

Ischemic Stroke Due to Metastatic Cervical Bone Tumor: The Importance of 'Peripheral Vision'



To the Editor:

A 74-year-old woman developed sudden-onset posterior neck pain. Five days later, she experienced posterior headache. One week later, she was brought to the emergency room of our hospital as her symptoms persisted. On examination, she was alert and cooperative. All cranial nerve, muscle strength, gait, and sensory tests were normal, and no ataxia was noted. She reported posterior neck pain that worsened during head rotation. Brain computed tomography (CT) and magnetic resonance imaging (MRI) showed left

posterior inferior cerebellar artery territory infarction (Figure A and B). Brain magnetic resonance angiography (MRA) showed decreased signal intensity of the left vertebral artery (VA) (Figure C). Vertebral artery dissection was suspected based on neck pain. However, upon reviewing the brain MRA image and the bottom slice of the brain T1/T2-weighted image, a mass was detected on the left side of the C1 vertebra (Figure D-F), which had been overlooked during the initial evaluation. Neck CT showed destruction of the left C1 vertebra (Figure G), and chest CT showed a right lung mass (Figure H). The patient had elevated serum squamous cell carcinoma antigen (15.0 ng/mL) and cytokeratin fragment levels (10 ng/mL), suggesting squamous cell carcinoma of the lung with cervical spinal metastasis. Ischemic stroke (IS) was likely associated with the left VA stenosis due to compression caused by the metastatic mass at the C1

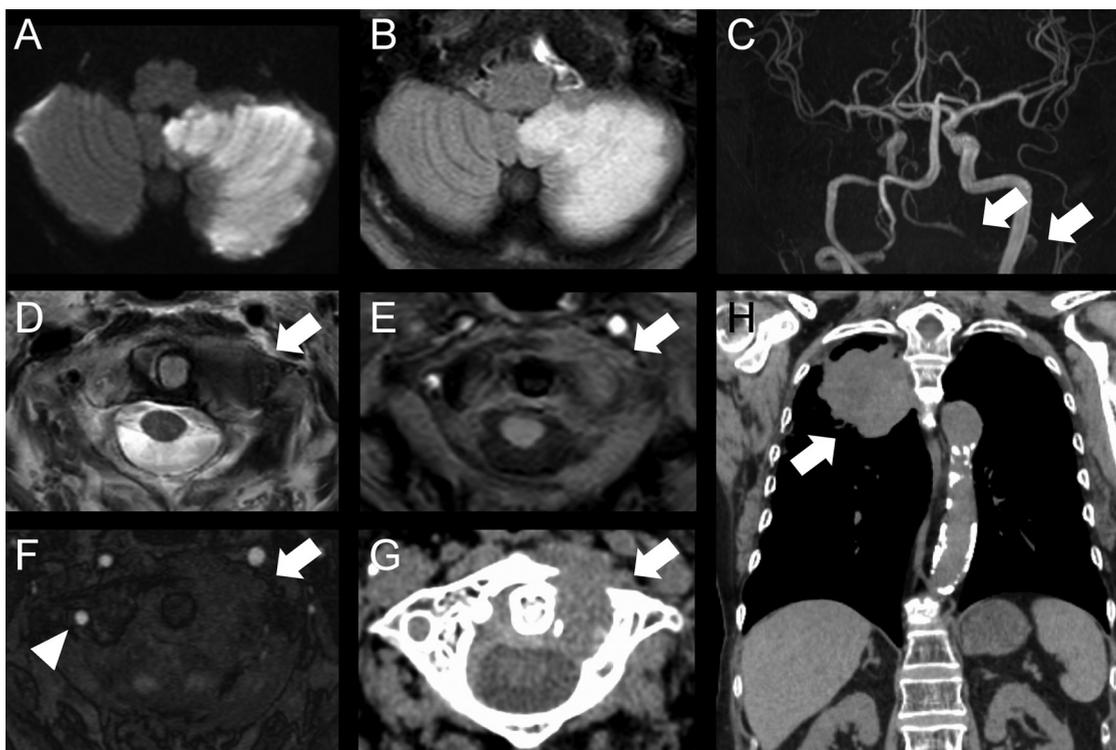


Figure (A) Diffusion-weighted and (B) fluid-attenuated inversion recovery images show high signal intensity in the left cerebellum of the left posterior inferior cerebellar artery territory. (C) Brain magnetic resonance angiography shows that the signal intensity of the left vertebral artery is severely reduced (arrows). (D) Brain T2-weighted and (E) T1-weighted images at the bottom slice show abnormal intensity of the left C1 vertebra (arrows). (F) Magnetic resonance angiography source images also show a mass at the left C1 (arrows). The arrowhead shows the right vertebral artery. (G) Neck computed tomography shows destruction of the left C1 vertebra by the mass (arrow). (H) Chest computed tomography shows right lung mass (arrow).

vertebra. The patient declined chemotherapy and was given supportive care.

Pain during neck rotation suggests crowned dens syndrome.¹ Moreover, IS that presents as neck or head pain and is associated with VA stenosis is suggestive of VA dissection. However, our case indicates that neck tumors may also cause similar symptoms. Although this type of tumor is rare, several cases of vertebrobasilar insufficiency associated with cervical osteochondroma have been reported.² On the other hand, there have been few reports on metastatic tumors that initially presented as VA stenosis and IS. The rarity of neck tumors is likely due to the difference in the incidence of metastatic spinal tumors. Spinal metastases commonly occur in the thoracic and lumbar spine, while the cervical spine is less frequently affected.³

The C1 bone tumor detected on the bottom slice of the axial brain MRI in our case was overlooked during the initial examination, highlighting a pitfall of brain imaging evaluation. Although brain MRI or CT scans are mandatory in the assessment of secondary headache and IS, cervical lesions can be missed since the images are focused on the brain. A previous report on abdominal MRI found that abnormal findings located outside the center of gaze were commonly overlooked⁴ and emphasized that “peripheral vision” must be required in abdominal MRI evaluation for radiologists.⁴ Similarly, when interpreting brain MRI findings, the bottom slice should be evaluated as thoroughly as the top slices, where convexity abnormalities such as mild convexity subarachnoid hemorrhage could be easily missed. Patients presenting with neck pain worsened by head rotation and those with posterior circulation stroke with reduced

VA signal intensity on cranial MRA should be carefully evaluated for cervical lesions on the bottom slice of the brain MRI.

INFORMED CONSENT

Written informed consent was obtained from the patient for the publication of this case report and accompanying images.

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