

Left Ventricular Aneurysm with Normal Coronary Vessels and Cardiac Mesothelial Excrescences

N. EXADAKTILOS¹, A. MARSONIS¹, I. MOSCHOVITIS¹, D. GIANNOPOULOS⁴, I. GAVALIATIS³,
C. PAPADIMITRIOU¹, D. KAKKAVOS²

1st Cardiology Department, 1st Cardiosurgery Department, 2nd Hemodynamic Laboratory, 3rd Department of Pathology⁴, "Evangelismos" General Regional Hospital of Athens

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The case of a 70 year old woman, admitted to hospital after an episode of syncope and resuscitation at home, is described. Her medical history showed an old transient cerebral ischemic attack. Upon admission she was in cardiogenic shock and her ECG revealed myocardial infarction. The echocardiogram showed an expanded apical akinesis. There was also fluid effusion and a structure mimicking thrombus in pericardial area. With the aim for rescue PTCA an urgent cardiac catheterisation was performed. The coronary arteries had no lesions but the existence of an immense apical aneurysm was confirmed. As the patient was hemodynamically unstable she was operated on for aneurysm excision, without complications. During the operation there was an other finding floating in the pericardial cavity that was diagnosed as cardiac mesothelial excrescences.

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Correspondence:
Nikolaos Exadaktylos

45-47, Ipsilantou St.
1st Cardiology
Department
"Evangelismos"
General Regional
Hospital of Athens
Post Code 10676
Athens
e-mail:
andrikop@hotmail.com

Left ventricular aneurysms in patients with normal coronary vessels are rare. Both congenital as well as idiopathic aneurysms have been described. Even more rare is the presence of cardiac mesothelial excrescences, a benign non neoplastic lesion, that constitutes an occasional finding in cardiosurgical operations for valve replacement.

Description of case report

A 70 year old female was admitted to the Emergency Department of our Hospital after an episode of syncope, at home. The patient was resuscitated with chest compressions. The patient's family history was clear.

Her own medical history revealed a transient cerebral ischemic attack. No other significant disease was reported. Despite the detailed history taken, no history of thoracic pain, dyspnea or arrhythmia was reported.

During clinical examination, the patient presented with a condition of car-

diogenic shock (fall of arterial pressure, impalpable pulse, coldness, sweating, pale color and tendency to faint). The patient was supported with administration of fluids and dopamine, at an inotropic dose. With this treatment, she showed impressive clinical improvement after a short period.

In the objective evaluation her arterial pressure was 90/60 mm Hg (under dopamine), pulse 100/minute and she was not febrile. Heart auscultation presented low sounds without any additional sound or murmurs. Neck veins were dilated, while lungs auscultation did not reveal any rhonchi. The examination of the other systems did not present any pathological findings.

ECG at admission (Figure 1) presented sinus rhythm and a Q wave with ST elevation at leads II, III, aVF as well as V₁-V₅.

The echocardiogram that followed showed extensive akinesis – dyskinesis of the apex of the left ventricle. The motility in the basal parts was satisfactory. No significant valve abnormalities were

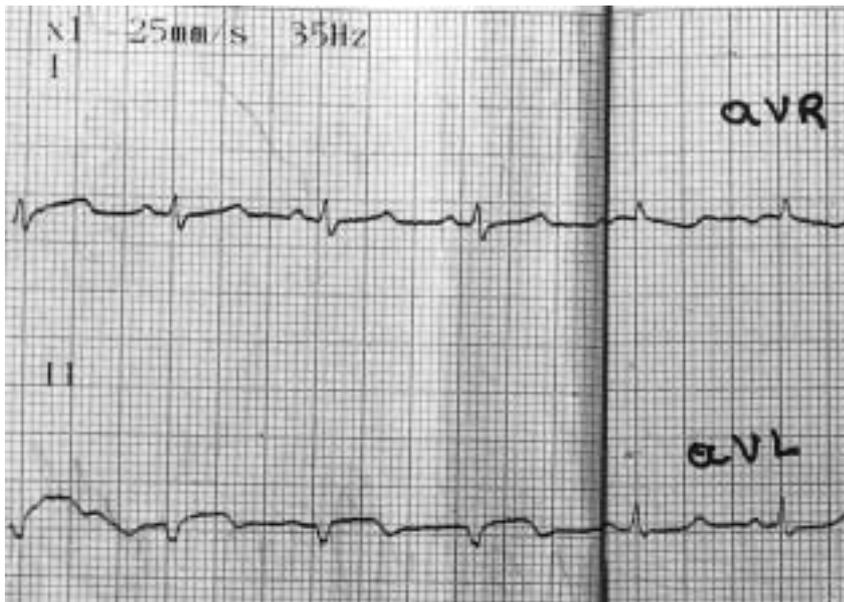


Figure 1. ECG on admission. There is a Q wave at the leads II, III, aVF and ST elevation at the leads II, III, aVF and V₁-V₅.

