

Durability, Reliability, Viability: 48 Year-survival of a Starr-Edwards Mitral Valve

Bilal Ayub
Lehigh Valley Health Network

Justin L. Guthier
Lehigh Valley Health Network, Justin_L.Guthier@lvhn.org

James K. Wu
Lehigh Valley Health Network, james.wu@lvhn.org

Follow this and additional works at: <https://scholarlyworks.lvhn.org/medicine>



Part of the [Cardiology Commons](#), and the [Medical Sciences Commons](#)

Published In/Presented At

Ayub, B., Guthier, J., Wu, J., & Martinez, M. (2014). Durability, reliability, viability: 48 year-survival of a Starr-Edwards mitral valve. *Heart, Lung & Circulation*, 23(1), 96-97. doi:10.1016/j.hlc.2013.05.638

This Letter to the Editor is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact LibraryServices@lvhn.org.

Durability, Reliability, Viability: 48 Year-survival of a Starr–Edwards Mitral Valve

We report a case of 67 year-old female with a 48-year survival of a Starr–Edwards valve at mitral position. The patient underwent Starr–Edwards mitral valve replacement at age of 19 years for mitral stenosis secondary to severe rheumatic valve disease. The patient had experienced a progressive decline in her functional status with increasing dyspnoea on exertion over a two-week period to eventual development of severe shortness of breath at rest prior to hospitalisation. Transoesophageal echocardiogram revealed severe para-prosthetic and intravalvular mitral valve regurgitation. The patient underwent explantation of Starr–Edwards valve and replacement with a mechanical prosthesis. Our case details the longest reported survival of a Starr–Edwards prosthetic valve at mitral area.

Keywords

Starr–Edwards valve • Mitral regurgitation • Heart valve prosthesis • Transoesophageal echocardiogram • Rheumatic heart disease

The creation of the Starr–Edwards valve was a landmark moment in cardiac surgery. The first SE valve was placed in a human patient on August 25, 1960 [1]. We report a case of a 67 year-old female who presented with progressive dyspnoea on exertion and lower extremity swelling over a two-week period. Past medical history was significant for mitral stenosis secondary to rheumatic heart disease requiring mitral valve replacement with the Starr–Edwards (SE) valve at age of 19 years.

Transoesophageal echocardiogram (TEE) revealed severe para-prosthetic mitral valve regurgitation and moderate to severe mitral valve regurgitation. Cardiac catheterisation demonstrated a ball cage mechanical prosthesis in the mitral position with severe mitral regurgitation and ostial left main 60% stenosis. Elective cardiac surgery for valve replacement was planned. Intraoperative TEE showed a well-seated prosthetic ball cage valve with pannus in-growth around the cage. There was significant anterior para-prosthetic

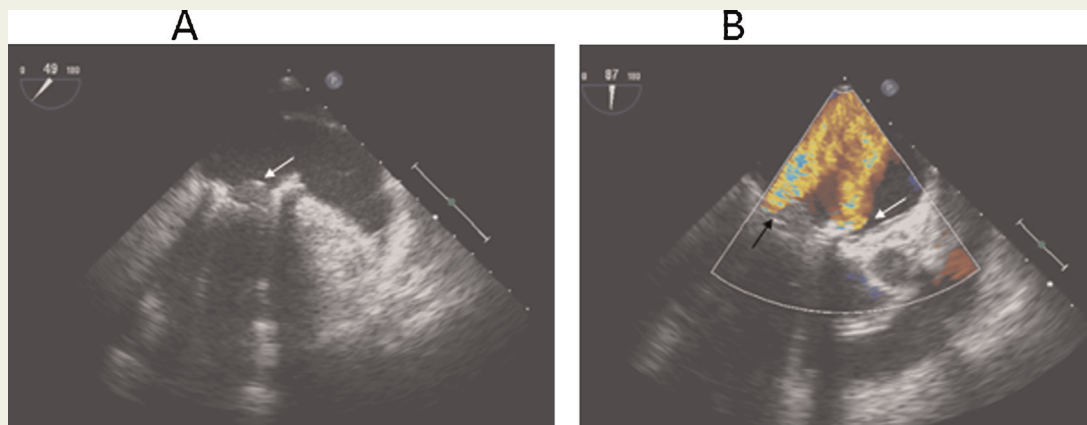


Figure 1 (A) Transoesophageal echocardiogram showing ball cage mechanism (white arrow). (B) and movie 1 – transoesophageal echocardiogram with colour Doppler (white arrow representing para-prosthetic regurgitation and black arrow pointing at intravalvular regurgitation)



Figure 2 Explanted Starr–Edwards valve. Crack from wear and tear process (thin arrow). The sewing cuff has been stripped (thick arrow).

regurgitation and severe intravalvular mitral regurgitation (Fig. 1A and B and movie 1). No clinical or echocardiographic evidence of infective endocarditis was present and mitral regurgitation was likely related to the wear and tear of SE valve. The patient underwent successful explantation of the SE prosthesis (Fig. 2) and debridement of the mitral valve annulus. Redo mitral valve replacement was performed with a number 25/33 On –X mechanical prosthesis and coronary artery bypass grafting to the left anterior descending artery. Patient was later discharged to rehabilitation centre on post day 7.

Complications associated with SE valve include para-prosthetic regurgitation, thromboembolism, tissue overgrowth, haemolysis and endocarditis [2]. In a report by Gao et al., the 10-, 20-, and 30-year survival rates for mitral valve replacement with SE valves were 51%, 23% and 8%, respectively [2]. Our case demonstrates the longest event-free survival for a SE mitral valve replacement.

Disclosure

None.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.hlc.2013.05.638>.

Bilal Ayub MD

*Division of Cardiology, Department of Medicine,
Lehigh Valley Health Network, 1250 S Cedar Crest Boulevard,
Suite 300, Allentown, PA 18103-6381, USA*

Justin Guthier DO

*Department of Medicine, Lehigh Valley Health Network,
1250 S Cedar Crest Boulevard, Suite 300, Allentown,
PA 18103-6381, USA*

James K. Wu MD

*Division of Cardiothoracic Surgery, Department of Surgery,
Lehigh Valley Health Network, 1250 S Cedar Crest Boulevard,
Suite 300, Allentown, PA 18103-6381, USA*

Matthew W. Martinez MD*

*Division of Cardiology, Department of Medicine,
Lehigh Valley Health Network, 1250 S Cedar Crest Boulevard,
Suite 300, Allentown, PA 18103-6381, USA*

*Corresponding author at: Hypertrophic Cardiomyopathy Center, Cardiac Imaging, Division of Cardiology, Lehigh Valley Health Network, 1250 S Cedar Crest Boulevard, Suite 300, Allentown, PA 18103-6381, USA.
Tel.: +1 610 402 3110; fax: +1 610 402 3112.

Email: Matthew_W.Martinez@lvhn.org (M.W. Martinez)

Received 17 April 2013; online published-ahead-of-print
15 June 2013

References

- [1] Starr A, Edwards ML. Mitral replacement: clinical experience with a ball-valve prosthesis. *Ann Surg* 1961;154:726–40.
- [2] Gao G, Wu Y, Grunkemeier GL, Furnary AP, Starr A. Forty year survival with the Starr–Edwards heart valve prosthesis. *J Heart Valve Dis* 2004;13:91–6.