



Research Letter

Transradial primary angioplasty of anomalous right coronary artery from the left sinus of Valsalva



A B S T R A C T

Percutaneous coronary intervention (PCI) of congenitally anomalous coronary arteries may be a technically challenging procedure. There is general belief that femoral approach is associated with better chances of coronary engagement and better guide support during PCI of anomalous coronary arteries. The following case supports that radial access is effective for PCI of an aberrant right coronary artery from the left sinus of Valsalva, even in an acute setting.

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Dear Editor,

Percutaneous coronary intervention (PCI) of congenitally anomalous coronary arteries may be a technically challenging procedure. There is general belief that femoral approach is associated with better chances of coronary engagement and better guide support during PCI of anomalous coronary arteries. The following case supports that radial access is an effective strategy for PCI of anomalous coronaries, even in an acute setting.

A 59-year-old man was admitted with inferior ST elevation myocardial infarction and underwent emergency coronary angiography through the right radial artery, which is the default access site in our Department. During injection of the left coronary artery (LCA) through a dedicated radial 5 French Optitorque Tiger catheter, a proximally occluded anomalous right coronary artery with origin from the left sinus of Valsalva (RCA-LSV), which originated just inferiorly and anteriorly to the origin of the LCA, was incidentally recognized (Fig. 1). The white arrows in Fig. 1 show the occlusion site of the RCA-LSV (Fig. 1A: anteroposterior caudal view; Fig. 1B: right anterior oblique view). The black arrow in Fig. 1B shows a patent proximal left anterior descending artery in non-selective angiography of the left coronary artery.

Primary PCI was performed after engaging the RCA-LSV with a 6 French Judkins left 4.0 (JL 4.0) guide catheter. This guide was selected after considering the close proximity of the RCA-LSV with the LCA. The RCA-LSV was easily cannulated at first attempt after slight advancement and counterclockwise rotation of the guide from its usual position in the left sinus. Two significant stenoses at the mid segment of the artery were visualized after restoring the flow with aspiration thrombectomy (arrows in Fig. 2A), and therefore we delivered a 2.75×38 mm everolimus-eluting stent (Fig. 2B). Fig. 2C (left anterior oblique view with cranial angulation) and Fig. 2D (anteroposterior cranial view) show the left coronary

artery and an excellent final angiographic of the anomalous RCA after a single injection of contrast. The patient's in-hospital course was uneventful and he was fully functional and asymptomatic when reviewed three months post-procedure.

Although the described coronary anomaly is not extremely rare, previous reports of transradial primary PCI for an acutely occluded RCA-LSV are very limited.¹ There is no doubt that PCI of an anomalous RCA-LSV may be a technically challenging procedure for the interventional cardiologist. This has been nicely demonstrated in the recent large case series of Uthayakumaran et al., who performed elective PCI of RCA-LSV through a femoral approach in 17 patients.² Interestingly, a mean of four different guide catheters per patient had been used in that study.² Cannulation of an anomalous RCA-LSV with a guide catheter is usually not easy, and depends on the size of the aortic root, the exact location of the origin and the orientation and course of the proximal segment of the anomalous RCA-LSV. In particular, an unfavorable angle of the origin of the RCA-LSV may prevent coaxial alignment of the guide with the proximal segment of the anomalous artery and may result in inadequate guide catheter back up support, which is essential for a successful procedure.

In our case, the origin of the aberrant RCA-LSV was just inferiorly to the ostium of the LCA. This is the least common location of the origin of a RCA-LSV, as in the majority of the reported cases, the ostium of the anomalous artery is located either at the same level or above the ostium of the LCA.² We chose a JL 4.0 guide based on the close proximity and the slightly caudal position of the RCA-LSV in relation to the LCA, and we managed to cannulate the artery with this catheter without any difficulty. Although the tip of this JL 4.0 guide was not entirely co-aligned with the proximal segment of the artery (Fig. 2), the provided guide support was adequate and allowed the successful completion of the procedure in our patient. This is in line with the data of Uthayakumaran et al., who showed that a RCA-LSV with an

