A routine transthoracic echocardiogram (TTE) was performed in a 72-year-old woman with signs and symptoms of heart failure. The 2D TTE images revealed an enlarged right coronary artery (RCA) with reverse flow draining into the pulmonary trunk and the presence of dilated septal vessels (Figure 1). Coronary angiography and MRI confirmed the previous echocardiographic findings (Figures 2 to 4). Accordingly, surgical ligation of the RCA was carried out. Before ligation, an intraoperative transesophageal echocardiogram and direct visualization revealed grossly dilated coronary arteries (14 to 16 mm in diameter) and numerous fistulas over the anterior surface of the left ventricle and next to the right atrioventricular groove (Figures 5 and 6). The RCA was ligated proximally, and a bypass with an inverted saphenous vein was constructed between the aorta and the RCA just distal to the ligation. Sequential Doppler flow velocity assessment of the RCA before ligation and of the saphenous vein graft disclosed an increase in diastolic velocity and a reduction in systolic and retrograde flow velocity after RCA ligation (Figure 7). The postoperative course was uncomplicated, and the patient was discharged on postoperative day 7.
Figure 2. Coronary angiography. Top, Tortuous left anterior descending coronary artery (large arrow) and its fistulization to RCA (small arrows). Bottom, Right coronary arteriogram reveals an anomalous origin of RCA from main trunk of pulmonary artery (black arrow).

Figure 3. MRI horizontal view demonstrates dilatation of pulmonary trunk (AP) with drainage of RCA (CD) and enlarged left main coronary artery (TRONCO CI). AO indicates aorta; VCS, superior vena cava; and AI, left atrium.

Figure 4. MRI sagittal view shows anomalous drainage of RCA (CD) into pulmonary trunk (APT). VI and VD indicate left and right ventricles, respectively.

Figure 5. Surgical image taken before RCA ligation. Dilated left (white arrow) and right (black arrow) coronary arteries. Several left to right coronary artery fistulas (red arrows) are also shown. Black diamond arrow shows site of drainage of RCA into pulmonary artery.
Figure 6. Top, Intraoperative transesophageal echocardiographic images show dilatation of left main and anterior descending coronary arteries (DA). Bottom, Enlarged coronary sinus (CS). AO indicates aorta; AP, pulmonary artery trunk.

Figure 7. Top, Proximal RCA Doppler flow velocity assessment before ligation, at systole (60 cm/s), and at diastole (45 cm/s). Bottom, Saphenous vein flow velocity measurements performed after revascularization of RCA, at systole (40 cm/s), and at diastole (60 cm/s).
Mariano Albertal
Jorge Albertal, Francisco Guevara Lynch, Guillermo Vaccarino, Mariano Vrancic, Fernando Pichinini and
Mariano Albertal

Anomalous Origin of Right Coronary Artery

Circulation. 2001;103:e73-e75
doi: 10.1161/01.CIR.103.13.e73

The online version of this article, along with updated information and services, is located on the World
Wide Web at:
http://circ.ahajournals.org/content/103/13/e73

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in
Circulation can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once
the online version of the published article for which permission is being requested is located, click Request Permissions in
the middle column of the Web page under Services. Further information about this process is available in the Permissions
and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation is online at:
http://circ.ahajournals.org/subscriptions/