

# A Dorsolateral Medullary Infarct Presenting with Isolated Dysphagia

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## ABSTRACT

Posterior circulation cerebrovascular events comprise approximately 20% of ischemic events in the brain. Symptoms range from dizziness to profound ataxia altering gait. The majority of cases have some spectrum of dizziness. In this case report, we discuss a dorsolateral medullary stroke which atypically presented with dysphagia and without dizziness or ataxia. Although initial computed topography scans did not show large vessel occlusion or acute infarct, magnetic resonance imaging showed a right dorsolateral medullary infarct. Treatment is similar to other ischemic cerebrovascular accidents, including aspirin and high-intensity statin therapy, as well as thrombolysis if indicated. Pharyngeal dysfunction places a patient at higher risk for aspiration and pneumonia.

**KEYWORDS:** Posterior stroke, dysphagia, posterior circulation, cerebrovascular event

## CASE REPORT

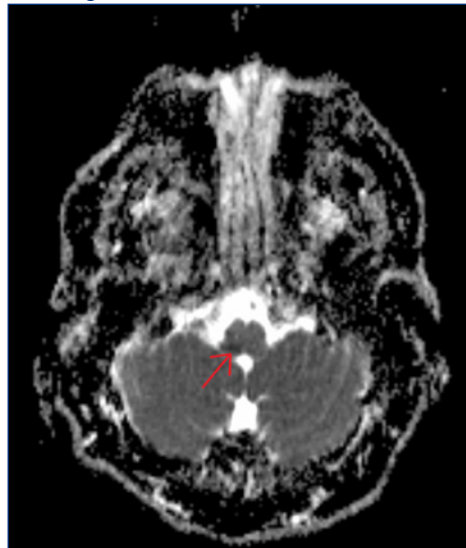
Our patient is a 57-year-old male, with a past medical history of Meniere disease and hypertension. He presented to the emergency department at approximately 8 pm with reported “throat tightness and inability to swallow.” His symptoms had begun suddenly earlier in the afternoon, approximately 1 pm. He stated that since that time, he was unable to swallow solids, or liquids of any kind (including his saliva). He stated that he felt like his “throat was tight, but not swollen.” His review of symptoms was positive for reported tingling in his hand earlier, as well as reported slurring of his words by his family (both of these had resolved some time prior to presentation in the emergency department). His family also reported that he did slur his words occasionally, which they attributed to Meniere disease. His family and social history

were non-contributory. He specifically denied any history of stroke in the past, or any specific allergies including anaphylactic reactions.

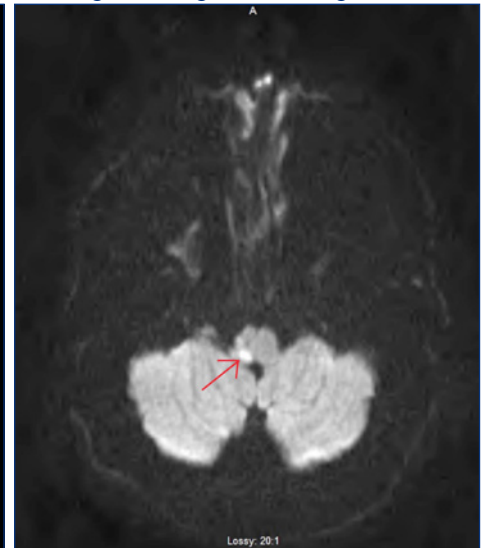
His vital signs on arrival were: heart rate of 50 beats per minute, blood pressure of 152/82 mmHg, respiratory rate of 19 breaths per minute, temperature of 37 degrees Celsius, oxygen saturation of 97% on room air. His physical exam was notable for the inability to swallow when asked, and he was spitting up his secretions. There was no uvular deviation noted on physical exam. There was no ataxia, dysarthria, sensory or motor deficits on examination. He had no gait disturbances and was able to ambulate steadily. His National Institutes of Health Stroke Scale (NIHSS) was zero. There was suspicion for possible medullary stroke, given his profound dysphagia and sudden onset of symptoms, as well as the reported transient slurred speech and tingling in his hands. For this reason, a Computed Tomography (CT) without contrast of his brain, as well as a CT Angiogram of his head and neck (Emergent Large Vessel Occlusion [ELVO] protocol) was performed. His laboratory studies were notable for hyperlipidemia, but were otherwise within normal limits.

