International Journal of Medical Science and Clinical Research Studies

ISSN(print): 2767-8326, ISSN(online): 2767-8342

Volume 03 Issue 11 November 2023

Page No: 2623-2626

DOI: https://doi.org/10.47191/ijmscrs/v3-i11-15, Impact Factor: 6.597

Ischemic Stroke Caused by Left Ventricular Cardiac Myxoma: Case Report

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ABSTRACT

Primary heart tumors are a rare entity among neoplasms, among them myxoma is the main lesion reported in more than 50% of cases. Myxomas are generally located in the left atrium, however they can be located in any cardiac chamber. Its diagnosis is usually incidental, after some complication, mainly thromboembolic. Transthoracic echocardiography is the first diagnostic method used, however, biopsy with immunohistochemistry is the gold standard.

KEYWORDS: Myxoma ; Cardiac; Embolism; Ischemic Stroke

ARTICLE DETAILS

Published On:
06 November 2023

Available on:
https://ijmscr.org/

INTRODUCTION

Primary tumors of the heart are characterized as a rare entity, representing 0.02% of neoplasms, with an estimated 65% benignity, according to reports of autopsy case series. Among them, the main lesion corresponds to myxomas with fifty percent, followed by rhabdomyoma with 20%. [1,2]

CLINICAL CASE PRESENTATION

Male patient, 35 years old, native and resident of Zacatecas, complete secondary schooling, construction worker. History of chronic tobacco use (14.7 packs/year) and frequent user of illicit drugs (cocaine, crystal meth and crack) for 15 years. He denies transfusions, allergies and chronic degenerative diseases.

His condition began in August 2022 due to the presence of oppressive and constant chest pain with irradiation to the left upper limb, VAS 7/10, which did not respond to rest, accompanied by dyspnea and profuse diaphoresis, as well as vomiting on two occasions and an episode of syncope at home, for which reason he was transferred to the hospital unit. On admission to the emergency department with a heart rate of 55 bpm, a 12-lead ECG was performed showing the presence of necrotic Q waves in the inferior face, as well as negative T wave elevation in V4-V6 with a biphasic T wave pattern in V1-V3. A second ECG was performed at 3 hours, which showed sinus rhythm, heart rate of 50 beats per minute, P waves preceding QRS, QRS 0.8msg of normal morphology, except in DII, DIII, aVF Q wave >25%, biphasic T waves, inverted T waves in V4-V6, symmetrical branches, so it was decided to manage the patient on an outpatient basis.

Fourteen days later, she was readmitted to the emergency room due to the presence of paresthesia and hemiparesis of the right hemibody and dysarthria. A simple cranial tomography was performed, showing an ischemic stroke, probably of cardioembolic origin, she received thrombolytic therapy and was admitted to the intensive care unit, where she improved neurological function within 24 hours, with no focalization data.

Physical examination showed normal tone and trophism in the 4 extremities. Strength 4/5 in the extremities of the right hemisphere, 5/5 in the extremities of the left hemisphere. Muscle stretch reflexes: 3/4 extremities globally. Preserved superficial and deep sensibility in right hemisphere (2/2 in C5, C6, C7, C8, T4, T10, T12, L1, L2, S1), 1/2 in dermatomes of left hemisphere.

Laboratory: Troponin I <40ng/l, CPK 103 U/l, CPK-MB 128 U/l, DHL 162 U/l (table 1).

Table 1. Laboratories at admission.	
Hemoglobin	18.3 g/dL
Hematocrit	50.8 %
VCM	85.7 fL
HCM	30.9 pg/cel
RDW	12.5%
Platelets	187miles/mm3
Leukocytes	14.5 thousands/ul
Neutrophils	13.67miles/ul
Lymphocytes	0.52 thousands/ul
Total protein	7.54 g/dL
Albumin	4.98 g/dL
Globulin	2.56 g/dL
Blood Glucose	130.8 mg/dL
Urea	39.3 mg/dL
BUN	18.36
Creatinine	1.3 mg/dL
Total cholesterol	186.6 mg/dL
Triglycerides	121.1 mg/dL
Alkaline Phosphatase	105 U/L
Phosphorus	3.5 mg/dL
Calcium	9.8 mg/dL
Potassium	4.1 mmol/L
Sodium	137 mmol/L
Magnesium	1.93 mg/dL
Chlorine	103.9 mmol/L
Troponin T	<40 ng/L
CPK	103 U/L
CPK-MB	15.6 U/L
Lactic dehydrogenase	228 U/L

Transthoracic echocardiogram: LV with normal mobility, there is a mass image in the left ventricle attached to the mobile IV septum of 15mm.

Transesophageal echocardiogram: LV of normal dimensions, preserved systolic-diastolic function, mass image is observed, ellipsoid morphology, mobile, with pedicle located in the apex (6.14mm) of dimensions; width 16.6mm length 52mm area 7.19cm2 volume 8.16ml, with characteristics suggesting myxoma. Minimal tricuspid insufficiency. Rest of normal characteristics (Figure 1).

