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Case Report

Infective Endocarditis Complicated by Acute Limb Ischemia: A Rare Complication

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Abstract: Infective endocarditis (IE) is a severe condition associated with high morbidity and mortality, particularly in resource-limited settings where access to timely medical and surgical management is often hindered. The development of complications such as systemic embolism further worsens the prognosis and complicates clinical management. We present the case of a 32-year-old male patient admitted for infective endocarditis complicated by severe aortic insufficiency and acute ischemia of the left lower limb during hospitalization, secondary to delayed surgical intervention. Despite multiple obstacles to care, including diagnostic delays and surgical inaccessibility, the patient experienced favorable clinical evolution. This case highlights the critical importance of early surgical intervention in IE and advocates for the development of alternative management pathways in low-resource healthcare settings to avoid devastating complications.

Keywords: Infective endocarditis; Systemic embolism; Acute limb ischemia; Aortic insufficiency; Pancreatitis; Developing countries.

INTRODUCTION

Infective endocarditis (IE) is an infection of the endocardial surface of the heart, most commonly affecting heart valves, and characterized by high morbidity and mortality. The disease remains a therapeutic challenge due to its varied presentation, difficult diagnosis, and life-threatening complications despite advances in medical and surgical treatment [1,2]. One of the most concerning complications is systemic embolism, reported in 22–50% of IE cases. These embolic events not only exacerbate the disease process but also significantly hinder management and worsen the overall prognosis [3,4].

This report describes a young male patient diagnosed with infective endocarditis on a native aortic valve, complicated by severe aortic insufficiency and systemic embolism leading to acute limb ischemia. The case was further complicated in the postoperative period by acute pancreatitis. In resource-constrained settings, such as the one in which this patient was managed, limitations in early access to surgery can contribute significantly to these complications. Nevertheless, the favorable outcome of this patient underlines the importance of timely multidisciplinary intervention and adaptive strategies in low-income settings.

PATIENT AND OBSERVATION

A 32-year-old male, chronic smoker with no notable medical history, presented with a three-week history of dyspnea and fever. He had been previously hospitalized for COVID-19 pneumonia two months earlier. On admission, he was febrile at 38.3°C, with signs of global cardiac decompensation. Clinical findings included pulmonary crackles at the bases, bilateral lower-limb edema extending to the mid-leg with Godet's sign, and distended jugular veins. No focal neurological deficits were observed.

The patient had poor oral hygiene, a recognized risk factor for endocarditis in developing countries. Electrocardiogram (ECG) showed sinus tachycardia at 145 bpm (Figure 1). A transthoracic echocardiography (TTE) revealed a large, mobile vegetation on the ventricular side of the right coronary cusp of the aortic valve (Figure 2), accompanied by severe aortic regurgitation, moderate mitral insufficiency, reduced left ventricular ejection fraction (LVEF 45%) with elevated filling pressures, and moderate pulmonary hypertension with dilated inferior vena cava.

As part of the systemic workup, a thoraco-abdomino-pelvic computed tomography (CT) scan was performed, showing cardiomegaly, interstitial

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pulmonary infiltrates, and splenic infarctions. Brain CT and ocular fundus examination were normal. Laboratory results showed elevated inflammatory markers: C-reactive protein (CRP) 78 mg/L, procalcitonin 8 ng/mL, leukocytosis (14,620/mm³), and elevated B-type natriuretic peptide (BNP) at 3200 pg/mL. Renal function was normal. Immunological tests revealed positive rheumatoid factor and decreased complement levels (C3 and C4). Blood cultures isolated coagulase-negative staphylococci (CoNS), raising suspicion of contamination, though IE diagnosis remained probable based on clinical, echocardiographic, and laboratory criteria.

A diagnosis of native aortic valve endocarditis was established, and the patient was started on empirical bi-antibiotic therapy while under medical treatment for ongoing cardiac decompensation.

Forty-eight hours into hospitalization, the patient developed sudden pain in the left lower limb with coldness and absence of palpable popliteal and pedal pulses. Arterial Doppler ultrasonography confirmed thrombosis extending from the origin to the middle third of the superficial femoral artery, with decreased flow. A subsequent CT angiography showed proximal occlusion of the left superficial femoral artery with partial downstream reperfusion and circumferential thickening suggestive of embolic obstruction. Additional findings included right-sided posterior tibial artery occlusion and peroneal artery occlusion, likely secondary to embolism.

