

Collateral Circulation in Normal Coronary Arteries

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A 64-year-old woman referred with a 4-month history of intractable chest pain. Coronary angiography was performed and showed normal left coronary arteries. Posterior descending coronary artery was filled via distal left circumflex artery. The right coronary artery injection showed prompt filling of the distal circumflex through prominent collaterals. There was no evidence of proximal obstructive disease or spasm. We present a case in which a large collateral artery was seen in angiographically normal coronary arteries.

Introduction

The presence of collateral coronary circulation usually accounts for significant obstructive coronary artery disease. We present a case in which a large collateral artery was seen in angiographically normal coronary arteries. Our case supports the view that coronary collateral vessel may occur in the absence of obstructive lesions.

Case report

A 64-year-old woman with a 4-month history of intractable chest pain at rest and with exertion was referred for diagnostic coronary arteriography. She had not experienced consistent symptomatic relief, despite therapy with nitroglycerin, nitrate and metoprolol. The blood pressure was 110/80 mmHg and pulse rate, 65 beats per minute. The carotid and jugular pulses were normal. There were no abnormal heart sounds, clicks, murmurs, or rub. Peripheral pulses were intact. Routine laboratory

studies included normal findings for complete blood count, renal function tests, and electrolytes. The serum LDL cholesterol level was 125 mg/dl and fasting blood sugar value was 90 mg/dl. The resting electrocardiogram was normal, as was the chest roentgenogram. The echocardiogram was normal with no evidence of regional wall motion abnormality. A treadmill exercise test, using the Bruce protocol, was discontinued after four minutes with the patient complaining of shortness of breath. There was no fall in systolic blood pressure, arrhythmia or other evidence of ischemia. Myocardial scan after thallium injection during maximal exercise also showed no evidence of regional myocardial perfusion defect. Coronary angiography was performed using the Judkins technique. There was no pressure damping during engagement of either coronary ostium. During injection of the left coronary artery, posterior descending coronary artery (PDA) was filled via distal left circumflex artery (Fig. 1, 2). The right coronary artery injection showed prompt filling of the distal circumflex through prominent collaterals (Fig. 3). There was no evidence of proximal obstructive disease or spasm.

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Figure 1. Shows left coronary arteries in right anterior oblique projection. Posterior descending coronary artery was filled via distal left circumflex artery (arrow).

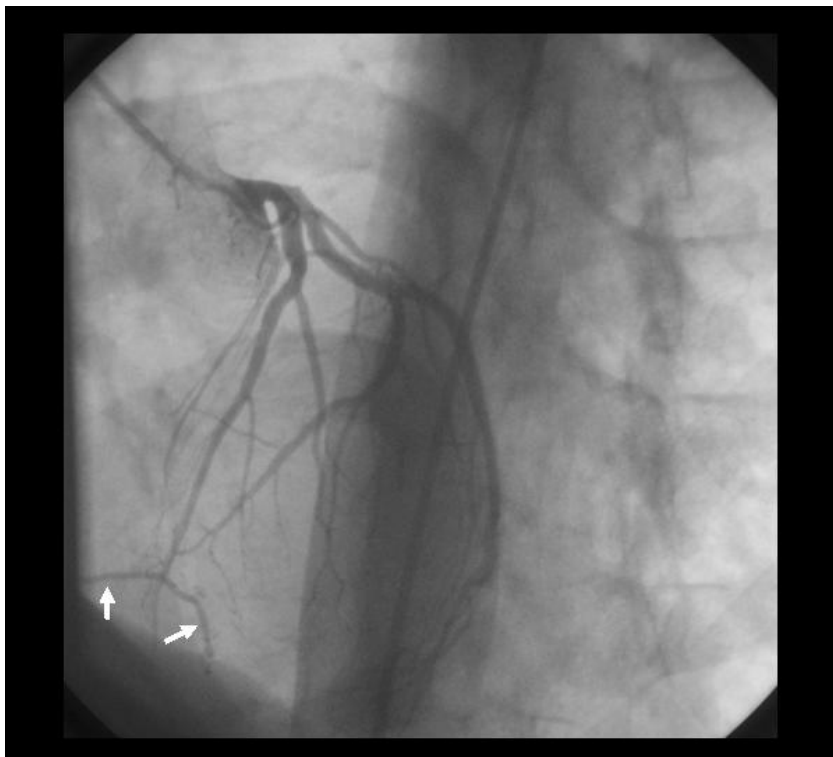


Figure 2. Shows left coronary arteries in left anterior oblique cranial projection. Posterior descending coronary artery was filled via distal left circumflex artery (arrow).

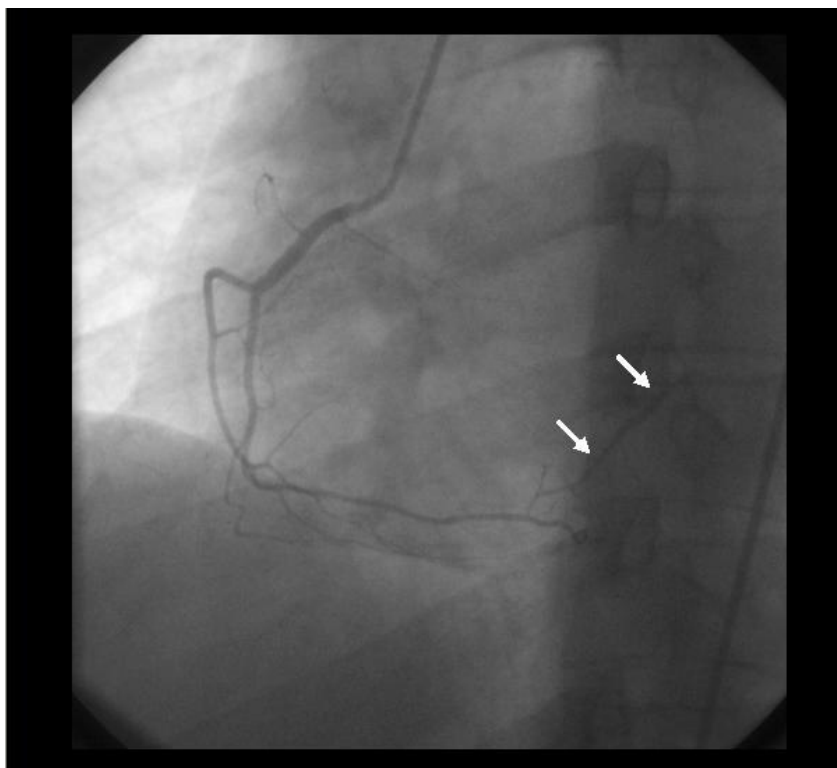


Figure 3. Shows right coronary artery in left anterior oblique projection. The right coronary artery injection showed prompt filling of the distal circumflex through prominent collateral (arrow).

Discussion

The presence of collateral coronary circulation usually accounts for significant obstructive coronary artery disease. We present a case in which a large collateral artery was seen in angiographically normal coronary arteries. Our case supports the view that coronary collateral vessel may occur in the absence of obstructive lesions. It is hypothesized that this vessel is congenital in origin.¹ There are only few

published reports regarding the presence of collateral coronary arteries in the absence of obstructive lesions.^{1,2}

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References

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