Incidentally detected anomalous origin of the right coronary artery from the anterior wall of the ascending aorta in an adult with aortic stenosis and coarctation

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Introduction: Bicuspid aortic valve (BAV) is the most common congenital heart defect (CHD) with a prevalence of 1–2%. The prevalence of aortic coarctation (CoA) in BAV patients is between 22-36%. CoA localizes beyond the origin of left subclavian artery or distal to the insertion of ligamentum arteriosum. The presence of CoA increases afterload and wall stress on left ventricle (LV) causing hypertrophy and dysfunction. Survival of patients with CoA greater than 65 years is rare. BAV and CoA are associated with aortic stenosis (AS) and mitral stenosis (MS) and coronary artery anomaly (CAA) like abnormal origin, course or calibre. Diagnosis is made by echocardiography, magnetic resonance imaging or computed tomography (CT) aortography. Current treatment of CoA includes endovascular or surgical repair and replacement of BAV.[1,2]

Case report: 60-year-old women presented with chest pain and dyspnea on exertion. Examination showed arterial hypertension known since pregnancy, systolic murmur over precordium and interscapular region. Echocardiography showed preserved ejection fraction of LV with concentric hypertrophy, BAV with parameters of severe AS (Vmax of 4,41 m/s, AVA 0,6 cm^2) without dilatation of ascending aorta and mild MS. Coronary angiography showed no stenosis of left anterior descending artery but nonvisible origin of right coronary artery (RCA) and circumflex artery (LCX). CT coronary angiogram revealed origin of RCA arising LCX from anterior wall of ascending aorta without stenosis and bilateral hypertrophy of intercostal and internal mammary arteries. CT aortography was performed and showed focal CoA one centimeter distal to left subclavian artery with peak gradient of 33 mmHg seen by echocardiography suprasternal view. The treatment plan included surgical left subclavian-aortic bypass grafting and bioprosthetic aortic valve replacement in separate operations.

Conclusion: Diagnosis of CHD may be overlooked even until adult age and may be isolated or in conjunction with other anomalies. Some defects are diagnosed after the onset of complications or as casual findings during medical evaluation for other reasons. Presence of additional anomalies should be carefully investigated with multimodality imaging as it may have potential implications during corrective interventions.

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LITERATURE

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