Reoperative root replacement: To do or not to do

Hans-Joachim Schäfers, MD

From the Department of Thoracic and Cardiovascular Surgery, Saarland University Medical Center, Homburg/Saar, Germany.

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Address for reprints: Hans-Joachim Schäfers, MD, Department of Thoracic and Cardiovascular Surgery, Saarland University Medical Center, Homburg/Saar, Germany (E-mail: h-j.schaefer@uks.eu).

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Root replacement (RR) represents an improvement in the surgical treatment of root aneurysm. Different technical variants have become routine procedures for some surgeons. Apart from root aneurysm, it has become a useful procedure in aortic dissection, endocarditis with extensive perivalvular abscess formation, and some less-frequent scenarios.

Nonetheless, RR has historically been a complex procedure with relevant potential risk, and it is not part of the surgical armamentarium of every surgeon. Recent studies show that the risks related to RR depend on hospital volume; that is, the experience of the surgeon.¹

Although RR as the primary procedure is increasingly performed, reoperative RR has been considered a complex operation with increased risk. The results of very few groups²⁻⁴ have given the impression that the traditional fear was unjustified and it could be performed with an operative risk similar to that of a primary procedure.

Erisaki and colleagues⁵ shed different light on this topic and should lead to more caution. The authors analyzed 280 patients, qualifying as high volume center. The patients were relatively young, and the majority underwent operation for aneurysmal disease. Apart from the usual concomitant procedures, it is noteworthy that 14% of patients required coronary revascularization that was unrelated to the presence of coronary artery disease; that is, related to difficulties with direct implantation of the coronary ostia. The results are characterized by and operative mortality of 14% and a stroke rate of 5%. In patients with a history of previous coronary artery surgery, mortality was as high as 26%. As expected, age, chronic lung disease, and prior myocardial infarction were determined as predictors of mortality. In addition, coronary revascularization unrelated to preexistent coronary artery disease turned out to be a strong risk factor for early mortality.

This highlights the role of coronary reconstruction in RR. Although coronary bypass grafts or interposition grafts have been used for decades and will in theory provide coronary blood flow, they may be inferior to direct reimplantation of the ostia into the root prosthesis. The current results emphasize that this aspect remains of crucial importance.

Hans-Joachim Schäfers, MD

Central Message

Reoperative root replacement is related to significant operative morbidity and mortality. Its use should be carefully considered to determine whether a lesser invasive operation reaches the goal.

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From a more global perspective, Erisaki and colleagues⁵ confirm surgical wisdom, which says that the risk of a procedure generally correlates with its complexity. Selected reports from selected surgeons or groups sometimes give us the impression of low risk and lead to more liberal decisions in favor of complex operations. Yet, we should remain cautious and repeatedly test our conclusions to be certain they are not based on statistical artifacts. Quite apparently, the operative risk of reoperative RR is substantial, and we should keep this in mind—in particular when we decide to treat aneurysmal disease, which is rarely an acutely life-threatening disease. An RR may not be necessary if less-invasive procedures fulfill the primary prognostic goal. Care in decision making must remain a central part of our activity.

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