IMAGES

Aberrant right subclavian artery: an impediment to transesophageal echocardiography

Megan Deck, MD · Hilary P. Grocott, MD, FRCPC, FASE ·
Michael H. Yamashita, MDCM, MPH, FRCSC

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An aberrant right subclavian artery (ARSA), where the vessel arises directly from the aorta just distal to the take-off of the left subclavian artery (i.e., proximal descending aorta), is the most common congenital variant of the aortic arch, occurring in 0.5–2.5% of individuals.¹ In 80% of cases, the ARSA is in a retro-esophageal position with the esophagus located between the ARSA and the trachea. An ARSA is generally an asymptomatic finding, although 10% of patients may experience symptoms of tracheo-esophageal compression (e.g., dysphagia) later in life, in part related to increased vessel wall rigidity or aneurysmal development.² Compression of the ARSA (with impairment in right radial arterial blood pressure monitoring) has also been reported during transesophageal echocardiography (TEE).³

Herein, we report our experience in an 80-yr-old female (who consented to this report) who presented for an

elective ascending and hemi-arch replacement of an ascending aortic aneurysm and aortic valve replacement for severe aortic regurgitation. Her preoperative chest computed tomography (CT) scan revealed an incidental and asymptomatic finding of a retroesophageal ARSA. After induction of anesthesia, a TEE probe was attempted to be inserted but met significant resistance in the upper esophagus and could not be advanced beyond 20 cm; the TEE insertion was thus abandoned. Further inspection of the preoperative chest CT scan revealed significant compression of the esophagus by a heavily calcified ARSA (Figure A and B; eVideo in the Electronic Supplementary Material), which likely prevented the advancement of the TEE probe. The case proceeded uneventfully without the use of TEE, and the patient's postoperative course was uncomplicated. The presence of an ARSA should alert an echocardiographer to the possibility of difficulty with completing a TEE examination.

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M. Deck, MD (✉)
Department of Anesthesiology, Perioperative & Pain Medicine,
University of Saskatchewan, Saskatoon, SK, Canada
e-mail: megan.deck@usask.ca

H. P. Grocott, MD, FRCPC, FASE
Department of Anesthesiology, Perioperative & Pain Medicine,
University of Manitoba, Winnipeg, MB, Canada

Cardiac Sciences Program, St. Boniface Hospital, Winnipeg,
MB, Canada

Michael H. Yamashita, MDCM, MPH, FRCSC
Cardiac Sciences Program, St. Boniface Hospital, Winnipeg,
MB, Canada

Division of Cardiac Surgery, Department of Surgery, Max Rady
College of Medicine, University of Manitoba, Winnipeg, MB,
Canada

Figure A) Preoperative sagittal contrast-enhanced computed tomography scan of the chest showing the upper esophagus (E) between the trachea (T) and the aberrant right subclavian artery (ARSA) that begins to arise from the distal aortic arch. B) A more distal image shows that the ARSA caused near complete compression of the esophagus, which resulted in the inability to advance a transesophageal echocardiography probe beyond 20 cm

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References

1. Zapata H, Edwards J.E., J. Titus L. Aberrant right subclavian artery with left aortic arch: associated cardiac anomalies *Pediatr Cardiol* 1993; 14: 159-61.
2. Zingarelli A, Morelli MC, Seitun S, Bezante GP, Balbi M, Brunelli C. Aberrant right subclavian artery (arteria lusoria) challenging 4-French homolateral transradial coronary catheterization in adulthood. *Heart Lung Circ* 2015; 24: e164-8.
3. Pontus S, Frommelt P. Detection of a previously undiagnosed anomalous subclavian artery during insertion of a transesophageal echocardiography probe. *Anesth Analg* 1994; 78: 805-7.

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