

CASE REPORT

TRANSRADIAL PRIMARY PCI OF AN ANOMALOUS LAD ORIGINATING FROM THE OPPOSITE SINUS PRESENTING AS STEMI

Jorge Ramirez Romero¹, William Tschannen¹, Jason P. Wermers², Sarah Aftab Ahmad³, Nauman Khalid³

¹Wyoming Medical Center, Casper, WY-USA

²Department of Health Sciences, University of Maryland, Baltimore-USA

³St. Francis Medical Center, Monroe, LA-USA

ST-segment elevation myocardial infarction (STEMI) is a rare presentation in patients with anomalous coronary arteries. Among these patients, identification of the culprit lesion remains challenging. Furthermore, the default transradial approach advocated by the guidelines and professional societies, especially for acute coronary syndromes may pose technical challenges for the interventionalists.

Keywords: Anomalous coronary arteries, percutaneous coronary intervention, transradial, ST-elevation myocardial infarction

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CASE REPORT

A 54-year-old man with a history of tobacco abuse, hypertension, type II diabetes mellitus, and medical non-compliance presented to the emergency department with acute onset chest pain. A 12-lead electrocardiogram demonstrated ST-segment elevation in leads I, aVL, and V2-V5, and elevated troponin-I levels. Emergent transradial coronary angiography using a 6-Fr 3.75 Ikari left (Terumo Medical Corporation, Somerset, NJ) guiding catheter showed 100% thrombotic occlusion in the mid-segment of an anomalous left anterior descending (LAD) artery originating from the right coronary sinus of Valsalva, 70% ostial ramus intermedius stenosis, diffuse 80% stenosis in the circumflex artery and chronic total occlusion of the mid-right coronary artery (Figure-1A-1B). Because of the suboptimal guiding catheter support, the Ikari catheter was exchanged for a 6-Fr Judkins Right 4.0 guiding catheter for percutaneous coronary intervention (PCI). A Runthrough NS floppy guidewire (Terumo Medical Corporation, Somerset, NJ) was advanced beyond the lesion into the distal LAD. Predilation

was performed using a 2.5×8 mm semi-compliant balloon. Stenting was performed with a 2.5×24-mm Rebel (Boston Scientific, Marlborough, MA) bare-metal stent (BMS) with subsequent post-dilation using a 3.0×15 mm non-compliant balloon resulting in restoration of Thrombolysis in Myocardial Infarction-3 flow and no residual stenosis (Figure-1C-1D). BMS was used for the following reasons: 1) multivessel coronary artery disease and the potential need for coronary artery bypass grafting (CABG) and 2) history of medication nonadherence. On Coronary Computed Tomography Angiography, the LAD was not intramural, and its course was intraarterial (between the pulmonary artery and the aorta). After completing 1 month of dual antiplatelet therapy, the patient underwent successful CABG with left internal mammary artery graft to anomalous LAD, radial artery graft to ramus intermedius, and saphenous vein graft to the posterior descending artery. The patient completed cardiac rehabilitation and has remained asymptomatic thenceforth.

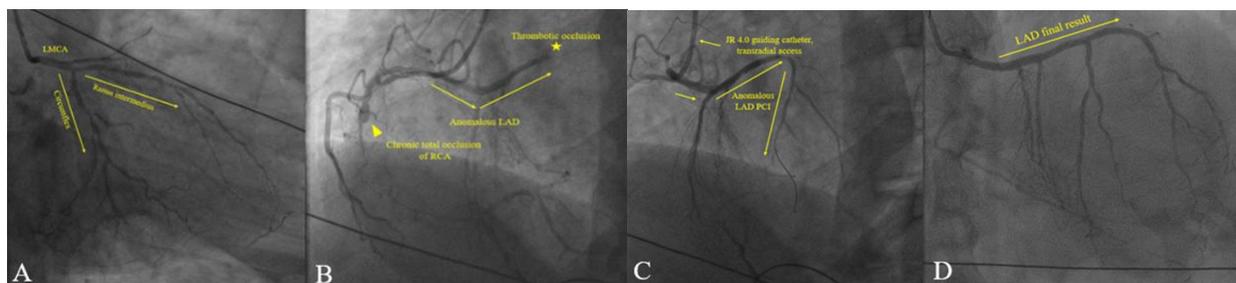


Figure-1: Coronary angiography demonstrating acute thrombotic occlusion of anomalous left anterior descending artery (A-B), with successful revascularization shown (C-D).

DISCUSSION

Coronary artery anomalies constitute a diverse group of rare congenital abnormalities affecting approximately 1% of the general population.¹ Patients with these anomalies are generally asymptomatic but some can develop myocardial ischemia, infarction and/or sudden cardiac death. An initial presentation as a STEMI is quite uncommon with a reported incidence of 0.4%.² Transradial access in patients with STEMI is associated with significant clinical benefits including lower morbidity and cardiac mortality.³ PCI of the anomalous coronary arteries via a transradial approach tends to be technically challenging, especially in an emergency setting. To date, only one similar case has been reported in the literature⁴, some others either did not specify the access site and/or the patient did not undergo percutaneous revascularization.^{2,5}

To the best of our knowledge, this case represents the second description of a successful

transradial PCI of an anomalous LAD arising from the opposite sinus presenting as STEMI.

REFERENCES

1. Angelini P, Velasco JA, Flamm S. Coronary anomalies: incidence, pathophysiology, and clinical relevance. *Circulation* 2002;105(20):2449–54.
2. Marchesini J, Campo G, Righi R, Benea G, Ferrari R. Coronary artery anomalies presenting with ST-segment elevation myocardial infarction. *Clin Pract* 2011;1(4):e107.
3. Romagnoli E, Biondi-Zoccai G, Sciahbasi A, Politi L, Rigattieri S, Pendenza G, *et al.* Radial versus femoral randomized investigation in ST-segment elevation acute coronary syndrome: the RIFLE-STEACS (Radial Versus Femoral Randomized Investigation in ST-Elevation Acute Coronary Syndrome) study. *J Am Coll Cardiol* 2012;60(24):2481–9.
4. Constantinides SS, Barberis VI, Mitselos L, Christou CP. Transradial primary percutaneous intervention in a rare case of anomalous origination of the left coronary artery system from the right aortic sinus. *J Am Coll Cardiol* 2014;7(11):e179–81.
5. Ting K, Mulukutla V, Franklin WJ, Lam WW. Anomalous Left Coronary Artery From the Right Sinus of Valsalva in a Patient Presenting with ST-Segment Elevation in Lead aVR: A Case Report. *J Emerg Med* 2018;55(4):e93–6.

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Address for Correspondence:

Nauman Khalid, St. Francis Medical Center, Monroe, LA-USA

Email: naumankhalid84@gmail.com