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Large mitral valve vegetation in a 59 year old patient that was thought to be atrial myxoma: A case report

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ABSTRACT

The detection of masses is prevalent in heart diagnostic techniques including echocardiography and cardiac imaging. The most frequent masses are tumor, vegetation and thrombus, which are easily confused with each other because the characteristics of the mass can vary depending on regional location, mass morphology and clinical syndrome. Surgical and histopathological interventions are required for a conclusive diagnosis. Infectious endocarditis (IE) is a bacterial infection of the endocardium that can affect a heart valve or an implanted cardiac device. It is linked to vegetation that can be found on heart valves or any implant devices, as was the case in our patient and it can spread through the vegetation of various sizes.

Keywords: Infective endocarditis, Vegetation, atrial myxoma, Mitral valve.

1. BACKGROUND AND RATIONAL

Masses are a common finding in cardiac diagnostic modalities that include echocardiography and cardiac imaging. Since the characteristics of the mass could vary depending on regional location, mass morphology and clinical syndrome, surgical and histopathological interventions are required for the definitive diagnosis. These extra intracardiac structures namely in order of least to most common: Tumors, vegetation and thrombus are easily confused and prompt a pathological intervention to guide the clinician to the definitive diagnosis and individualized management plan (Adam et al., 2016). Infective endocarditis (IE) is a bacterial infection of the endocardium that can invade the heart valve or an indwelling cardiac device (Cahill & Prendergast, 2016). Some heart conditions could participate in developing IE such as heart valve disease, Intravenous drug use and previous heart valve surgery (Strom et al., 2000). IE is usually associated with vegetation that has variable sizes. According to a study the vegetation size was classified into small (>5mm), medium (5-9mm) and large (>=10) (Okonta & Adamu, 2012).

2. CASE PRESENTATION

59 years old male known to have hypertension and diabetes mellitus presented to the Emergency Department (ED) by Emergency Medical Services (EMS) with acute lateral STEMI that suddenly exacerbate into cardiac arrest for which he was resuscitated and recovered after 10 minutes of CPR. The patient was shifted to the Cath lab and underwent primary PCI with two drug eluting stents to the left anterior descending artery (LAD). After that the patient was admitted again for vague chest pain, the examination was normal and vital signs were: BP: 159/98, HR: 75, RR: 20, Temp: 37.3, SaO2: 98%. ECG was done which revel left axis deviation (Figure 1**),** Echocardiography **(**Figure 2**)** was done after PCI and refiled the Mitral valve with large (2.6 x 1.2 cm) and a highly mobile homogeneous mass attached to posterior leaflet and mildly thickened AML. There is mild MR and no MS. The mass that was found in the echo was thought to be an atrial myxoma. Cardiac enzymes: CKMB: 1.5, CK: 504, Troponin-T High Sensitivity: 1.980. Coagulation profile: APTT: 64, PT: 11.8, INR: 1.05. CBC was normal except for RCC: 4.43, Hb: 12.0, HCT: 35.8. hs-CRP: 78.61. LFT was normal except for GGT: 63 and LDH: 471. RFT was normal except BUN: 22.18, Na serum: 133, Cl serum: 97.70, Creatinine serum: 1.32, Cystatin C: 1.12. After that, the patient was referred to our hospital for surgical interference to remove the mass. On surgery, a friable mass was identified and highly suspicious for endo carditis vegetation. Removal of the mass was carried out and samples were sent for histopathology exam and cultures and mitral valve repair was done. The culture was negative, but it was positive in the previous hospital and he was given IV antibiotics. Histopathology lab showed that the mas was fibrin fragments covered by the endothelial lining.

After the surgery patient was referred to ICU and then discharged in stable condition with the following medications: ASA 100 mg od, Clopidogrel 75 mg od, Rosuvastatin 20 mg od, Bisoprolol 5 mg od, Janumet 50/1000 mg bid, Pantoprazole 40 mg od, Antibiotics (Teicoplanin 1100 mg q48h, ceftriaxone 2 G od, Anidulafungin 100 mg od).

