# Myocardial bridging of the left anterior descending coronary artery and right coronary artery in a patient with mitral valve stenosis

Mostki mięśniowe nad lewą przednią tętnicą zstępującą i prawą tętnicą wieńcową u chorego ze stenozą mitralną

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## Abstract

Myocardial bridging is defined as the intramural course of a major epicardial coronary artery, and is mostly confined to the left ventricle and the left anterior descending coronary artery (LAD). Although it is considered to be a benign anomaly, it can lead to such complications as acute myocardial infarction, ventricular tachycardia, syncope, atrioventricular block and sudden cardiac death. Isolated myocardial bridging of the right coronary artery (RCA) and left circumflex artery have been reported in the literature. In our case, myocardial bridging was observed in both the LAD and the RCA in a patient with mitral valve stenosis.

Key words: myocardial bridging, mitral valve stenosis

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A 60 year-old male patient was admitted to our clinic complaining of palpitation and dyspnoea on exertion of two years' duration. In his physical examination, blood pressure was 130/70 mm Hg, and his pulse was 70-80 bpm and irregular. He had a grade 3/6 apical pansystolic murmur and diastolic rulman on cardiac auscultation. The other system examinations were normal. Atrial fibrillation with moderate ventricular response was detected on standard 12-lead electrocardiography. Cardiac X-ray revealed marked cardiac enlargement with a prominent left atrial chamber. Transthoracic echocardiography showed moderate left ventricular dilatation and systolic dysfunction, marked thickening and calcification of mitral valve leaflets (Fig. 1), narrowing of the mitral valve opening area (0.6 cm<sup>2</sup> calculated using the PHT method, maximum gradient 32 mm Hg, mean gradient 18 mm Hg), moderate mitral regurgitation, a giant left atrium with spontaneous echo contrast, and moderate aortic leaflet thickening and calcification with mild aortic regurgitation.

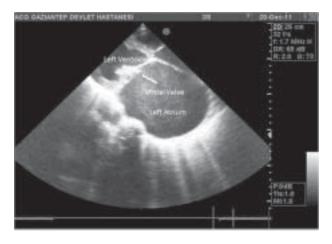


Figure 1. Transthoracic echocardiography; thickening and calcification of mitral valve leaflets, giant left atrium

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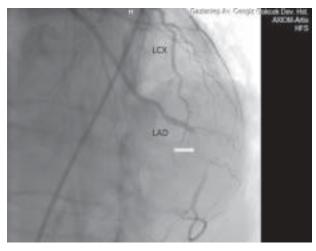


Figure 2. Left coronary angiogram; systolic occlusion of the distal segment of the left anterior descending coronary artery

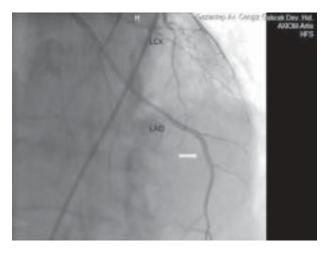


Figure 3. Left coronary angiogram;; normal diameter of the left anterior descending coronary artery in diastole

Given these findings, coronary angiography was performed before the mitral valve replacement surgery. The left coronary angiogram showed complete systolic occlusion of the distal segment of the left anterior descending coronary artery (LAD) without atherosclerotic lesion which was recovered in the diastolic stage (Figs. 2, 3). The right coronary angiogram showed complete systolic occlusion of the proximal segment of the right ventricular branch of the right coronary artery without atherosclerotic lesion which was recovered in the diastolic stage (Figs. 4, 5). The left main coronary artery and left circumflex artery were normal.

The patient was referred to the cardiovascular surgery department for mitral valve replacement and myotomy operations. The mitral valve replacement, left atrial appendage ligation and myotomy operations were performed by cardiovascular surgeons. Myotomy was performed only for the myocardial bridging of the LAD because of the ischaemia in the LAD area detected by myocardial perfusion scintigraphy. The patient was discharged from hospital without any cardiac com-



Figure 4. Right coronary angiogram; systolic occlusion of the right ventricular branch



Figure 5. Right coronary angiogram; normal diastolic diameter of the right ventricular branch

plaint on a regime of warfarin, acetylsalicylic acid, diltiazem and diuretics.

#### Conflict of interest: none declared

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