CASE REPORT

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Cardiac myxoma misdiagnose as infective endocarditis in a patient with acute limb ischemia and cardioembolic cerebral stroke: a case report

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ABSTRACT

Introduction: Fever, systemic embolism, and intra-cardiac masses are all symptoms of Infective Endocarditis (IE) and Cardiac Myxoma (CM)[1]. As a result, despite proper imaging studies, these diseases are frequently misdiagnosed one for the other.
Case description: A 23-years-old female patient was admitted to emergency department of Zainoel Abidin General Hospital with acute onset right lower extremity pain for the last few hours and presented roth spots of the retina. The next day after admission, she presented fever. The patient denied having chronic disease, drug abuse, and thrombotic history. Tooth decay were found. Transthoracic Echocardiography (TTE) were obtained due to concern of infective endocarditis. Head CT-scan revealed cardioembolic cerebral stroke. TTE showed ejection fraction 56%, severe mitral regurgitation, and a mobile mass size 3.1x2.4 cm in mitral valve, attached to anterior mitral leaflet. The patient underwent thrombectomy, stroke therapy, dental tooth decay treatment, and lower limb rehabilitation at that moment, before having Mitral Valve Replacement (MVR) surgery. Six months afterward MVR surgery was done, rather than vegetation, we found a 50cc cardiac myxoma in anterior mitral valve leaflet. A 27mm bioprosthetic valve was installed. The patient was recovered quickly and she was able to discharge from hospital in the next 7 days after procedure without any further issue.
Conclusion: In order to effectively manage the patients, it is crucial to distinguish between IE and cardiac myxoma. The mainstay of treatment for cardiac myxoma cases is surgery, which has an excellent prognosis. To evaluate for recurrence, long-term follow-up is frequently required.

Keywords: Infective endocarditis, cardiac myxoma, mitral valve replacement.
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INTRODUCTION

A cardiac myxoma presenting as infective endocarditis is a rare case, with only a few cases reported in the literature.[1,2] A cardiac myxoma (CM) is defined by the World Health Organization as a neoplasm composed of stellate to plump, cytologically bland mesenchymal cells embedded in a myxoid stroma.[2] Fever, systemic embolism, and intra-cardiac masses are all symptoms of Infective Endocarditis (IE) and Cardiac Myxoma (CM). As a result, despite proper imaging studies, these diseases are frequently misdiagnosed one for the other.[2]

Their tumoral histogenesis is unknown. Meanwhile, ultrastructure analysis, combined with immunohistochemistry, suggests that CM is more likely derived from a pluripotent mesenchymal stem cell or a sub-endothelial cell.[3,4] The left atrium is the most common location, with right atrial involvement being uncommon. Mechanical complications such as valvular obstruction can occur, and embolisation has been reported in 30%-50% of patients.[5,6]

The preferred imaging modality for the diagnosis of CMs is transthoracic and transesophageal echocardiography, although the latter also provides precise information for the scheduling of surgery. CMs are occasionally misdiagnosed as a result of the rarity and general practitioners' lack of familiarity with this entity.[4]

CM are benign tumors that usually appear as an undifferentiated atrial mass and were created from multipotent mesenchyme. One of the closest differential diagnoses for myxomas is infective endocarditis. Similar systemic and local manifestations could make it difficult for doctors to diagnose, at least in the beginning. But almost 20% of patients have no symptoms.[7-9]

It can be challenging to distinguish myxoma and endocarditis clinically. The final diagnosis might not be revealed by a medical history and physical examination alone. Lack of specific clinical symptoms can result in delayed or inaccurate diagnoses as well as increased complications. Additionally, results from lab and microbiological tests don't always assist in diagnosis and sometimes can

even be deceiving. Therefore, a pathologic examination of the removed tumor is required for a certain diagnosis of myxoma.[9]

CASE DESCRIPTION

A 23-year-old female patient admitted to emergency unit of Zainoel Abidin General Hospital with acute onset right lower extremity pain for the last few hours and presented roth spots of the retina. The next day after admission, she presented fever. The patient denied having chronic disease, drug abuse, and thrombotic history. She had no significant medical or surgical history. Dentition was found severe tooth decay. Family history was unremarkable.

