



Short Communication

Pure dysarthria due to an insular infarction

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ABSTRACT

Cortical infarction presenting with pure dysarthria is rarely reported. Previous studies have reported pure dysarthria due to cortical stroke at the precentral gyrus or middle frontal gyrus. We report a 72-year-old man who developed pure dysarthria caused by an acute cortical infarction in the insular cortex. The role of the insula in language has been difficult to assess clinically because of the rarity of pure insular strokes. Our patient showed pure dysarthria without aphasia, indicating that pure dysarthria can be the sole manifestation of insular infarctions.

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1. Introduction

Most instances of pure dysarthria caused by cerebral infarction are reported to occur due to corona radiata or internal capsule lesions.¹ Cortical infarction presenting with pure dysarthria or dysarthria with few other neurologic signs is rarely reported.²

2. Case report

A 72-year-old right-handed man with a history of atrial fibrillation suffered dysarthria upon awakening in the morning and was admitted to our hospital. On admission, his blood pressure was 166/114 mmHg. He was alert and cooperative. He had paretic dysarthria but no aphasia. His comprehension and repetition were normal with an effortless speech and no trial-and-error patterns were observed. He did not have articulatory inconsistency, groping articulatory movements with attempts at self-correction, anomia and paraphasia or facial paresis. There was no deviation of the tongue on protrusion; however, his tongue movements were slow. The muscle strength of the four extremities and tendon reflexes were all normal. In addition, the sensory examination was normal. Although no abnormalities were detected on brain CT scan, the brain MRI showed a hyperintense lesion in the left insular cortex on diffusion-weighted imaging (DWI) (Fig. 1). The patient was diagnosed with cerebral infarction and underwent therapy with intravenous edaravone and anticoagulants. He was discharged with mild dysarthria 14 days after onset.

3. Discussion

Our patient presented with pure dysarthria, and DWI showed an insular infarction. Kim et al. have previously reported five

patients with pure dysarthria or dysarthria with minimal other symptoms caused by a small cortical stroke.² Two strokes were located lateral to the precentral knob at the most lateral part of the image, and three were located in the most lateral cortical area at the level of the lateral ventricle.² In a recent DWI study of 101 patients with dysarthria due to cerebral infarctions, Kumral et al. indicated that the lesions responsible for dysarthria were located in the supratentorial area in 62%, and in the middle cerebral artery territory, including the motor cortex and/or insular cortex, in 13% of the patients.³ In that study, there were five instances of motor cortex infarctions which caused pure dysarthria; however, pure dysarthria was not seen in insular lesions. Gatto et al. reported that the responsible site of pure dysarthria due to cortical stroke is the middle frontal gyrus.⁴

The role of the insula in language has been difficult to assess clinically because of the rarity of pure insular strokes.⁵ Insular infarction is rarely seen without the involvement of other adjacent structures supplied by the middle cerebral artery.⁵ A previous study of four patients with stroke restricted to the insular cortex found that two of the four patients with left posterior insular lesions showed aphasia and dysarthria, and the remaining two with right posterior insular lesions showed no speech disturbance.⁶ The insula may have a major role in speech articulation, as suggested by a study in which the insula was the injured area of 25 patients presenting apraxia of speech (40% of whom had dysarthria).⁷ In our patient, the injured area, almost restricted to the insular cortex, resulted in pure dysarthria without aphasia, indicating that pure dysarthria can be the sole manifestation of insular infarctions.

In studies not using DWI, small cortical infarctions are easily overlooked or misidentified, so pure dysarthria due to cortical stroke has been reported only in recent years. The identification of small cortical infarcts, as well as acute infarction by DWI improves the accuracy of these studies. As shown by this patient, it is necessary to consider the possibility of small cortical infarcts

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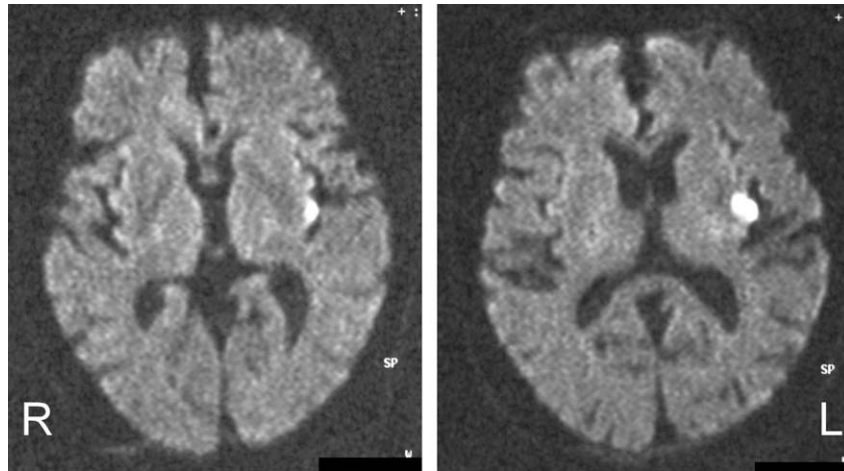


Fig. 1. Diffusion-weighted axial MRI performed 4 days after onset of dysarthria showing a high signal intensity lesion in the left insular cortex.

other than the precentral gyrus (motor vocal cortex), in patients with pure dysarthria.

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