ascertained, while the interventricular septum seemed intact. Finally, a small to moderate pericardial effusion was observed without any signs of tamponade, as well as significant sound entity within the pericardial cavity that was attributed to thrombus (Figure 2).

Hematological and biochemical routine examinations performed at admission did not reveal any significant pathological findings.

Based on the above clinical, ECG and echocardiography findings, we considered that it was a case of cardiogenic shock due to acute myocardial infarction. The patient was urgently admitted to the Hemodynamics Laboratory to be submitted to coronary angiography and rescue angioplasty. However,

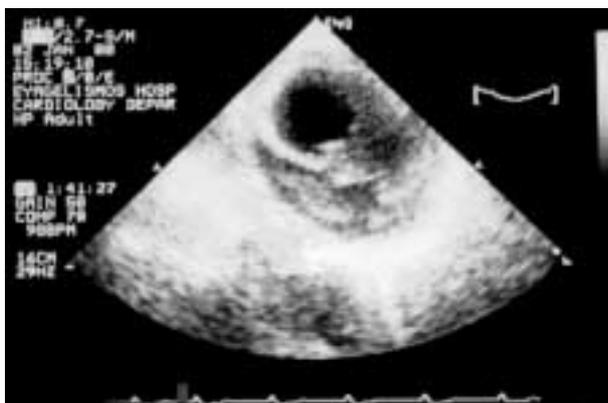


Figure 2. Echocardiogram at admission. A modified view, which shows a structure mimicking thrombi in the pericardial cavity.

coronary angiography revealed normal coronary vessels. The ventriculography, however, showed a left ventricle aneurysm (Figure 3a,b). Since the coronary angiograph was normal, the aneurysm was considered to be idiopathic.

The patient was admitted in our department. Due to her significant hemodynamic aggravation, owing to the left ventricle aneurysm, it was deemed necessary to operate on her a few days later.

Surgical findings: during the operation, following the opening of the pericardium, we found bloody pericardial fluid together with adhesions, particularly in the apical part and the inferior surface. Following lysis of adhesions, we verified an expanded aneurysm of the apex of the left ventricle with very thin walls. On the posterior (inferior) surface of the free wall of the left ventricle we observed a bi-lobar morpheme, originating from the ventricular wall with a stem, within which we could observe vessels (arteries – veins). The stem was approximately 4 cm long, the first morpheme had a diameter 1,5-2 cm and the second one a diameter of approximately 1 cm. The morphemes were compact, clearly circumscribed with capsule and at sites they presented sclerae (Figure 4a,b). We removed the aneurysm, in a circular shape, leaving part of scar tissue to close the ventriculotomy. We then restored the ventriculotomy. The post-operative course of the patient was uncomplicated and she returned home in a satisfactory general condition.

