Arteria Lusoria and Superdominant Right Coronary Artery: Two Rare Arterial Anomalies Diagnosed during Transradial Coronary Catheterization

Miloslav Spacek, MD¹ David Zemanek, MD, PhD¹ Josef Veselka, MD, PhD, FESC, FSCAI, FICA¹

¹Department of Cardiology, University Hospital Motol, 2nd Medical School, Charles University, Prague, Czech Republic

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Address for correspondence Miloslav Spacek, MD, Department of Cardiology, University Hospital Motol, 2nd Medical School, Charles University, V Uvalu 84, Prague 5, 150 00, Czech Republic (e-mail: mildaspacek@gmail.com).

Abstract

Keywords

- transradial approach
- arteria lusoria
- superdominant right coronary artery

We present a case report of two rare arterial anomalies diagnosed during transradial coronary catheterization—arteria lusoria (aberrant right subclavian artery) and superdominant right coronary artery. Importantly, these anomalies may cause difficulty in performance or interpretation of catheterization procedure, especially in urgent situation and with wide acceptance of transradial approach. To the best of our knowledge, the combination of these anomalies has never been described in the literature.

Case Report

A 74-year-old smoker with a history of hypertension and occasional chest pain was admitted for elective coronary angiography before scheduled lumbar discectomy. Initial physical examination was unremarkable except for left carotid bruit. Preprocedural carotid ultrasound revealed kink of the left internal carotid artery wherein severe stenosis was suspected.

To avoid prolonged bed rest, right transradial approach was preferred with the intention to perform both coronary and carotid angiography during one stage. However, guide-wire could only be advanced to the descending aorta and, owing to its unusual position, arteria lusoria (AL) was suspected. The patient was repeatedly asked to take in a deep breath, which after several attempts allowed for successful passage into the ascending aorta. Coronary angiography showed absent left circumflex coronary artery (LCX), stenosis of the left anterior descending coronary artery (LAD), and superdominant right coronary artery (S-RCA) (► **Fig. 1**). Fractional flow reserve evaluation of LAD revealed nonsignificant stenosis. Due to patient's increasing discomfort, the proce-

cedure was stopped and computed tomography angiography was ordered, which subsequently confirmed the presence of AL and kink of the left internal carotid artery without significant stenosis (► **Fig. 2**).

Discussion

To the best of our knowledge, the combination of AL and S-RCA has never been described in the literature. AL is an aberrant right subclavian artery branching directly from aortic arch distally to the left subclavian artery. Its estimated occurrence is below 0.5% mostly with retroesophageal passage, which can occasionally lead to well-described dysphagia lusoria. Importantly, with wide acceptance of transradial coronary angiography, one must be aware of this anomaly, which may cause completing the procedure difficult or even impossible.^{1,2} Absent LCX with a S-RCA is a very rare coronary anomaly.³ It is considered benign, however, atherosclerotic lesions may be more important in such patients (because of diminished compensating mechanism) and correct interpretation of coronary anatomy may be more difficult in the setting of urgent procedure.⁴

Fig. 1 Coronary angiograms: (A) a left coronary angiogram showing absent left circumflex coronary artery; (B) a right coronary angiogram showing superdominant right coronary artery; (C) left coronary angiogram showing stenosis of the left anterior descending coronary artery (arrow).

Fig. 2 Computed tomography: (A and B) anterior and posterior view showing aberrant right subclavian artery (star) branching directly from aortic arch (volume rendering technique). Also, note the kink of the left internal carotid artery (arrow); (C) multiplanar reconstruction in sagittal plane showing retroesophageal passage of arteria lusoria. T, trachea; E, esophagus; L, arteria lusoria.

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