A 68-year-old man was referred to our clinic for sensory aphasia. Head CT revealed an intracranial hemorrhage located in left temporal and occipital lobes (Fig. 1). Angiography was initially performed from the right femoral artery. Safe manipulation could not be achieved using several catheters, including Cathex 4Fr OK2M 125 cm (CATHEX, Osaka, Japan) and a Simmons catheter 130 cm (Medikit, Tokyo, Japan) with a 0.035-inch 150 cm Radifocus guidewire (Terumo, Tokyo, Japan). Angiography was completed only that of the left common carotid artery. Findings from DSA and enhanced CT confirmed the existence of a right-sided aortic arch with an aberrant left subclavian artery (Fig. 2).

Angiography and MRI revealed a left transverse-sigmoid sinus dural arteriovenous fistula (TSdA VF), suggesting that reflux into the Vein of Labbé led to the intracranial hemorrhage (Fig. 3a). Two days after admission, neuroendovascular therapy was initiated for obliteration of the fistula from the right femoral artery. Safe introduction of 6Fr Envoy (Cordis, Miami Lakes, FL) into the left common carotid artery could not be achieved and only partial occlusion of the left occipital artery with coils was possible. Flow reduction from the left occipital artery was restored but cortical venous reflux persisted. Since superfluous irritation against Kommerell’s diverticulum might cause a rupture, we planned direct sinus packing seven days after admission.

The result led to complete obliteration of the fistula with coils (Fig. 3b). The patient was discharged on the 20th day after the neuroendovascular treatment without complications. There were improvements in sensory aphasia, although mild aphasia remained.

The right aortic arch is a rare congenital defect that is present in 0.04% to 0.1% of autopsy series. A right-sided aortic arch with an aberrant left subclavian artery is less common. Half of right-side aortic arches are associated with an aberrant left subclavian artery. In this case, we were able to diagnose a left TSdAVF associated with a right-sided aortic arch with an aberrant left subclavian artery. Endovascular surgical team should be aware that this anomaly could be encountered during neuroendovascular treatment.

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Disclosure Statement

The authors declare that they have no conflict of interest.
A Right-sided Aortic Arch with an Aberrant Left Subclavian Artery in a Patient with a Transverse-sigmoid Sinus Dural Arteriovenous Fistula

Fig. 1  CT on admission day showing an intracranial hemorrhage located in left temporal (a) and occipital (b) lobes.

Fig. 2  Enhanced CT showing a right-sided aortic arch with an aberrant left subclavian artery ((a) right lateral view, (b) frontal view, (c) left lateral view). Notice a Kommerell’s diverticulum (white arrow).

Fig. 3  Pre-(a) and Post-(b) procedural MRI showing the left transverse-sigmoid sinus dural arteriovenous fistula (a) and complete obliteration of the fistula (b).

References