

Preface

We are delighted to have served as the guest co-editors of this special issue of the *Annals of Cardiothoracic Surgery*, which focuses entirely on the surgical treatment of disease affecting the thoracoabdominal aorta (*Video 1*). We are extremely fortunate to have spent our careers in Houston, where so much of the pioneering work in this field was done. Nearly 55 years ago at the American Surgical Association meeting, Dr. Arthur Blakemore beautifully characterized Dr. Michael DeBakey's first reported series of patients who underwent surgical treatment of thoracoabdominal aortic aneurysms (1). Dr. DeBakey and his colleagues had, as Dr. Blakemore put it, "pursued relentlessly the old demon, aneurysm, up and down the aorta," and had ultimately "staged the 'last roundup.' This final conquest, embracing the ideal management for aneurysms of the abdominal aorta that involve the visceral arteries, will go down in the annals of surgery as one of the very great advances in vascular surgery".

Over the subsequent years, the surgical teams led by Dr. DeBakey, Dr. Denton Cooley, and, most notably, Dr. Stanley Crawford made major advances in the technical aspects of surgical repair of thoracoabdominal aortic aneurysms (2). They particularly focused on developing strategies for protecting the spinal cord and reducing the risk of paraplegia. It was these surgeons' remarkable achievements that enabled so many others across the globe to enter the field and make essential contributions to improving outcomes after these formidable operations.

As this issue of the *Annals of Cardiothoracic Surgery* highlights, advances in perioperative care, surgical technique, and adjuncts for organ protection have led to excellent outcomes after open thoracoabdominal aortic repair in the current era. Nevertheless, we still face substantial challenges in further reducing the risks of postoperative spinal cord deficits, renal failure, and respiratory failure, especially as we treat an increasingly aged patient population with limited physiologic reserve due to comorbid diseases.

The ongoing need for new treatment options that provide effective aneurysm repair while minimizing associated complications has inspired several surgeons to develop endovascular approaches to treating thoracoabdominal aortic disease. Some of these repairs, referred to as hybrid operations, combine endovascular exclusion of the aneurysmal aorta with open surgical procedures that secure blood flow to the visceral branches. Other repairs use state-of-the-art devices that enable one to take an entirely endovascular approach to aneurysm exclusion and branch artery perfusion. Both approaches are described and discussed in detail in this issue.

In parallel with the increasing number of surgical options, the variety of clinical scenarios facing surgical teams is also expanding. For example, as mentioned above, we are now considering surgical treatment in patients whose age and comorbidities would have been considered clear contraindications to surgery a few years ago. Additionally, surgeons are treating patients whose aortic disease has newly identified genetic causes, each of which has distinctive phenotypic features that affect clinical decisions. Furthermore, mycotic aneurysms, long considered an important subset of thoracoabdominal aortic aneurysms, are now known to harbor particularly virulent pathogens. Finally, as we encounter patients in whom previous attempts at endovascular repair have failed, novel approaches to device removal and definitive repair are becoming increasingly necessary. This combination of expanding technical approaches and a broadening variety of clinical situations points to the main goal we will strive to achieve during the upcoming decade: selecting the best treatment option for each individual patient. Given the extraordinary difficulty of conducting large randomized clinical trials in patients with thoracoabdominal aortic aneurysms, we will be dependent upon highly skilled outcomes-research teams to carefully analyze available data and develop evidence-based approaches to treating this increasingly complex patient population.

We would like to close by first thanking the Editors-in-Chief, Drs. Tristan Yan and Paul Bannon, for the honor and tremendous opportunity of serving as the guest editors for this issue of their innovative new journal. Working with them and their exceptional editorial staff has been a pleasure, and we wish them all every success with this fresh, cutting-edge approach to surgical education. Secondly, we especially thank the many esteemed colleagues who have generously shared their amazing expertise in this issue. We are deeply indebted to all of them for contributing the diverse and comprehensive material that has resulted in a truly unique international compendium. Third, we are extremely grateful to several members of our clinical research team - Laurie Fondren, Susan Green, MPH, Michael Hughes, Matt Price, MS, RHIA, Scott Weldon, MA, CMI, Jeffrey Whorton, RHIA, and Samantha Zarda, RHIA, at Baylor College of Medicine; and Joseph Brewton and Stephen Palmer, PhD, ELS, at the Texas Heart Institute at St. Luke's Episcopal Hospital - who made enormous contributions to our portions of the issue. We could not have done this without them. On behalf of all of our collaborators on this project, we sincerely hope that this issue will serve as a valuable resource to everyone involved in the care of patients with thoracoabdominal aortic aneurysms.

References

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