

354

Left bundle branch block and left ventricular systolic dysfunction as an expression of complex coronary anomaly in a young woman: a multimodality imaging approach

Bernardini A.¹; Pontecorboli G.²; Milano EG.³; Ceschia N.¹; Carrabba N.²; Acquafresca M.⁴; Valenti R.²; Marchionni N.²; Marcucci R.²; Di Mario C.²

¹University of Florence, Cardiovascular and Thoracic Department, Florence, Italy

²Careggi University Hospital (AOUC), Cardiovascular and Thoracic Department, Florence, Italy

³University College London, Institute of Cardiovascular Science, London, United Kingdom of Great Britain & Northern Ireland

⁴Careggi University Hospital (AOUC), Radiology Department, Florence, Italy

Clinical presentation: a 34 year old female patient was referred to our hospital after a cardiology screening visit before sport activity, where the EKG showed an incomplete Left Bundle Branch Block (LBBB). She was a moderate smoker, without familiar history of cardiovascular disease, asymptomatic for angina and palpitation but she reported in the previous 2 years asthenia and dyspnea on exertion (NYHA II). Transthoracic echocardiography revealed a slightly dilated left ventricle (end-diastolic diameter 56 mm), mild LV systolic impairment (EF 50%) with a LBBB-related septal dyssynchrony and a moderate mitral regurgitation (MR). As the patient reported an episode of fever and sore throat 2 months before, the suspicion of myocarditis was raised. Cardiac Magnetic Resonance (CMR) was requested for further assessment.

Diagnostic techniques and their most important findings: CMR cine images showed LV dilatation, mild LV systolic impairment (EF 51%), thinning and ipokinesia of the LV anterior wall; T2-weighted images did not show myocardial edema; sub-endocardial late gadolinium enhancement (LGE) was detected in the LV anterior, lateral and septal walls, involving the anterior papillary muscle; CMR confirmed the prolapse of the posterior mitral leaflet associated to moderate MR. Furthermore, the CMR examination revealed an ectasia of the right coronary artery (RCA) with collateral branches for the left anterior descending artery (LAD). As a consequence, we decided to perform a Coronary Computed Tomography Angiography (CCTA), which showed the origin of LCA from the pulmonary artery trunk. Therefore, a diagnosis of Anomalous Left Coronary Artery from the Pulmonary Artery (ALCAPA) was made; the ectatic RCA (max diameter of 8mm) gave epicardial and septal collateral branches to the LAD. A surgical correction of the coronary anomaly was planned and executed using a median sternotomy approach: the ostium of the LCA was closed and on-pump coronary artery bypass grafting with a Left Internal Mammary Artery graft to LAD was performed. Postoperative course was uneventful; pre-discharge echocardiography showed a moderate pericardial effusion not hemodynamically relevant, substantially unchanged LV systolic function and a reduced mitral regurgitation, assessed of mild degree. Of note, the incomplete LBBB disappeared on the EKG.

At 12-month follow up, the patient was asymptomatic, with good functional status (NYHA I). A repeated CMR showed substantially unchanged findings, with persistence of mild systolic impairment (EF 48%), ipokinesia of the LV anterior wall, sub-endocardial LGE of the LV anterior, lateral and septal walls and a persistently reduced MR, assessed of mild degree.

Conclusions: cardiology screening before sport activities can unmask high-risk conditions for sudden cardiac death as ALCAPA. A multimodality advanced cardiovascular imaging approach appears to be the best strategy to identify high-risk features of coronary artery anomaly.

