

IMAGES IN INTERVENTION

Transradial Primary Percutaneous Intervention in a Rare Case of Anomalous Origination of the Left Coronary Artery System From the Right Aortic Sinus



Savvas S. Constantinides, MD, Vassilis I. Barberis, MD, Lambros Mitselos, MD, Christos P. Christou, MD

A 62-year-old male patient was referred to our center for primary percutaneous coronary intervention (PCI), having collapsed with chest pain. Initial electrocardiogram at a peripheral hospital had shown complete heart block followed by junctional rhythm with ST-segment elevation in

leads I and AVL, and ST-segment depression in leads II, III, and AVF. Coronary angiography was performed via the right transradial approach applying a 6-F sheath. Diagnostic right coronary angiogram revealed the presence of a single coronary giving rise to all main epicardial vessels. A severe left circumflex

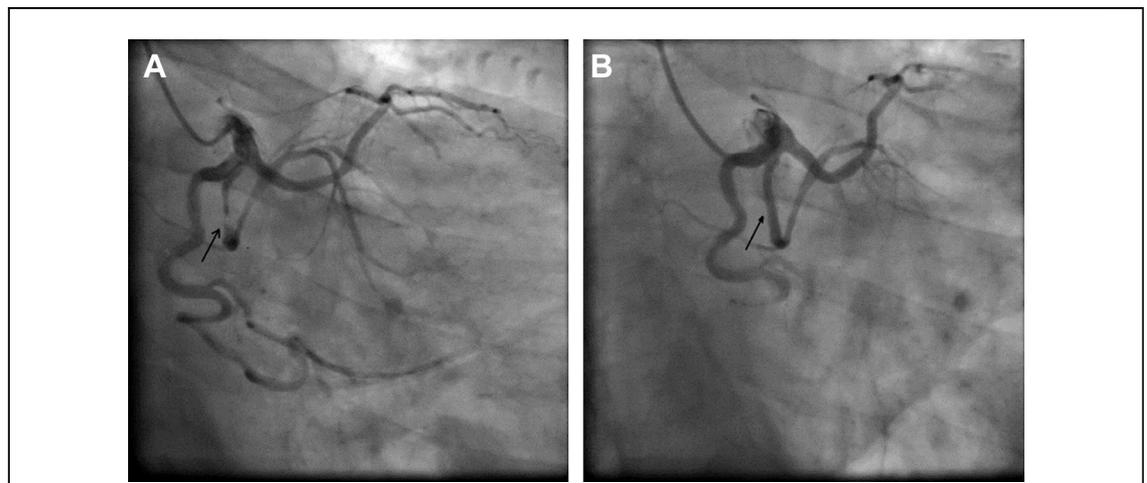
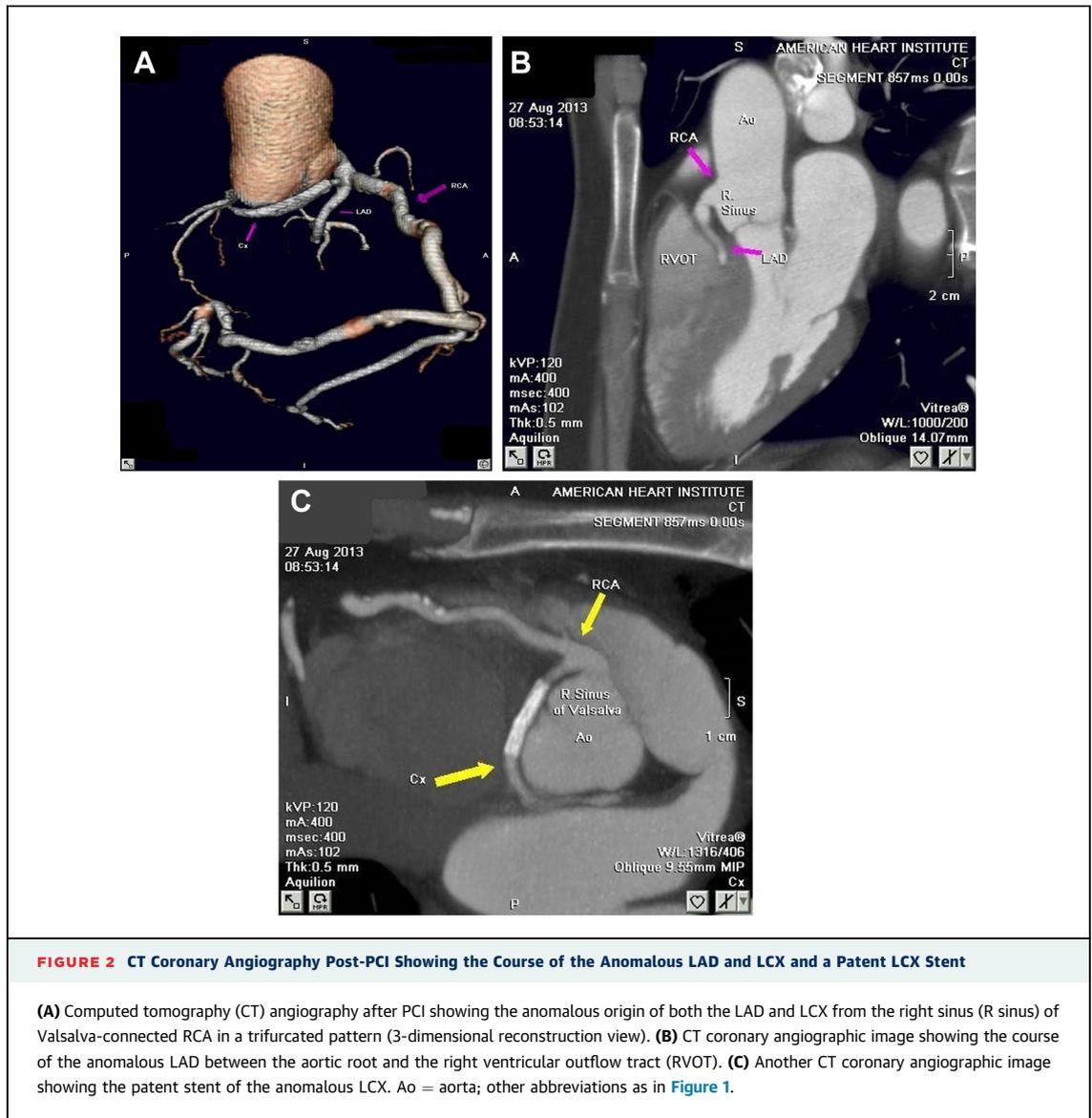


