Letter to the Editor

Aberrant right subclavian artery (arteria lusoria) diagnosed during transradial coronary catheterization

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Aberrant right subclavian artery, or arteria lusoria, is the most common aortic arch anomaly. It is an uncommon condition, with an incidence of 0.2–1.7% (1). In this disorder four vessels arise sequentially from the aortic arch: the right common carotid artery, the left common carotid artery, the left subclavian artery and the aberrant right subclavian artery, which crosses upwards and to the right in the posterior mediastinum. It results from a disruption in the complex remodeling of the paired branchial arches, typically of the right dorsal aorta distal to the sixth cervical intersegmental artery (2,3). Arteria lusoria is usually asymptomatic; however, more cases are diagnosed nowadays with increasing the use of transradial access to perform coronary angiography (2).

A 65-year-old male with a history of hypertension, diabetes, and a recent inferior wall ST-elevation myocardial infarction. The patient was scheduled for a staged percutaneous coronary intervention (PCI) for the non-culprit lesions after a primary PCI of the right coronary artery was performed through a transfemoral approach. The second procedure was first attempted using the transradial approach through the right radial artery. After right radial access was obtained, a 6-French (Fr) sheath was inserted without any difficulty. However, it was noted that the guidewire (0.35/150 3 mm J Fixed Core) could only be advanced to the descending aorta, and repeated attempts failed to enter the ascending aorta. Therefore, aberrant right subclavian artery (arteria lusoria) was suspected. This was confirmed by performing angiography near the origin of the right subclavian artery, which showed the right subclavian artery arising from the descending aorta just at the junction with the arch (*Figure 1*). Since it will be very difficult to get to the ascending aorta through the aberrant right subclavian artery, this approach was abandoned and the decision was to go for a left transfemoral approach, and the procedure was completed without any difficulty. Using the transfemoral approach an arch aortogram was also performed, which showed the right carotid, left carotid, and left subclavian arteries arising from the arch as separate branches, and then we simultaneously had a wire and a pigtail catheter in the right subclavian artery and aortic arch, which helped to better delineate the abnormality and confirmed the diagnosis (*Figure 1*).

The diagnosis should be suspected if the guide wire repeatedly enters the descending aorta rather than the ascending aorta from the right subclavian artery. In such a case, catheterization of the ascending aorta may be difficult or even impossible due to the angular course of the arteria lusoria to the ascending aorta. Although technically difficult, it is still possible to continue the procedure without switching to the femoral artery approach if the physician is aware of such a variant (4). However, only 60% of the cases were performed successfully using the transradial approach in the settings of arteria lusoria (5), and usually the catheterization of both coronary arteries becomes more difficult, takes longer time, and requires more catheters. In addition, caution should be taken, as dissection of an arteria lusoria and aorta during transradial catheterization has been previously reported (6,7).

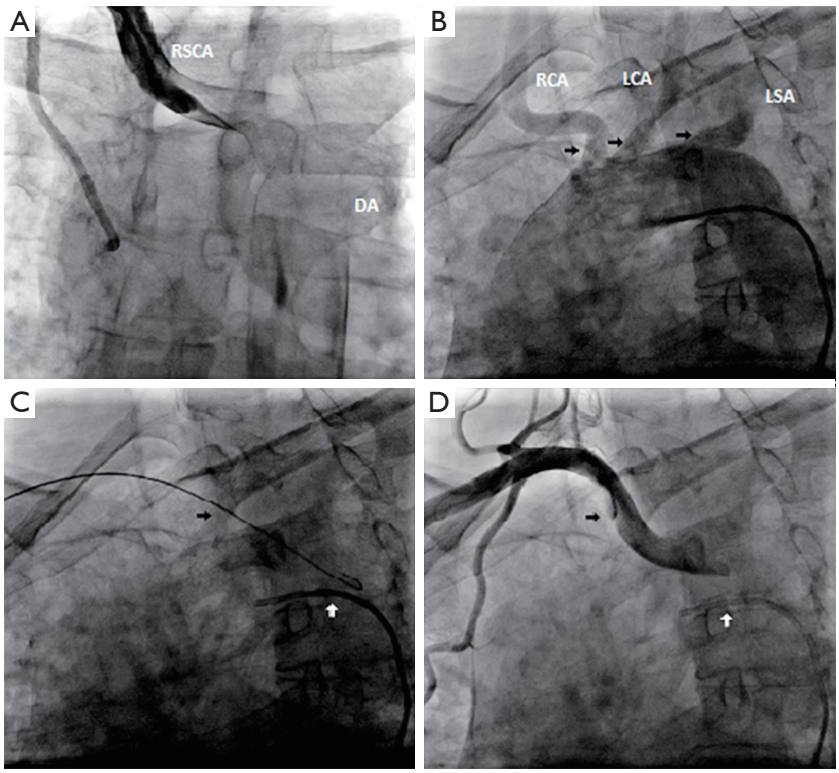

Figure 1 Angiographic findings. (A) Abnormal origin of the right subclavian artery (RSCA) from the descending aorta (DA) instead of the right innominate artery; (B) arch aortogram performed via the descending aorta using pigtail catheter through transfemoral approach showing the right common carotid (RCA), left common carotid (LCA), and left subclavian (LSA) arteries arising from the arch as separate branches; (C) a guidewire in the RSCA through transradial approach (black arrow) and a pigtail catheter in the Aortic arch through transfemoral approach (white arrow); (D) angiography near the origin of the right subclavian artery, showing the right subclavian artery arising from the descending aorta.

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None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

References

1. Myers PO, Fasel JH, Kalangos A, Gailloud P. Arteria lusoria: developmental anatomy, clinical, radiological and surgical aspects. Ann Cardiol Angeiol (Paris) 2010;59:147-54.
2. Yiu KH, Chan WS, Jim MH, Chow WH. Arteria lusoria diagnosed by transradial coronary catheterization. JACC Cardiovasc Interv 2010;3:880-1.
3. Abhaichand RK, Louvard Y, Gobeil JF, Loubeyre C, Lefèvre T, Morice MC. The problem of arteria lusoria in right transradial coronary angiography and angioplasty. Catheter Cardiovasc Interv 2001;54:196-201.
4. Zingarelli A, Morelli MC, Seitun S, Bezante GP, Balbi M, Brunelli C. Aberrant right subclavian artery (arteria lusoria) challenging 4-French homolateral transradial coronary catheterisation in adulthood. Heart Lung Circ 2015;24:e164-8.
5. Valsecchi O, Vassileva A, Musumeci G, Rossini R, Tespili M, Guagliumi G, Mihalcsik L, Gavazzi A, Ferrazzi P. Failure of transradial approach during coronary interventions: anatomic considerations. Catheter Cardiovasc Interv 2006;67:870-8.
6. Huang IL, Hwang HR, Li SC, Chen CK, Liu CP, Wu MT. Dissection of arteria lusoria by transradial coronary catheterization: a rare complication evaluated by multidetector CT. J Chin Med Assoc 2009;72:379-81.

7. Musuraca G, Agostoni P, Albiero R, Boldi E, Terraneo C, Pancheri F. Dissection of Arteria Lusoria during Transradial PCI: A Rare Complication revealed and followed by Multidetector CT. J Cardiol Ther 2013;1;34-6.

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