

## Anomalous origin of left coronary artery from pulmonary artery; Congenital anomaly presenting with dyspnea. A rare case study

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### Abstract

Anomalous origin of left coronary artery from pulmonary artery (ALCAPA) is rare congenital anomaly. Most of these patients die in infancy. Presentation in adulthood is very rare. Clinical manifestation in teenagers or young adult contains arrhythmia, myocardial perfusion likely causes significant chest pain and these symptoms of myocardial ischemia may be misinterpreted as routine infantile colic and sudden death.

**Keywords:** Anomalous origin of left coronary artery from pulmonary artery

### Introduction

Anomalous origin of left coronary artery from pulmonary artery (ALCAPA) is a rare lesion with an estimated incidence of between 1 in 30000 and 1 in 300000. It is frequently lethal in early infancy with some reports suggesting a mortality rate as high as 90% in first year of life.

### Case

Our case is an adult survivor of ALCAPA diagnosed at our hospital. The patient is a 55 years old female with history of effort dyspnoea (FC=II) from a few years ago. Patient has history of 12 time gestation 8 deliveries without any problem. Physical examination was normal only an II/VI systole murmur auscultate in left sternal border. Vital sign was normal. CXR was not remarkable. ECG was normal. Two dimensional echo revealed moderate mitral regurgitation and moderate left ventricular dilatation and mild LV dysfunction with EF about 45-50%, but it not seen any clue of ALCAPA. Then patient went for coronary angiography that revealed typical anatomy of ALCAPA. On cardiac CT angiography, typical anatomy of ALCAPA was detected.

### Discussion and Conclusion

ALCAPA is rare lesion with an incidence of about 1 in 100000 accounting for 0.25% of congenital heart disease(1). The anomalous left main connects most often to the sinus of Valsalva immediately above the left of posterior cups of pulmonary trunk and rarely from that above the right cup. Collateral

between right & left coronary arteries always presents and grossly visible mainly in adults. Left ventricle is always hypertrophied and greatly dilated. Diffuse LV fibrosis is always present and patients dying in infancy usually leave evidence of anterolateral myocardial infarction. A considerable amount of LV dysfunction in infants must be ischemic in origin. There are some reasons for mitral regurgitation. There may be extensive fibrosis and sometime calcification in papillary muscles. Endocardial fibro-elastosis may involve mitral valve (2).

In patients who survive into adulthood, collateral circulation from right coronary artery is apparently adequate to prevent severe left ventricular failure (3). Presentation is often delayed beyond age 20 years. About half have effort dyspnoea. Occasionally a mitral regurgitation dominates clinical picture. Resting ECG is always abnormal with ST-T segment changes or evidence of old anterolateral infarction. Exercise ECT usually shows ischemic changes thallium is usually abnormal. CXR may be normal or shows cardiomegaly (4). Echocardiography (2-D) is the principle tools for diagnosis.

It may show enlarged RCA or dilated LV or abnormal regaining of LM from pulmonary trunks. Angiography shows more collateral in adults than infants and shows near normal or mildly decreased LV function. Coronary angiography is considered the gold standard technique for diagnosis (5). Most patients who survive infancy continue to be at risk of death from chronic heart failure and those who survive until the fourth decade occasionally die suddenly once diagnosis of ALCAPA is established.

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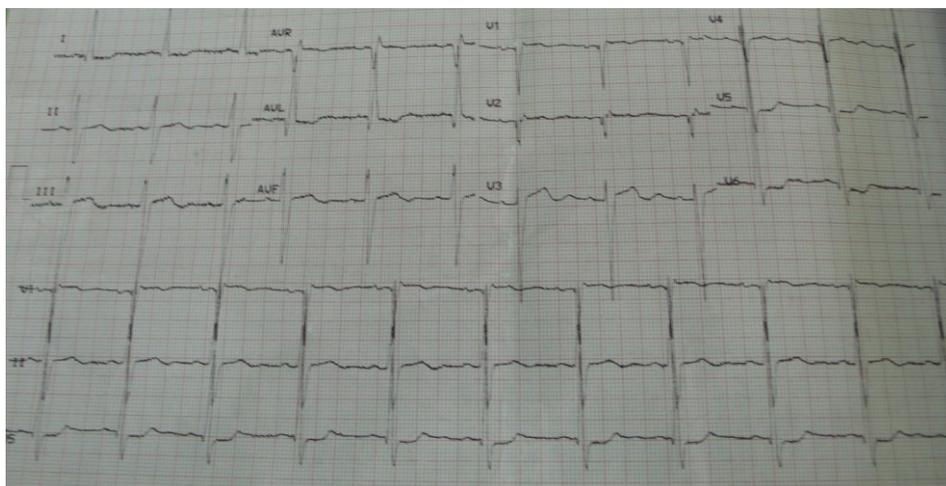
Early surgical correction including difference type of construction a two artery coronary system for prevention of complication and increase of survival is indicated (6).