His CT Angiogram of the head showed markedly diminished opacification of the right vertebral artery to the level of the exit from the vertebral foramina at the skull base. There

**Figure 1.** Acute Infarct in the dorsolateral medulla on the right (Arrow).



**Figure 2.** Acute Infarct in the dorsolateral medulla on the right, T2 weighted axial image (Arrow).



was no discrete thrombus identified. The age of this abnormality was indeterminate. He had a tele-neurology consult from the emergency department, and as his symptoms had been present for approximately eight hours, tissue plasminogen activator was not indicated. He did not have a discrete thrombus for mechanical thrombectomy. The neurologist recommended a magnetic resonance imaging (MRI) of his brain, a speech therapy evaluation, with a modified barium swallow, and to consider a fiber optic evaluation of swallowing with sensory testing. He was administered rectal aspirin, and admitted for further evaluation of his dysphagia.

An MRI of the brain was performed, which revealed an acute infarct in the right dorsolateral medulla (Figures 1,2). It also revealed an age-indeterminate occlusion of the right V3 and V4 segments of the vertebral artery. An echocardiogram did not reveal any acute abnormalities. The modified barium swallow was unable to be completed, as liquid was unable to progress past the piriform sinuses. The patient did not have further progression of his symptoms, but was unable to tolerate by mouth nutrition, and thus a percutaneous endoscopic gastrostomy (PEG) tube was placed by the gastroenterology team. The patient was discharged to home on hospital day seven.

## DISCUSSION

Our patient suffered a lateral medullary infarction, also known as Wallenberg syndrome. This is the most common syndrome related to intracranial vertebral artery occlusion. His presentation, however, was atypical, with dysphagia and without dizziness, nystagmus, limb weakness, or ataxia. His dysphagia was severe, with an inability to swallow solids, or liquids, and to control his own salivary secretions.

Infarct locations can be subdivided into proximal, middle, and distal intracranial territories. The proximal territory includes regions supplied by the intracranial vertebral arteries (the medulla oblongata and the posterior inferior cerebellar artery supplied cerebellum). The blood supply to the lateral medulla is the posterior inferior cerebellar artery.<sup>2,3</sup> Dysphagia in this type of stroke is caused by involvement of the nucleus ambiguus.<sup>4</sup>

Vestibulocerebellar symptoms and signs are very common in patients with lateral medullary infarcts.<sup>2,4</sup> A case series performed at a tertiary center in Boston, Massachusetts reported the most frequent symptoms as dizziness (47%), unilateral limb weakness (41%), and dysarthria (31%). Dysphagia was also reported, at a rate of less than 10%.<sup>2</sup> It is important to identify and correlate these symptoms, as this syndrome is commonly missed upon initial presentation.

Prognosis with lateral medullary infarction is generally favorable. However, a multicenter follow-up study demonstrated poor long-term prognosis in up to 21.2% of patients, with all-cause mortality rate of 10.6%. The risk factors for poor prognosis and death were age greater than or equal to

65 years old, dysphagia, recurrent stroke, and medial medullary infarction plus cerebellar infarction.<sup>4</sup> Pharyngeal dysfunction unfortunately places patients at higher risks for aspiration and pneumonia.

## CONCLUSION

Posterior circulation cerebrovascular syndromes may present atypically, with dizziness reported as the most common symptom. There may also be limb ataxia or dysarthria reported as well. The patient in our case presented with isolated dysphagia, and no ataxia or dizziness or gait disturbance. He was found to have a lateral medullary infarct on MRI. This subtle presentation is important to identify, as it can be a major cause of morbidity and mortality among patients.

## References

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