

Letter to the Editor: Long-term results of aortic root replacement for endocarditis

Atif Hussain¹, Ayesha Hussain², and Ali Raza¹

¹Shaikh Khalifa Bin Zayed Al Nahyan Medical and Dental College

²King Edward Medical University

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Correspondence: 1. Atif Hussain

Contact: +92-3319672874 Email: hatif06@gmail.com

Institute: Shaikh Khalifa bin Zayed al Nahyan Medical and Dental college Lahore

Address: Sheikh Zayed Medical Complex, Khayaban-e-Jamia Punjab, Block D Muslim Town, Lahore, Punjab

Co-authors: 2. Ayesha Hussain

Email: ayeshahussain@kemu.edu.pk

Institute: King Edward Medical University Lahore

Address: Nila Gumbad Chowk, Neela Gumbad Lahore, Punjab

3. Ali Raza

Email: razabutt6789@gmail.com

Institute: Shaikh Khalifa bin Zayed al Nahyan Medical and Dental college Lahore

Address: Sheikh Zayed Medical Complex, Khayaban-e-Jamia Punjab, Block D Muslim Town, Lahore, Punjab

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To the Editor:

We have read the article "Long-term results of aortic root replacement for endocarditis" by Charles M. Wojnarski et al.¹ with a general interest. We commend the authors for their outstanding efforts. We concede with the definitive conclusion that aortic root replacement for IE can be accomplished with tolerable risk and the same long-term survival as a root replacement for other reasons when stentless prostheses are aggressively utilized. The choice between a homograft and a porcine stentless conduit did not affect long-term survival. In cases of endocarditis, bioprosthetic root replacement with homograft or stentless bioprosthetic root has 10-year durability that is exceptional. However, we'd like to bring up a few extra points to discuss other aspects that may have increased the study's scope.

Firstly, the risk of recollection bias and incorrect patient recordkeeping has raised various issues about this type of study, which may have been addressed if the authors had included current cases. Furthermore, a study in a specific place may introduce bias due to socioeconomic, health, and environmental differences. Furthermore, the tiny sample size, which determines the study's power, raises serious issues about the study's accuracy. Aortic root replacement for prosthetic aortic valve infection accompanied by aortic root destruction is an established surgical procedure. However, there is no comparison in this study between the use of prosthetic material and allogeneic material. For instance, Rainer G. Leyh et al.² concluded that the material utilized for aortic root restoration in PVE with viral aortic root damage has no significant impact on postoperative outcomes. The approach of early reoperation for PVE, comprehensive debridement, aggressive surgical technique, and prolonged antibiotic therapy may minimize mortality and the frequency of early and late recurrent PVE and increase long-term survival. The pathogenesis of prosthetic endocarditis is characterized by worsening tissue perfusion due to aortic regurgitation and uncontrolled bacteremia. These individuals had an acute left ventricular failure, septic embolization of the system, and aortic regurgitation. The incidence rate of this illness ranges from 0.5% to 2%, with a 60% to 86% death rate among patients with *S. aureus*-caused premature prosthetic endocarditis. The benefits of homograft are that it enables a regionally flowing hemodynamic circulation, excludes the weakened and infected aortic annulus from the high systemic pressures, in some cases widens the left ventricular outflow, and permits the novel prosthesis to be sutured at the aortic root bed in cohesion with better and healthier myocardium.³

Traditionally, IE was treated using an aortic valve homograft. It enables radical debridement of contaminated tissues and rebuilding of the left ventricular outflow tract or anterior mitral cusp. The absence of foreign material minimizes the likelihood of reinfection. Due to the restricted availability of homografts in critical cases and structural valve degradation, reoperations are challenging. The modified Bentall method is used to insert mechanical and biological conduit valves. Because of their immediate availability in all sizes and uniform insertion techniques, these are widely employed as aortic root replacements, not just for endocarditis.⁴

References:

1. Wojnarski CM, Chodavadia PA, Barac YD, Armstrong JL, Vekstein AM, Haney JC, Gaca JG, Chad Hughes G, Glower DD. Long-term outcomes of aortic root replacement for endocarditis. *J Card Surg.* 2021 Jun;36(6):1969-1978. doi: 10.1111/jocs.15472. Epub 2021 Mar 2. PMID: 33651483.
2. Leyh RG, Knobloch K, Hagl C, Ruhparwar A, Fischer S, Kofidis T, Haverich A. Replacement of the aortic root for acute prosthetic valve endocarditis: prosthetic composite versus aortic allograft root

replacement. *J Thorac Cardiovasc Surg.* 2004 May;127(5):1416-20. doi: 10.1016/j.jtcvs.2003.08.047. PMID: 15116001.

3. Lau JK, Robles A, Cherian A, Ross DN. Surgical treatment of prosthetic endocarditis. Aortic root replacement using a homograft. *J Thorac Cardiovasc Surg.* 1984 May;87(5):712-6. PMID: 6717049.
4. Szczechowicz M, Weymann A, Mkalaluh S, Mashhour A, Zhigalov K, Easo J. Surgical Options for Aortic Root Replacement in Destructive Endocarditis. *Braz J Cardiovasc Surg.* 2020 Jun 1;35(3):265-273. doi: 10.21470/1678-9741-2020-0020. PMID: 32549097; PMCID: PMC7299601.