**Conflict of Interest:** The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

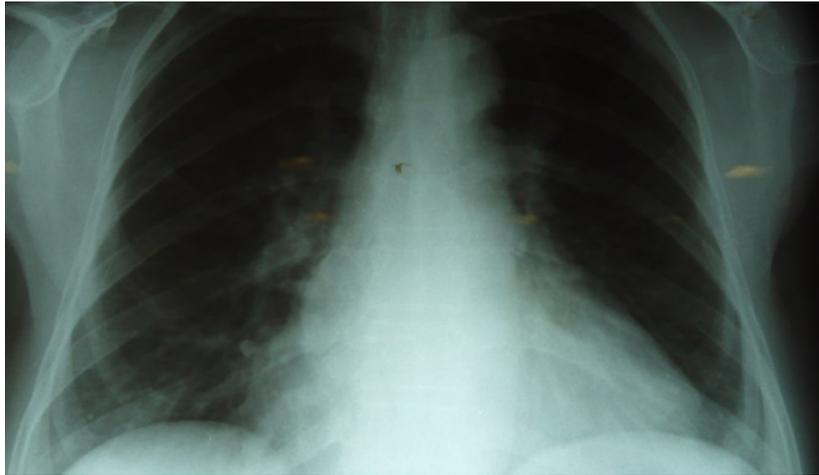
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**Figure 1.** Computed Tomographic angiography showing dilated right coronary artery with continuation with left coronary artery.



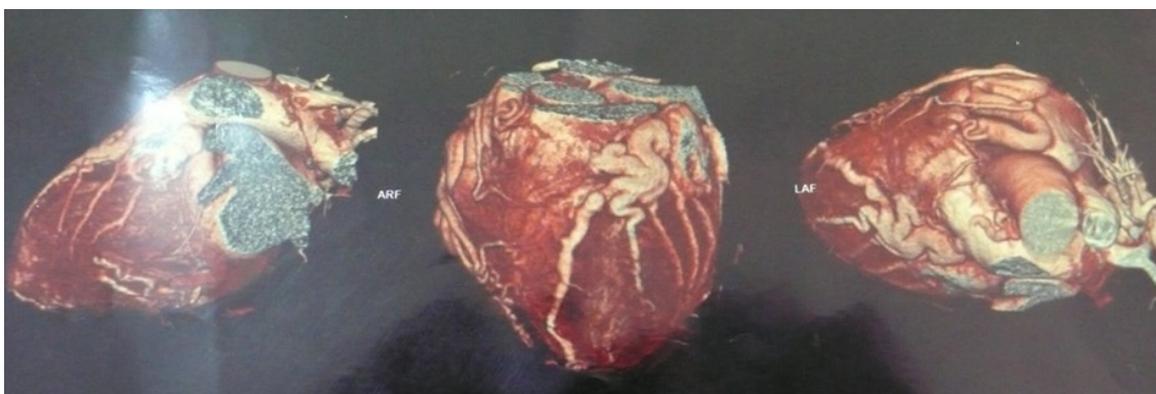
**Figure 2.** ECG is showing normal pattern view.



**Figure 3.** Chest – X – ray is showing mild cardiomegaly without pulmonary congestion.



**Figure 4.** Trans – Thoracic – Echocardiography shows dilated right coronary artery without evidence of left coronary artery.



**Figure 5.** Computed tomographic angiography shows much dilated right coronary artery with normal origin of aorta and abnormal origin of left coronary artery from pulmonary artery.

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