Images in cardio-thoracic surgery

Three-dimensional demonstration of the Adamkiewicz artery and its collateral supply with contrast-enhanced magnetic resonance angiography

Kunihiro Yoshioka\textsuperscript{a,*}, Hiroyuki Niinuma\textsuperscript{b}, Kohei Kawazoe\textsuperscript{c}, Shigeru Ehara\textsuperscript{a}

\textsuperscript{a}Department of Radiology, Iwate Medical University, 19-1 Uchimaru, 020-8505 Morioka, Japan
\textsuperscript{b}Department of Internal Medicine II, Iwate Medical University, Morioka, Japan
\textsuperscript{c}Department of Cardiovascular Surgery, Iwate Medical University, Morioka, Japan

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A 78-year-old man with a history of an infrarenal abdominal aortic aneurysm repair came back for another repair of thoracic aortic aneurysm. Three-dimensional gadolinium-enhanced magnetic resonance angiography demonstrated the artery of Adamkiewicz and its collateral circulation clearly (Figs. 1 and 2).

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Fig. 1. An oblique coronal multiplanar reformatted image (part A) shows the artery of Adamkiewicz (arrow) and the posterior branch (arrowhead) of the left 10th intercostal artery (ICA). An oblique sagittal partial maximum-intensity-projection image (part B) shows that the 10th ICA, the origin of the artery of Adamkiewicz, is occluded proximally at the aorta (arrowhead) and patent ICAs. It also shows collateral circulation from the 11th to 10th ICA (arrow). Imaging parameters are follows: 1.5-T imager, 3D fast spoiled gradient-echo sequence with chemical shift-selective fat suppression, 20-ms repetition time, 2.2-ms echo time, 40° flip angle, 1-mm partition thickness, 168 × 240-mm field of view, and a 384 × 512 matrix. The section orientation is sagittal. A total of 0.2 mmol/kg of gadopentetate dimeglumine is administered from an antecubital vein. T10: 10th thoracic vertebra.

* Corresponding author. Tel.: +81-19-651-5111; fax: +81-19-624-8384. E-mail address: kyoshi@iwate-med.ac.jp (K. Yoshioka).

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Fig. 2. The left anterior oblique three-dimensional volume-rendering image with semitransparent aorta shows entire collateral circulation (arrowhead) from the aorta to the artery of Adamkiewicz (arrow).