



LETTER TO THE EDITOR

Primary Percutaneous Coronary Intervention of an Anomalous Right Coronary Artery Arising from the Left Sinus of Valsalva



The incidence of coronary artery anomalies ranges from 0.6% to 1.3% in patients undergoing coronary angiography.¹ A right coronary artery (RCA) arising from the left sinus of Valsalva has been found in 0.8–0.9% and associated with angina, myocardial infarction, and sudden cardiac death in almost one-third of these patients.^{2,3} Although it remains to be clarified, few data exist on the management of coronary anomalies in the setting of primary percutaneous coronary intervention.

A 67-year-old man was admitted to our emergency department for progressive chest tightness that lasted for 4 hours. The patient has hypertension controlled by medication and no history of coronary artery disease. The results of his physical examination were unremarkable. The electrocardiogram showed ST-segment elevation in leads II, III, aVF, and reciprocal ST-segment depression in the anterolateral leads (Figure 1). An emergent coronary angiography was performed, revealing a patent left descending and circumflex artery (Figure 2A). A Judkins right 4 guide catheter (Cordis, Miami, FL, USA) was used to engage the ostium of the RCA, but this approach failed. An aortography was performed next but did not show any stump of the RCA (Figure 2B). Therefore,

according to the hypothesis of an origin of the RCA near the ostium of the left coronary artery, an EBU3.5 guiding catheter (Medtronic, Minneapolis, MN, USA) was used and successfully engaged the ostium of the RCA. The right coronary angiography showed severe stenosis in the middle portion of the anomalous RCA (Figure 3). The lesion was successfully managed after the implantation of a 3.0 × 24 mm Driver stent (Medtronic). The final angiography showed optimal result (Figure 4), and the patient had no periprocedural complications; he was discharged 6 days later without any cardiac events.

Angiographic recognition of the various coronary anomalies may be difficult but important at the time of coronary intervention. Previous studies have suggested a predilection for earlier and greater atherosclerosis in some forms of coronary artery anomalies than in normal coronary arteries.^{4,5} Torsion or kinking of an anomalous RCA may result from compression between the aorta and pulmonary trunk and lead to endothelial injury.⁶ Moreover, several recent series found that an anomalous RCA is associated with an earlier development of coronary artery disease.^{2,3,7} The inability to recognize the anomalies during a

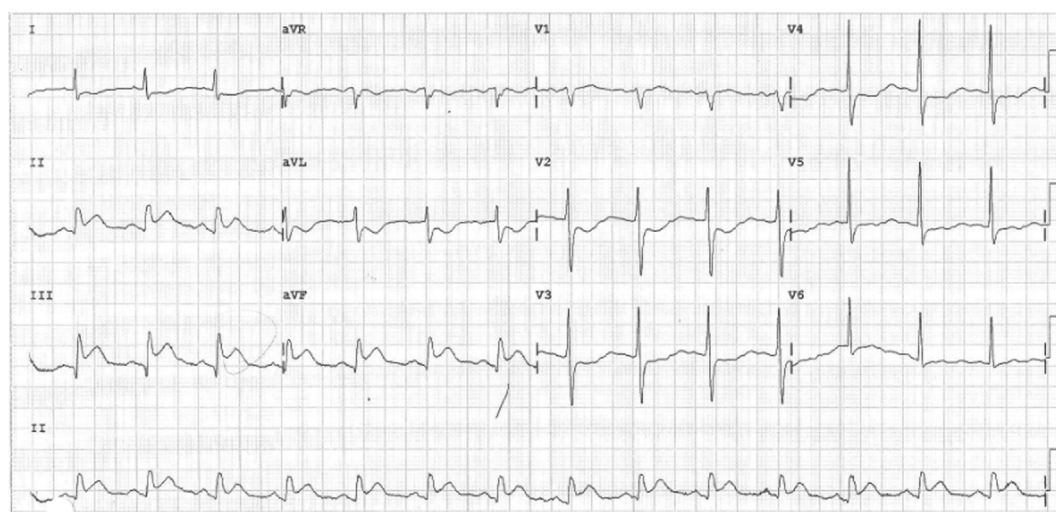


Figure 1 The electrocardiogram (ECG) showed ST-segment elevation in leads II, III, aVF, and reciprocal ST-segment depression in the anterolateral leads.

