

Advanced aortic imaging and intervention

This special issue of *Cardiovascular Diagnosis and Therapy* focuses on updates in advanced aortic imaging and intervention. Aortic diseases are a leading cause of morbidity and mortality worldwide, only likely to increase in incidence with an ever-aging population. With few reliable clinical signs and symptoms, these disorders were historically underdiagnosed with limited available treatments and poor prognosis. However, recent advances in imaging, coupled with minimally invasive interventional techniques, have heralded a new era in aortic disease, with outcomes that only continue to improve.

A variety of noninvasive imaging modalities are now available for the assessment of aortic disease, both pre- and post-intervention. In the current special issue, Zucker *et al.* describe now-standard sonographic screening practices for abdominal aortic aneurysm (AAA) and emerging controversies. Baliyan *et al.* provide a comprehensive overview of noninvasive aortic imaging strategies, with a focus on computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET). Hu *et al.* discuss the essential role of imaging prior to endovascular aortic aneurysm repair (EVAR), while Li *et al.* provide an up-to-date review of postoperative aortic imaging. Rafailidis *et al.* describe evolving uses of contrast-enhanced ultrasound (CEUS) for abdominal aortic pathology. Sailer *et al.* provide a case report on the novel use of ^{18}F -fluorodeoxyglucose (^{18}F -FDG) PET/MRI for the diagnosis of an infected aortic aneurysm. Finally, Hangge *et al.* highlight emerging applications of three-dimensional (3D) printing for aortic disease.

In addition to improved imaging options, a variety of new minimally invasive endovascular treatment strategies are now the mainstay for a variety of aortic diseases, facilitating favorable outcomes even in poor surgical candidates. Vatakencherry *et al.* discuss percutaneous access techniques common to many endovascular procedures. Wang *et al.* provide a comprehensive overview of treatment options for infrarenal AAAs, while Khayat *et al.* discuss endovascular management options for acute aortic dissection, a topic further detailed in the article by Hedgire *et al.* on aortic emergencies. Partovi *et al.* highlight endovascular treatment strategies for the rare but life-threatening aorto-enteric fistula. Schiro *et al.* discuss endovascular management of iliac aneurysms, often concomitant with AAA. Finally, Kansagra *et al.* describe cutting-edge advanced endografting techniques, ranging from snorkels and chimneys to periscopes and branched endografts.

With increasing adoption of endovascular techniques, a variety of unique procedural complications have been recognized, in turn requiring expedient imaging diagnosis and management. Daye *et al.* provide a comprehensive overview of potential complications related to thoracoabdominal EVAR. In addition, Bryce *et al.* describe approaches to the diagnosis and treatment of type II endoleaks, characterized by retrograde flow into a treated AAA by collaterals.

While atherosclerosis, aneurysm, and dissection comprise many of the aortic diseases seen in typical clinical practice, a variety of less common etiologies exist and are highlighted in this special issue. Deipolyi *et al.* offer an up-to-date review of inflammatory and infectious aortic diseases. Priya *et al.* provide a comprehensive overview of congenital aortic arch anomalies, from embryology to advanced imaging appearances. Finally, Zucker describes the most commonly encountered syndromes associated with aortic pathology, emphasizing the role of advanced imaging modalities.

This selection of articles will help readers stay current on these most exciting recent advances in aortic imaging and minimally invasive intervention. We hope and trust that this special issue will both stimulate interest and contribute to improved patient care.

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