Neoaortic Root Aneurysm After Arterial Switch Operation With Lecompte Maneuver

Jens Scheewe, MD, Tim Attmann, MD, Christopher Hart, MD, Christina Grothusen, MD, Inga Voges, MD, and Hans-Heiner Kramer, MD

Departments of Cardiovascular Surgery and Pediatric Cardiology, University Hospital Schleswig-Holstein, Kiel, Germany

A 25-year-old man with transposition of the great arteries had undergone an arterial switch operation with the Lecompte maneuver and mechanical valve replacement for neoaortic valve insufficiency at 1 and 8 years of age, respectively.

Recently, a neoaortic aneurysm was diagnosed by magnetic resonance imaging. Right (blue) and left (red) heart structures are shown in Fig 1A, and isolated left heart structures can be seen in Fig 1B. Three-dimensional phase-contrast magnetic resonance imaging data was used to visualize flow patterns. Vortical flow in the aneurysm was fast (red path lines) during systole and persisted as slow (blue) flow into late diastole. Blood flow was accelerated in the narrowed distal main pulmonary artery (Video 1).

Because the aneurysm showed progressive growth, reaching a diameter of 7 cm, replacement of the ascending aorta was indicated. The main pulmonary artery (Fig 2, MPA) was transected and the aneurysm was incised (Fig 2, asterisk). Implantation of a mechanical valve conduit (Fig 2, MVC) became necessary because of pannus formation at the valve prosthesis (Fig 2, AC = aortic cannula; LVOT = left ventricular outflow tract; VC = venous cannula). Based on intraoperative observations, we assume that the aneurysm evolved because of frailty of the former pulmonary artery tissue. Coronary buttons and the original aortic wall were not altered. The patient had an uncomplicated postoperative course.

A video can be viewed in the online version of this article [http://dx.doi.org/10.1016/j.athoracsur.2013.06.082] on http://www.annalsthoracicsurgery.org.

Address correspondence to Dr Attmann, Department of Cardiovascular Surgery, University Hospital Schleswig-Holstein, Arnold-Heller-Str. 3, 24105 Kiel, Germany; e-mail: tim.attmann@uksh-kiel.de.