Anomalous Origin of Right Coronary Artery (RCA) from Mid Part of Left Coronary Artery (LAD) - Case Report

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Abstract

A 55 years old male patient admitted in our hospital with acute onset shortness of breath and chest pain.On examination his blood pressure was 90/60 with third heart sound at apex.ECG findings was LVH with ST-T changes in inferior leads. Echocardiography shows inferior wall hypokinesia with small perimembranous VSD. Coronary angiography shows there was triple vessel disease anomalous origin of RCA from mid part of LAD.Mid part of RCA shows tight stenosis which also contain thrombus. Successful PTCA stenting to RCA done with Amplatz left catheter which provide good backup support.

Keywords: *1. Anomalous origin of RCA, PTCA stenting to RCA, coronary Angioplasty of anomalous RCA.*

I. INTRODUCTION

Right Coronary Artery (RCA) originating from Left Anterior Descending Coronary Artery (LAD) is a very rare congenital anomaly and usually an incidental finding during coronary angiography .Here we report one such case of triple vessel coronary artery disease with RCA arose from mid LAD.

II. CASE PRESENTATION

A 55-year-old non-diabetic and non-hypertensive male patient with history of smoking for long duration admitted in our hospital with history of breathlessness and occasional transient dull aching precordial pain. On physical examination, we found a harsh pansystolic murmur in the left third parasternal area, which is radiating to the right side and a third heart sound in the apex. ECG finding was left ventricular hypertrophy with inferior and lateral wall ST-T changes. There was left atrial and left ventricular dilatation with moderate LV systolic dysfunction along with moderate aortic regurgitation and small peri membranous VSD on Echo-doppler study. Angiography showed Right Coronary Artery anomalously originating from mid portion of LAD artery. There was proximal (70%) disease in RCA and in its mid part one tight lesion was visualized. Diffuse disease noticed in the left circumflex artery from its proximal part and tight osteo proximal obstructive lesion was found in the LAD. During his diagnostic coronary angiogram, multiple attempts to cannulate the RCA with right Judkins catheter & others were unsuccessful. Aortic root angiography showed no coronary ostium arising from right sinus of valsalva. CT coronary angiography later confirmed this finding. Successful PTCA stenting to LAD and RCA done with amplatz left guide catheter which provide good backup support.

III. DISCUSSION

The left circumflex coronary artery arising from the right sinus or the RCA is the most common coronary anomaly (0.37 to 0.65%) [1]. The right coronary artery originating from left sinus of valsalva and LMCA arising anomalously from right sinus of valsalva comes next with a reported combined incidence of 0.1 to 0.3% [2] .

A variety of anomalous origin of RCA has been reported including the left anterior sinus with variable courses, ascending aorta above the sinus level, descending thoracic aorta, LMCA, the circumflex coronary artery, pulmonary artery and below the aortic valve. In most of the cases an aberrant RCA originating from LMCA and traverses anterior to right ventricle or between the pulmonary trunk and ascending aorta.

The RCA originating as a branch from mid-portion of the LAD is a very rare anomaly [3]. Around 36 cases reported previously in the literature. In most of the cases, the anomalous RCA had its origin after the first septal perforator of the LAD, which courses anterior to RVOT to reach territory normally served by the right coronary artery [4].

Most of the coronary artery anomalies are classified as benign (80%) which causes no symptoms and incidental detection done during investigations or potentially serious (20%). However, myocardial perfusion can be affected ranging from exertional angina to sudden death with the different subtypes of these anomalies such as coronary artery arising from pulmonary artery and a single coronary artery arising from either the left or right sinus of valsalva.

IV. CONCLUSION

The right coronary artery as a branch from LAD is a rare coronary anomaly. If the course of the RCA is not between aorta and pulmonary artery, this anomaly accepted as relatively benign rare anomaly. In case the RCA is not found in its original position during angiography, it should be kept in mind that RCA can originate from abnormal site.

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