

A STUDY ON LEFT CIRCUMFLEX ARTERY OF ADULT HUMAN HEARTS IN THE POPULATION OF HYDERABAD KARNATAKA REGION.

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Abstract

Introduction

The left circumflex artery is a branch of left main coronary artery which passes posteriorly through coronary sulcus and during its course gives left marginal artery and sometimes posterior interventricular artery. The study of left circumflex artery is will be useful before performing cardiac surgery, it is important to know the origin of left circumflex artery and its anatomic variations, if there is variation in origin of left circumflex artery, the valvular replacement requires special surgical consideration. While performing therapeutic manoeuvres such as angioplasty and bypass surgery understanding and diagnosis of coronary artery variations are important as coronary artery anomalies are most common cause of sudden death particularly in young adults.

MATERIALS AND METHODS

The study of normal anatomy of left circumflex artery is done on 76 human adult hearts which were obtained from the routine dissection of undergraduate students from Bidar institute of medical sciences as well as nearby colleges of Karnataka & Maharashtra.

Results

In Our Study There Was No Variation In The Origin Of Left Circumflex Artery.

The left circumflex artery was arising from left main coronary artery, the left circumflex artery terminates on obtuse border in 21% of cases, between obtuse border and crux in 52.5%, at the crux in 10.5%, between the crux and acute angle in 16% of cases.

Conclusion

This study done on anatomy of left circumflex artery in the population of Hyderabad Karnataka region will be helpful for cardiothoracic surgeons, clinicians of this region.

Keywords: Left Circumflex Artery, Heart, Trifurcation

Introduction

The left main coronary artery arises from the left coronary sinus of Valsalva. It has short stem, which bifurcates into left anterior descending artery and left circumflex artery. Sometimes a median branch also arises from the left coronary artery then it called as trifurcation.¹ The left circumflex artery traverses through the coronary sulcus and during its course it gives branches to the inferior surface of the left ventricle of the heart (diaphragmatic surface).² The branches supplying the inferior surface of the left ventricle of the heart are also called as left marginal arteries or left posterolateral arteries.³ The left circumflex artery traverses through posterior atrioventricular groove and ends at the crux of the heart by anastomosing with the right coronary artery and sometimes it gives posterior interventricular artery which passes through the posterior interventricular sulcus then the heart is said to be left dominant.⁴

Before performing cardiac surgery it is important to know the origin of left circumflex artery and its anatomic variations, if there is variation in origin of left circumflex artery, the valvular replacement requires special surgical consideration.⁵ While performing therapeutic manoeuvres such as angioplasty and bypass surgery understanding and diagnosis of coronary artery variations are important as coronary artery anomalies are most common cause of sudden death particularly in young adults.⁶ Recent advances in coronary artery bypass surgeries & modern methods of myocardial revascularization requires a thorough knowledge of normal and variations in coronary artery.⁷ Hence this study would be helpful to cardiac as well as cardiothoracic surgeons of the Hyderabad Karnataka region.

MATERIALS AND METHODS

The study of normal anatomy of left circumflex artery is done on 76 human adult hearts which were obtained from the routine dissection of undergraduate students from Bidar institute of medical sciences as well as nearby colleges of Karnataka & Maharashtra. The thoracic cavity was opened. The heart was taken out of pericardial cavity & the great vessels were out and the heart was preserved in 10% formalin.

On the anterior surface of heart, origin of left main coronary artery from ascending aorta was noted. The left circumflex artery is identified and dissected along its course curving into the left, around the heart running within the coronary sulcus towards the posterior surface of the heart, any branches during the course on the anterior surface of the heart were dissected and noted. The posterior surface of heart is dissected to identify the branches of circumflex artery and level of termination of left circumflex artery is noted.

Results

In Our Study There Was No Variation In The Origin Of Left Circumflex Artery.

The left circumflex artery was arising from left main coronary artery, the left circumflex artery terminates on obtuse border in 21% of cases, between obtuse border and crux in 52.5%, at the crux in 10.5%, between the crux and acute angle in 16% of cases.

