Infective Endocarditis with Large Papillary Muscle Vegetations in a Patient with HIV and Lymphoma: A Case Report

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ABSTRACT

Isolated papillary muscle involvement in infective endocarditis (IE) is a rare occurrence. The authors report an unusual case of a 42-year man with human immunodeficiency virus (HIV) and B-cell lymphoma who had multiple vegetations on the mitral valve papillary muscles. The patient presented with nonspecific symptoms such as weakness, fever, and weight loss. Blood cultures revealed non-aureus *staphylococcus species*, and transthoracic echocardiography (TTE) identified large vegetations attached to the left ventricular papillary muscles. The patient refused further evaluation with transesophageal echocardiography (TEE) and left against medical advice. This case is notable for the isolated involvement of papillary muscles without other valvular apparatus involvement, a finding seldom reported in IE. This case underscores the need to consider IE in immuno-compromised patients with papillary muscle masses and the utility of TTE for early detection, while emphasising the need for advanced imaging and histopathological confirmation.

Key Words: *Infective endocarditis, Papillary muscle vegetations, Human immunodeficiency virus, Lymphoma*.

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INTRODUCTION

Infective endocarditis (IE) is a severe and life-threatening condition of the heart, with hospital mortality averaging 18% despite advances in the diagnosis and treatment.[1] Isolated involvement of the papillary muscles in infective endocarditis (IE) is rare.[2] Here, we report an unusual case of multiple vegetations on papillary muscles of the mitral valve, identified on transthoracic echocardiography (TTE) for the workup of bacteremia in a patient with human immunodeficiency virus (HIV) and B-cell lymphoma.

CASE REPORT

A 42-year man presented with generalised weakness and weight loss over the past six months. He also mentioned experiencing a high-grade fever persisting for the past three months, weakness in his lower limbs for 15 days, initially starting on the right side and later involving the left side, and abdominal pain for one day.

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On arrival in the emergency room, the patient's vital signs were as follows: blood pressure 108/70 mmHg, heart rate 129 bpm, respiratory rate 17 breaths per minute, temperature 38.4°C, and oxygen saturation 96% on room air. His Glasgow coma scale (GCS) score was 15/15.

General physical examination revealed generalised lymphadenopathy. The chest and cardiovascular examinations were normal. The abdomen was distended and diffusely tender. Neurological examination revealed quadriparesis with hyporeflexia, with muscle power graded as 0/5 in both lower limbs, 2/5 in the left upper limb, and 4/5 in the right upper limb. ECG showed normal sinus tachycardia with nonspecific ST-T changes. The initial laboratory workup indicated a haemoglobin level of 10.1 g/dL, leucocyte count of 11.1 × 10^9/L (77% neutrophils, 11% lymphocytes), platelet count of 300 × 10^9/L, blood urea nitrogen (BUN) of 130 mg/dL, creatinine of 3.9 mg/dL, procalcitonin of 7.1 ng/mL, and C-reactive protein (CRP) of 217 mg/L. Pan-cultures were obtained, and the patient was empirically started on meropenem and vancomycin due to an initial impression of sepsis.

A computed tomography (CT) scan of the abdomen and pelvis revealed diffuse, extensive intra-abdominal, subcutaneous, and left inguinal lymphadenopathy, suggesting lymphoma with bilateral renal and adrenal involvement and no evidence of hepatic, splenic, or bony deposits. An MRI of the brain did not reveal acute infarction, intracranial haemorrhage, or mass effect. However, MRI of the spine revealed diffuse abnormal signal intensity in the posterior epidural space extending from the C3 to the sacral spine, causing significant thecal pressure

with encasement and compression of the cord at multiple levels, predominantly at C5 and D6 to D8, suggestive of a neoplastic aetiology. Blood cultures revealed growth of *Gram-positive cocci*, later identified as *Staphylococcus* species other than *aureus*. A TTE, performed due to the suspicion of IE, showed large mobile echogenic densities attached to the papillary muscles of the left ventricle. However, cardiac chambers were normal in size, with normal biventricular systolic function and trace mitral regurgitation (Figure 1 A-D). Inguinal lymph node biopsy revealed a high-grade B-cell lymphoma. Additionally, blood serology tested positive for HIV, with an absolute CD3 count of 546 cells/µL and an absolute CD4 count of 76 cells/µL. The patient was started on co-trimoxazole, while meropenem and vancomycin were continued. Further evaluation of the vegetation with transoesophageal echocardiography (TEE) was not possible due to the patient's refusal and decision to leave against medical advice.

