

Dual Left Circumflex Artery

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Dual left circumflex (LCx) arteries represent a very rare congenital anomaly with only few reported cases in literature. Herein, we present a case of dual LCx arteries originating from the left main coronary artery (LMCA) and right coronary artery (RCA), respectively.

A 40-year-old male presented in emergency department with complaint of chest pain. On examination, his pulse rate was 90 beats/min and blood pressure 120/70 mmHg. Electrocardiogram (ECG) showed ST depression in inferior leads. Cardiac markers creatine phosphokinase-MB and troponin I was within normal limits.

Echocardiography revealed hypokinetic inferolateral wall. Elective coronary angiography was then planned, which showed twin LCx arteries: one originating from LMCA and the other from the proximal RCA (Figs. 1 and 2). Patient was discharged on optimal medical therapy and he remained asymptomatic in follow-up period.

Coronary anomalies are rare. The most frequently found anomalies include a LCx artery with a separate origin of the left anterior descending (LAD), followed by a LCx artery arising from the right sinus of Valsalva or the RCA.¹ Only a few cases of twin circumflex arteries originating from both left and right coronary systems have been reported in the literature.²⁻⁴ It may cause chest pain, heart failure, arrhythmia and sudden death as a consequence of the repeated compression of the anomalous artery by a dilated aortic root or of slit-like ostia or of unusual angling as a result of the retroaortic course of the LCx.⁵

The clinical significance of this anomaly may be important in patients undergoing coronary intervention or cardiac surgery. It is important to inform the

surgeons so as to accidentally avoid cross-clamping or transecting the artery during surgery.



Figure 1. Left coronary angiogram showing small, left circumflex artery (LCx-1) arising from left main coronary artery (LMCA).

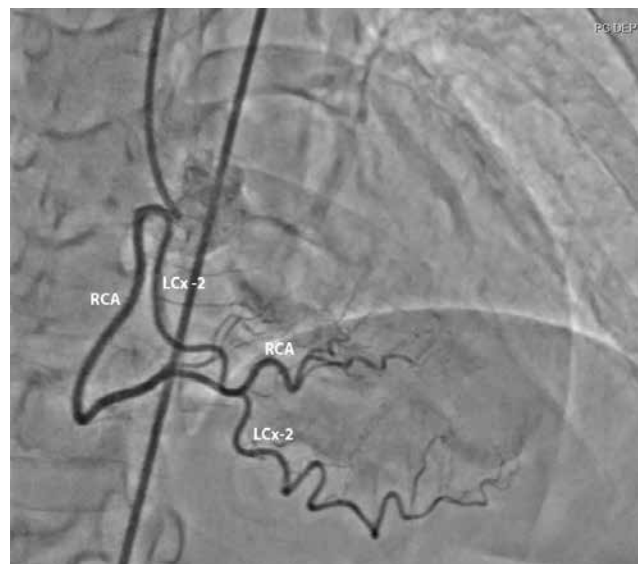


Figure 2. Right coronary angiogram showing second left circumflex artery (LCx-2) arising from right coronary artery (RCA).

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Benefits of COVID-19 Vaccine and Booster during Pregnancy

Pregnant women are at risk of developing severe coronavirus disease (COVID-19), which is associated with adverse maternal and neonatal outcomes. Taking a COVID-19 mRNA vaccine and a booster dose during pregnancy protects both the mother and her child against COVID-19, according to results of the Multisite Observational Maternal and Infant Study for COVID-19 (MOMI-VAX) study published in the journal *Vaccine*.^{1,2}

This observational study of COVID-19 vaccination during pregnancy and postpartum was launched in 2021 by the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health (NIH).

Researchers enrolled 240 women who had been vaccinated with COVID-19 mRNA vaccine (Pfizer/Moderna) during pregnancy in this study conducted at 9 centers in the United States from July 2021 to January 2022. Of these, 167 had completed their primary 2-dose series and 73 had also taken one booster dose (as recommended at the time of this study). The objective of the study was to estimate the levels of the binding and neutralizing antibodies to the COVID-19 mRNA vaccines in the pregnant women and also to measure the antibody levels in cord blood.

Binding and neutralizing antibodies against the D614G variant of SARS-CoV-2, including its Delta and Omicron (BA.1) subvariants were detected in all pregnant women at delivery who had completed their primary vaccination series against COVID-19 and also in all cord blood samples of the vaccinated women. The serum antibody levels, including in the cord blood, were found to be further increased among pregnant women, who had also taken the booster dose of the vaccine compared to those who had taken just the two vaccine doses. Nine percent of women who had taken the primary series of the Pfizer vaccine had neutralizing antibodies to Omicron compared to 22% of those who had received two doses of the Moderna primary series. Seventy-three percent of the boosted women had antibody levels “although titers were significantly lower than to the D614G strain”.

An efficient transplacental transfer of antibodies was seen with primary vaccination as well as booster vaccination during pregnancy. The antibody transfer ratio ranged from 1.55 to 1.77 for binding IgG, 1.00 to 1.78 for live virus neutralizing antibodies and 1.79 to 2.36 for pseudovirus neutralizing antibodies.

This study demonstrates the robust maternal immune response generated after COVID-19 mRNA vaccination during pregnancy, especially following the booster dose as well as the transplacental transfer of antibodies. It illustrates the protective effect of the vaccine on the newborns and supports the use of COVID-19 vaccine, especially its booster dose during pregnancy as “newborns are too young to be vaccinated”. The researchers advocate further research to ascertain the optimal time of vaccination during pregnancy to gain the maximum benefit for both the mother and her child.

References

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