



Anomalous origin of coronary vessels with normal angiographic appearance- Is it always benign?

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The embryological origin and aberrations in the development of coronary vessels can result in interesting variations which are known as coronary artery anomalies (CAA). The incidence of these anomalies though thought to be low (0.3% to 5.6%), can have clinically significant implications when present. The scope of understanding the complexity of CAA far exceeds this brief presentation and is better understood by the comprehensive review given by Villa *et al.*[1].

Amongst the extensive spectrum of potential abnormalities, the left circumflex artery (LCx) is one of the commonest to have anomalous pathologies with an origin from the right sinus of valsalva (RSV) [Figure -1], the incidence of which is reported to be 0.32-0.67%. The clinical significance of this variation is that, it is usually benign especially in the absence of atherosclerotic disease [2]. However, LCx originating from the RSV has been documented rarely to cause angina pectoris, myocardial infarction and even sudden death [3].

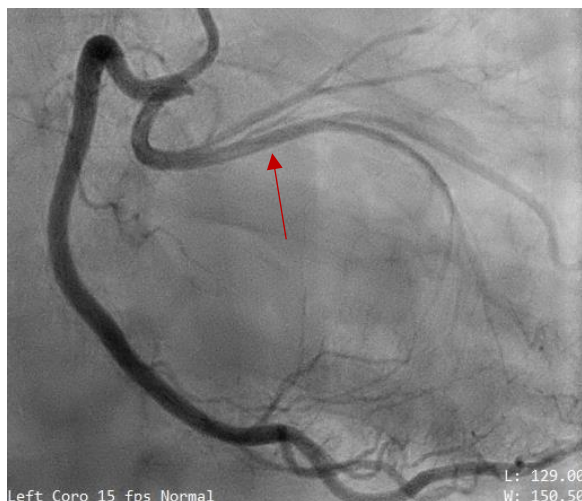


Figure-1: LCx (arrow) arising from the RSV adjacent to the RCA

On the contrary when the right coronary artery (RCA) arises from the contralateral left sinus of valsalva (LSV) {Figure-2}, the incidence of which is 0.92% [1], it can have significant clinical implications. Those with this anomaly usually are known to present with syncope, angina, myocardial infarction, fatal arrhythmias and sudden cardiac death even in the absence of atherosclerotic disease. The postulated mechanism of this extensive spectrum of symptomatology occurs through complex mechanisms including dynamic narrowing and kinking of the RCA as it traverses an abnormal path following its anomalous origin [4]

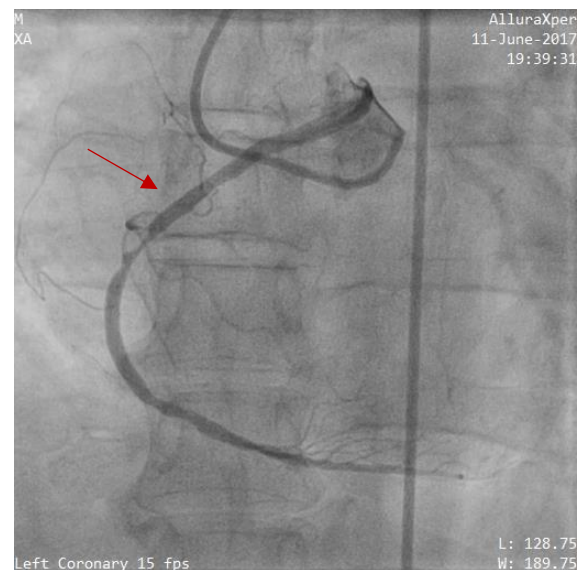


Figure-2: Demonstrates the RCA (arrow) arising from the LSV, albeit here the RCA has atherosclerotic disease, the vessel was closely engaged by a Judkins left catheter.



So the next time when one encounters coronary arteries of anomalous origin, even when devoid of atherosclerotic disease, having an understanding of possible sequelae will ensure that the patient gets the care and attention he or she deserves and will not be simply branded as “Normal CA”.

References

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3. Aydin, M., et al., *Myocardial Ischemia Caused by a Coronary Anomaly: Left Circumflex Coronary Artery Arising from Right Sinus of Valsalva*. Texas Heart Institute Journal, 2004. **31**(3): p. 273-275.
4. Sloan, K., et al., *Inferior wall myocardial infarction caused by anomalous right coronary artery*. The Canadian Journal of Cardiology, 2008. **24**(12): p. e102-e103.