

Left circumflex artery originating from right sinus vasalva with left atrial diverticulum and left-sided atrial septal pouch: 128-slice computed tomography findings

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Purpose

Coronary artery anomalies are categorised uncommon cardiac diseases in general population, which reported %1-2 prevalence. Usually diagnosed incidentally, because of being asymptomatic (1).

Coronary artery anomalies are the underlying cause in 2/3 of sudden deaths caused by cardiac related reasons (2). Diagnosing the coronary artery diseases, coronary CT angiography is superior modality. Recently, by the use of coronary CT angiography, the frequency of diagnosing incidental findings accompanying coronary anomalies is increasing.

In our case, there are atrial septal pouch and left atrial diverticula, which accompanying LCX variation. In this case presentation, we aimed to emphasize the use of coronary CT angiography in showing coronary artery anomalies and concomitant incidental cardiac pathologies and to review the knowledge of literature.

Methods and Materials

20 years old male patient was admitted our clinic with atypical chest pain. With 128 slice CT scanner (GE Healthcare Medical Systems, Revolution), coronary CT angiography was performed.

Results

RCA and LCX was seen arising with single root from right coronary sinus (Figure 1). LCX was retroaortically located and descending in left atrioventricular groove. Additionally, there were left atrial septal pouch and a millimetric diverticula at left atrial superior wall (Figure 2,3).

Images for this section:

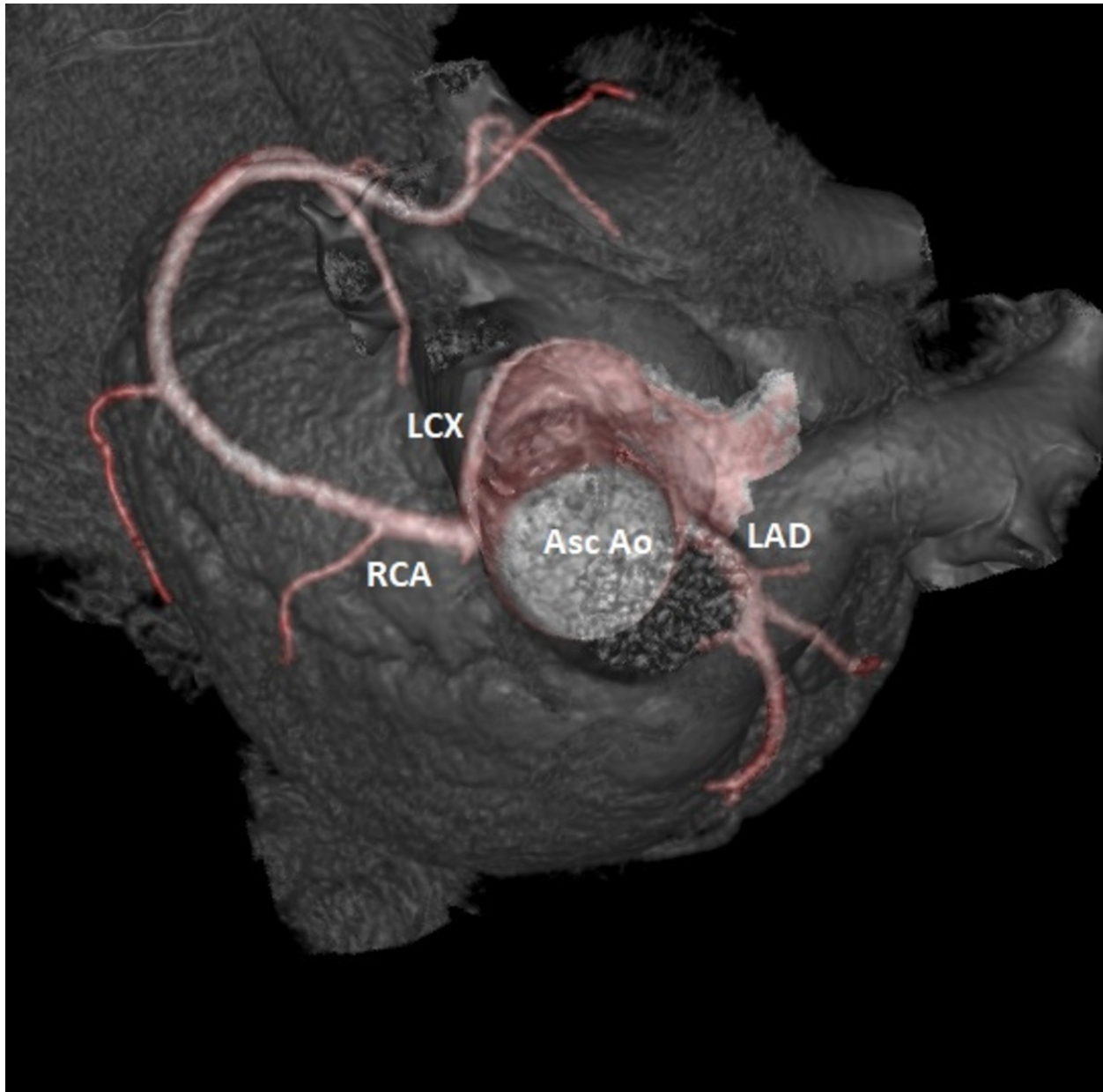


Fig. 1: Volume Rendered image shows an anomalous origin of LCX from right coronary sinus.