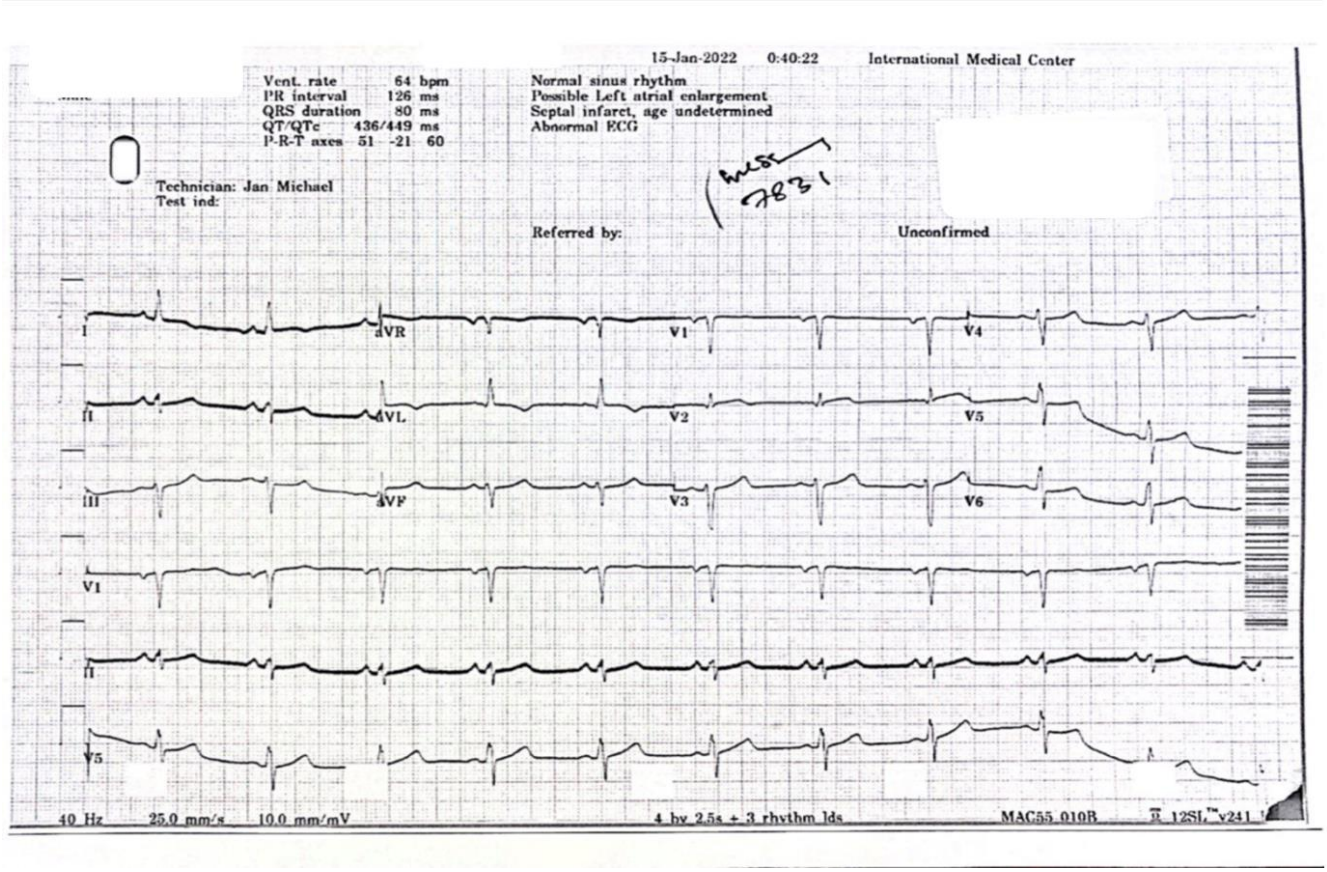

Figure 1 ECG showed normal sinus rhythm and left axis deviation that could be due to left atrial enlargement

