A right coronary artery fistula communicating with a large right atrial pseudoaneurysm

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A 63-year-old man was referred to elective coronary catheterization for recurrent episodes of non-sustained ventricular tachycardia. He had a history of coronary artery bypass grafting surgery and implantable cardioverter defibrillator with a passive fixation right atrial lead. On coronary angiogram the graft to the right coronary artery (RCA) was totally occluded. An unusual filling mass was noticed while injecting the native RCA, which was totally occluded proximally. The mass had a pocket-like appearance and very slow clearance of contrast dye. On fluoroscopy images, the right atrial lead appears to be in contact with the mass, which communicates with the RCA through a fistula (Supplementary data online, video S1). He was referred for multidetector cardiac CT (MDCT) for further evaluation. MDCT images clearly illustrate the lead tip perforating the right atrium and protruding into the anterior mass (Images 1A–D). An intraoperative transesophageal echocardiogram confirmed the findings of the MDCT (Supplementary data online, video S2 and S3). The patient then underwent surgical excision of the mass.

Delayed right atrial lead perforation (>30 days) is extremely rare and hardly diagnosed due to the lack of symptoms. MDCT is an effective modality in detecting the pseudoaneurysm at early stages before late complications. Acquired coronary fistula usually develops from endogenous or exogenous traumas, but in this case possibly from lead erosion into the RCA. To the best of our knowledge this is the first case of a delayed right atrial perforation of a passive fixation lead and the first case of acquired coronary fistula communicating with a pseudoaneurysm.

Image 1 (A) 3D volume-rendered reconstruction CT image showing the mass (white arrow) in relation to the tip of the lead. LV, left ventricle; Ao, aorta. (B) Axial maximal-intensity projection image of the tip of the RA lead (white arrow) penetrating the mass (M). RA, right atrium; LA, left atrium; RV, right ventricle; LV, left ventricle. (C) Image of the right atrial lead (white arrow) with the distal tip removed to reveal a fistula (blue arrow) connecting the right coronary artery to the mass. (D) Sagittal reconstruction of the large contrast-filled mass (white arrows) with the RA lead tip penetrating its wall. AO, aorta; RV, right ventricle; LV, left ventricle.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.

Conflict of interest: Dr Budoff is a member of the GE Speaker Bureau.

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