

Novel variant of dual left anterior descending artery arising from single right coronary artery anomaly presenting with angina inversa



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Abstract

A 55-year-old female without a history of coronary artery disease, hypertensive for the past 17 years, was admitted with resting chest pain. Electrocardiography revealed a negative T-wave in anterior chest leads. Coronary angiography visualised anomalous coronary anatomy, with a common origin of the right coronary artery and the left main coronary artery in the right sinus of Valsalva serving as a common coronary trunk. It should be emphasised that T-wave abnormalities and chest angina may be related to this congenital coronary anomaly.

Key words: coronary anomaly, ischaemic heart disease.

Streszczenie

W pracy opisano przypadek kobiety, lat 55, bez choroby wieńcowej w wywiadzie, chorującej na nadciśnienie od 17 lat, która została przyjęta ze spoczynkowym bólem klatki piersiowej. Badanie elektrokardiograficzne wykazało ujemny załamek T w odprowadzeniach przedsercowych. Angiografia naczyń wieńcowych uwidoczniła nietypową anatomie naczyniową w postaci wspólnego odejścia prawej i lewej tętnicy wieńcowej od zatoki Valsalwy stanowiącej wspólny pień wieńcowy. Warto zwrócić uwagę, że nieprawidłowości załamek T i bóle klatki piersiowej mogą wynikać z tej wrodzonej anomalii wieńcowej. **Słowa kluczowe:** anomalia wieńcowa, choroba niedokrwienne serca.

Case report

A 55-year-old female without a history of coronary artery disease, hypertensive for 17 years duration was admitted with chest pain at rest. Her electrocardiography revealed negative T-wave in anterior chest leads (Fig. 1), and T waves were returned to normal fashion without medical treatment within 10 minutes (Fig. 2). Echocardiogram showed normal left ventricle systolic function and ejection fraction (> 60%). Her biochemical parameters were within normal limits and her stress test was normal as well. She was subjected to coronary angiography to rule out any ischaemic aetiology. At coronary angiography, there was no obstructive coronary artery disease; however, the coronary angiogram demonstrated an anomalous coronary anatomy, with the origin of the right coronary artery and left main stem from the right sinus of Valsalva as a common coro-

nary trunk (single coronary artery) (Fig. 3). Circumflex and left anterior descending arteries were arising from the left main stem. Right coronary artery was normal. Meanwhile, a second left anterior descending artery was seen arising from the proximal right coronary artery (Fig. 3 and 4). This was consistent with the novel variant of dual left anterior descending artery maybe subgroup of type IV according to Spinaldo-Franco Classification [1]. It emphasises that T wave abnormalities and chest angina may be related this congenital coronary anomaly.

Reference

1. Spinaldo-Franco H, Grose R, Solomon N. Dual left anterior descending artery: angiographic description of important variants and surgical implications. *Am Heart J* 1983; 105: 445-448.

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Fig. 1. 12-lead electrocardiogram showing negative T waves in anterior chest leads during chest pain at rest

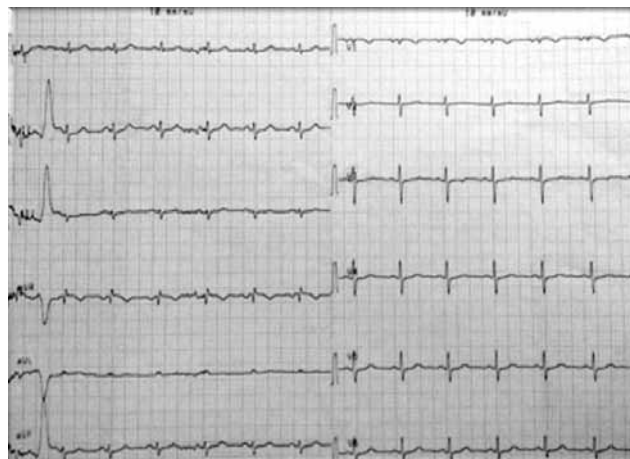


Fig. 2. 12-lead electrocardiogram showing normal T-waves in anterior chest leads after chest pain

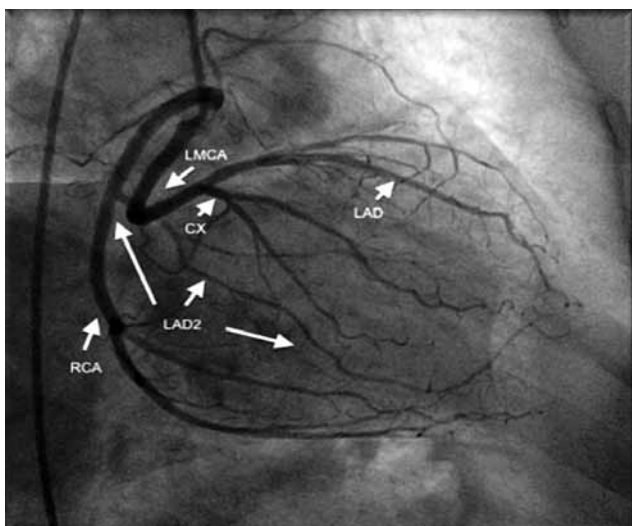


Fig. 3. Single coronary artery and double LAD arteries. Coronary angiography in a caudal right anterior oblique view shows all coronary arteries arising from right sinus of Valsalva with a common trunk. LAD2 (arrows) arises from the RCA (arrow) and then turns sharply down the anterior interventricular sulcus. LAD (arrow) forms a short vessel, which produces both septal perforators and diagonal branches.

LMCA – left main coronary artery, Cx – circumflex artery, LAD – left anterior descending artery, RCA – right coronary artery

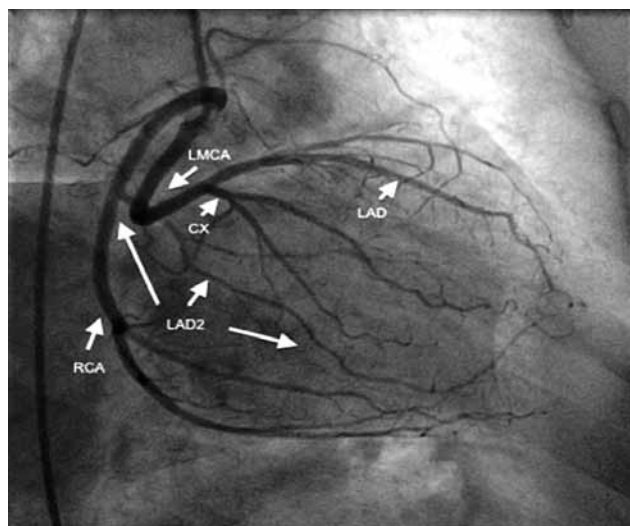


Fig. 4. Multidetector computed tomography, 3-dimensional volume-rendered reconstructed image of the coronary system. LAD2 (arrow) arises from the right coronary artery (arrow) and then turns sharply down the anterior interventricular sulcus and extends to the apex of the heart. Left anterior descending artery (arrow) forms a short vessel

RCA – right coronary artery, LAD – left anterior descending artery