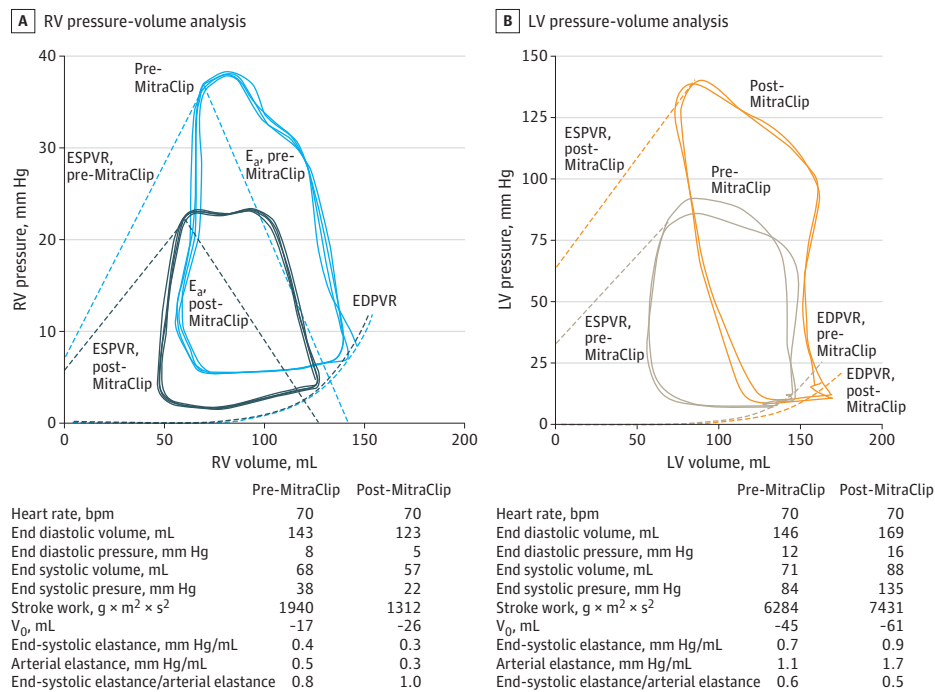


## Cardiovascular Images

## Right Ventricular Pressure-Volume Analysis Before and After Transcatheter Leaflet Approximation for Severe Mitral Regurgitation

Michael I. Brener, MD; Daniel Burkhoff, MD, PhD; Mohammad Sarraf, MD



**Figure.** Right (RV) (A) and left ventricular (LV) (B) pressure-volume loops.  $E_s$  indicates end-systolic elastance; EDPVR, end-diastolic pressure-volume relationship; ESPVR, end-systolic pressure-volume relationship.

**What is the right ventricular response** to transcatheter edge-to-edge repair for mitral regurgitation? Biventricular pressure-volume (PV) analysis was performed with a conductance catheter (CD Leycom) in a patient in their 80s with severe primary mitral regurgitation (MR), before and after transcatheter leaflet approximation (Figure). MitraClip deployment resulted in decreased left atrial pressure (LAP) (24 to 16 mm Hg) and V-wave amplitude (47 to 21 mm Hg). The RV PV loops illustrate a marked reduction in afterload, or effective arterial elastance ( $E_a$ ), which is represented by the slope of the dashed line connecting end-diastolic volume

with the end-systolic PV point. When indexing RV  $E_a$  in this manner,<sup>1</sup>  $E_a$  reflects both pulmonary arterial properties and LAP. MitraClip does not alter pulmonary arterial properties in the short term, but it did reduce LAP and V-wave amplitude dramatically in this patient. Consequently, RV  $E_a$  declined after MitraClip implantation, illustrating the pivotal role of left-sided filling pressures in RV afterload. This finding explains the observed improvements in RV function following transcatheter leaflet approximation<sup>2</sup> and complements previous reports characterizing LV function after MitraClip implantation.<sup>3,4</sup>

## ARTICLE INFORMATION

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