

Fistula between the right coronary artery and the superior vena cava as a cause of anginal symptoms

Przetoka między prawą tętnicą wieńcową a żyłą główną górną jako przyczyna dławicy piersiowej

Anna Wichrowska¹, Arkadiusz Niklas¹, Maciej Frankiewicz², Artur Radziemski¹, Andrzej Tykarski¹

¹Department of Hypertension, Angiology, and Internal Medicine, Poznan University of Medical Sciences, Poznan, Poland

²Department of Radiology, Poznan University of Medical Sciences, Poland

Coronary arterial fistulas are rare malformations the exact incidence of which is unknown. We present the case of a 61-year-old female with fistula between the right coronary artery (RCA) and the superior vena cava (SVC). She was admitted to hospital because of anginal symptoms. The chest pain radiating to the left arm with accompanying dyspnoea and arrhythmia especially after effort or stress were present for the preceding three years. Physical examination revealed the following: heart rate 62 bpm, blood pressure 100/60 mm Hg. Electrocardiogram did not reveal any changes. Cardiac stress test was performed with a positive result (she exercised for 2 min on a regular Bruce protocol treadmill test, achieving 75% of maximal target heart rate 118 bpm; dyspnoea and ST depression in leads II, III, aVF, and V₂-V₅ were observed). A coronary angiography revealed fistula between the RCA and, as it seemed, the right atrium and the myocardial bridge on the left anterior descending artery (LAD). Coronary arteries were not affected. Coronary computed tomography angiography with use a LightSpeed VCT 64-slice multidetector CT (MDCT) with retrospective electrocardiogram-gated SnapShot Segment reconstruction mode was performed to evaluate the anomaly in detail. Contrast injection parameters were set to 90 mL of 400 mg I/mL contrast (Iomeron 400) at 5 cc/s followed by the saline flush (50 mL at 5 cc/s). The average heart rate of the patient was 63 bpm. The acquisition resulted in the source axial images with little staircase artefacts that facilitated high-quality volume rendering reconstructions. The study demonstrated dilated sinoatrial nodal artery arising from the proximal segment of the RCA. The course of the sinoatrial nodal artery was tortuous, directed initially toward the right atrium and then to the lowermost SVC, where it terminated as a fistula on its medial wall (Figs. 1, 2). An area with higher density was observed inside the SVC lumen, representing the jet of contrast media coming from the fistula. The middle and distal segments of the RCA were narrow. The procedure revealed also the common origin of the LAD and the left circumflex artery from the left sinus of Valsalva. There was also a small myocardial bridge in the middle segment of the LAD. No significant stenosis of coronary arteries was detected. The patient is now under our observation and she is considered for catheter closure of the fistula.

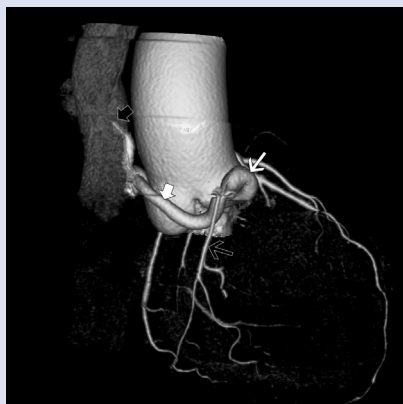


Figure 1. Three-dimensional volume rendering image; white thick arrow — dilated sinoatrial nodal artery; black thick arrow — fistula; white thin arrow — right coronary artery, dilated proximal segment; black thin arrow — right coronary artery, narrow middle segment

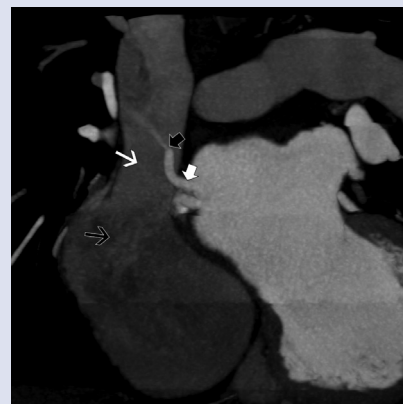


Figure 2. Oblique maximum intensity projection image; white thick arrow — dilated sinoatrial nodal artery; black thick arrow — fistula; white thin arrow — superior vena cava, proximal part; black thin arrow — right atrium

Address for correspondence:

Arkadiusz Niklas, MD, PhD, Department of Hypertension, Angiology, and Internal Medicine, Poznan University of Medical Sciences, ul. Długa 1/2, 61-848 Poznań, Poland, tel: +48 61 854 90 90, e-mail: aniklas@mp.pl

Conflict of interest: none declared

Kardiologia Polska Copyright © Polskie Towarzystwo Kardiologiczne 2016