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Case Report

Successful surgical management of atherosclerotic dual right coronary artery with short-term follow-up



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ABSTRACT

Congenital anomalies of the coronary arteries are present in 0.2–1.4% of the general population. Dual right coronary artery is one of the rarest congenital anomalies (0.01%) of the coronary arteries. We report a patient with unstable angina with severe triple vessel disease who had diseased dual right coronary artery. He was successfully managed with surgical revascularization and followed up with computed tomography angiography. Surgical revascularization of both the coronary arteries of right side is hardly reported in literature.

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1. Introduction

Coronary artery anomalies are usually found incidentally during angiography or autopsy. Congenital anomalies of the coronary arteries are present in 0.2–1.4% of the general population.¹ Dual right coronary artery is one of the rarest congenital coronary anomalies. Harihrishnan et al. performed 7400 conventional coronary angiographies and reported 34 patients (0.46%) with congenital coronary anomalies with only one double right coronary artery (0.01%).² They are usually benign lesions but sometimes may present clinically as acute coronary syndrome. Although many of the primary congenital coronary anomalies are hemodynamically insignificant, it is

important to know the anatomic variants in patients with coronary artery disease who are undergoing either surgical myocardial revascularization or coronary angioplasty.³ We report a patient with severe triple vessel coronary artery disease with unstable angina who had dual right coronary artery. He was successfully managed with surgical revascularization and followed up with computed tomography (CT) angiography.

1.1. Case report

A 60-year-old male patient with a background of Type 2 Diabetes mellitus and Hypertension presented with angina of three months duration. Examination of cardiovascular system

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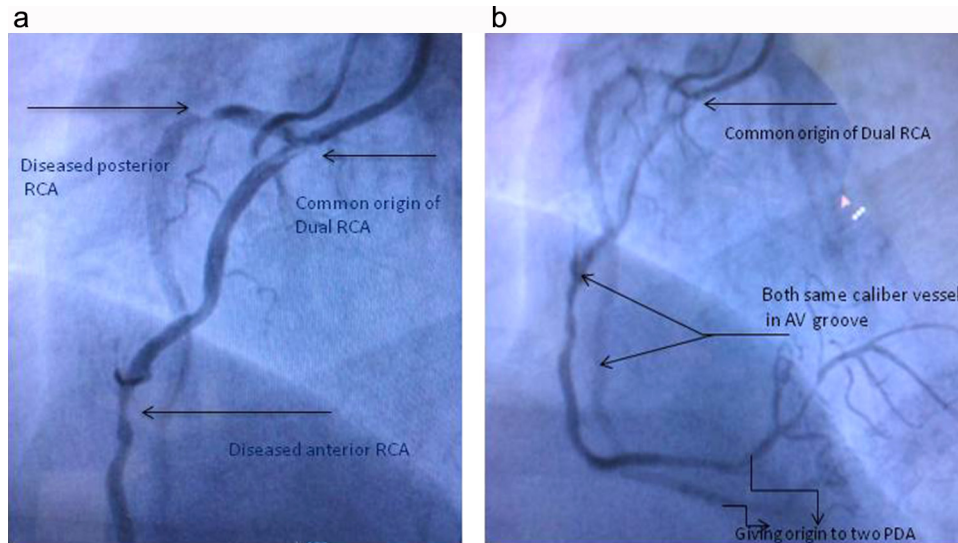


Fig. 1 – (a and b) The right coronary artery angiogram showing two right coronary artery arises from a single ostium. Both branches are of similar caliber, typical course, and both gave individual PDA supplying inferior myocardium. Both segments are involved in atherosclerotic disease.

was unremarkable. The blood pressure and pulse rate were 146/88 mm hg and 88 beats per minute respectively. Electrocardiogram was essentially normal. Trans-thoracic echocardiography was done which showed no regional wall motion abnormality. Cardiac enzymes were within normal range. He underwent selective right and left coronary angiography which revealed severe triple vessel disease and two coronary arteries on the right side. The origin and course of both these right-sided arteries were similar after arising from a common ostium (Fig. 1a). The anterior and posterior right coronary artery were seen in right atrioventricular groove and terminated as individual posterior descending arteries (Fig. 1b). Both segments had significant atherosclerotic stenotic lesion in the

proximal part (Fig. 1a). The left main artery was normal and divided into left circumflex and left anterior descending coronary artery. There were severe diseases in proximal left anterior descending artery (LAD) and proximal circumflex artery before giving origin to major obtuse marginal artery.

Multivessel coronary artery bypass grafting (CABG X 4) was performed using off pump technique. Left internal thoracic artery was anastomosed to mid LAD, while reverse saphenous venous graft was used to perform other grafts. Proximal anastomosis of vein graft was done on ascending aorta using partial aortic clamp. Proximal anastomoses were completed in a single clamp, one for the obtuse marginal and other for the right coronary arteries (Fig. 2b). Distal end of one vein was

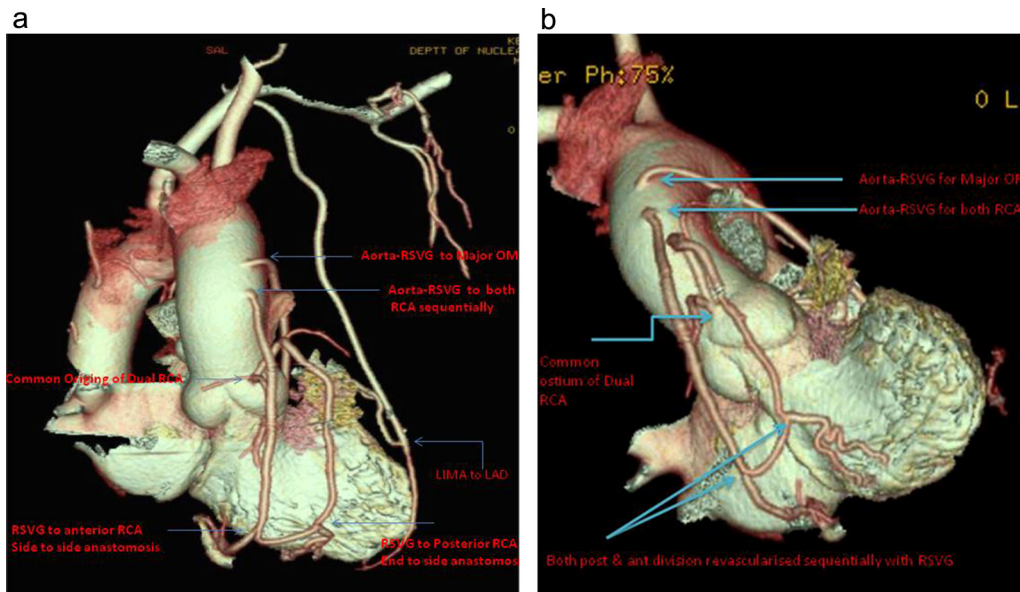


Fig. 2 – (a and b) Post-operative CT angiogram showing common origin of dual RCA, course of dual RCA in right AV groove, and two large PDA. It also demonstrates patent graft supplying both PDA sequentially.

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