PERIPARTUM HEART FAILURE: AN ATRIAL MYXOMA CASE REPORT

Mejía D, Head of the Clinical Research Department, Hospital General de la Plaza de la Salud, Dominican Republic
Germán A, Clinical Research Assistant, Hospital General de la Plaza de la Salud, Dominican Republic
Henríquez P, Cardiovascular Intensive Care Unit Coordinator, Hospital General de la Plaza de la Salud, Dominican Republic
Columna MG, Head of the Cardiovascular Surgery Department, Hospital General de la Plaza de la Salud, Dominican Republic
Veras A, Cardiovascular Surgeon, Hospital General de la Plaza de la Salud, Dominican Republic
Díaz López JR, Clinical Research Department, Hospital General de la Plaza de la Salud, Dominican Republic

Corresponding author: Germán A, Clinical Research Assistant, Hospital General de la Plaza de la Salud, Dominican Republic; Tel: +1 18093301712; E-mail: germandihmes.a@gmail.com


Copyright: © 2019 Mejía, D., et al. This is an open-access article distributed under the terms of the creative commons attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Received Date: 24 October 2019; Accepted Date: 19 November 2019; Published Date: 24 November 2019.

ABSTRACT

Cardiac tumors are a rare pathology with an approximate incidence of 0.02% in the general population. Most of these tumors are benign, and the atrial myxoma is the most common type in adults with a predominantly endocavitary location. We present the case of a 24-year-old woman with a three-year history of worsening postpartum lower extremities edema treated conservatively, who recently developed exertional dyspnea and nonproductive cough.
**CASE PRESENTATION**

A female patient of 24 years of age presents to the Emergency Department of the Hospital General de la Plaza de la Salud due to exertional dyspnea, orthopnea, generalized edema, ascites and tachycardia. The patient has no known comorbidities, except for a three-year history of lower extremities edema that started with her last pregnancy and has been managed conservatively at a local hospital. Current symptoms began 15 days ago with progressive worsening until current presentation is reached. Medications consist only of oral contraceptives since her last pregnancy.

**PHYSICAL EXAMINATION**

At arrival at the hospital, the patient was alert, oriented and dyspneic with a blood pressure of 91/54 mmHg, heart rate of 123 beats per minute and a respiratory rate of 24 respirations per minute. Bibasilar crackles and a 3/6 ejection murmur were heard during auscultation. Lower extremities showed a 3+ pitting edema. Patient referred abdominal pain when right hypochondrium was palpated. The rest of the physical examination remained unremarkable. The patient was transferred to the Intensive Care Unit with the diagnosis of heart failure and probable dilated cardiomyopathy.

**DIAGNOSTIC PROCEDURES**

Electrocardiogram tracing evidenced sinus tachycardia. Chest x-ray showed marked bilateral pulmonary congestion. Among the laboratory tests performed, pertinent positives included troponin I of 0.93 ug/L (normal: 0-0.01 ug/L), D-dimer greater than 4.0 µg/mL, prothrombin time of 20.1 seconds, AST of 540 U/L and ALT of 709 U/L. Laboratory assessments also showed evidence of respiratory alkalosis (pH = 7.47, HCO3 = 20.2 mmol/L, PCO2 = 28.2 mmHg). Abdominal ultrasound showed evidence of hepatomegaly, mild right pleural effusion, and ascites. Moreover, lower extremities venous Doppler ultrasound revealed discrete bilateral edema of soft tissue of systemic origin, without evidence of thrombosis. Transthoracic echocardiogram showed images of a left atrial endocavitary tumor that caused a mechanical obstruction of the mitral valve (Figure 1). Moderate dilation of left atrium and right cavities was observed, along with severe tricuspid insufficiency, moderate

---

*Exacerbation of exertional dyspnea, and appearance of orthopnea, generalized edema, ascites and tachycardia brought her to the Emergency Department. A transthoracic echocardiogram and subsequent emergency surgery confirm the diagnosis of left atrial myxoma. After a complicated postoperative period, the patient makes full recovery. Even though edema during and after pregnancy is a common finding, expected physiological adaptations during this period can mask underlying causes. For this reason, persistent edema should invite for a full evaluation of possible etiologies that would assure a timely diagnosis and prevent the need for emergent surgeries and management.

**Keywords:** Atrial myxoma, Cardiac tumor, Tricuspid insufficiency, Postpartum edema, Heart failure.*
pulmonary hypertension and mild pericardial effusion. Patient had an ejection fraction of 57%.

**FIGURE 1**
SCREEN CAPTURES OF TRANSTHORACIC ECHOCARDIOGRAM.

**MANAGEMENT**

The patient was initially stabilized with furosemide, clopidogrel, and aspirin until diagnosis and treatment plan was finalized. After evaluation by the Cardiovascular Surgery Department, and due to the hemodynamic decompensation she was experiencing, the patient underwent emergency surgery within the first 24 hours of diagnosis. A left atrium intracavitary tumor resection was performed, collecting a specimen of approximately 7 x 8 cm (Figure 2). The patient also underwent tricuspid valvuloplasty. Histologic evaluation of specimen confirmed diagnosis of cardiac myxoma (Figure 3).

