

Successful Trans-Radial Coronary Intervention through “Arteria Lusoria”

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Abstract: Arteria Lusoria or aberrant right subclavian artery (ARSA) is present in 0.6–1.4% of individuals. The presence of ARSA can make a right transradial approach for coronary angiography and angioplasty technically more difficult. We describe a case in which a right Trans-radial approach for catheterization was successful in the setting of ARSA.

Keywords: Transradial Coronary Intervention, Arteria Lusoria, aberrant right subclavian artery.

INTRODUCTION

Arteria Lusoria or aberrant right subclavian artery (ARSA) is the most common congenital arch anomaly in which the right subclavian artery (RSA) originates from the descending aorta, distal to the left subclavian at the ductus arteriosus. The prevalence of ARSA ranges from 0.6 to 1.4% [1]. In such cases, the tortuous course of the ARSA imposes difficulty in passing a guidewire to the ascending aorta during right transradial catheterization. The catheter has to take a zigzag course through the RSA to the descending aorta, and then to the ascending aorta [2]. We report a case of coronary intervention in setting of ARSA demonstrating the success and safety of this approach.

CASE REPORT

A 48-year-old man, hypertensive and non-diabetic presented with breathlessness on exertion since 5 months. Clinical examination and laboratory studies were non contributory. ECG revealed no significant ST – T changes. Echocardiography finding shows no regional wall motion abnormalities with left ventricular ejection fraction of 60%. Treadmill test was strongly positive at 6.4 METS. Hence was decided for diagnostic coronary angiography. During coronary angiography, right radial access with a 6 Fr sheath was obtained. However, it was noted that the guidewire (0.35/150 3 mm J Fixed Core) could only be advanced to the descending aorta, and repeated attempts failed to enter the ascending aorta. Therefore, aberrant right subclavian artery (arteria lusoria) was suspected. 3.5 diagnostic catheter 5F (Translumina- TIGER) was used for both right and left coronary system angiography

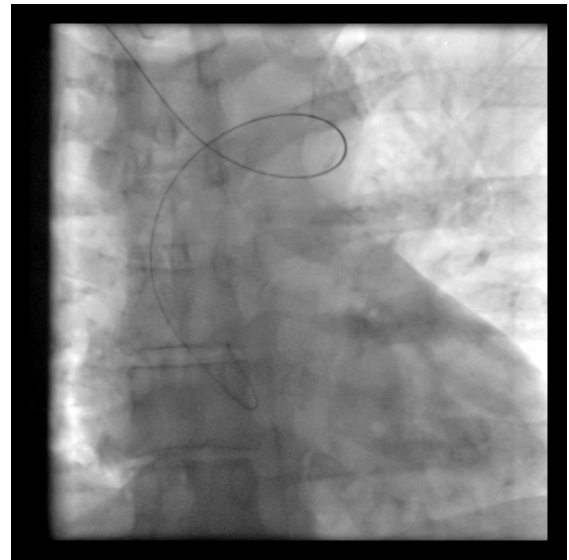


Figure 1: Coronary angiographic view showing guidewire through course of aberrant right subclavian artery.



Figure 2: left system Coronary angiographic view (RAO-caudal) by TIGER diagnostic catheter) showing proximal LAD 90% stenosis.

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(Figure 1). Coronary angiogram revealed 90% luminal narrowing in proximal Left anterior descending artery (LAD) (Figures 2 & 3). For the Percutaneous coronary balloon angioplasty procedure, a 6 Fr. EBU 3.5 guiding catheter was used to allow adequate support during the LAD intervention (Figures 4 to 6). Successful coronary balloon angioplasty was performed using drug eluting stent. Post revascularisation angiogram shows good result without any coronary complications.

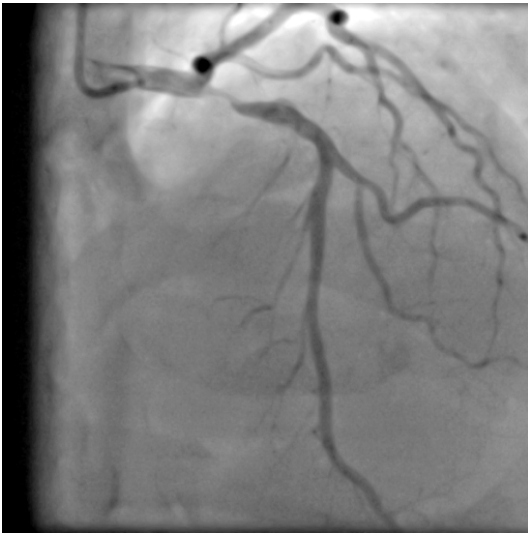


Figure 3: left system Coronary angiographic view (by TIGER diagnostic catheter) showing proximal LAD 90% stenosis.

