

## Case Reports

# Aneurysm of the left Coronary Artery stem

## Case report and literature review

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We describe a case of coronary artery aneurysm in a 40-year-old male patient. The patient presented with an anterior myocardial infarction, treated promptly with thrombolytic therapy. Coronary angiography revealed a prominent aneurysm of the left main coronary artery, without significant stenoses in the coronary arteries. This is a rare finding, which is best treated with a combination of anticoagulant and antiplatelet therapy. If such therapy fails, then surgical repair or implantation of a graft-stent is advocated.

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**C**oronary artery aneurysms are a relatively rare finding<sup>1,2</sup>. In Far East populations, the main cause of coronary artery aneurysms is Kawasaki syndrome<sup>3</sup>. On the contrary, in the western world, coronary artery atherosclerotic disease constitutes the main cause of this syndrome<sup>4</sup>. In their majority, such aneurysms affect the anterior descending or the right coronary artery<sup>4,5</sup>. This article describes a patient with an aneurysm of the left main coronary artery stem, without significant stenoses in the coronary arteries.

### Case description

A male patient, 40 years old, without previous history, presented with prolonged precordial pain following moderate exercise. He was transferred to another hospital, where acute anterior myocardial infarction was diagnosed and was treated with classic (aspirin, b-blockers, nitrates, heparin) and fibrinolytic treatment. His recovery was uncomplicated and he left the Intensive Care Unit 48 hours later. He was

released from the hospital 7 days later and the following treatment was prescribed: b-blocker, angiotensin converting enzyme inhibitor (ACE-inhibitor) and aspirin. The patient was a smoker (20 packs X years), presented dyslipidemia and had a positive family history of coronary disease.

After his release from the hospital, the patient had multiple chest pain episodes, without any clear angina characteristics. However, due to his young age, he was referred to a tertiary Health Centre. He was hospitalized as planned, 19 days following the myocardial infarction and underwent to coronary angiography. Significant aneurysm distention of the main stem of the left coronary artery was observed with a non-significant stenosis (20%) in the origin of the anterior descending, without any other stenoses of the coronary arteries (Figures 1 and 2). Left ventriculography showed hypo-motility of the anterior-apical part with a total ejection fraction of 50%. Blood coagulation examination was conducted, which showed no significant pathological findings, with the exception of increased fibrinogen levels (patient's levels 507.5 mg/dl, with normal values of 180 to 350 mg/dl).



**Figure 1.** Left anterior oblique view (with cranial angulation) of an aneurysm involving the main stem of the left coronary artery.



**Figure 2.** Right anterior oblique view of an aneurysm involving the main stem of the left coronary artery.

A course of conservative treatment was decided upon and it was recommended that the patient follow a pharmaceutical treatment consisting of b-blocker, ACE-inhibitor, aspirin as well as anti-coagulant treatment with acenocoumarol. After a two month follow-up, the patient remained asymptomatic. He underwent an exercise test according to the Bruce protocol, that lasted 10 minutes and was negative for myocardial ischemia. The echocardiograph did not indicate significant valvular disease. Hypomotility was observed in the anterior-apical part, while the overall ejection fraction of the left ventricle was 50%.

## Discussion

Coronary arteries aneurysms constitute a rare entity, reaching a percentage of 0.3 to 2%<sup>1,2</sup>. *Aneurysm* is defined as an increase of the diameter of the coronary vessel twice the diameter of the adjacent non-affected part of the vessel<sup>5</sup>. 1.5-2.0 fold increase of the diameter of the coronary vessel is defined as *ectasia* of the coronary vessel<sup>5</sup>. In a study of 3200 coronary angiographies, 22 patients were identified with coronary artery aneurysms (0.68%)<sup>6</sup>. Aneurysms were found at the stem (12%), the anterior descending (52%), the right coronary artery (20%) and the circumflex artery (16%)<sup>6</sup>.

Coronary artery aneurysms are caused by Kawasaki syndrome<sup>3</sup> or coronary artery atherosclerosis<sup>4,5,8</sup>, while a very rare cause is rheumatoid arthritis<sup>7</sup> and Osler-Weber-Rendu disease<sup>9</sup>. Coronary artery aneurysms related to coronary heart disease, without significant stenoses, are more rare and correspond to a per-

centage lower than 10% of aneurysms of this etiology<sup>6</sup>. Our patient belongs to this latter group.

Aneurysms are clinically manifested with acute myocardial infarction (as in the specific case report) accounting for 30-50% of cases<sup>5,7,8</sup>. The rest either cause myocardial ischemia or, more often, constitute an occasional finding in coronary angiography<sup>5,7</sup>.

Treatment of coronary artery aneurysms is mainly pharmaceutical. Although there is no unanimous approach in literature, this treatment consists of a combination of anticoagulants and anti-platelet agents. As was seen in a series of 25 patients, long-term administration of this combination seems to significantly reduce the possibility of a new myocardial infarction<sup>7</sup>.

If the pharmaceutical treatment fails, then a surgical approach is proposed or an intra-coronary stent implanted. The surgical approach involves the plastic correction of the coronary vessel aneurysm using part of a vein<sup>10</sup> or of an artery<sup>11</sup>.

Recently, we published a case treating a coronary artery aneurysm with the use of coronary stent following failure of the pharmaceutical treatment<sup>12</sup> and a similar paper also appeared from Greek authors<sup>13</sup>. It is based on a new type of coronary stent, consisting of a layer of flexible graft material that is covered by two prostheses. The medium term results of this stent are very good<sup>11,12</sup>, while a successful stem implantation has been recently announced<sup>14</sup>.

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