Images in cardiovascular medicine

Double is better: type IV dual left anterior descending coronary artery and superimposed atherosclerosis

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(Ital Heart J 2001; 2 (1): 68-69)

Received October 18, 2000; revision received October 26, 2000; accepted November 3, 2000.

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Left anterior descending coronary artery (LAD) originating from the right and left coronary artery (type IV of Lipton classification) is a rare but described congenital anomaly, whereas superimposed atherosclerosis in young patients is an unreported finding[1-3].

A 51-year-old male, who had a history of systemic hypertension, was admitted to our center, because of an ergometric test positive for anterolateral ischemia at medium charge and a recent episode of chest pain during exertion. The patient had no electrocardiographic changes and the enzyme profile was within the normal limits at admission.

Transthoracic echocardiography was unremarkable.

The patient underwent left catheterization that revealed a trivial hypokinesis of the septum, and a normal ejection fraction value (68%). At left coronary angiography a short LAD with a long critical stenosis in the first portion was observed (Fig. 1). This vessel originated from the left main coronary artery and, running normally, terminated after the first diagonal giving some septal branches (Fig. 1A). A critical stenosis of the obtuse marginal branch was also found.

At right coronary angiography, another long vessel arising just after the origin of a normal right coronary artery with a moderate-severe stenosis in the middle portion was discovered (Fig. 2). The anomalous vessel traversed to the left side of the heart anterior to the right outflow tract and ran a normal course in the anterior interventricular groove towards the apex supplying the

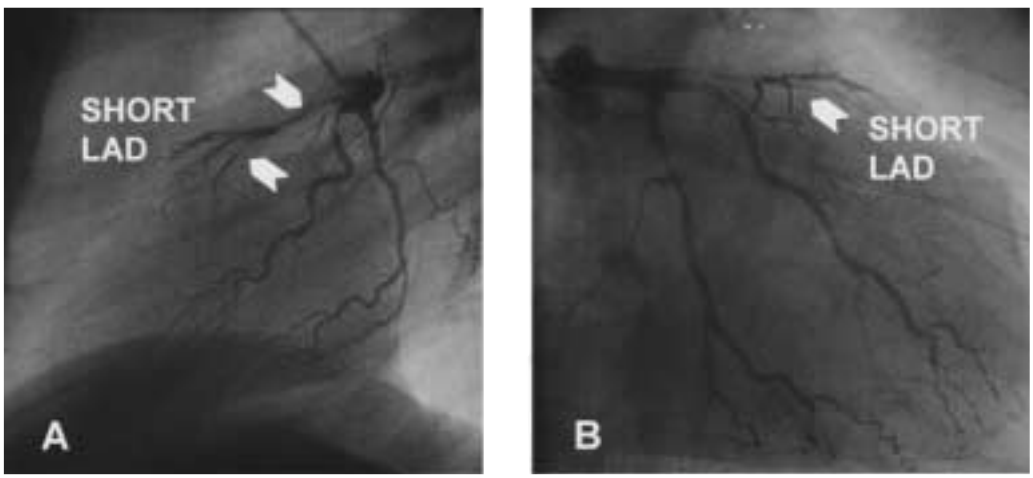

Figure 1. *Selective left coronary angiography: lateral* (A) *and left anterior oblique* (B) *projections. The anatomic course of the vessel with a critical stenosis in the first portion* (A, upper arrow) *can be noted. The left anterior descending coronary artery (LAD) ends shortly* (A, lower arrow) *with some septal branches* (B, arrow).

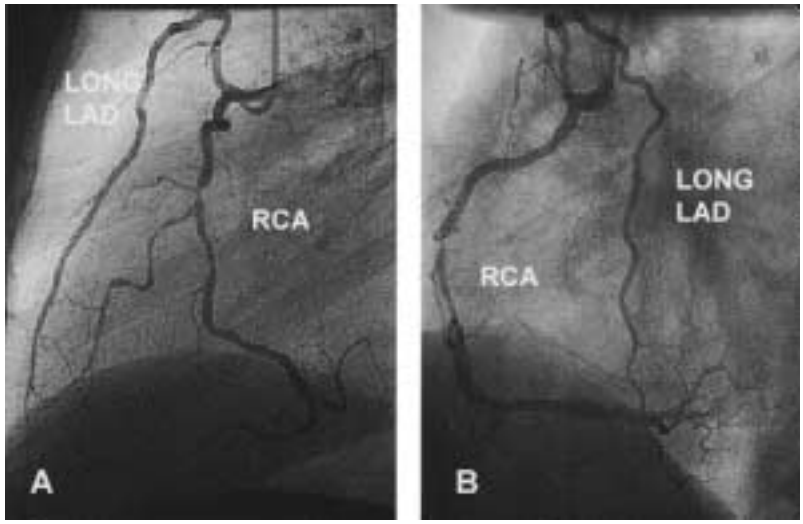

Figure 2. *Selective right coronary angiography: left anterior oblique* (A) *and right anterior oblique* (B) *projections. LAD = left anterior descending coronary artery; RCA = right coronary artery.*

distal septum and the apical segment of the left ventricle.

In this type of anomaly myocardial perfusion may be compromised by the diminished flow through the anomalous vessel by the flattening of its lumen from acute angulation at its origin. Nevertheless, in our patient the presence of the double LAD probably protected him against more severe symptoms and dangerous events, permitting a quite normal pattern of perfusion despite the severe stenosis of the short LAD. However the patient underwent successful three vessel myocardial revascularization.

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