MITRAL VALVE LEAFLET ABNORMALITIES CORRELATE WITH LEFT VENTRICULAR REMODELLING AND OBSTRUCTION IN HYPERTROPHIC cardiomyopathy: A QUANTITATIVE 3D TRANSTHORACIC ECHOCARDIOGRAPHIC STUDY

Poster Contributions
Hall C
Saturday, March 29, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Non Invasive Imaging: Advances in Echocardiography
Abstract Category: 15. Non Invasive Imaging: Echo
Presentation Number: 1138-35

Authors: Denisa Muraru, Chiara Calore, Paola Melacini, Umberto Cucchiní, Sorina Mihaila, Diletta Peluso, Laura Ucci, Marcelo Miglioranza, Sabino Iliceto, Luigi Badano, University of Padua, Padua, Italy

Elongated mitral valve (MV) leaflets were described as a morphological marker of hypertrophic cardiomyopathy (HCM) at magnetic resonance. 3D echocardiography (3DE) may provide better insights on the non-planar MV geometry than linear measures.

Methods. In 32 HCM pts and 32 age- and gender-matched controls, 3D LV datasets (38±6vps) containing the MV were acquired by transthoracic approach. 3D MV and LV geometry were quantitated by semiautomatic softwares (TomTec 4D MV assessment 2.1, GE EchoPac BT12).

Results: Compared to controls, HCM pts had larger and more spherical MV annulus and increased leaflet tenting (p<0.001). In HCM pts, anterior (ALA) and posterior (PLA) leaflet areas were larger than in controls (ALA 6.9±1.9cm² vs 5.6±1.6cm², p=0.006; PLA=7.3±2.8cm² vs 3.6±1.2cm², p<0.001), and a reversed relative contribution to mitral annular area (MAA) in favor of PLA was identified (PLA/MAA: 61±16% in HCM vs 46±13% in controls, p<0.001). In HCM pts, PLA/MAA ratio correlated with dynamic gradient (r=0.53), LV mass (r=0.43) and LV mass/end-diastolic volume ratio (r=0.70, p4.64 cm² enabled an excellent discrimination of pts from controls (AUC 0.923, with 84% Sv and Sp), better than ALA (AUC 0.680)(Figure).

Conclusions: In HCM, a relatively larger contribution of PLA to overall MAA was identified by 3DE. PLA was correlated with LV remodelling and dynamic obstruction. Non-invasive quantification of MV geometry by transthoracic 3DE may have important diagnostic and therapeutic implications.