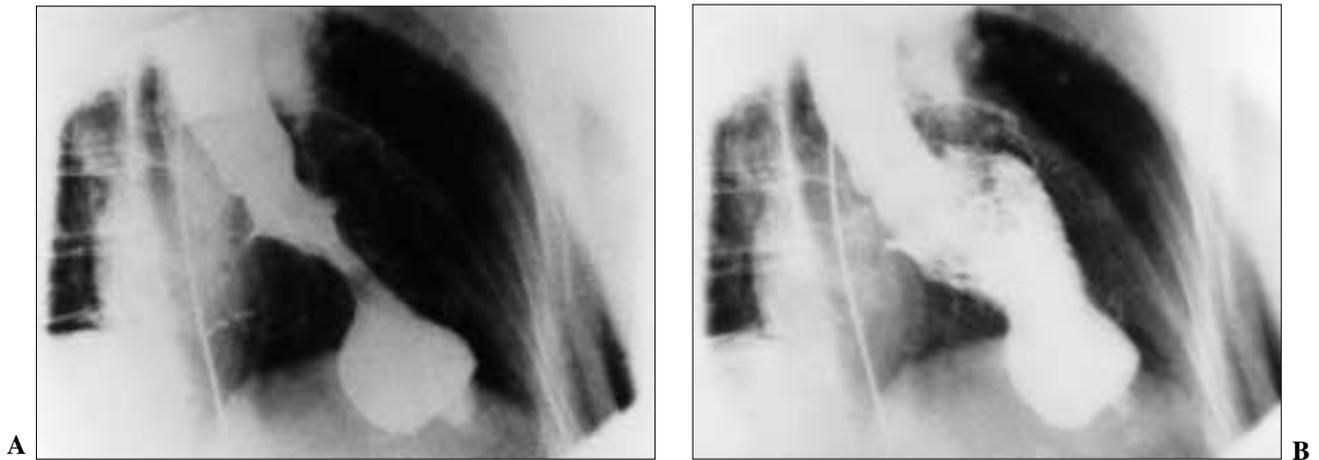


Figure 3. Left ventriculography at right anterior oblique view at 30°. End-systolic (a) and end-diastolic (b) frame. There is a large left ventricular aneurysm.

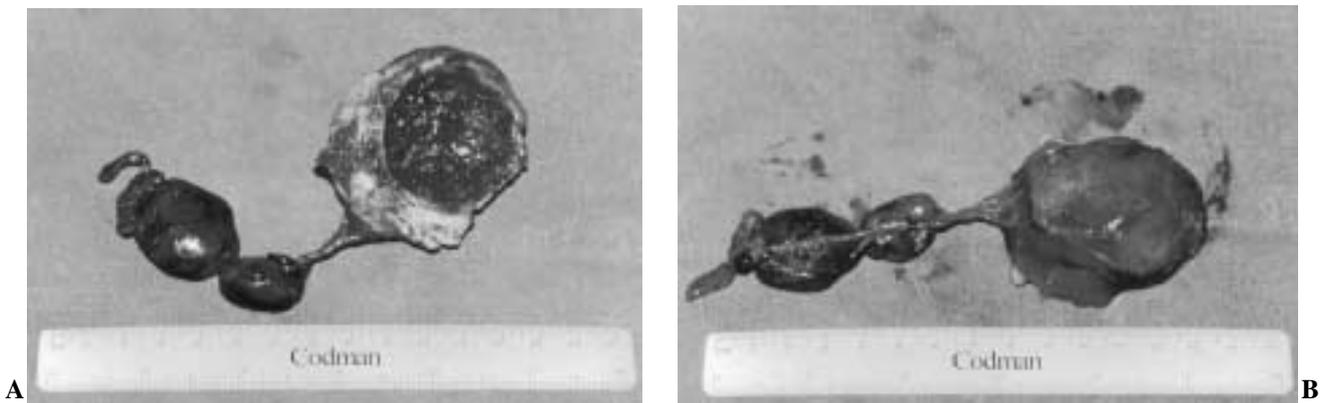


Figure 4a (interior aspect), **4b** (exterior aspect). Wall of left ventricle aneurysm 5×4×2 in dimensions and a dependent grape like structure 7,5 cm in length.

Histopathology examination had the following results:

- 1) Image compatible with a wall of a heart ventricle aneurysm, with the presence of abundant thrombotic material, intense fibrosis and locally striate muscle with numerous degenerative lesions. Also, inflammatory infiltration with the presence of siderophages and focally multinuclear giant cells (Figure 5).
- 2) Presence of micropapillary excrescences with an image of “sporadic cardiac mesothelial excrescences”^{1,2}. The immunohistochemistry showed CK8. 18 (+) and CK (-+) positive, EMA(+) positive for mesothelial cells, kq1(+) positive for mast cells, ACTIN (-) negative, desmine (+), CD 31 (-) (Figure 6).

The above mentioned cardiac mesothelial excrescences constitute a benign non neoplastic en-

tity, that presents similarities with mesothelial hyperplasia and an unclear pathogenesis.