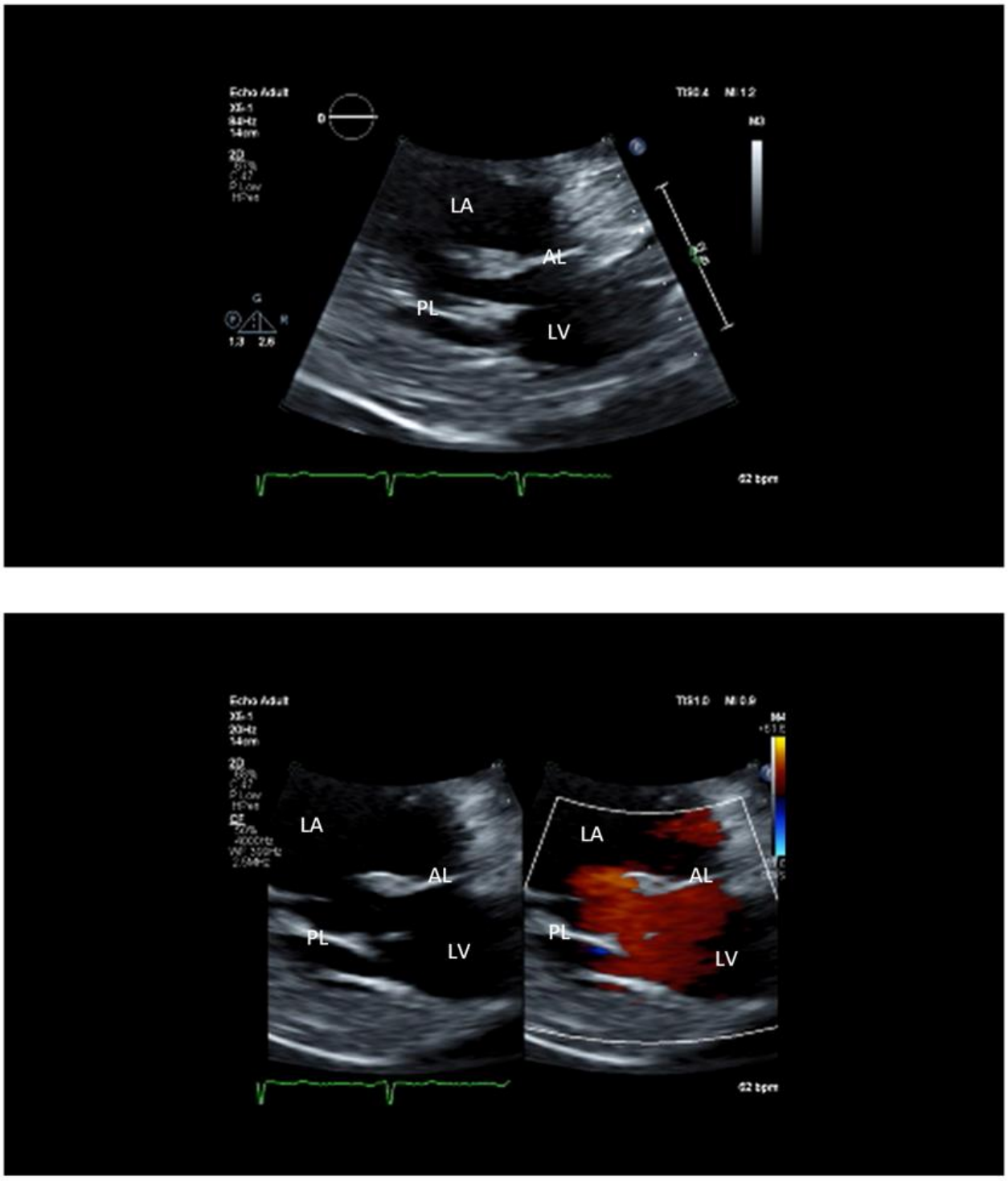

Figure 2 Transthoracic echo showed a mitral valve with a large (2.6 x 1.2cm) and a highly mobile homogeneous mass attached to the posterior leaflet and mildly thickenedanterior mitral leaflet. There is also mild mitral regurgitation and no mitral stenosis. LV-Left Ventricle; LA-Left Atrium; AL-Anterior Leaflet; PL-Posterior leaflet.