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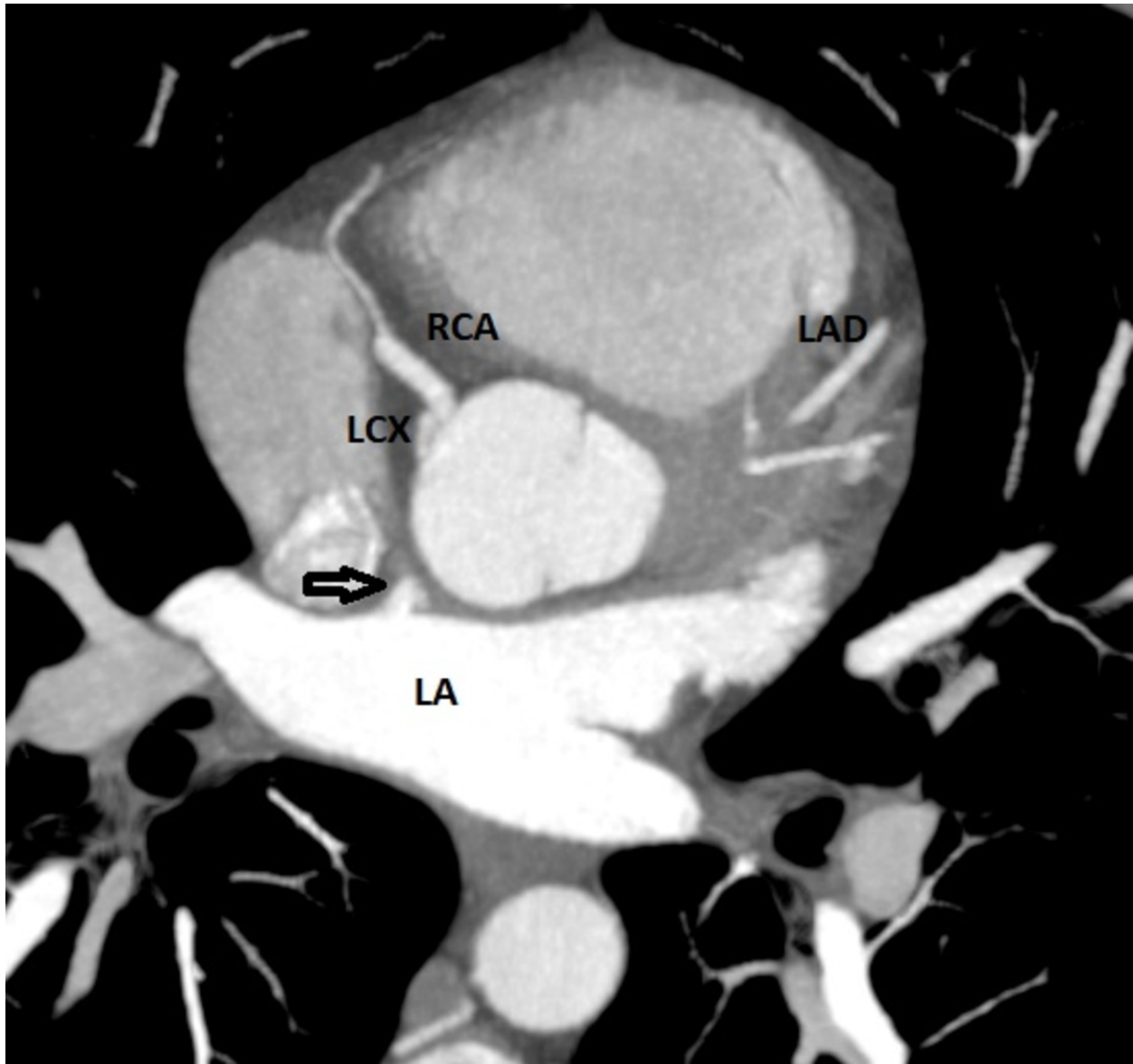


Fig. 2: Axial coronary CT angiography image shows an anomalous origin of LCX from right coronary sinus. Also note the left atrial diverticulum (black arrow).