Emergency embolectomy was performed using a 4 Fr Fogarty catheter, with complete removal of the thrombus and restoration of blood flow. The patient recovered well postoperatively and continued his antibiotic regimen.

Twenty-four hours after the embolectomy, the patient underwent successful aortic valve replacement with a mechanical prosthesis (size 23). He remained in the intensive care unit for 7 days. During the postoperative course, the patient experienced diffuse abdominal pain and decreased epigastric tenderness. Emergency abdominal CT revealed stage B acute pancreatitis. The patient was placed on bowel rest, and conservative management resulted in gradual improvement with resolution of symptoms.

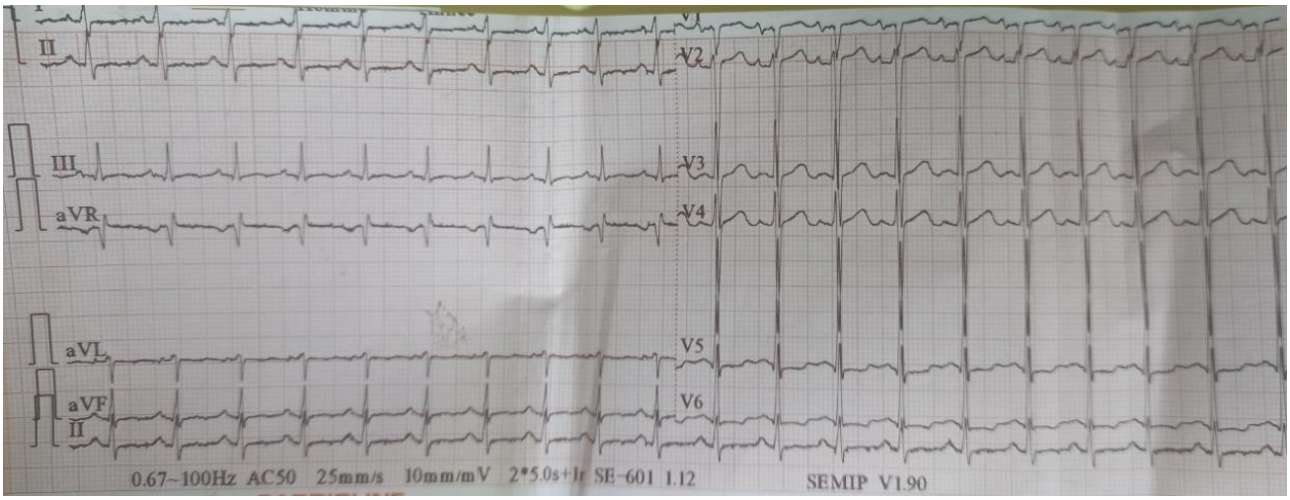

Figure 1: Electrocardiogram

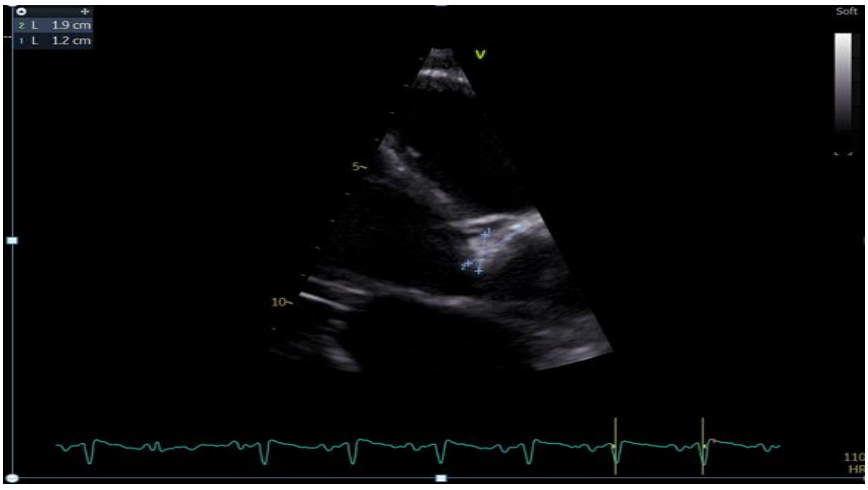

Figure 2

A: Echocardiographic image in the parasternal long axis view

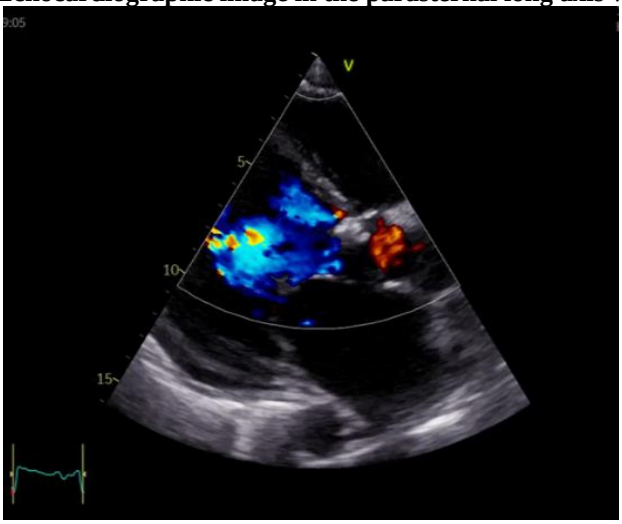

Figure 2 B :
Echocardiographic image in parasternal long axis view showing severe aortic insufficiency

