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Case report

Fine margin between crossed sensory and contralateral sensory loss:
A case report

Yee Hau Pang*, Shih Hui Lim

National Neuroscience Institute, Singapore General Hospital Campus, Department of Neurology, Singapore

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ABSTRACT

The well-known sensory deficit in lateral medullary syndrome (LMS) involves crossed ipsilateral trigeminal area and contralateral spinothalamic tract area. A 45 year old man was admitted for sudden onset slurring of speech, unsteadiness and sensory complaints. The diagnosis was right lateral medullary syndrome due to right Vertebral Artery occlusion. In addition to typical lateral medullary syndromes, his sensory deficit involved contralateral half of the face, trunk and limbs. We report this atypical sensory presentation and discuss its neuroanatomical correlation.

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1. Case

A 45 year-old male, a chronic smoker of 16 packs years, presented with acute onset of slurring of speech, unsteadiness and left sided facial and limbs numbness. He came to emergency department 2 days after the onset as he felt progressive worsening of swallowing. His initial CT brain did not show acute infarct or hemorrhage.

He was alert, orientated and obeyed full commands. He had right partial ptosis and miosis with slow and delayed dilation in darkness. He had weakness of right sided soft palate voluntary elevation. Power in 4 limbs was normal, with right mild dysmetria. Sensation to pin prick and temperature was normal on the right but reduced over the left face, trunk, upper and lower limbs. Gait was broad-based gait with tendency falling to right. Proprioception and vibration sense were intact.

The presence of right Horner's syndrome, right cranial nerve X palsy and right dysmetria localized the lesion to the right lateral medulla. However the pattern of contralateral left hemihypoaesthesia including the face was not classical for a right lateral medullary syndrome.

MRI brain revealed an acute infarct over right medulla at ventromedial tegmentum. There was no infarct over the rest of brainstem and cortical region. MRA showed an occluded right Vertebral Artery (Fig. 1A–C).

* Corresponding author at: National Neuroscience Institute, Singapore General Hospital Campus, Department of Neurology, Outram Road, Singapore.

E-mail addresses: pang.yee.hau@sgh.com.sg (Y.H. Pang), lim.shih.hui@singhealth.com.sg (S.H. Lim).

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Patient was found to have type 2 diabetes mellitus and hyperlipidemia during the admission. His HbA1c was 11.1% and Low Density Lipid (LDL) was 4.4 mmol/L. The diagnosis was right lateral medullary infarct due to right Vertebral Artery atherosclerotic disease. He was started on antiplatelet, statins, antidiabetic medication and was transferred to rehabilitation service.

2. Discussion

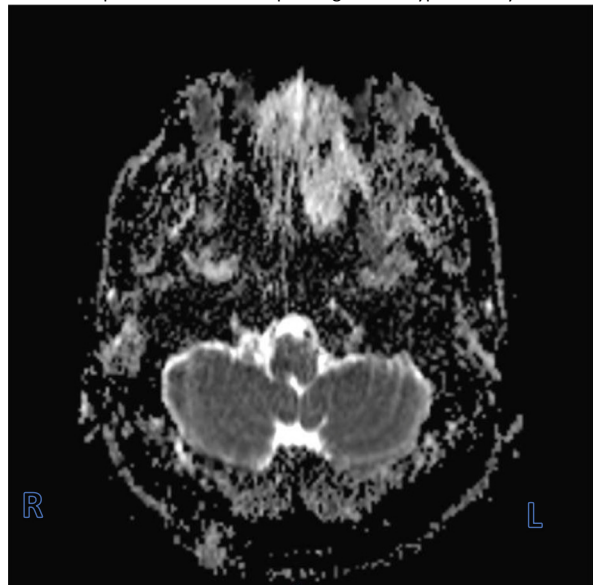
Lateral medullary syndrome is one of the commonest clinical encountered brainstem syndromes. The usual cause is occlusion of penetrating branch of distal vertebral artery from stenocclusive disease [1]. The classical crossed (ipsilateral trigeminal-contralateral limb/body) sensory deficit was described as part of Wallenberg's syndromes, in the infarct of the most lateral medulla tegmentum [2](Fig. 2B). In addition, patient typical presented with ipsilateral Horner's syndrome, ipsilateral cerebellar signs, ipsilateral paralysis of palate, nystagmus and skew deviation, owing to involvement of ipsilateral sympathetic tract, inferior cerebellar peduncle, spinocerebellar fibres, nucleus ambiguus and vestibuloocular reflex pathway.

The tracts and nuclei in brainstem occupy at a discrete pattern. In the medulla, the fibres of two sensory systems are separated widely, namely, medial lemniscus is located medially; while spinothalamic tract is located laterally. The descending trigeminal fibre/nuclei is located in the dorsal lateral area while ascending secondary trigeminal (Trigeminothalamic) tracts are located at ventromedial area. Most fibres arising in trigeminal sensory nuclei cross the midline and ascend in trigeminal tracts (Figs. 2A and 2C).

A. DWI sequence showed hyperintensity over right ventromedial tegmentum of medulla, sparing far lateral medulla.



B. ADC sequence showed corresponding area of hypointensity.



C. MRA showed occlusion of distal right Vertebral Artery near origin of Basilar Artery (Red arrow).



Fig. 1. MRI and MRA brain of the patient. (A) DWI sequence showed hyperintensity over right ventromedial tegmentum of medulla, sparing far lateral medulla. (B) ADC sequence showed corresponding area of hypointensity. (C) MRA showed occlusion of distal right Vertebral Artery near origin of Basilar Artery (Red arrow).

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