TEVAR Refinement and Innovation


Next year marks the 30th anniversary of the first thoracic endovascular aortic repair (TEVAR) performed in the United States in 1992 by Dake and colleagues at Stanford for the treatment of a descending thoracic aortic aneurysm, which was later reported in 1994.[1] Similar to the trend in the management of abdominal aortic aneurysms following the advent of endovascular aneurysm repair, TEVAR has seen a rapid adoption over the last 3 decades and currently serves as the primary treatment strategy for nearly every pathology involving the descending thoracic aorta. These formative years of TEVAR have been marked by a multitude of technical refinements, maturation of device engineering constructs, and continued evolution in our understanding of the biomechanics of the dynamic thoracic aorta, especially the ascending aorta and aortic arch.

These early experiences continue to highlight and guide the way we address failure mechanisms of this treatment modality. In addition, the feasibility, efficacy, and durability of TEVAR in the proximal aorta and aortic arch remains very much in its infancy. These are exciting times in the field of aortic surgery, indeed, as we embark on the next frontier of TEVAR to refine what we already know and innovate that which we do not.

To start off this special thoracic aortic edition, we gathered perspectives from aortic surgeons around the globe to review decision-making for type B aortic dissections. Robin H. Heijmen, MD; Igor Koncar, MD; Ourania Preventza, MD; and Vincent Riambau, MD, share their thoughts on treating these dissections, including limitations, contraindications, and available technology.

Then, Elizabeth Blazick, MD, and Anna Boniakowski, MD, examine how patient anatomy, available devices, and existing techniques impact distal landing zone failure as well as review ways to mitigate this issue. Next, Dr. Trimarchi and colleagues provide an in-depth assessment of the pros and cons of endovascular management of diverse aortic pathologies, including branched TEVAR.

Debate surrounding the use of lumbar drainage in TEVAR continues, so we invited two perspectives to assess its routine versus selective application in practice. First, Martin Czerny, MD, and Bartosz Rylski, MD, make the case for the routine use of cerebrospinal fluid drainage; then, E. Hope Weissler, MD, and G. Chad Hughes, MD, tackle why institutions may want to shift to more selective use.

Rounding out our thoracic aortic coverage, Dr. Ullery and William Hiesinger, MD; Toru Kuratani, MD; Sonia Ronchey, MD; and Tim Resch, MD, discuss ways to help lower the risk of stroke when using single- and double-branched stent grafts during TEVAR in the arch.

Outside of the discussion on treating thoracic aortic aneurysms, this issue includes a collection of articles devoted to radial access in endovascular interventions. Fadi Al Saiegh, MD, and Pascal Jabbour, MD, provide a technical review of patient preparation for neurovascular radial access, including necessary tests, setup protocols, and suggested routines. Then, Drs. Dejah R. Judelson, Brian M. Snelling, and Sabeen Dhand each describe their radial access cocktail and offer their preferred strategies to limit the risk of radial artery spasm. Closing out the radial access articles, we asked Darren Klass, MBChB; Vivian Bishay, MD; and Eric C. Peterson, MD, how they teach radial access to physicians new to the approach. Each shares details about their experience and offers important tips for learning how to perform the procedure.

Elsewhere in this issue is a conversation with Andrew Holden, MBChB, on the legacy of paclitaxel and lessons learned from the controversy, research priorities for 2022, his philosophy for choosing which projects to accept, his time as President of the Asia Pacific Society of Cardiovascular and Interventional Radiology, and more.

We hope you find this special thoracic aortic edition of *Endovascular Today* poignant in its symbolism for all that has been accomplished in the 30 years to date, as well as a source of enthusiasm for all the greatness in our field and clinical benefit that is to be realized in the years to come. ■

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1. Dake MD, Miller DC, Semba CP, et al. Transluminal placement of endovascular stent-grafts for the treatment of descending thoracic aortic aneurysms. N Engl J Med. 1994;331:1729-1734. doi: 10.1056/NEJM199412293312601