Vertebral artery (VA) is the first branch of the subclavian artery, courses bilaterally along the neck to supply the brainstem and cerebellum.\cite{1} Aberrant origin of bilateral VAs is an extremely rare vascular variant which can be important information for patients undergoing vascular surgery or neck dissection.\cite{1,2} We have reported a case of 64-year-old male patient with aberrant right and left VAs.

**Case Report**

A 64-year-old male patient who has no known history of disease was admitted to our hospital with chest pain. Computed tomography angiography (CTA) was performed at the time of initial diagnosis for suspected aortic dissection. Aberrant left and right VAs originating directly from the aortic arch were found coincidentally during the search for aortic dissection on CTA. Axial CT scans demonstrated that aberrant VA has retroesophageal course which is similar to aberrant right subclavian artery (ARSA) and extending to the skull base different from ARSA (Fig. 1). On three-dimensional volume-rendered CTA images displayed aberrant right and left VAs originating from the distal of the aortic arch (Fig. 2). The fourth branch of the aortic arch was the left VA and the fifth branch was the right VA. Furthermore, a dilatation of proximal part of the right VA evocative of a Kommerell diverticulum was seen (Fig. 2).

**Discussion**

VAs are classically the first ascending branch of the ipsilateral subclavian arteries.\cite{1} The left VA derived from the aortic arch is a common anatomic variation of VA with a reported frequency of 2.4–5.8% in several large autopsy series.\cite{1} Yuan has reported that frequency of aberrant left VA is 85.6% of all VA anomalies.\cite{2} Aberrant right VA is rarely seen and usually coursing retroesophageally which is similar to ARSA.\cite{3} Bilateral aortic origin of VAs represents an extremely rare anomaly.\cite{2,4} A great variety of aberrant VA’s origin has described.\cite{1} Extraordinarily, in our case, both VAs have derived directly from the aortic arch at which distal to the origin of the left subclavian artery (LSA). To the best of our knowledge, this is the second reported case in the literature.
literature showing an abnormal origin of both VAs which are distal to the origin of LSA.\(^1\)

Aortic arches and branches form from the fusion of the dorsal and ventral aorta, third and fourth branchial arches, and C7 intersegmental artery. VAs are formed by longitudinal anastomosis of C1-C7 intersegmental arteries between the 33\(^{rd}\) and 55\(^{th}\) days of intrauterine life. C7 intersegmental artery has an important role in both forming subclavian artery and developing normal origin of VAs.\(^2\)

In the setting of the left intersegmental artery persistence, the left VA originates from aortic arch between the left main carotid artery and LSA. Persistency of the left C6 intersegmental artery leads to aberrant left VA originating between the left main carotid artery and LSA.\(^2\) The main reason of the left VA arising from distal to LSA is the persistence of C8 intersegmental artery. The right VA originated from C8 instead of C7 causes more distal origin of the left VA as the last branch of the aortic arch.\(^3\)

Aberrant VA is usually asymptomatic. Dysphagia lusoria resulting from vascular compression of esophagus can be seen in only a small percentage of aberrant right VA cases.\(^2\) CT, CTA, or conventional angiography are the imaging modalities used in the diagnosis and visualization of the anatomy.

**Conclusion**

It is important to clarify the anomalous origin of VAs from the arch, particularly in patients undergoing vascular surgeries or endovascular interventions for thoracic aortic aneurysms and dissections. Diagnostic imaging plays a critical role in the evaluation of these vascular anomalies.

**Disclosures**

**Informed consent:** Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.
**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** None declared.


**References**