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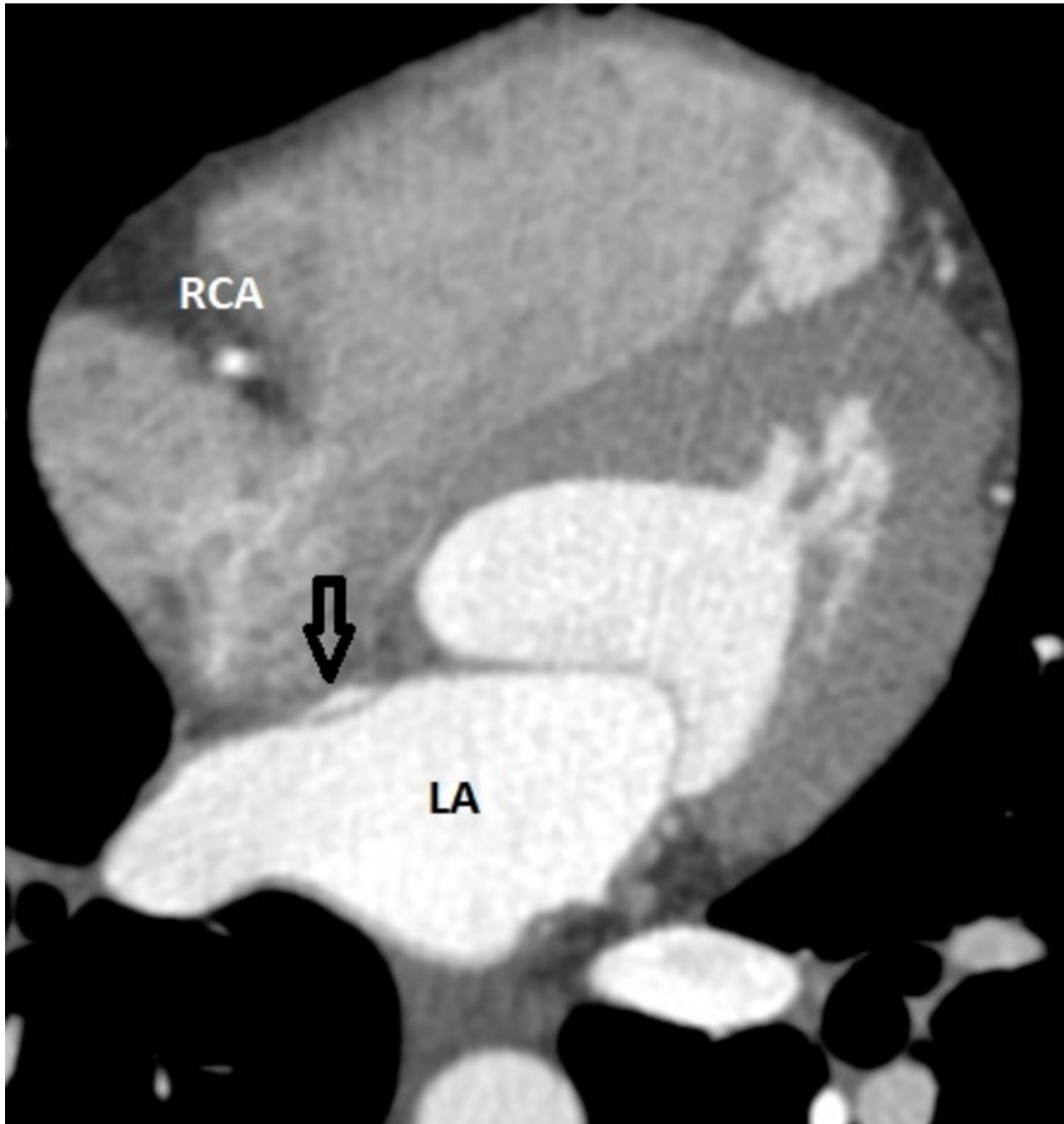


Fig. 3: Axial coronary CT angiography image demonstrates left-sided atrial septal pouch (arrow).

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Conclusion

The prevalence of left circumflex coronary artery origin and course variants was defined as % 0.3-0.8 by various angiographic and cadaver studies. Variants of the LCX, arising from left coronary artery, were defined in three patterns. RCA and LCX arise from right coronary sinus as different roots (type 1), RCA and LCX arise from same root (type 2) or LCX arise from proximal RCA (type 3) (4). In our case there was type 2 variation.

Atrial septal pouch is a recess at atrium, which is formed by incompleting fusion of cranial segments of septum primum and septum secundum. Atrial septal pouch is a predisposition to thrombosis.

Atrial diverticulas are the cyst like extensions which is extending out of the cardiac chambers and containing only muscle layer. Prevalance is reported %19-41 and diagnosed incidentally (6).

When a coronary artery anomaly is diagnosed, the origin, course of the artery and relation to other cardiac structures must be described in detail. Coronary CT angiography is a very useful diagnostic modality recently, in defining coronary artery anomalies and co-incident cardiac pathologies.

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