Case Report

Left main coronary artery aneurysm associated with anterior wall myocardial infarction

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Summary We report the unusual case of a 59-year-old patient who presented with ST elevation myocardial infarction associated with a left main coronary artery aneurysm. The patient was managed without intervention due to late presentation. At latter follow up, the patient did not agree with surgical intervention and remained asymptomatic on medical therapy after 2 years of follow up. Although no obvious cause for the aneurysm was found, a previous thoracic trauma was the most probable etiological cause.

Introduction

Left main coronary artery aneurysms are extremely rare [1]. Most coronary aneurysms involve the right coronary artery, followed by the left anterior descending artery, and the circumflex artery [2]. Among the most common causes are atherosclerosis, autoimmune diseases (Kawasaki, systemic lupus erythematosus, Takayasu, and others), dissection, and trauma. Although there is a potential for rupture and thrombosis, the most adequate management is still under strong debate, as most reports are anecdotal [3]. However, since most of the aneurysms are caused by atherosclerotic disease, the coexisting obstructive disease is an important factor for treatment decisions.

Case report

We report the case of a 59-year-old female who was first seen at an outside emergency department for typical chest pain and ST elevation on electrocardiography. Since she had presented with 18 h of pain the patient was treated conservatively. The patient’s discharge summary stated she was discharged with functional class II dyspnea. The patient was referred to our center two months later for invasive stratification.

On the first outpatient visit she was asymptomatic, using a beta-blocker, angiotensin-converting enzyme inhibitor, diuretic, aspirin, and a statin. She denied dystipidemia, diabetes, previous coronary artery disease, and family history of premature coronary artery disease. She was an ex-smoker

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Figure 1  Resting electrocardiogram showing anterior wall Q waves associated with T wave inversion on the same leads.

Figure 2  (A) Left anterior oblique (LAO) view from the left coronary artery showing the large left main aneurysm. (B) Cranial LAO highlighting the high grade lesion on the left anterior descending artery (arrow). (C) Left ventriculography showing the possible apical thrombus (arrow).
who had quitted right after the myocardial infarction. She reported an unspecified previous cardiopathy that was being treated with amiodarone and digoxin for the past 10 years, after an automobile accident with thoracic trauma, but was not under regular follow up and was unable to give further details regarding the accident. The blood pressure was 110 over 70 mmHg, heart rate 72 bpm, and the physical examination was otherwise normal. The electrocardiogram showed anterior wall Q waves associated with T wave inversion on the same wall (Fig. 1).

The patient was sent to invasive coronaryography which revealed a normal right coronary artery, a large left main aneurysm, and a significant proximal left anterior descending artery obstruction. The circumflex artery was normal. The ventriculography showed a negative image suggestive of apical thrombus (Fig. 2).

After the invasive angiogram, surgery was proposed. Nevertheless, the patient did not agree with the procedure and conservative treatment was chosen. The patient remains asymptomatic two years after the myocardial infarction.

Discussion

Coronary artery aneurysms are defined as dilated segments larger than 1.5 times the diameter of adjacent coronary arteries [4]. Left main aneurysms account for 20% of cases [5]. Although invasive coronary angiography remains the gold standard for aneurysm evaluation, most current cardiac computed tomography evaluation can adequately evaluate those aneurysms.

Although data are scarce, the prognosis is good. Spontaneous rupture is mostly associated with fistulas and patients with Kawasaki disease, and thromboembolic complications are unusual in patients receiving adequate antiplatelet therapy [6].

This patient presented with an extremely unusual presentation of a left main coronary artery aneurysm. Most of those cases remain without adequate definition of the etiology. Not only that, the clinical scenario is extremely variable, and the presentation of an acute myocardial infarction is extremely uncommon.

Although a weak temporal correlation, the most probable etiology for this patient’s aneurysm was the previous thoracic trauma. Although previous reports suggest the association of trauma and coronary artery disease, the sudden presentation of acute myocardial infarction on a previously asymptomatic coronary artery aneurysm has never been reported. In patients where no other probable etiology for the coronary disease exists, the previous thoracic trauma history, though rare, should always be investigated.

The relationship between the aneurysm and myocardial infarction cannot be completely established. However, the main differential diagnosis, atherosclerosis, is uncommon in patients without risk factors or other signs of atherosclerotic disease. Therefore, the aneurysm causing thrombus formation and distal embolization remains as the most probable cause for myocardial infarction.

References