CT-scan and Transthoracic Echocardiography (TTE) were obtained due to concern of infective endocarditis. CT-scan revealed cardioembolic cerebral stroke. The patient was transferred to a cardiothoracic centre for surgical intervention. TTE showed ejection fraction 56%, severe mitral regurgitation, and a mobile mass size 3.1x2.4 cm in mitral valve, attached to anterior mitral leaflet. On her first admission to the hospital, she underwent surgical thrombectomy for her limb ischemia, stroke therapy from the neurologist, dental tooth decay treatment, and lower limb rehabilitation, before having Mitral Valve Replacement (MVR) surgery. Six months afterwards, the patient was scheduled for MVR surgery, using bicaval cannulation and antegrade cardioplegia, the patient was cooling until 32°C. Intra operative finding was surprisingly, rather than vegetation, we found a cardiac 50cc myxoma in anterior mitral leaflet. We resect all the anterior mitral valce leaflets and preserved the posterior leaflets. A 27 mm Dafodil bioprosthetic valve was inserted to the mitral position.

After procedure, the specimen was sent to histopathological lab and confirmed as myxoma. She had a successful operation and recovered quickly. She was able to discharge from hospital in the next 7 days after procedure.

DISCUSSION

The most prevalent primary cardiac tumor in adults are cardiac myxomas

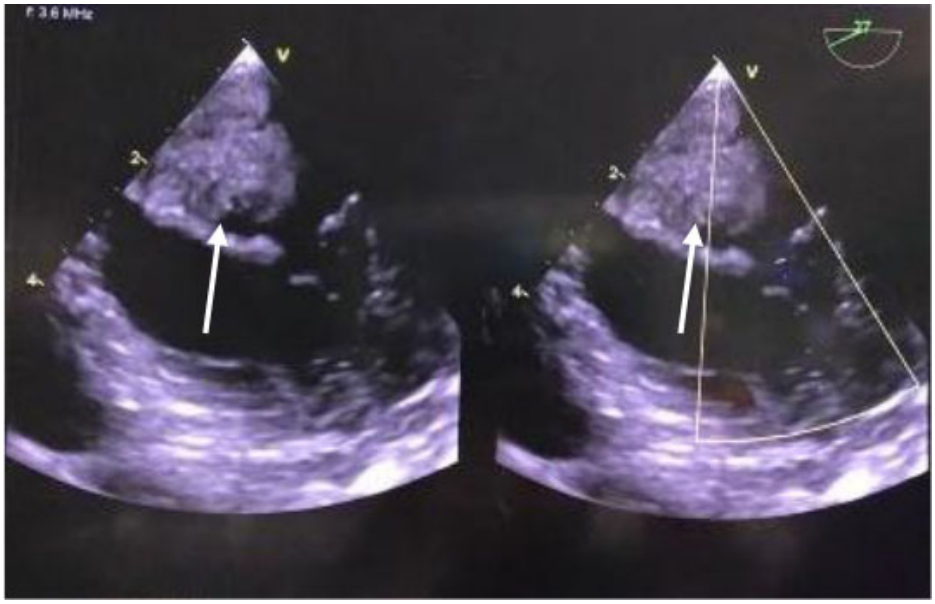

Figure 1. Trans Esophageal Echocardiography (TEE) show large vegetation on the mitral valve (white arrow).

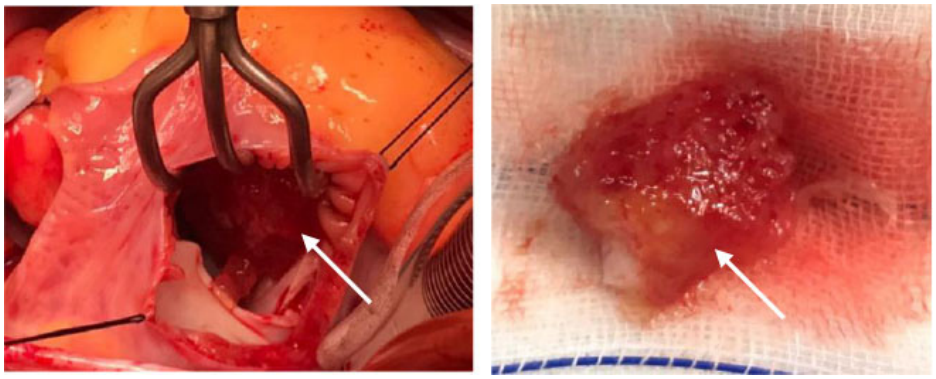

Figure 2. Intraoperative finding shows a 50 cc myxoma (+) in anterior mitral leaflet (white arrows).

