

PREFACE

Past, present, and future of minimal access cardiac surgery

Minimal access cardiac surgery (MACS) has seen a tremendous evolution since the start of the 21st century (Video 1). Over the past decade, significant advances in techniques and technology have made MACS a valid option for performing a variety of cardiac surgical procedures that were only deemed possible through traditional full median sternotomy. A desire to minimize the morbidity associated with full sternotomy, such as decreased pain and reduced surgical trauma, and a perception that reduced morbidity translates into speedy recovery are the main drivers for increasing growth of MACS (1). At the same time skepticism regarding the safety of MACS, particularly concerns over reduced surgical exposure in highly complex operations, the potential for prolonged operative times, difficulty to deal with technical complications through limited exposure, and last but not the least a steep learning curve, has precluded universal adoption of MACS.

Recently, there has been a significant increase in the body of published literature on short as well as long-term outcomes of MACS (1-5), with most reports suggesting that major cardiac operations that have traditionally been performed through a median sternotomy can be performed through a variety of limited access approaches with equivalent safety and durability. MACS continues to evolve and expand with advances in technology and increasing acceptance by the cardiac surgical community. Publication of large amount of literature supporting safety and efficacy of MACS across a range of surgical operations provides enough evidence to establish minimal access cardiac surgical techniques as a reliable alternative to standard operations through full sternotomy. Increasing awareness of the actual and potential benefits of MACS is likely to result in greater demand by patients of MACS approaches in the future as such approaches due to reduced surgical trauma allow for a faster return to normal activities and improved quality of life. Concomitant to a greater demand, it is expected that MACS itself will continue to further evolve in the future through growing use of percutaneous technology, hybrid operating rooms and ongoing collaborations with interventional cardiologists.

In this special issue of *Journal of Thoracic Disease* (JTD), we examine the technological advancements that have made MACS possible and provide an update on the major areas of cardiac surgery where MACS has demonstrated the most growth, with consideration of current and future directions. This special issue offers a comprehensive overview of the various MACS techniques. Written by experts from leading institutions around the world, this superb compilation focuses on mastery of operative techniques and also provides a thorough understanding of how to select the best procedure, how to avoid complications, and what outcomes to expect. The user-friendly format with accompanying videos is ideal for quick preoperative review of the steps of a procedure. The editors and authors are recognized experts in MACS, and draw on their vast experience to provide a collection of masterly reviews that will serve not only as a basic manual for cardiac surgeons, both practicing as well as in-training, but also as an invaluable compendium of readily understood information for cardiologists, anesthesiologists, intensivists, nurses and general practitioners caring for patients who have had MACS or want MACS.

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