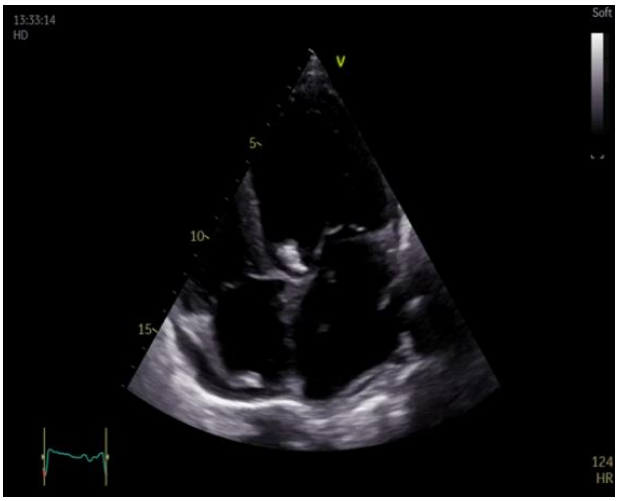

Figure 2 C :
Echocardiographic image in five-chamber view

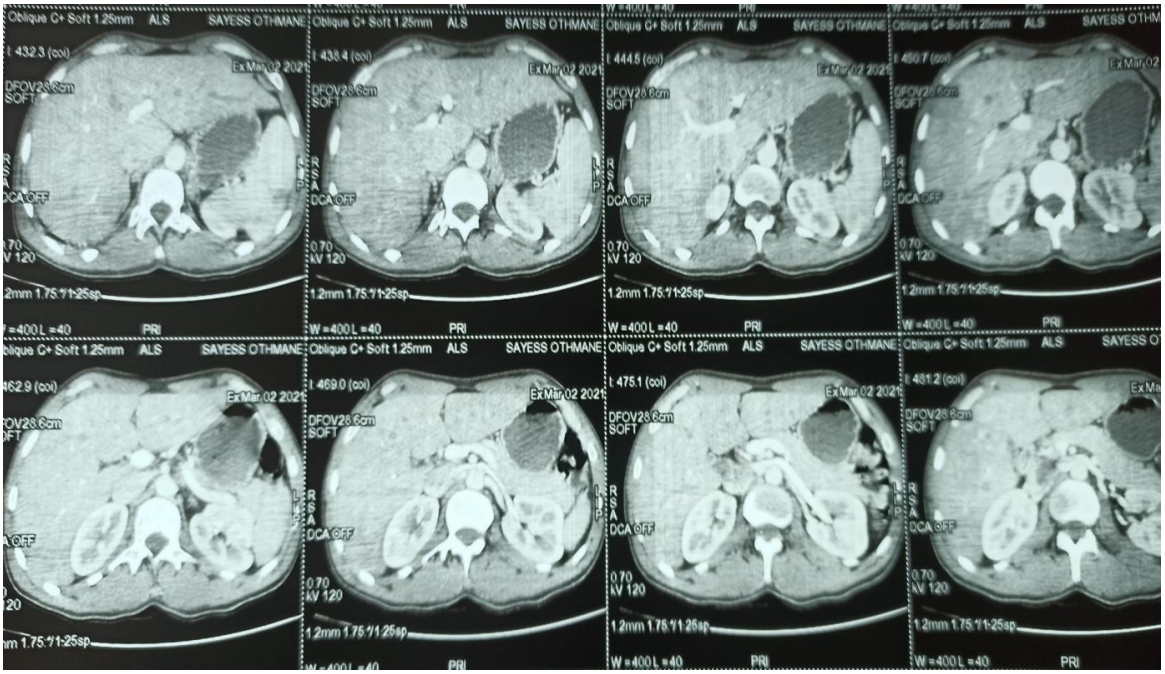

Figure 3 : CT scan image of the thorax, abdomen, and pelvis

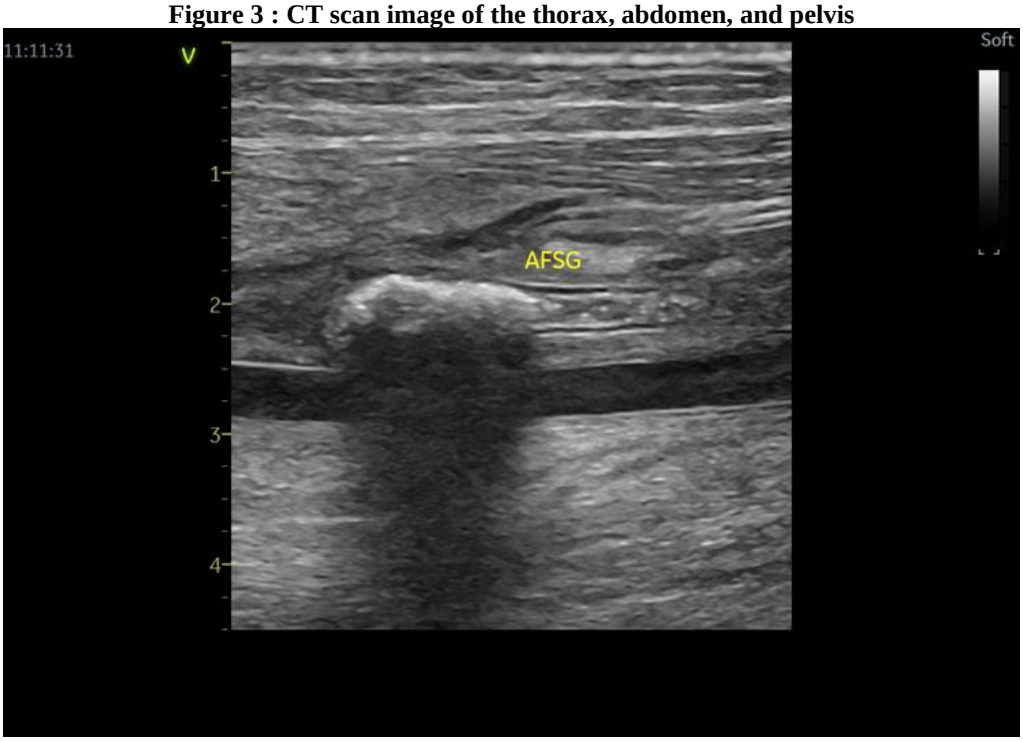

Figure 4: Arterial Doppler ultrasound of the lower limbs

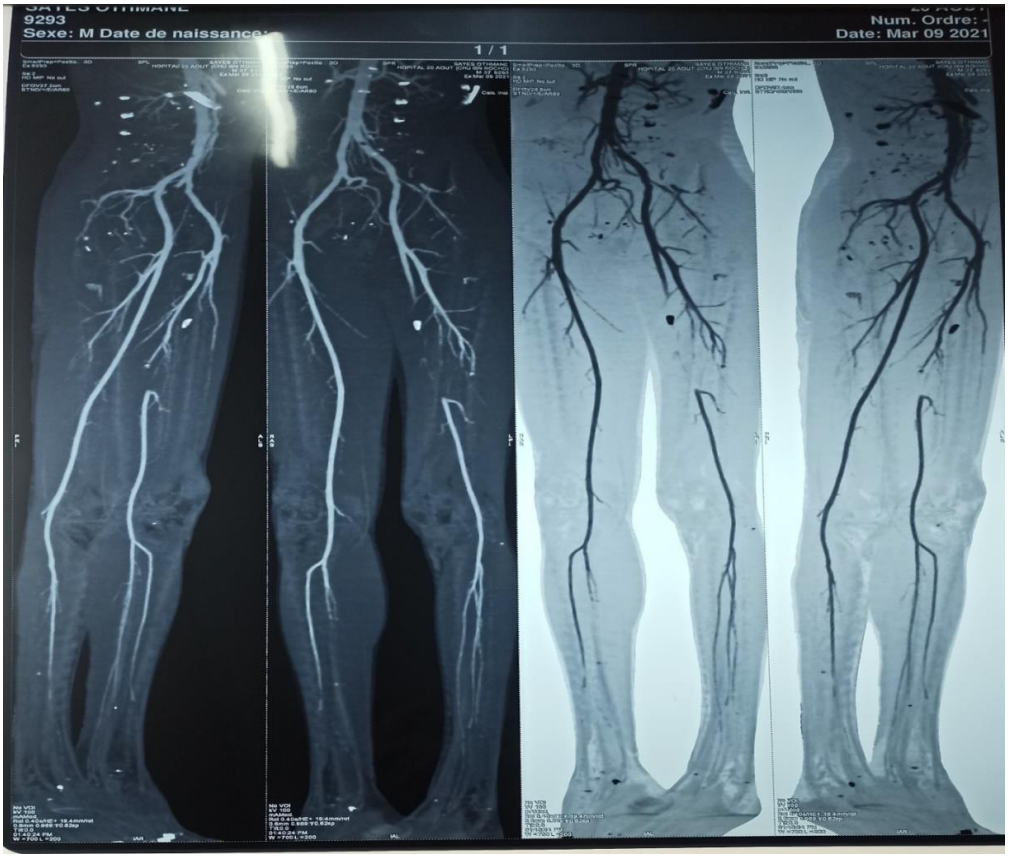

Figure 5: CT Angiography of the lower limbs

DISCUSSION

This case highlights the classical course and complexity of infective endocarditis, especially in young patients from low-income countries. In such settings, several unique challenges are encountered, including delayed diagnosis, limited access to surgery, and poor oral health—a significant predisposing factor for IE in younger populations [5,6]. These obstacles often lead to delayed diagnosis and treatment, increasing the risk of embolic events, organ dysfunction, and mortality [12].

A systematic review by Noubiap *et al.*, noted that IE in African patients typically affects younger individuals with fewer comorbidities, as was the case for our patient [7]. Furthermore, Streptococcus species—especially viridans streptococci—remain predominant pathogens in this group due to prevalent rheumatic heart disease and poor dental hygiene, although coagulase-negative staphylococci and Staphylococcus aureus are increasingly reported [7,10].

