eComment. Posterior mitral valve leaflet prolapse: one term, several different meanings

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With great interest we read the study by Jahren *et al.* who compare the effect of various repair techniques on mitral valve function and gradients in an ex vivo porcine model of acute mitral regurgitation caused by resection of marginal chordae of the P2 segment of the posterior mitral valve leaflet (PMVL) [1]. The authors conclude that neochordoplasty with or without ring annuloplasty achieved lower diastolic transvalvular pressure gradients compared with edge-to-edge repair or leaflet resection. The study is of particular interest in the field of reconstructive mitral valve surgery and the authors are to be congratulated on their results.

Their conclusions however need to be interpreted by taking the limitations of the study into account. In patients with PMVL prolapse, the aim of mitral valve repair is to (i) resolve any leaflet prolapse, (ii) address excessive leaflet tissue in height and (iii) address excessive tissue in width. The indication for leaflet resection has recently shifted to addressing excessive leaflet tissue while leaflet prolapse is increasingly being addressed with chordal replacement alone. In a model of acute mitral regurgitation, no excessive tissue is present and we agree with the authors that chordal replacement with annuloplasty presents the most appropriate repair technique in this setting. As the authors performed triangular tissue resection in absence of any excessive tissue, the inevitable result is excessive tissue resection with excessive shortening of the free margin of the PMVL. This will result in limited diastolic motion of the PMVL and is reflected in their study by an unwanted rise in the diastolic transvalvular pressure gradients. Their results however do not hold true for cases of PMVL prolapse where some degree of excessive tissue is present due to myxomatous degeneration. In such cases, tissue resection should be made with respect to PMVL motion and excessive resection should be avoided [2]. Any excessive tissue that will remain unaddressed (it should be noted that shortening neochords can address excessive tissue in height only) will result in excessive leaflet motion (billowing). This leads to increased stress on the subvalvular apparatus that could prove to be detrimental for repair stability and therefore durability in the long-term. Of particular interest is the profound effect of the edge-to-edge repair technique on the transvalvular mitral valve gradients. The problem of functional mitral valve stenosis following valve repair has just recently come to light and remains insufficiently explored [3]. As the edge-to-edge technique impairs normal leaflet motion, the effect might be even more profound under stress. The results of the study by Jahren *et al.* somehow question the appropriateness of the edge-to-edge technique in patients with small indexed mitral valve annuli.

In conclusion, the study of Jahren *et al.* provides new interesting knowledge on the effect of various repair techniques on mitral valve function and highlights the fact that excessive tissue resection should be avoided.

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