Anomalous origin of the right coronary artery from the pulmonary artery: a rare finding in an asymptomatic man

Jens A. Petersen¹, Christoph A. Karlo², Hatem Alkadhi², Oliver Gaemperli³, and Patric Biaggi²*

¹Department of Neurology, University Hospital Zurich, Zurich, Switzerland; ²Department of Radiology, University Hospital Zurich, Zurich, Switzerland; and ³Department of Cardiology, University Hospital Zurich, Raemistrasse 100, 8091 Zurich, Switzerland

* Corresponding author. Tel: +41 44 255 1111; fax: +41 44 255 3447, Email: patric.biaggi@usz.ch

A 47-year-old Caucasian man was admitted to our hospital with a transient right-sided hemisindrome. Cerebral angiography revealed a stenotic left-sided middle cerebral artery. Transthoracic echocardiography and transoesophageal echocardiography did not identify a cardiac source of embolus; however, an abnormal right coronary artery (RCA) was suspected (Panel A). Cardiac computed tomographic angiography confirmed an anomalous origin of the RCA from the pulmonary artery (ARCAPA; Panels B–D). ARCAPA is a rare condition usually diagnosed in symptomatic children and adults or during autopsy. The diagnosis in asymptomatic adults is extremely rare. The therapeutic recommendations for adult ARCAPA patients are controversial. Several authors claim the potentially fatal outcome and therefore suggest re-implantation of the RCA into the aortic root. From a haemodynamic point of view, this is reasonable in symptomatic patients, as symptoms occur if the RCA is large [steal phenomenon of the left coronary artery (LCA)], if there are concomitant stenotic lesions of the LCA, or if the pulmonary artery (PA) pressure is high (anterograde flow of desaturated blood from the PA through the RCA). In our patient, the diameter of the RCA (Panels B–D) and the PA pressure were normal. In addition, an adenosine-based stress test was negative for ischaemia, and a Holter electrocardiogram revealed no arrhythmias. We therefore assumed that our patient is at low risk for a sudden fatal event and recommended medical therapy with optimal treatment of his cardiovascular risk factors together with regular clinical follow-up rather than coronary re-implantation.