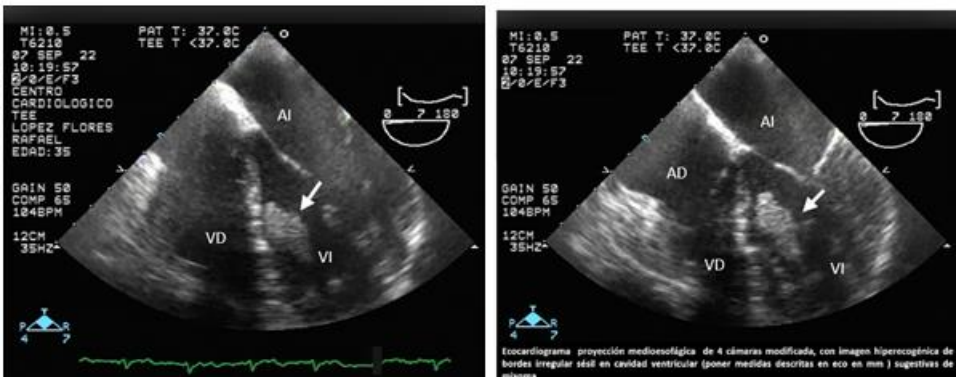

Figure 1. Transesophageal echocardiogram showing an adnexal mass in the left ventricle with pedicle located in the apex, compatible with myxoma.

Brain MRI: Observation of hypointense areas in T1, hyperintense in T2, FLAIR with diffusion restriction in the right cerebellar hemisphere, in the right hemicomponent of the medulla oblongata there is an oval image of 6x7mm of slightly hypointense component in T2 suggestive of cerebral hemorrhagic component. Image suggestive of infarction in the right hemicomponent of the medulla oblongata with probable central hemorrhagic component, areas of ischemia in the right cerebellar hemisphere.

The histopathological section with the presence of myxoid cells, surrounded by light blue tissue compatible with a myxomatous tumor. Figure 2.

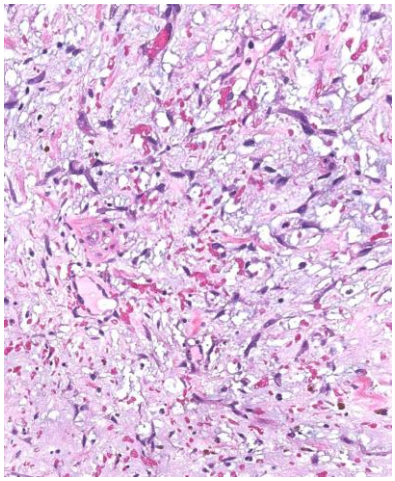

Figure 2. Histopathologic section. Myxoid cells, surrounded by light blue tissue.

DISCUSSION

Myxomas are usually single and sporadic, with a predilection for the left atrium (75%), followed by the right atrium (15-20%) and the ventricles (3-4%). [2,3] Its incidence is found mainly in middle-aged adults, between the fourth and sixth decade of life, with a predominance of the female sex. Generally its morphology is polypoid, with an approximate diameter between 5 to 6 centimeters and histologically, they are composed of spindle-shaped and polygonal stellate cells, with abundant eosinophilic cytoplasm and an indistinct oval nucleus with open chromatin, in addition, its cells create a ring structure infiltrated by macrophages and lymphocytes. By immunohistochemistry CD31, CD34 and CD45 antibodies, Factor VIII antigen, S-100 protein, calretinin, among others, have been detected. [3,5]

Approximately 10-33% of patients are asymptomatic when diagnosed.[4] In those who do manifest clinical signs, it is represented by the triad of cardiac obstruction, systemic embolization and constitutional symptoms. These manifestations will be determined by the size of the tumor, its location and macroscopic appearance, together with blood components such as platelet count, due to their close relationship with thromboembolic events. [1,3]

The most common symptom is valvular obstruction, finding a systolic murmur due to narrowing of the ventricular outflow tract or alterations in valvular closure. A significant percentage of patients have embolic events as the first manifestation, and depending on their location, they can cause neurological symptoms, such as a transient ischemic attack, stroke or even seizures, mainly in myxomas located in left chambers, or pulmonary thromboembolism and renal vessel involvement, if they are located in regions on the right side of the heart. [3,4,6]

There are multiple study methods for its detection, the most used is transthoracic echocardiography (TTE) due to its easy access and high sensitivity percentage (93 to 97%), however, transesophageal echocardiography can reach a sensitivity close to 100%, showing more accurately images of a smaller diameter, often not evidenced by TTE, its shape, motility and the point of attachment to the cardiac structures. [8,9] Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) are considered complementary examinations, complementing data for management and prognosis. However, the definitive diagnosis is biopsy with immunohistochemistry. [10,11]

Treatment is fully surgical, which should be performed early to reduce complications, mainly thrombotic. [9]

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