Left ventricular cleft

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A 29-year-old man was referred to our attention for a right bundle branch block occasionally found at a sport medical. The patient’s history was unremarkable after a perinatal closure of a Botalli’s ductus arteriosus. A cardiac magnetic resonance (CMR) study was prescribed to better evaluate the echocardiographic finding of an interventricular septum abnormality, suggestive for an interventricular septal defect, but without evidence of shunt. CMR described a fissure-like protrusion (Figure 1, white arrows), confined in the compacted myocardium and penetrating more than 50% of wall thickness on the basal posterior septum. This lesion showed a near-total obliteration during systole (see online Video) and fulfilled all the magnetic resonance imaging criteria for myocardial cleft diagnosis.

Ventricular clefts are increasingly seen with the growing of advanced cardiac imaging. They represent occasional findings without any clinical relevance, and no case report exists of any consequence of this imaging finding. Myocardial cleft has to be differentiated for prognostic reasons from left ventricle diverticulum (saccular protrusion with all myocardial layers extending beyond the confines of the myocardial margins), which, although usually asymptomatic, could be associated with systemic embolization, heart failure, valve regurgitation, arrhythmias, and sudden death.

Authors’ contribution.
A.C. conceived the study idea, wrote the first draft, and led the project from the beginning to the end. A.B., P.G.M., and G.M.R. assisted the study in data collection, draft revision, and coordinating with all co-authors. L.M. provided expert opinion throughout the study.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.

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Figure 1 White arrow pointing the left ventricular cleft during diastole and systole in the transaxial view (A and B) and in the vertical long-axis view (C and D). The cleft’s diameters were 30 × 13 mm in diastole, with complete obliteration in systole (RV, right ventricle; LV, left ventricle).