FIGURE 1 Angiograms Showing the Anomalous Origin of the LAD and LCX Before and After Stenting of the LCX Stenosis

(A) Single angiographic view (posteroanterior caudal) showing anomalous origin of both the left anterior descending artery (LAD) and the left circumflex artery (LCx) from the right sinus of Valsalva-connected right coronary artery (RCA) as well as a severe LCx stenosis (arrow) as a culprit lesion (Online Video 1). (B) A similar angiographic view after percutaneous coronary intervention (PCI) to the LCX showing a good PCI result (arrow) (Online Video 2).

From the Department of Cardiology, American Medical Center/American Heart Institute, Nicosia, Cyprus. The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

Manuscript received May 5, 2014; accepted May 22, 2014.



coronary artery (LCX) stenosis was identified (Figure 1A, Online Video 1). No coronary artery was shown to originate from the left coronary sinus on unselective contrast injection. We proceeded to PCI with a 5-F Judkins R 4.0 guide catheter. We were initially unable to wire the LCX with our “workhorse” BMW guidewire (Abbott Vascular, Santa Clara, California) that was entering either the left anterior descending coronary artery (LAD) or the right coronary artery (RCA). Subsequently, we stabilized the guide catheter with the BMW wire into the RCA and managed to cross the LCX lesion with a hydrophilic (Asahi Fielder, Abbott Vascular) wire. After pre-dilation of the stenosis with a 2.5 × 12-mm balloon, we delivered a 2.75 × 18-mm drug-eluting stent. Final angiography

demonstrated a good result (Figure 1B, Online Video 2). The patient tolerated the procedure well and was discharged in good condition. Two weeks later, we performed computed tomography coronary angiography in order to determine the course of the anomalous left coronary artery (LCA) system. This showed the LCX coursing posteriorly to the aorta with a patent LCX stent, and the LAD was found to travel between the aortic root and the right ventricular outflow tract (Figure 2). An anomalous origin of the LCA from the right coronary sinus is a rare congenital coronary artery anomaly (0.15% incidence) (1), but it most commonly exists as a long left main stem, not as a trifurcation (2). This specific pattern is not included in the Shirani and Roberts classification (3)

and represents a very unusual form. Transradial approach was feasible in our patient, and to the best of our knowledge, we describe the first successful transradial primary PCI in a rare case of anomalous origination of a coronary artery from the opposite sinus.

REPRINT REQUESTS AND CORRESPONDENCE: Dr. Vassilis I. Barberis, American Medical Center/American Heart Institute, 215 Spyrou Kyprianou Avenue, PO Box 25610, 1311 Nicosia, Cyprus. E-mail: vbarberis@amc.com.cy.

REFERENCES

1. Angelini P. Coronary artery anomalies. An entity in search of an identity. *Circulation* 2007;115:1296-305.
2. Gill DS, Franco JJ, Cox SV. Separate anomalous origin of the left anterior descending artery and the left circumflex artery. *Heart* 2005;92:1090.
3. Shirani J, Roberts WC. Solitary coronary ostium in aorta in the absence of major congenital cardiovascular anomalies. *J Am Coll Cardiol* 1993;21:137-43.

KEY WORDS anomalous coronary artery, primary percutaneous intervention, transradial approach

 **APPENDIX** For the supplemental videos, please see the online version of this article.