A 61 year old woman presented at the emergency ward with a 3 day history of fluctuating vertigo and lateropulsion to the right. Clinical examination showed slurred speech, conjugated right beating horizontal nystagmus in primary gaze that increased on gaze to the right, and a right sided tongue paresis (figure A). In addition, slight motor weakness, decreased joint position, and vibration sense on the left arm were present. During the next 4 hours a left sided hemiplegia with sparing of facial muscles developed. The diagnosis of medial medullary syndrome (Déjérinesyndrome) was made. This syndrome is due to malperfusion in the territory of the anteromedial group of medullary arteries arising from the vertebral or anterior spinal artery and leads to (a) contralateral hemiplegia (pyramidal
tract), (b) dysarthria (inferior olivary nucleus, nucleus ambiguus), (c) decreased proprioception (medial lemniscus), (d) nystagmus (medial longitudinal fascicle), and (e) ipsilateral tongue paresis (hypoglossal nerve).

Diffusion weighted MRI showed a hyperintense zone (figure B; arrow), encompassing the entire diameter of the right medial medulla. In T2 weighted images (figure C) the medullar structure appeared normal, indicating that this lesion was not older than a few hours. An additional cerebellar lesion was visible with both techniques (figure B, C; circle). This finding is typical for an ischaemia that is at least several days old and may account for the initial symptom of vertigo. The clinical history of fluctuating neurological symptoms and the MRI findings of differently aged ischaemic lesions suggests a thromboembolic rather than a microangiopathic cause. Maximal intensity projection of 3D MR angiography (MRA) with gadolinium showed hypoperfusion and irregular wall narrowing in the ascending right vertebral artery (figure D, arrow), suggestive of dissection. Dissection was confirmed by axial source images of time of flight MRA which showed minimal residual lumen in the dissected artery, together with surrounding mural haematoma (figure E, arrow).

Anticoagulant therapy with heparin was initiated. Within the next 10 days the symptoms gradually resolved and the patient was able to walk with minimal flaccid arm paresis remaining.

Diffusion weighted MRI is a powerful tool to visualise acute ischaemic lesions. Vertebral artery dissection must be actively sought in the acute phase of brainstem ischaemia, as anticoagulation with heparin may prevent further embolisation.1,2

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Medial medullary syndrome due to vertebral artery dissection

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