CASE IMAGE

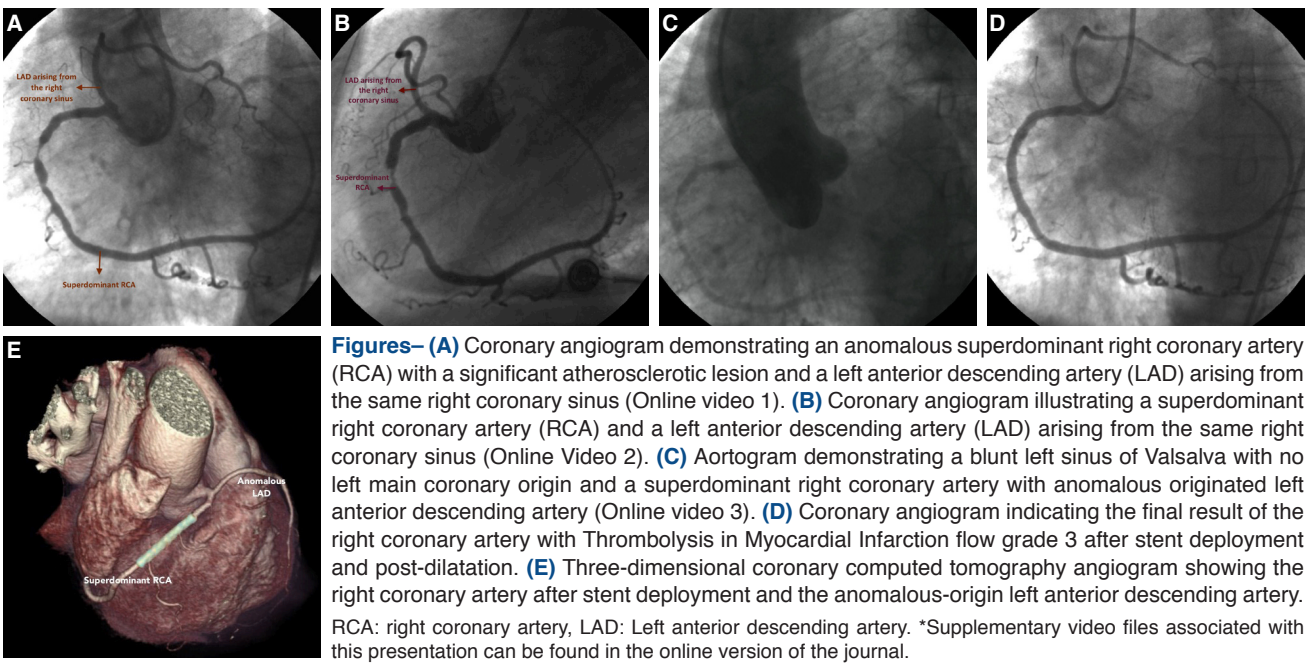
Superdominant right coronary artery and left anterior descending artery arising from the right coronary sinus: a rare coronary artery anomaly

Superdominant sağ koroner arter ve sağ koroner sinüsten kaynaklanan sol ön inen arter: Nadir bir koroner arter anomalisi

Alaa Quisi

Department of Cardiology, Adana Numune Training and Research Hospital, Adana, Turkey

A 78-year-old woman with no cardiovascular risk factors was admitted to the clinic with non-ST-segment elevation myocardial infarction. Baseline electrocardiogram revealed diffuse ST segment depressions in the anterior leads, and transthoracic echocardiogram demonstrated regional hypokinesia of the inferoposterior wall of the left ventricle with an estimated left ventricular ejection fraction of 55%. Laboratory tests were normal except for an elevated level of cardiac troponin I (2.46 ng/mL; reference: 0.000–0.016 ng/mL). Early coronary angiography revealed a blunt left sinus of Valsalva, a single superdominant right coronary artery (RCA) originating from the usual location with significant atherosclerotic stenosis in the mid-proximal segment, and a left anterior descending artery (LAD) arising from the right sinus of Valsalva (Figures A, B and Videos 1, 2*). To confirm the blunt left sinus of Valsalva, aortography was performed (Figure C and Video 3*). The RCA was selectively cannulated with a right Mach 1 6-F guide catheter (Boston Scientific Corp., Marlborough, MA, USA) and percutaneous coronary intervention was successfully performed without any complication (Figures D, E). To rule out potential ectopic origin of the left main coronary artery, a coronary computed tomography angiography was performed. The patient was discharged on the fifth day without any cardiac sequelae. At 1- month and 6-month follow-ups, she was free of any cardiac complaints. Coronary artery anomalies (CAAs) are rare, and typically incidentally diagnosed during routine cardiac catheterization; the incidence is reported as 0.2% to 1.3% in angiographic series and 0.3% in autopsy series. The coronary artery anatomy of this patient corresponded to the R-I variant of the Lipton classification, which is defined as the superdominant coronary artery arising from the right coronary sinus and following the course of a normal RCA. It is considered to be one of the rarest CAAs, with an incidence of 0.0008%, along with the LAD originating from the right coronary sinus, which is another extremely rare CAA.



Figures– (A) Coronary angiogram demonstrating an anomalous superdominant right coronary artery (RCA) with a significant atherosclerotic lesion and a left anterior descending artery (LAD) arising from the same right coronary sinus (Online video 1). **(B)** Coronary angiogram illustrating a superdominant right coronary artery (RCA) and a left anterior descending artery (LAD) arising from the same right coronary sinus (Online Video 2). **(C)** Aortogram demonstrating a blunt left sinus of Valsalva with no left main coronary origin and a superdominant right coronary artery with anomalous originated left anterior descending artery (Online video 3). **(D)** Coronary angiogram indicating the final result of the right coronary artery with Thrombolysis in Myocardial Infarction flow grade 3 after stent deployment and post-dilatation. **(E)** Three-dimensional coronary computed tomography angiogram showing the right coronary artery after stent deployment and the anomalous-origin left anterior descending artery.

RCA: right coronary artery, LAD: Left anterior descending artery. *Supplementary video files associated with this presentation can be found in the online version of the journal.