Intra-myocardial left ventricular lipoma associated with non-compaction cardiomyopathy

Valentina Valenti1,2*, Mohammad I. Zia1,3, Seth Uretsky1,4, and Steven D. Wolff1

1Advanced Cardiovascular Imaging, Department of Radiology, Columbia University Medical Centre, 62 East 88 street, New York, NY 10012, USA; 2Radiology Department, 2nd School of Medicine, University of Rome ‘Sapienza’, S. Andrea Hospital, Rome, Italy; 3Schulich Heart Centre, Sunnybrook Health Sciences Centre, University of Toronto, Toronto, ON, Canada; and 4Division of Cardiology, Department of Medicine, St. Luke’s-Roosevelt Hospital Center, Columbia University College of Physicians and Surgeons, New York, NY, USA

* Corresponding author. Tel: +1 212 369 9200; fax: +1 212 369 5048, Email: valevale2012@hotmail.com

A 62-year-old asymptomatic man underwent a transthoracic echocardiogram in order to investigate non-specific lateral ST-T segment changes. The echocardiogram showed an echogenic mass in the apex of the left ventricle. Cardiac magnetic resonance imaging was performed and steady-state free precession sequences (Figure 1A and B, see Supplementary data online, Movies S1 and S2) showed a bright intra-myocardial lesion involving the anterior and lateral walls of the left ventricle extending from the base to apex, measuring 15.4 mL. The left ventricular dimensions (LVEDVI: 73 mL/m²; LVESVI: 30 mL/m²; LVSV: 71 mL) and function (LVEF: 58%) were normal (see Supplementary data online, Movies S1 and S2). There was mild aortic insufficiency with a regurgitation volume of 5 mL/beat.

The mass was characterized by bright signal on proton density weighted images (Figure 1C) and a decrease in signal with fat suppression imaging (Figure 1D). Moreover, there was a low signal within the mass on T2-weighted images, similar to the signal from subcutaneous fat. Gadolinium contrast administration did not demonstrate any abnormal enhancement in the mass (Figure 1E pre-contrast and F post-contrast), confirming the diagnosis of an intra-myocardial ventricular lipoma.Interestingly, there was hypertrabeculation of the left ventricle with a non-compacted/compacted (NC/C) wall ratio of 3, compatible with diagnosis of non-compaction cardiomyopathy. We measured the NC/C ratio in the long-axis view (Figure 1B: NC black line, C white line) including the lipoma in the compacted myocardial thickness measurement. Lipoma occurs rarely within the heart accounting for 2.9% of primary cardiac tumours and only 25% are found within the myocardium. On the other hand, isolated non-compaction of the myocardium is an idiopathic form of cardiomyopathy due to intra-uterine arrest of myocardial compaction with the estimated prevalence of 0.05% in the general population. This is the first case of an intra-myocardial lipoma associated with left ventricular non-compaction cardiomyopathy.

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