

## Medical Image of the Month: Massive Right Atrial Dilatation After Mitral Valve Replacement



Figure 1. Chest radiograph demonstrating massive cardiomegaly with pulmonary congestion and markedly dilated right atrium.



Figure 2. Transthoracic echocardiogram demonstrating marked dilation of the right atrium to 9.6 cm in its greatest dimension.

A 92-year-old woman with a history of mechanical mitral valve replacement (+25 years prior to presentation), coronary artery bypass grafting, pacemaker placement and heart failure (EF 25%) presented from a nursing facility for dyspnea of 1 day's duration.

Recently, the patient had experienced a bowel perforation s/p surgical repair 3 weeks prior.

Admission chest radiograph was significant for massive cardiomegaly with pulmonary congestion and markedly dilated right atrium (Figure 1). Formal echocardiography was ordered, which re-demonstrated the patient's known heart failure with reduced ejection fraction. Additionally, all 4 chambers of the heart were noted to be dilated, but the right atrium was revealed to be severely enlarged to >9 cm (Figure 2). On review of outside records, the patient's cardiac history was notable for chronic dilation of the RA, RV and LA for several years with low, but stable, LV ejection fraction. Ultimately, the patient was noted to have worsening abdominal distension concerning for acute abdomen. However rather than pursue additional aggressive work up after her recent surgery, comfort measures were preferred.

This case illustrates some of the possible long-term effects of mitral valve replacement. In recent years mitral valve repair has become the preferred method over replacement for degenerative valve disease in western countries (1). While there are documented short term benefits to both mitral valve replacement and mitral valve repair long term data is less available (2). Long-term survival in most studies is reported in 5,10, and 15-year intervals. As was the case with our patient, patients with mitral valve replacement greater than 20 years in age have significantly less information associated with them. Although at this time longitudinal studies suggest benefits for both mitral valve replacement and repair, further investigation into long term complications is warranted (3). As our society continues to age, understanding the risks and complications associated with previous valve repair will help guide therapeutic interventions in the geriatric patient.

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### References

1. Gammie JS, Sheng S, Griffith BP, Peterson ED, Rankin JS, O'Brien SM, Brown JM. Trends in mitral valve surgery in the United States: results from the Society of Thoracic Surgeons Adult Cardiac Surgery Database. *Ann Thorac Surg.* 2009 May;87(5):1431-7. [\[CrossRef\]](#) [\[PubMed\]](#)
2. McNeely CA, Vassileva CM. Long-term outcomes of mitral valve repair versus replacement for degenerative disease: a systematic review. *Curr Cardiol Rev.* 2015;11(2):157-62. [\[CrossRef\]](#) [\[PubMed\]](#)
3. Christina MV, Gregory M, Christian M, Theresa B, Stephen M, Steven S, Stephen H. Long term survival of patients undergoing mitral valve repair and replacement a longitudinal analysis of Medicare fee-for-service beneficiaries. *Circulation.* 2013;127(18):1870-6. [\[CrossRef\]](#) [\[PubMed\]](#)