Commentary: What is the value of a case report for creating medical evidence at times of prospective randomized trials?

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Cardiac surgery is a young field that has developed dramatically in the second half of the last century.¹ This development has set the gold standard for many cardiac disease conditions, starting with the correction of cardiac malformations in the pediatric age to treating acquired valve and coronary diseases. Practically all of these achievements were made without testing their effects through prospective randomized trials.² Today, such trials are more and more often required for new methodologies to be approved by the authorities (www.fda.gov/medical-devices). Under these circumstances, one may ask what is the value of a case report?

Osman and colleagues³ report a mitral valve replacement through the left atrial appendage in a patient with previous right-sided pneumonectomy through a sternotomy. Because of the right-sided displacement of the heart and cranial displacement of the liver, the surgical approach to the valve became a challenge. The authors evaluated the different options for their approach and opted for a redo-sternotomy and accessing the valve through the left atrial appendage. They were successful with an uneventful replacement of the mitral valve. So, what is the value of this case?

First of all, Osman and colleagues³ helped one patient to derive a benefit from the procedure. Because it is unlikely that many such cases will be operated in the future, one may question the need for publication of this case. However, the case illustrates that an individualized approach to a complex problem can be associated with great success. It is part of our daily work to generate such success one patient at a time, and if complexity increases so does risk. It is therefore commendable that the authors performed the described procedure, because the additional risks associated with potentially limited exposure, thin-walled left atrial appendage tissue (making bleeding complications likely), or limited

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Central Message

Case reports represent an integral part of surgical practice. Most groundbreaking innovations have been published that way. They create evidence where prospective randomized trials cannot be realized.

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access to the aorta may make surgeons shy away from undertaking this endeavor, especially in times of individual outcomes reporting.⁴

Most important, however, there are many situations (possibly not as obvious as this one) where it is unlikely or impossible to test the effects of surgery in prospective randomized trials.⁵ Probably still surprising to most of us, the majority of groundbreaking innovations in surgery over the past 80 years were reported through case reports or small case series² and not a single one through prospective randomized trials. By definition, the majority of congenital heart defects for instance are categorized as “rare disease,” where retrospective outcome measures remain the gold standard in creating evidence for a surgical procedure. We therefore believe that case reports will remain an important tool for surgeons to enrich our armamentarium for daily surgical practice and to create evidence. Every so often, innovative thinking and new discoveries usually start with one challenging case, such as this one with mitral regurgitation and previous pneumonectomy.

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