**UNDERSTANDING OF THE ETIOLOGY OF DEGENERATIVE MITRAL VALVE DISEASE BY ECHOCARDIOGRAPHY, SURGEON AND PATHOLOGIST**

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Background: Degenerative mitral-valve disease (DMVD) often results in severe mitral regurgitation (MR) due to leaflet prolapse or chordal rupture. To select the most appropriate valve repair technique a complete understanding of underlying degenerative etiology (Barlow’s disease, BD or fibroelastic deficiency, FED) is mandatory. Objectives: The purpose of this study was to determine the capability of transthoracic echocardiography to distinguish BD and FED compared to surgical and pathological findings.

Methods: Transthoracic echocardiograms were retrospectively compared to morphologic findings and surgeon description in 233 patients (mean age: 53.8±12.9) undergoing surgery for severe MR due to DMVD at Almazov Heart Centre between 2009 and 2011.

Results: The main pathologic findings by microscopy of valvular tissue specimens were myxomatous degeneration – in 100% and fibrosis – in 33.2%. Barlow’s disease was found fewer than FED (25.8% vs. 74.2%) with low variability between pathologist and surgeon (interclass correlation coefficient – 0.95). Echocardiography had a high diagnostic accuracy to identify the affected leaflet and scallop (0.91) and to determine valvular thickening compared to surgical (0.81) and morphologic (0.87) description.

The presence of valvular thickening, prolapse of the both mitral valve leaflets and annular enlargement had a high positive predictive value (PPV – 0.92) in identification of Barlow’s disease. In contrast, the typical echocardiographic features of FED were thin leaflets, isolated prolapse of posterior leaflet scallop and chordal rupture (PPV – 0.88). Conclusions: Despite the introduction of 3D-transesophageal echocardiography in routine practice, transthoracic echocardiography is the optimal noninvasive technique to determine the morphology and to identify possible etiologies of DMVD.