medical Centre, Kyung Hee University School of Medicine, 1 Hoegi-dong, Dongdaemoon-ku, Seoul, 130-702, Korea; kcpark67@medimail.co.kr

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