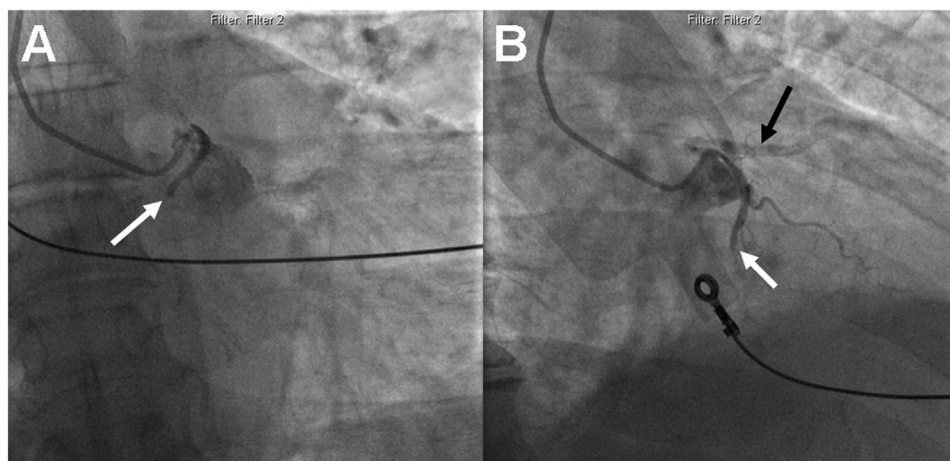


Fig. 1. Anomalous RCA from the left sinus of Valsalva.

inferior origin can be usually cannulated with an extra back up 3.5 or with a JL 4.0 guide catheter.² However, as the anatomy of RCA-LSV and its relation to the ostium of the LCA varies considerably, other guide catheters may perform better in different patients. Regarding the arterial access, our case and 2 cases of Suryanarayana et al.¹ indicate that the radial approach is an excellent strategy for PCI of RCA-LSV. Interestingly, several reports have

suggested that the right radial access provides a good guide catheter support and may be an excellent alternative for PCI in patients with anomalous RCA-LSV,³ even when a transfemoral attempt has previously failed.^{1,2,4} It seems that the manipulation of the guide catheter is easier and the provided support is more robust when an anomalous RCA-LSV is approached from a right radial access.

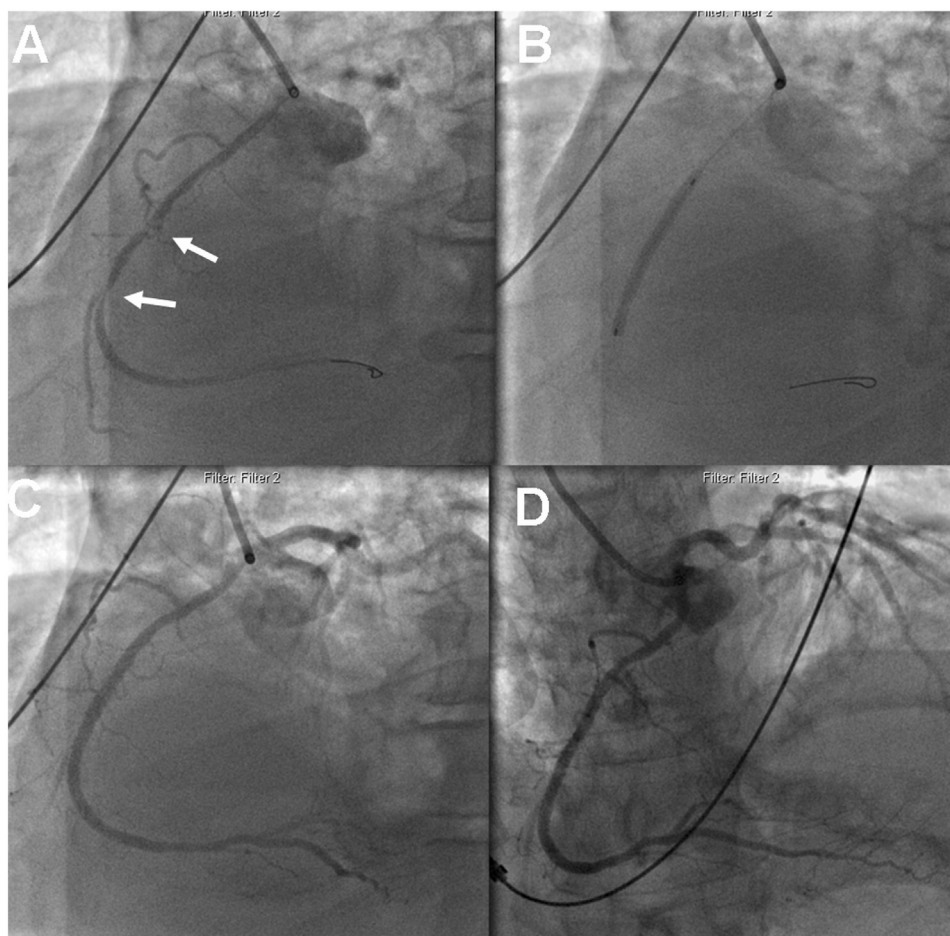


Fig. 2. Transradial primary PCI of the anomalous RCA with a Judkins left 4.0 guide catheter.

In conclusion, the right radial access can be considered as a reasonable strategy for PCI of RCA-LSV. In an acute setting of a primary PCI, there is no reason to switch from a radial to a femoral approach if RCA-LSV is identified as a culprit.

Conflict of interest

None.

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