**FIGURE 2**
GROSS IMAGE OF LEFT ATRIAL MYXOMA.

**FIGURE 3**
HISTOLOGIC IMAGE OF ATRIAL MYXOMA.
EVOLUTION

The lower extremities edema present during the three years prior to the patient’s surgery had significantly improved from 3+ to 1+ by the fourth postsurgical day, and completely resolved by day 8. On the other hand, pulmonary opacities on chest X-ray progressively worsened until hemopneumothorax was diagnosed and treated with chest tube placement. Three days later, complete re-expansion of lung was achieved and chest tube was removed. Patient was discharged due to significant clinical improvement but returned to the Emergency Department the following day due to dyspnea and nonproductive cough. Positive findings during physical examination consisted crackles and decreased breath sounds in both pulmonary fields during auscultation. Chest x-ray revealed a left alveolar infiltrate, and laboratory assessments showed leukocytosis. Patient was readmitted with diagnosis of hospital-acquired pneumonia and started on ceftriaxone. Two days later the patient was discharged due to significant clinical and radiologic improvement.

Three weeks after surgery the patient returned for a follow-up visit; liver function tests had normalized and the ejection murmur heard during initial admission was no longer present. Control transthoracic echocardiogram showed significant improvement with and increase of ejection fraction from 57% preoperatively to 59%. Subsequent echocardiogram four months after surgery reported an ejection fraction of 65% and left atrial size reduction from 5.07 cm to 3.3 cm. Mild tricuspid insufficiency in prosthetic valve was perceived.

DISCUSSION

Primary cardiac tumors are a rare pathology, with an approximate incidence of 0.02% in the general population. The current case report conveys the picture of a patient presenting with a left atrial myxoma that matches the most common morphology and histology of cardiac tumors: a benign, solitary, pedunculated, endocavitary left atrial myxoma ((McAllister & Fenoglio, 1978; Larsson et al., 1989). Similarly, the female sex of the patient matches that of the most common sex presenting with this type of pathology (Zheng et al., 2013). The age of the patient does not correlate with the typical middle-aged patient presentation, but previous studies report a difference in mean age of sporadic and familial cases (56 and 25 years respectively) (Sharma, 2019), raising the suspicion of a possible familial etiology in this case.

Pathology was diagnosed and managed according to the current standards of care; however, the diagnosis was achieved unnecessarily late, when the treatment entailed emergency surgery. Emergency surgeries are associated with increased risk of mortality, morbidity, hospital readmission and unplanned reoperation (Mullen et al., 2017), possibly playing a role in the associated morbidity, unplanned reoperation and hospital readmission seen in this patient. Moreover, disease progression led to the development of valve damage, which had to be managed with tricuspid valvuloplasty. In spite of treatment, residual valve insufficiency persisted four months postoperatively.

Chronic bilateral leg edema can be associated with numerous conditions such as chronic venous disease, heart failure, pulmonary hypertension, renal disease, liver disease, among others. Patients without additional indicators of systemic disease should undergo further workup to pinpoint the etiology of the edema. Evaluations include laboratory renal, liver and thyroid function tests, as well as echocardiogram.
Pregnancy is associated with a constellation of physiologic adaptations that include vasodilation, increased blood volume and increased heart rate, all of which contribute to the physiologic edema observed during pregnancy. The persistence of edema after the postpartum period in the discussed patient suggests a non-physiological etiology that should be investigated. The same maternal adaptations to pregnancy that account for peripheral edema cause precipitation or exacerbation of conditions associated with heart failure. These conditions are not limited to rare pathologies, such as the atrial myxoma, but also other conditions such as ischemic heart disease, peripartum cardiomyopathy, dilated cardiomyopathy, autoimmune disorders, etc. Due to the similar initial presentation that these pathologies can have and the radical importance of achieving an accurate and prompt diagnosis and treatment plan, the timely indication of an echocardiogram becomes central.

In a study performed in 1998, only 18% of patients presenting with bilateral leg edema were initially diagnosed with congestive heart failure on the basis of the primary care providers’ clinical impression. After further evaluation (echocardiograms, venous duplex ultrasound leg scans, and renal function tests), 33% of the patients had a heart condition as a cause of their leg edema (Blankfield et al., 1998). Even though the study was done in different contextual background regarding knowledge and technology compared to actuality, the methods for initial diagnosis used in this study (clinical impression of primary care physician) are comparable to those that might be expected at a local community hospital with limited resources. This could lead to a similar rate of misdiagnosis as the one described in the study if no further diagnostic evaluations are performed.

CONCLUSION

The discussed case report offers insight into the importance of accurately diagnosing conditions that may debut during pregnancy. Often times, these pathologies are associated to the development of heart failure and are therefore precipitated and/or masked by maternal adaptations to pregnancy such as increased plasma volume. Diagnosis based solely on clinical impression can contribute to underdiagnosis due to overlapping presentation with physiologic changes. In the present case, incorrect diagnosis led to years of conservative management ultimately leading to heart damage and an emergency intervention associated with increased complications. Prompt indication of an echocardiogram should be considered in all patients with dyspnea and/or persistent bilateral leg edema of unknown etiology, especially if the symptoms present during pregnancy and persist after the postpartum period. Permission was taken from the child’s guardians to use his photos.

REFERENCES

emergency surgery: implications for defining “quality” and reporting outcomes for urgent surgery. *JAMA surgery*, 152(8), 768-774.