A nomalies of the extracranial branches of the vertebral artery are rare. Patients with cervical vertebral anomalies may present with symptoms of vertebral basilar insufficiency or may be asymptomatic. This report describes a case of anomalous origin of the left vertebral artery from the thyrocervical trunk discovered on CT angiography in a patient with a family member with known aberrant vertebral artery origins. To the best of our knowledge, this vascular variant has not been previously described in the English-language literature.

Case Report
The patient is a 36-year-old woman with a history of prior posterior fossa decompression for Chiari malformation who presented for preoperative evaluation of her cerebral vasculature for an upcoming neurosurgical procedure. The patient’s father was known to have bilateral persistent proatlantal intersegmental arteries with absence of the vertebral arteries. An angiographic finding has been reported elsewhere.

Imaging was performed on a 64-section SOMATOM Sensation scanner (Siemens, Malvern, Pa). Omnipaque 370 (GE Healthcare, Piscataway, NJ) contrast was injected through a 20-gauge intravenous needle in the patient’s right antecubital fossa at a rate of 4 mL/s for a total of 80 mL. By use of bolus-tracking software, scanning was performed 5 seconds after contrast was identified in the internal carotid arteries in the neck. Helical acquisition was performed by using the 64 × 0.6 mm scanner configuration, and images were reconstructed at 1.0 mm with an overlap of 0.6 mm. Multiplanar reformations, thin-section maximum intensity projections, and volume-rendered images were performed.

The left vertebral artery was identified arising from the thyrocervical trunk (Fig 1) and was seen at the C1–C2 level extending along the lateral aspect of C1 in a normal location and entering the dura in the foramen magnum. There was no evidence of collateral vessel formation to suggest occlusion of the vertebral artery and subsequent filling by peripheral vessels. A continuation of the left vertebral artery from the posterior inferior cerebellar artery to the basilar artery was not visualized. The vertebral foramen on the left were hypoplastic compared with those on the right (Fig 2). The right vertebral artery originated from the subclavian artery in the normal fashion.

Discussion
During embryologic development, 8 cervical segmental arteries develop and originate from the aorta. The first of these cervical segmental arteries is also known as the proatlantal intersegmental artery. A persistent proatlantal artery can be seen with aplasia of the ipsilateral and hypoplasia or aplasia of the contralateral vertebral artery. Taking this further, a persistent proatlantal artery that connects the internal carotid to the vertebral artery can be considered as an anomalous origin of the vertebral artery.

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During anterior cervical spine surgery that can result in exsanguinations and permanent neurologic deficits. During surgery at the cranial vertebral junction, injury of the vertebral artery can cause brain stem ischemia and cerebellar infarction. Anomalous vertebral artery origins present a pitfall at diagnostic cerebral angiography because they may be assumed to be occluded or diseased if they cannot be catheterized. To prevent complications, it is essential to assess the vasculature in this region before conducting medical procedures. Furthermore, this observation and the finding of vertebral anomalies in the patient’s father lead us to hypothesize that vascular variations may be hereditary.

References
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