In our case, blood cultures isolated CoNS, possibly a contaminant, given the absence of confirmation in later cultures. The presence of echocardiographic evidence of vegetation and systemic embolization, however, fulfilled the modified Duke criteria for definite IE.

Systemic embolism is one of the most feared complications of IE. Embolic events often involve the central nervous system, spleen, kidneys, and limbs. Acute limb ischemia, as observed here, results from large vegetations (>10 mm) or delays in surgical treatment. Aortic valve vegetations carry a high embolic risk due to their proximity to the systemic circulation. The decision to operate early is vital to prevent such embolic events. Unfortunately, our patient developed lower limb ischemia before surgery could be arranged.

Despite the delayed surgery, the patient underwent successful aortic valve replacement shortly after embolectomy, underscoring the importance of timely multidisciplinary coordination.

Another postoperative complication observed in this case was acute pancreatitis, a rare association with IE. Although the exact pathophysiology remains unclear, pancreatitis may be triggered by embolic phenomena or inflammatory responses during cardiac surgery. Pancreatitis in the context of endocarditis should be suspected when new abdominal symptoms arise postoperatively.

Resource limitations posed major challenges throughout this patient's care. Delays in surgery due to system inefficiencies, limitations in advanced imaging, and diagnostic laboratory turnaround time are frequent hurdles in developing countries. The favorable outcome here reflects the determination of healthcare providers to manage complex cases with the tools at hand, and emphasizes the urgent need to develop context-

appropriate guidelines for IE care in low-resource settings.

Recent studies also emphasize the need for a multidisciplinary approach to IE, especially in complex cases with multiple systemic complications, to improve outcomes [13].

CONCLUSION

This case report demonstrates that even in resource-limited settings, favorable outcomes in infective endocarditis are achievable through early diagnosis, vigilant monitoring for complications, and multidisciplinary collaboration. However, timely surgical intervention remains a cornerstone of successful IE management. Systemic embolism, particularly acute limb ischemia, represents a preventable complication if surgery is performed early. Delays in care due to logistical or financial constraints must prompt health policy adjustments to improve access and resource allocation. This case highlights the pressing need for structured IE management pathways tailored for developing countries.

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