Images in cardiovascular medicine
Left main coronary artery aneurysm (congenital?)

Alessandra D'Eri, Matteo Cassin, Claudio Burelli, Fabio Zardo, Ermanno Dametto, Gian Luigi Nicolosi

Cardiology Department, ARC, S. Maria degli Angeli Hospital, Pordenone, Italy

(Ital Heart J 2005; 6 (5): 428-429)

Received November 22, 2004; revision received April 5, 2005; accepted April 7, 2005.

Address:

Dr. Matteo Cassin

U.O. di Cardiologia
A.O. S. Maria degli Angeli
Via Montereale, 24
33170 Pordenone
E-mail:
matteo.cassin@libero.it

A 28-year-old man presented to the emergency department with thoracic pain and dyspnea. Symptoms started 2 hours before, after slight physical activity. No risk factors, except a family history of coronary heart disease and hypercholesterolemia, were recorded.

The initial electrocardiogram documented ST-segment elevation in leads V_1 to V_6, highly suggestive of acute antero-lateral myocardial infarction. Echocardiography confirmed left ventricular antero-lateral akinesia.

The patient was treated with fibrinolytic therapy with regression of chest pain and incomplete reduction of ST-segment elevation at 60 min. After 1 hour he was then submitted to coronary arteriography (our strategy considers early coronary arteriography and eventually revascularization for high-risk myocardial infarction with incomplete reperfusion at non-invasive evaluation) that revealed a giant left main coronary artery aneurysm (length 3.51 cm; max width 1.51 cm at quantitative coronary angiography), with filling defects suggestive of thrombosis with subocclusion of an intermediate branch, occlusion of the left anterior descending coronary artery and collateral circulation from the normal right coronary artery to the left anterior descending coronary artery (Figs. 1 and 2). Intravascular ultrasound was not available at that time. Control coronary arteriography performed the next day showed occlusion also of the intermediate branch (Fig. 3). After discussion with the cardiac surgeon medical therapy with long-term oral

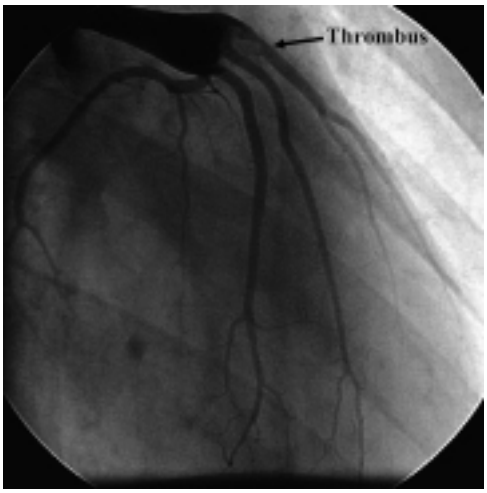

Figure 1. *Left coronary angiogram, caudal right anterior oblique view, showing aneurysm of the left main coronary artery with thrombosis.*

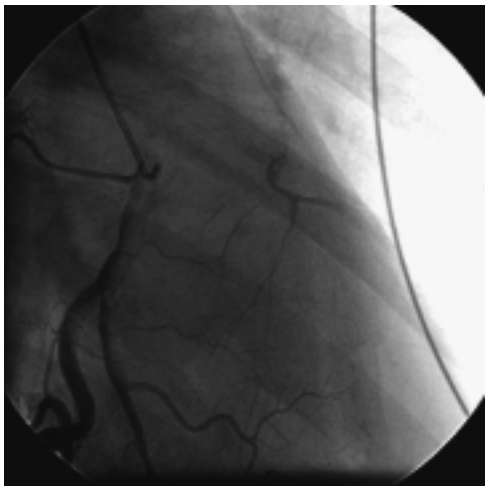

Figure 2. *Right coronary angiogram, right anterior oblique view, showing collateral circulation from the right coronary artery to the left anterior descending coronary artery.*

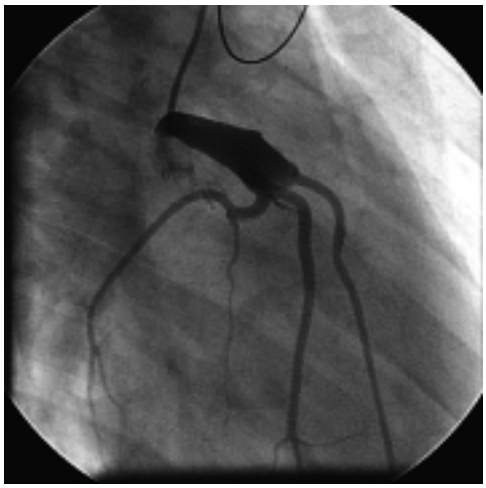

Figure 3. *Left coronary angiogram performed 24 hours after fibrinolytic therapy showing occlusion of the intermediate branch.*

Figure 4. *Six-month coronary angiogram showing complete reperfusion of the left anterior descending coronary artery and the intermediate branch.*

anticoagulation and antiaggregation therapy was instituted. The 6-month coronary angiographic follow-up showed complete reperfusion of the left anterior descending coronary artery and of the intermediate branch (Fig. 4).

Coronary artery aneurysms are rare findings in the adult population. The incidence ranges between 0.15 to 4.9%[1]. The most common location is the right coronary artery, while the left main coronary artery is the least likely location[2] (about 0.1% of the population). Atherosclerotic disease is often the primary etiology in the adult population, whereas congenital defects are reported in younger patients. Left main aneurysms may be asymptomatic or causing sudden death due to distal embolization: in the present case the initial symptom was in fact acute myocardial infarction. The optimal treatment for left main aneurysms is not established yet, due to the rarity and unpredictable natural history of this condition[3].

References

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