3. DISCUSSION

The significance of vegetation size in a patient with infective endocarditis is debatable. While some research demonstrates a significant correlation between vegetation size and clinical outcome, others have failed to detect any correlation. Surgical evaluation is indicated to restore hemodynamic stability and for prevention of embolism. The risk of embolism in a patient with large vegetation is almost three times higher than in undetectable or small vegetation. Although stroke is the most common type of

embolism, any vascular bed can be embolized, leading to end organ infarction (kidneys, spleen, limbs, mesenteric and coronary arteries). Vegetation embolism can also promote secondary infection in the vascular wall, which can lead to the creation of a mycotic aneurysm. These aneurysms are most commonly found in the cerebral vessels and are detected on brain imaging in 3–5% of individuals with infective endocarditis, albeit most of these aneurysms go unnoticed clinically. 83–85 Patients with right sided infective endocarditis are at risk of pulmonary emboli or systemic emboli due to a patent foramen ovale. The majority of emboli occur within the first two weeks of diagnosis and the risk of infection decreases dramatically if antibiotics are administered. When vegetations are large (greater than 10 mm in length), highly mobile and positioned on the mitral valve, embolism is more likely (Cahill & Prendergast, 2016). Taking this high risk of embolism and its associated vascular infection in to consideration, surgical intervention should not be delayed. The study by (Nunes et al., 2010) prospectively investigate data from 62 patients who fulfilled the modified Duke's criteria for IE during a seven year have found surgery was not associated with mortality despite the severity of the cases involved in the study. The correlation between vegetation size and clinical outcome was also stated in a study by (Heinle et al., 1994). Reviewed the echocardiograms of 41 patients with IE and showed that VS >10 mm was associated with a 50% incidence of embolic events, compared with a 42% incidence of embolism in patients with vegetations measuring ≤10 mm. These studies demonstrated the impact of vegetation size on the clinical outcome manifested by the advanced risk of embolism and in hospital mortality (Heinle et al., 1994).

We are in this case reporting a vegetation size of 2cm which is considered very huge vegetation compared to those published in the literature. Vegetation that big could be confused with another differential including atrial myxoma which subsequently might alter the treatment plan. Therefore, identifying the underlying etiology is crucial. Microbiological assessment is a valuable diagnostic tool to correlate the infecting organism with vegetation size. In the study by (Martín-Dávila et al., 2005) review of 493 patients with right side infective endocarditis, by univariate analysis, it was found that a VS >20 mm and a fungal etiology were associated with in hospital mortality. A similar association was found by (Wong et al., 1983) who investigated the correlation between big vegetations and infecting organisms since large vegetations are a characteristic symptom of fungal endocarditis. 910 Individuals with extensive vegetation were found to be infected with the same pathogens as patients with smaller vegetation. (Andriole et al., 1962) looked examined twenty one individuals with Candida endocarditis and found that the vegetation size was larger than 10 mm in 13 of them.

According to autopsy investigations by (Wong et al., 1983), fungal endocarditis accounts for 8.5 percent and 7% of all endocarditis. Since there is an evident correlation between big vegetation and infecting organism, microbiological and histopathological confirmation should be obtained along with clinical context to reach an accurate diagnosis and proper treatment plan.

4. CONCLUSION

Large vegetation is a serious finding in a patient with infective endocarditis and it is associated with life threatening complications such as embolism, vascular infarction or hemodynamic instability. Since large vegetation is often confused with other differentials such as atrial myxoma, histopathological and surgical evaluation is crucial to identify the underlying etiology and to guide the treatment plan in the right direction.

Author contributions

Osama Abdulrahman and Fawaz Saeed Baalaraj were responsible for the abstract, background, design and literature review. Mohammad Hani Baharithand Dyaa Esam Habeeb were responsible for writing the case presentation. Saad Fardan Alqahtani was responsible for the discussion. Abdulhalim S Serafi supervised the case overall and revised the paper.

Informed consent

Oral informed consent was obtained from the patient.

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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