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Surface Modeling of the left Ventricle of the heart. Preliminary report.

The surgical treatment of mitral valve disease has dramatically improved with the recent development of repair techniques that avoid valve replacement with artificial valve. A better understanding of the dynamics of the normal and diseased mitral valve is necessary in order to design and test new repair maneuvers that would increase the scope of this surgery. In this talk I will explain how to produce wireframe images (model) of the left ventricle and mitral valve using Sonomicrometry distance data. The same data is used to construct the pressure-volume loops as the most reliable load independent index of left ventricular contractility. I will also discuss a proposed three-dimensional surface model that is based on three-dimensional (3D) Sonomicrometry data. Keywords: wire frame model, left ventricle, pressure –volume loop, surface modeling, Sonomicrometry data. (Received September 16, 2014)