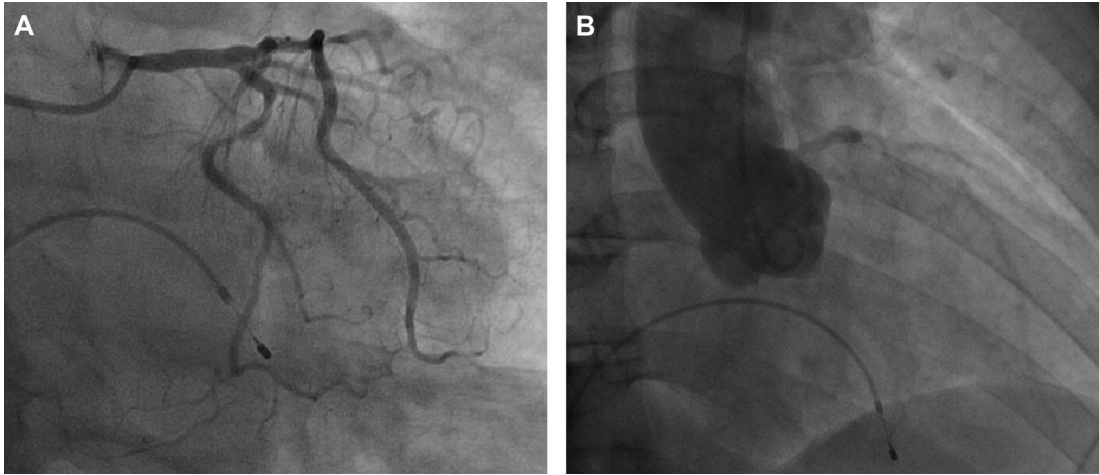


Figure 2 (A) The left coronary angiography revealed patent left descending and circumflex artery. (B) Aortography was performed but did not show any stump of the right coronary artery (RCA).

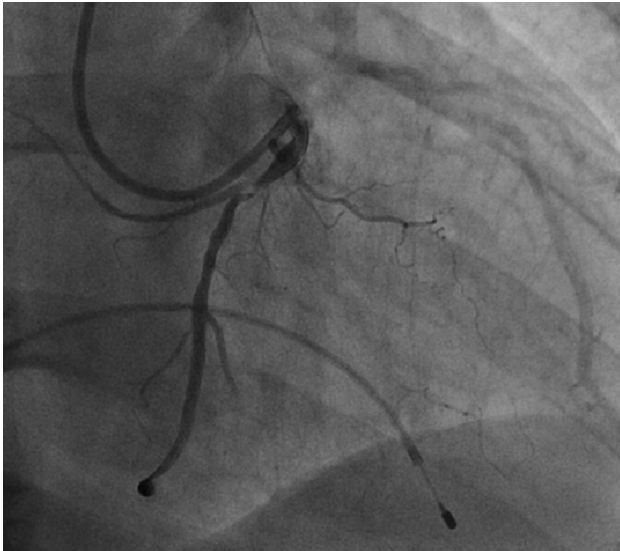


Figure 3 The anomalous right coronary artery (RCA) arising from the left sinus of Valsalva was engaged with an EBU3.5 guiding catheter. Severe stenosis of middle segment was noted.

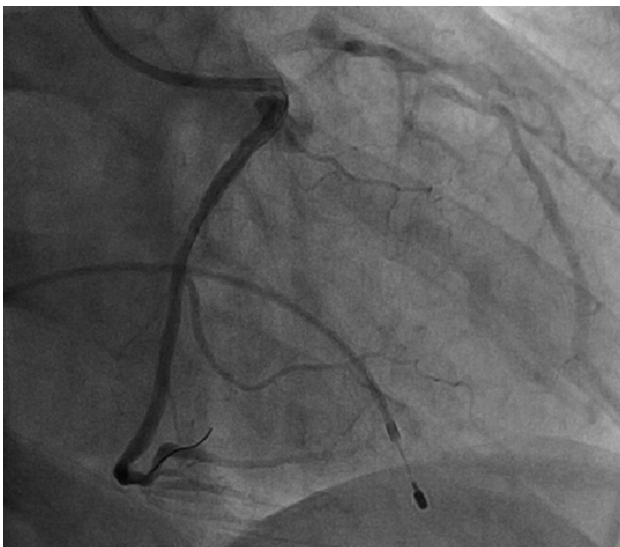


Figure 4 After stent implantation, final angiography showed optimal result.

primary percutaneous coronary intervention may result in procedural failure and unfavorable outcomes. We suggest performing an aortography after failure to engage the RCA with using right Judkins or Amplatz guiding catheters. According to the hypothesis of an anomalous RCA arising near the ostium of the left coronary artery, an EBU3.5 guiding catheter is an appropriate choice for coronary intervention.

We conclude that recognition of coronary anomalies and selection of appropriate guiding catheters are essential to the success of coronary interventions, especially in emergent situations.

References

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