Abstract 354 Figure. ALCAPA Multi-Imaging Approach

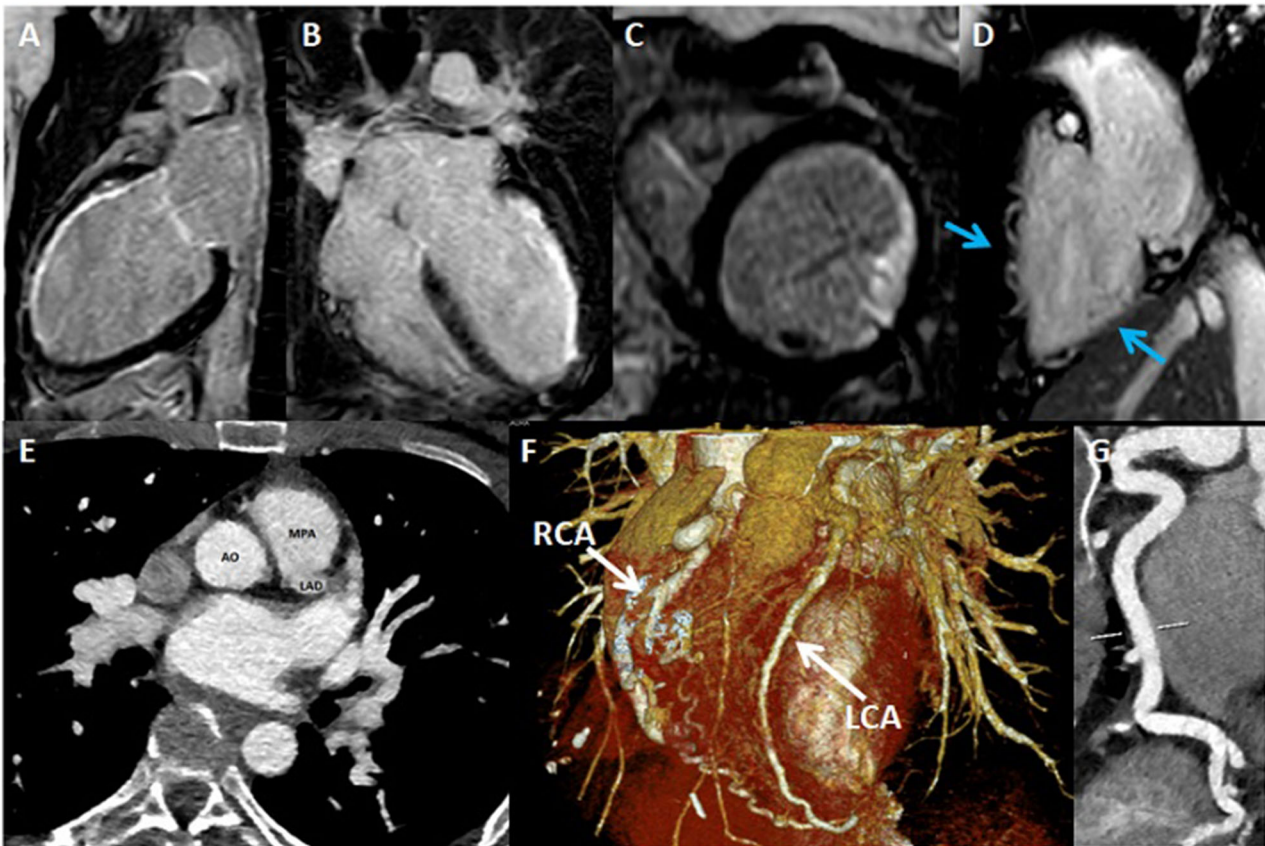


Figure A: LGE sequences, 2-chambers view. **Figure B:** LGE sequences, 4-chambers view. **Figure C:** LGE sequences: short-axis view, LGE involves anterior papillary muscle. **Figure D:** 2-chambers view, collateral circulation (light blue arrows). **Figure E:** Axial multidetector CT angiogram shows the origin of the left coronary artery from the main pulmonary artery (MPA). **Figure F:** 3-D rendering of multidetector CT angiogram which shows the origin of the right coronary artery (RCA) and the left coronary artery (LCA). **Figure G:** CT image of a dilated RCA.