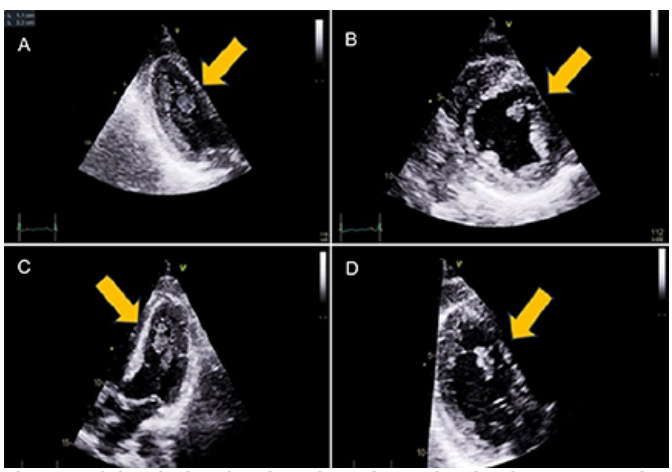

Figure 1: (A) Apical 3 chamber view of TTE showing large vegetation attached to papillary muscle (yellow arrow), (B) Parastemal axis view of TTE showing large vegetation attached to papillary muscle (yellow arrow), (C) Apical 4 chamber view of TTE showing large vegetation attached to papillary muscle (yellow arrow, (D) Apical 3 chamber view of TTE showing large vegetation attached near LV band (yellow arrow).

DISCUSSION

IE continues to be a severe and life-threatening condition, with hospital mortality averaging 18% despite advances in the diagnosis and treatment. Early surgery may be important in improving patient outcomes through the early identification of surgical indications.[1] Mural endocarditis is seen in 4% cases of endocarditis,[2] and isolated involvement of the papillary muscles is rare.[3] Papillary muscle vegetations, complicated by acute mitral regurgitation due to papillary muscle rupture and resulting in heart failure, have been documented in previous reports.[4-6] The association of papillary muscle rupture with aortic root abscesses has also been documented.[7] Another case reported papillary muscle vegetation with trivial mitral regurgitation, without the involvement of the mitral valve leaflets, but with multifocal cerebral stroke as a complication.[8] HIV has been reported to be positive in up to 2% of the population with IE, and 8% of IE patients were diagnosed with cancer.[1] Unique to this case is the association with HIV infection and B-cell lymphoma, the lack of evidence of embolic phenomena, and large papillary muscle vegetations without the involvement of other components of the valvular apparatus. Fungal pathogens involved in endocarditis in cases of immunosuppression and immunocompromised state have been previously reported, and a consideration of fungal organisms in cases of bulky vegetations is recommended.[9] A limitation of this case is the lack of further imaging evidence, such as cardiac magnetic resonance (CMR) and positron emission tomography (PET), TEE, and histopathology evidence supporting IE. Importantly, this case satisfies the criteria for possible IE based on the modified Duke criteria, and the decision to treat was rightfully made. Conversely, fever and raised inflammatory markers can be attributed to lymphoma. Published data on emergent or urgent mitral valve repair in patients with papillary muscle rupture and active IE support the feasibility and effectiveness of surgery in such cases.[10] However, the role of surgery in isolated papillary muscle vegetations is yet to be studied. Large vegetation makes this case qualify for surgical intervention. However, the lack of follow-up creates a limitation on how this patient responded to treatment and whether surgical intervention would have been beneficial.

PATIENT'S CONSENT:

Written informed consent has taken from the patient's brother for the publication of this case report.

COMPETING INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

UJ, AMK: Contributed to the design and drafting of the manuscript.

FATS: Critically revised the manuscript.

All authors approved the final version of the manuscript to be published.

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