

Prevalence and Clinical Significance of Coronary Artery Anomalies: A Study from Chengalpattu Medical College

Dr. E. Arulanandhan¹, Dr. Kannan Radhakrishnan², Dr. Raghothaman Sethumadhavan³,
Dr. Sureshkumar Ponnuswamy⁴

¹DM Cardiology Resident, Department of Cardiology, Government Chengalpattu Medical College and Hospital, Chengalpattu
Email: dr.arulanandhancyr[at]gmail.com

²Associate Professor, Department of Cardiology, Government Chengalpattu Medical College and Hospital, Chengalpattu
Email: drkanmalar[at]gmail.com

³Assistant Professor, Department of Cardiology, Government Chengalpattu Medical College and Hospital, Chengalpattu
Email: drraghumd[at]yahoo.com

⁴Assistant Professor, Department of Cardiology, Government Chengalpattu Medical College and Hospital, Chengalpattu
Email: psureshkumar79[at]gmail.com

Abstract: Coronary artery anomalies CAAs are congenital defects of the coronary arteries that can have significant clinical implications. This study aims to evaluate the incidence and prevalence of CAAs among patients diagnosed with acute coronary syndrome at Chengalpattu Medical College, who underwent coronary angiography between April 2022 and April 2023. Out of 803 patients, 12 (1.49%) were identified with coronary anomalies. The most common anomaly was the origin of the right coronary artery RCA from the left sinus, observed in 33.3% of cases. Other anomalies included RCA and left main coronary artery LMCA from the same ostium, double RCA, and coronary fistulas. Understanding these anomalies is crucial for determining their clinical significance and initiating appropriate management to prevent adverse outcomes like sudden cardiac death.

Keywords: coronary artery anomalies, acute coronary syndrome, coronary angiogram, right coronary artery, sudden cardiac death

1. Aim of the Study

- To Study the incidence and prevalence of coronary anomalies in order to gather meaningful data about the lesions
- To precisely determine the incidence of associated mortality and risk

Study Population

All patients admitted in Chengalpattu Medical College hospital who underwent coronary angiogram, diagnosed with acute coronary syndrome based on clinical, ECG and ECHO findings.

2. Materials and Methods

The study was conducted in Chengalpattu medical college under cardiology department, who presented with signs and symptoms consistent with Angina and Acute coronary syndrome. Based on risk factors, prognostic significance and better outcome patients were subjected to coronary

angiogram. The study was conducted over a period of one year from April 2022 to April 2023. About 803 patients underwent coronary angiogram during this period and coronary anomalies were identified in the same retrospectively

3. Results

Among 803 patients underwent coronary angiogram, 12 patients were identified to have coronary anomalies. Overall incidence of coronary artery anomalies in our study is 1.49%. Their mean age of distribution were 50.5 years (minimum age distribution of 35 years to maximum of 66 years) Their sex distribution were 9 males and 3 females.

Age distribution: Mean of age of distribution was 50.5 years Minimum age observed was 35 years Maximum age of observation was 66 years

Anomalies reported in our study were

Anomaly	Frequency	Incidence among 803 patients	Incidence among 12 patients
RCA from left sinus	4	0.49%	33.30%
RCA and LCX from right sinus	1	0.12%	8.30%
Double RCA	1	0.12%	8.30%
RCA from left cusp	1	0.12%	8.30%
RCA and LMCA from same ostium	2	0.24%	16.60%
LCX from RCA	1	0.12%	8.30%
RCA and LMCA from left cusp	1	0.12%	8.30%
Fistulas	1	0.12%	8.30%