Discussion

In daily clinical practice, the existence of a left ventricular aneurysm is almost always attributed to coronary heart disease. Idiopathic aneurysms as well as left ventricle diverticula are rare. Embryologically, they seem to appear to a high patency part of the myocardium. They are most commonly seen on the basis of the heart, under the mitral valve or the aorta. Congenital aneurysms of the apex of the left ventricle usually co-exist with congenital abnormalities of the pericardium, of the septum and of the midline of the abdominal wall.³

Left ventricle congenital aneurysms are usually diagnosed within the context of an investigation of

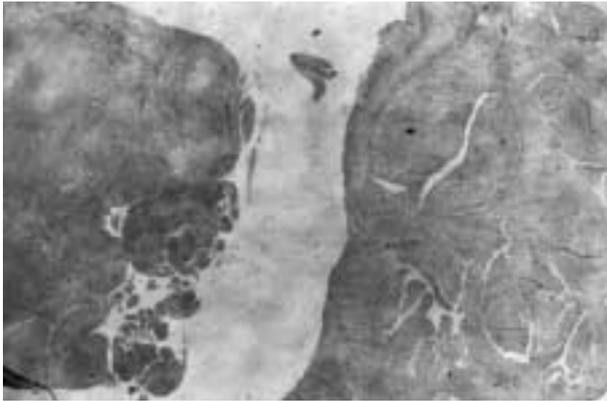


Figure 5. Micropapillary formations with large epithelioid cells on surface and inside the stroma, that may simulate a neoplasm.

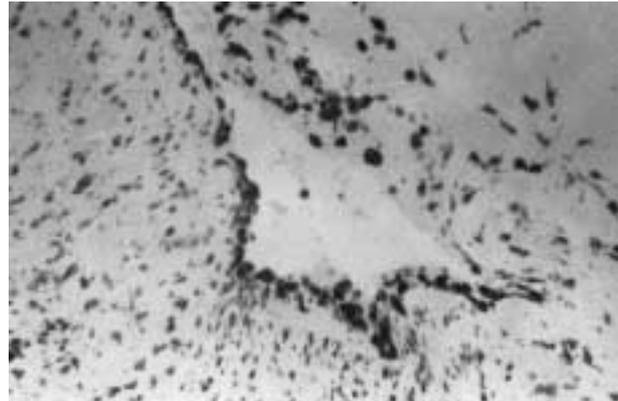


Figure 6. Cells covering the surface or slit like spaces of papillary structures are intensely stained with cytokeratin of low and high molecular weight, CK8, 18.

embolic episodes, ventricular arrhythmias, atypical thoracic pain or heart failure symptoms, or they constitute autopsy findings following sudden death which was caused by their rupture.^{3,4,5,6,7}

Chest X-ray and ECG do not reveal special findings. More specifically, in the chest X-rays a moderate increase of the cardiothoracic index is visible³, while in the ECG varying pathological findings are presented, such as left ventricle hypertrophy with or without strain, negative T waves in precordial leads, image of a pseudo-infarction or even ST elevation^{3,4,8}. In the case of our patient, many of the above findings and signs co-existed, such as history of transient cerebral ischemic attack, acute hemodynamic aggravation due to heavy dysfunction of the left ventricle, ECG image compatible with myocardial infarction. The described episode of syncope that could be attributed to arrhythmia that is often seen with such patients could not be explained, since the patient did not present any arrhythmic activity in the course of her hospitalization.

Diagnosis of idiopathic^{14,15} aneurysms is usually established with echocardiography and left ventriculography^{3,4,5,6,14,15} as was the case with our patient. It seems, however, that heart MRI is better from a diagnostic point of view³. In literature, spiral CT angiography is also described as a diagnostic method.⁹

Cardiac mesothelial excrescences are sporadic histopathological findings in cardiac surgical operations (usually valve replacement) or in myocardial biopsy. They may be found either attached to the endocardium or floating in the pericardial cavity or even within a dissecting aortic aneurysm. They constitute a benign non neoplastic lesion. They must be subject

to histopathological differential diagnosis from metastatic carcinomas¹⁰ or other neoplasias¹¹.

Finally, the indications^{3,4,12,13} for surgical treatment of a congenital aneurysm of the left ventricle that are reported in literature are as follows:

- 1) Increase of the aneurysm size
- 2) Formation of thrombi.
- 3) Hemodynamic aggravation of the patient.
- 4) Presence of a malignant ventricular arrhythmia (ventricular tachycardia, ventricular fibrillation).

The main reason our patient underwent surgery was the presence of a giant aneurysm that caused hemodynamic aggravation. The reported transient cerebral ischemic attack was probably due to thrombi within the aneurysm.

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