(CM).[8] To distinguish between myxoma and infective endocarditis, two helpful diagnostic tools are echocardiography and imaging techniques. Vegetation (less than 3 cm) and smaller masses that are attached to the valves rather than the myocardium are typical echocardiographic signs of endocarditis.[9]

The first imaging preferred method is the echocardiogram, but it has limitations and may miss CM that are in unusual places. Clinical, imaging, and histopathology features can frequently be used to make the diagnosis of CM. A macroscopic and histopathological evaluation, including the presence of endothelial cell markers like CD31 and CD34, are necessary for a definitive diagnosis.[8]

CMs are mostly pedunculated and solitary, and arise primarily adjacent to the lamina of the fossa ovalis (corresponding to the embryonic septum primum) and develop in the left atrium in 75% of cases, followed by the right atrium (18%), the right and left ventricles (3% in each), and the valves (1%).Multiple myxomas represent 5% of the cases, half of which are of bilateral origin. Clinical manifestations of CMs are protean and may vary from asymptomatic cases (with a tumor < 4 cm) to unexpected sudden death (generally caused by blood flow obstruction or embolization). In most cases, the clinical presentation will depend on the tumor size, mobility, and location. One or more symptoms of the following triad will usually be present: (1) embolic phenomena (present in 30-40% of cases and usually associated with a villous surface of the tumour); (2) intracardiac flow obstruction

(present in almost 50% of cases); and (3) constitutional symptoms (present in 20-60% of cases). The diagnosis of a CM is mostly done with echocardiography, both transthoracic and transesophageal, which represent the imaging modality of choice, although the latter permits precise information for the scheduling of surgery. Due to the rarity and consequent unfamiliarity of most general practitioners with this entity, CMs are sometimes misdiagnosed. Differential diagnosis should include intracardiac thrombus and other cardiac tumors.[10]

Myxoma is less common than infective endocarditis.[6] Correspondingly, we misdiagnosed myxoma as infective endocarditis due to the presence of other deceptive factors like chronic fever, vegetation-like masses, and elevated laboratory inflammatory factors. As demonstrated in our case report, nonspecific myxoma symptoms can cause delayed detection, misdiagnosis, and significant management and treatment challenges.

We discovered a large cardiac myxoma attached to the anterior mitral valve that had been empirically diagnosed as infective endocarditis at first. Unusually, the myxoma was discovered to have focal areas of necrosis and superimposed infection upon excision, leading to the initial presentation mimicking infective endocarditis.[6]

CM and IE should be suspected if a patient with systemic embolism does have a cardiac mass.[3] When operating on infective lesions, a portion of the specimen should be sent to histopathology in order to make a differential diagnosis.[2] Even though infected CM is rare, it must be considered in order to differentiate IE if bacteremia were found.[5]

Most patients who receive definitive surgical resection experience successful outcomes, with success rates exceeding 90% and disease-free survival rates exceeding 80%.[6] Although there are no firm recommendations, yearly surveillance echocardiography is a sensible approach because early diagnosis and intervention lower the risk of complications.[6] Despite the rarity of tumor recurrence, it is still recommended that these patients be evaluated regularly.[9]

CONCLUSION

According to this study, a precise and comprehensive clinical history, laboratory tests, and imaging technique are necessary for the diagnosis of cardiac myxoma. It can help to avoid the misdiagnosis of other diseases with comparable symptoms and signs as infective endocarditis.

CONFLICT OF INTEREST

All author declares there is no conflict of interest regarding publication of current report.

ETHICAL CONSIDERATION

The patient had received signed written informed consent regarding publication of current report in medical journal with confidentiality regarding personal information.

AUTHOR CONTRIBUTION

All authors had contributed to manuscript writing and agreed for the final version of publication.

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