Volume 13 Issue 10, October 2024

Fully Refereed | Open Access | Double Blind Peer Reviewed Journal

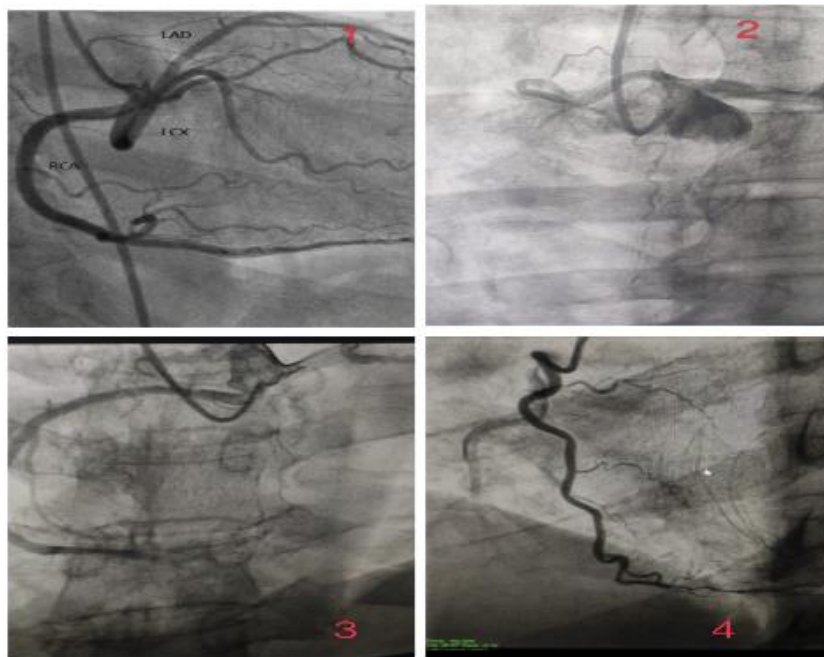
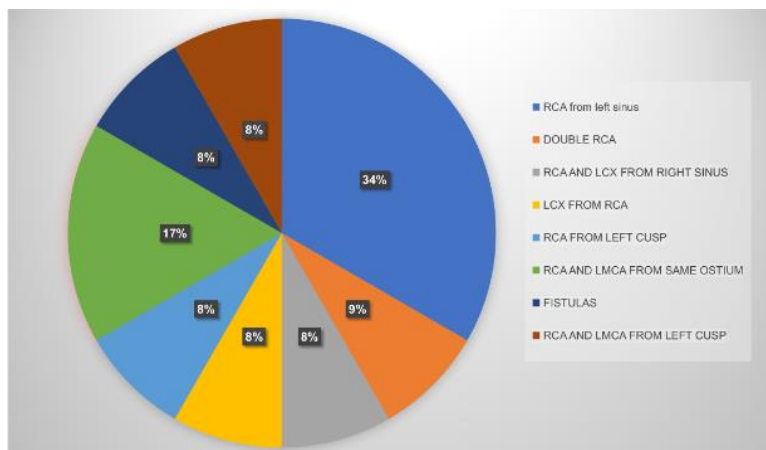
www.ijsr.net

4. 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. Infact 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, comprises 8.9% of all coronary artery anomalies. Rarest form of coronary artery anomaly is DOUBLE RCA, which comprises about 0.01-0.07%



1) origin of RCA from left sinus

2) and 3) origin of RCA and LMCA from same ostium

4) Double RCA

In par with literature, anomalous origin of RCA from left sinus is the most common anomaly observed in our study, which comprises about 34%

The second most common abnormality observed in our study was the origin of both RCA and LMCA from same ostium, which comprises 16%

Rarest anomaly as discussed; Double RCA was found in one patient of our study.

5. Conclusion

Though prevalence of CAAs are rare, the basic understanding of coronary artery anomalies is important and some of them possess clinical significance. Therefore, strict classification system in defining the coronary anomalies and thereby identifying it and determining its clinical severity is of paramount importance. The ultimate goal is to ascertain the prognosis in order to begin appropriate treatment and preventing sudden cardiac death in young adults.

References

- [1] Cartia, D., et al. "Coronary artery anomalies: a review of the literature." **International Journal of Cardiology**, 2021.
- [2] Angelini, P. "Coronary artery anomalies: rational approach to diagnosis and management." **The American Journal of Cardiology**, 2020.
- [3] Frommelt, M. A., & Frommelt, P. C. "Coronary artery anomalies: what you need to know." **Current Cardiology Reports**, 2019.