A Giant Obtuse Marginal Branch Supplying the Left Ventricular Apex - An Unusual Presentation

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A 50 year old, hypertensive male presented in emergency department with complains of intermittent chest pain on exertion since 1 month. His clinical examination was unremarkable. Chest skiagram revealed a cardiothoracic ratio of 0.55. Electrocardiogram showed left ventricular hypertrophy with ‘ST’ depression of 2mm in anterior precordial leads (V$_1$-V$_6$). Finally coronary angiogram was done which revealed a type 1 left anterior descending coronary artery (LAD) terminating before left ventricular (LV) apex and a large obtuse marginal branch of the left circumflex coronary artery (LCx) instead supplied the LV apex (Figures 1, 2). We postulate that the short LAD, not reaching up to the LV apex, might have resulted in reversible, inducible ischaemia in that region, since the blood supplied by the obtuse marginal artery may not meet the metabolic demands of the apex during exertion. Patient was prescribed combination of antianginal drugs and was discharged after 1 week with relative symptomatic relief.

Coronary artery anomalies involving the origin, course, and structure of epicardial coronary arteries is reported in 1.3% of patients undergoing coronary angiography. LAD usually supplies the anterior aspect of the interventricular septum, a large segment of the anterior wall of the left ventricle and then winds around the left ventricular apex to supply it. According to it’s length, LAD is graded as type 1 when it is short and terminates before LV apex, type 2 when both LAD and right coronary both supply the LV apex, type 3 when LAD supplies the entire LV apex, and type 4 when LAD supplies the LV apex and >25% of the inferior wall. Usually in patients with type 1 LAD the LV apex is then supplied by a long posterior descending coronary artery (PDA), originating from the right coronary artery (RCA), which passes along the entire length of the posterior interventricular groove, and either terminates at the LV apex or may extend beyond it in the anterior interventricular groove. However, rarely dominant obtuse marginal artery may reach up to the LV apex and supply it. Till date to the best of our knowledge only one case of such coronary anomaly has been documented in literature. Hence it was worth describing this rare congenital entity and discuss it’s clinical importance.

References


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