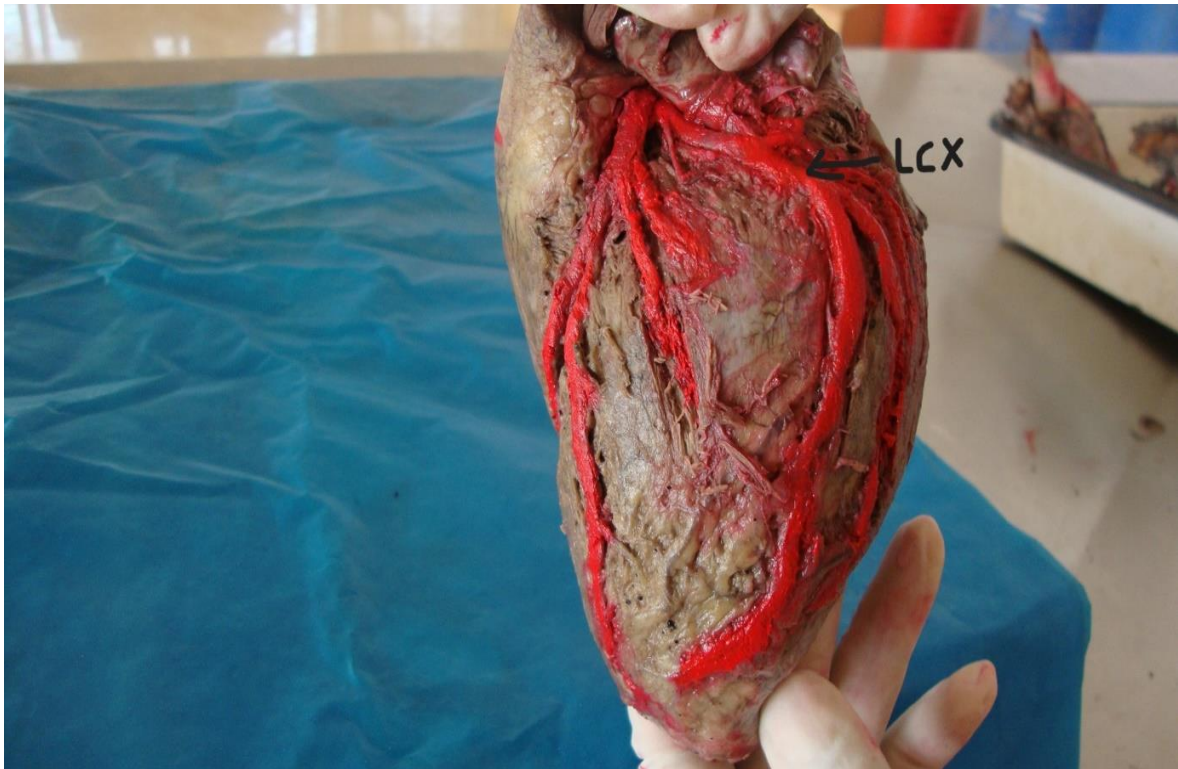


Figure 1: showing Left Circumflex Artery termination at obtuse border.
LCX- Left Circumflex Artery

DISCUSSION

Table 1: Showing comparison of level of termination of Left Circumflex artery

Termination of left circumflex artery	James	Hirak Das et al	Kalpana R	Present study
At obtuse border (%)	21	17.14%	13%	21%
Between obtuse border and crux (%)	60	52.86%	67%	52.5%
At the crux (%)	9	18.57%	6%	10.5%
Between crux and acute border (%)	9	11.4%	11%	16%
Acute border (%)	1	0%	0%	0%

All the studies tabulated above showed the termination of Left circumflex artery in between obtuse border and crux, in majority of cases. The incidence of termination of Left circumflex artery between obtuse border and crux in our study (52.5%) is similar when compared with the study done by James⁸ (60%) and Hirak Das et al⁹ (52.86%). In the present study in none of the specimens the art Left circumflex artery terminated at the acute border. In our study the incidence of termination of Left circumflex artery at obtuse border (21%) is similar to the study done by James⁸ and the incidence of termination between the crux and the acute border (16%) in our study is higher when compared with other studies.

According to white at al the Left circumflex coronary artery occlusions are responsible for 1 in every 5 deaths due to myocardial infarction.

According to kozuch et al the Left circumflex artery occlusions left circumflex artery have been found to present increased risk of heart failure and mortality in comparison to occlusion of left anterior descending arteries and right coronary arteries

Conclusion

This study done on anatomy of left circumflex artery in the population of Hyderabad Karnataka region will be helpful to the will be to interventional radiologists and cardiologists to avoid inadvertent trauma to vascular trauma during diagnostic and therapeutic procedures.

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