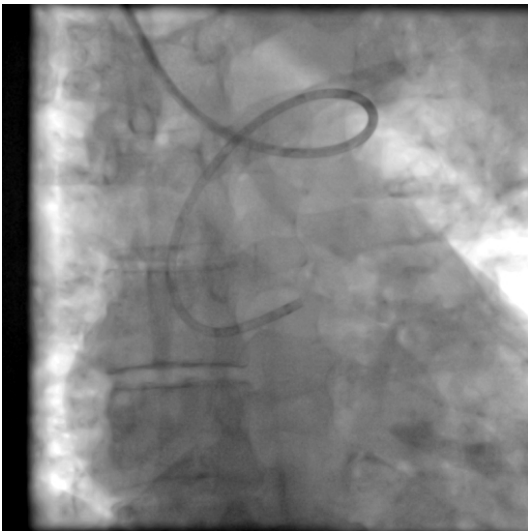


Figure 4: Coronary angiographic view showing guiding catheter (EBU) through course of aberrant right subclavian artery.

DISCUSSION

In the vast majority of patients, ARSA is clinically silent until right radial coronary angiography is entertained. With the increasing use of a transradial



Figure 5: Coronary angiographic view by guiding catheter (EBU) through course of aberrant right subclavian artery showing proximal LAD 90% stenosis.

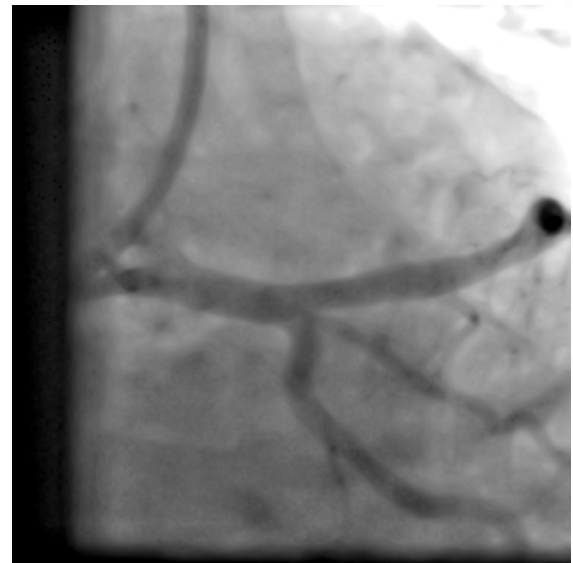


Figure 6: Coronary angiographic view post revascularisation showing good result and TIMI III flow.

approach for coronary angiography as a result of the lower risk of access site related complications, ARSA will be encountered more frequently [2]. In this disorder four vessels arise sequentially from the aortic arch: the right common carotid artery, the left common carotid artery, the left subclavian artery and the aberrant right subclavian artery, which crosses upwards and to the right in the posterior mediastinum. It results from a disruption in the complex remodeling of the paired branchial arches, typically of the right dorsal aorta distal to the sixth cervical intersegmental artery (2,4). ARSA can be confirmed by aortography and should be suspected when catheterization of the ascending aorta

proves difficult and the catheter favors entry into the descending aorta. Due to the increased anatomical complexity, ARSA may increase number of catheters used and prolong angiography time, especially if previously unrecognized [2]. Previous studies have described low procedural success rates during catheterization in the setting of ARSA, due to increased technical demand [3]. We have demonstrated with the current case that catheter support and rotation can facilitate successful, non-traumatic entry into the ascending aorta [4]. Usually the catheterization of both coronary arteries becomes more difficult, takes longer time, and requires more catheters. In addition, caution should be taken, as dissection of an arteria lusoria and aorta during transradial catheterization has been previously reported [5]. As in all cases in which complex percutaneous coronary intervention is required, specific attention should be placed on appropriate guide support. In the absence of this, consideration towards gaining access from another approach would be warranted.

CONCLUSION

During right transradial coronary angiography, clinicians should be vigilant for this anatomic anomaly, and although technically difficult, it is feasible to continue the procedure without switching to the femoral artery approach.

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GUARANTOR

Dr. Shakil Shaikh will act as the guarantor of the manuscript.

CONFLICT OF INTEREST

None.

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CONSENT

Written informed consent of patient was obtained for publication of this case report and accompanying images.

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