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PREVALENCE AND SPECTRUM OF CORONARY ARTERY ANOMALIES: A CASE SERIES FROM CHENGALPATTU MEDICAL COLLEGE HOSPITAL

Cardiology

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KEYWORDS

Coronary Artery Anomalies (CAAs), Acute Coronary Syndrome (ACS), Coronary Angiogram (CAG)

INTRODUCTION

Congenital Coronary arterial anomalies (CAAs) represent a diverse group of anomalies. Though rare, seen in less than 1% to 5% of the population they are second most frequent cause of sudden cardiac death (SCD) in young athletes, accounting for 12% of deaths worldwide. Approximately 20% of all may have a potential risk of coronary ischemia leading to myocardial infarction, arrhythmia, and sudden cardiac death. Many coronary artery anomalies are detected during diagnostic imaging or at autopsy as incidental findings with little to no significant consequence.

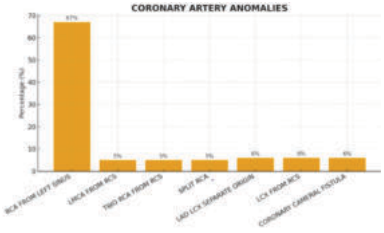
Coronary computed tomography angiography (CCTA) and cardiac magnetic resonance (CMR) have emerged as reliable non-invasive options for diagnosis congenital coronary artery anomalies and their long-term follow-up replacing invasive coronary angiography. This study presents the prevalence of CAAs in Government tertiary care hospital in the Dept of Cardiology, Chengalpattu medical college and details about the different types of these anomalies in our retrospective evaluation over 2 years diagnosed by coronary angiogram. They include – split right coronary artery (RCA), double right coronary artery (RCA) arising from right aortic sinus, origin of left main coronary artery (LMCA) from right aortic sinus, separate origin of left anterior descending artery (LAD) and left circumflex artery (LCx) and coronary cameral fistula (CCF) with coronary aneurysm.

METHODS & RESULTS

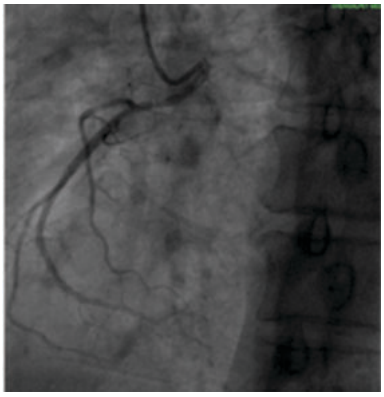
Among 1492 patients underwent coronary angiogram, 18 patients were identified to have coronary anomalies. Overall incidence of coronary artery anomalies in our study is 1.2%. Their mean age of distribution were 50.5 years (minimum age of 35 years to maximum of 66 years). Their sex distribution were 12 males and 6 females.

DISCUSSION

Coronary anomalies are rare congenital abnormalities often found incidentally on conventional coronary angiography. The prevalence of coronary anomalies is reported to be approximately 1% to 6 % of general population, undergoing CAG and 0.3% of all autopsies. Most of them are asymptomatic and have good prognosis. However, some of the anomalies are associated with syncope, ischemic heart disease and sudden cardiac death. In fact, this is the second most common cause of sudden cardiac death among young athletes. Anomalies can be classified based on origin, course or intrinsic coronary anatomy and its termination. Of all, most common anomaly is the anomalous origin of coronary arteries. Anomalous origin of RCA from left sinus is the most common and comprises 0.8 % of all coronary artery anomalies. Rarest form of coronary artery anomaly is Double RCA, which comprises about 0.06%. In our study we had 12 cases with RCA from left sinus, one case of double RCA from right aortic sinus, one case of LMCA from right aortic sinus, one case of split RCA, one case had separate origin of LAD and LCx, one case of LCx from right aortic sinus, and one case of Coronary Cameral Fistula (RCA opening into RA). As per literature, anomalous origin of RCA from left sinus is the most common anomaly and the same was observed in our study, The second most common abnormality observed in our study was the origin of both RCA and LMCA from same ostium, which comprises 5.55%. One of the rarest anomalies reported in the literature, Double RCA was found in one patient of our study.



CORONARY CAMERAL FISTULA



RCA FROM LCS

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LCX FROM RCS

SPLIT RCASPS

DOUBLE RCA FRFROM D

LMCA FROM RCSL

CONCLUSION

Congenital Coronary arterial anomalies are rare clinical entities. Most people are asymptomatic and present after the initial symptoms. Congenital Coronary arterial anomalies cases are increasingly found with the increasing use of invasive and non-invasive cardiovascular imaging. In this case series, we presented a few cases of anomalous course of origin, an anomalous course of termination (coronary artery fistula), and one rare case of the double RCA. It should be a differential in any young patient with ischemic symptoms or athletes with SCD. The anatomy determines the treatment of coronary artery abnormalities revealed.

Keywords and Abbreviations: Coronary Artery Anomalies (CAAs), Acute Coronary Syndrome (ACS), Coronary Angiogram (CAG), Right Coronary Artery (RCA), Sudden Cardiac Death (SCD), LMCA-Left Main Coronary Artery, RCS-Right Coronary Sinus, LCX-Left Circumflex Artery

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