JACC: CARDIOVASCULAR INTERVENTIONS
VOL. 2, NO. 8, 2009

ISSN 1936-8798/09/$36.00
PUBLISHED BY ELSEVIER INC.
DOI: 10.1016/j.jcin.2009.05.021

IMAGES IN INTERVENTION

Origin of Right and Left Coronary Arteries From the Right Sinus of Valsalva as a Common Coronary Trunk

Panagiotis Kariofillis, MD,* Irene Mastorakou, MD,† Vassilis Voudris, MD*

Athens, Greece

A 71-year-old woman with a history of rheumatoid arthritis, pulmonary fibrosis, pericardiectomy, and a heavy calcified tricuspid aortic valve stenosis was referred to coronary angiography for preoperative evaluation for aortic valve replacement. The coronary angiogram demonstrated an anomalous coronary anatomy, with the origin of right coronary artery and left main stem from the right sinus of Valsalva as a common coronary trunk (single coronary artery) (Fig. 1). Multislice computed tomography confirmed the presence of a single coronary artery arising from the right sinus of Valsalva, with a posterior course of the main stem that turns behind the aorta in an infero-posterior direction (Fig. 2). The coronary arteries were free of atherosclerotic disease. Due to an unacceptable high surgical risk the patient was successfully treated with percutaneous aortic valve implantation.

The overall incidence of coronary anomalies in humans is 0.6% to 1.3%. An aberrant origin of the

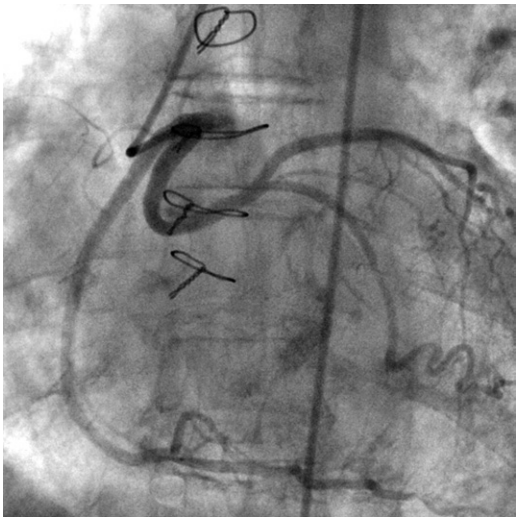

Figure 1. Coronary Angiography

Single coronary artery arising from the right sinus of Valsalva, in left anterior oblique projection giving right coronary artery and left main stem.

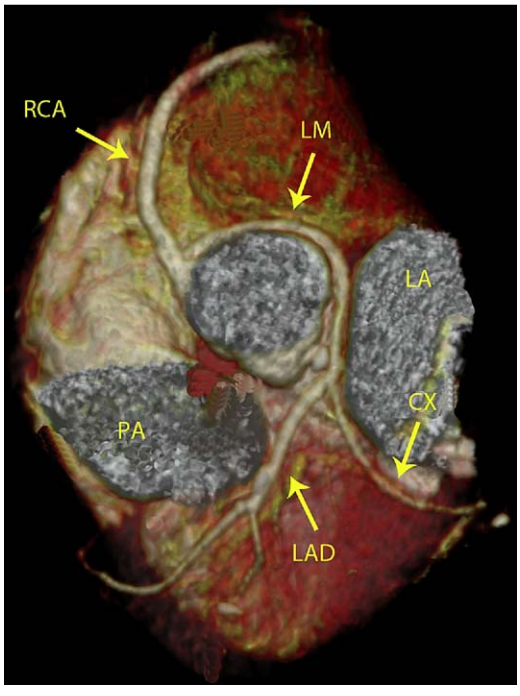

Figure 2. Multislice Spiral Computed Tomography

Multislice spiral computed tomography showed the single coronary artery arising from the right sinus of Valsalva. The main stem turns posteriorly behind the aorta and divides into left anterior descending and left circumflex coronary arteries.

From the *2nd Cardiology Department and the †Imaging Department, Onassis Cardiac Surgery Center, Athens, Greece.

JACC: CARDIOVASCULAR INTERVENTIONS, VOL. 2, NO. 8, 2009
AUGUST 2009:805–6

main stem from the right sinus of Valsalva represents one of the rarest forms of all coronary anomalies, and the situation of a single coronary artery is an extremely rare congenital anomaly that is seen in only 0.0024% to 0.044% of the population.

In the case of a single coronary artery arising from the right coronary sinus, the main stem takes 1 of 4 aberrant pathways to reach its proper vascular territory. These pathways are designated as type A (Anterior to the right ventricular outflow tract), type B (Between the aorta and pulmonary trunk), type C (Cristal, coursing through the crista supraventricularis portion of the septum), and type D (Dorsal or posterior to the aorta) (1–3).

Reprint requests and correspondence: Dr. Vassilis Voudris, Onassis Cardiac Surgery Center, 356 Sygrou Avenue, Kallithea 17674 Athens, Greece. E-mail: vvoudris@otenet.gr.

REFERENCES

1. Liberthon RR, Dinsmore RE, Bharati S, et al. Aberrant coronary artery origin from the aorta: diagnosis and clinical significance. Circulation 1974;50:774–9.
2. Yamanaka O, Hobbs RE. Coronary artery anomalies in 126595 patients undergoing coronary angiography. Cathet Cardiovasc Diagn 1990;21: 28–40.
3. Desmet W, Vanhaecke J, Vrolix M, et al. Isolated single coronary artery: a review of 50,000 consecutive angiographies. Eur Heart J 1992;13: 1637–40.