East African Scholars Journal of Medicine and Surgery
Abbreviated Key Title: EAS J Med Surg
ISSN: 2663-1857 (Print) & ISSN: 2663-7332 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-8 | Issue-1 | Jan-2026 | DOI: https://doi.org/10.36349/easjms.2026.v08i01.008

Case Report

High-Degree Atrioventricular Block as an Initial Presentation of Interventricular Septal Abscess: A Case Report from the Abidjan Heart Institute

N'djessan J. Jacques[1], Angoran Ines[1], Migitaba Moctar[1], Kouame Stéphane[1], Midago M. Janvier[1]*, Niamkey Joseph[1], Adoubi Anicet[1], Souaga K. Antonin[1], Kirioua-Kamenan Aimé[1], Kramoh K. Eloge[1]

[1]Abidjan Heart Institute (Institut de Cardiologie d'Abidjan), Ivory Coast

Article History
Received: 26.08.2025
Accepted: 15.10.2025
Published: 27.01.2026

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: High-degree atrioventricular (AV) block is a life-threatening emergency that may reveal an underlying infectious cause, such as a septal interventricular abscess. We report a case of a 22-year-old male admitted with recurrent syncopal episodes. Clinical evaluation revealed irregular bradycardia (42 bpm) and a grade 3/6 diastolic murmur at the aortic area. Electrocardiography confirmed high-degree AV block, necessitating temporary pacing. Multimodal imaging including transthoracic, transesophageal echocardiography and cardiac Computed Tomography identified an abscess-like collection within the interventricular septum, originating from the aortic valve. Laboratory findings supported systemic infection. Due to limited surgical capacity, the patient was managed conservatively with antibiotic therapy. He demonstrated clinical improvement, with regression of the abscess and resolution of conduction abnormalities to first-degree AV block, allowing removal of the temporary pacemaker. This case highlights the severity of infectious AV block and illustrates the diagnostic and therapeutic challenges faced in resource-limited settings.

Keywords: Interventricular Septal Abscess, Atrioventricular Block, Infective Endocarditis, Antibiotic Therapy, Cardiac Surgery.

1. INTRODUCTION

Symptomatic high-grade atrioventricular (AV) block represents a life-threatening cardiovascular emergency. Although uncommon, one of its critical underlying causes is an interventricular septal abscess, a severe manifestation of infective endocarditis. Notably, cardiac abscesses are observed in approximately 20–30% of infective endocarditis cases [1].

Doppler echocardiography, both transthoracic and transesophageal plays a pivotal role in diagnosing infective endocarditis. It facilitates the identification of vegetations, structural valve damage, and regurgitant flow, while also providing insight into the patient's hemodynamic status [2]. Effective management of infective endocarditis demands collaboration across specialties, notably cardiology, infectious diseases, and cardiac surgery. Although intensive antibiotic therapy remains the cornerstone of treatment, select patients with severe complications may require prompt surgical intervention [3].

This case report explores the intricate challenges of surgically managing an interventricular septal abscess complicated by atrioventricular block, emphasizing the impact of limited healthcare resources on clinical decision-making and patient outcomes.

2. CASE PRESENTATION

A 22-year-old male presented to the emergency department of the Abidjan Heart Institute with recurrent episodes of sudden and transient loss of consciousness. These syncopal events, occurring over the preceding two months, were characterized by abrupt onset, absence of prodromal symptoms and durations lasting several minutes. The patient reported no associated symptoms, including palpitations, chest pain, or fever. His history was notable for regular cannabis use and active tobacco smoking since adolescence, with no other significant medical conditions. On initial examination, the patient had a respiratory rate of 28 breaths/min and oxygen saturation of 98% on room air. Blood pressure was 127/84 mmHg, with an irregular bradycardic pulse at 42 bpm. Cardiac auscultation revealed a grade 3/6 diastolic murmur at the aortic area. Other findings were unremarkable.

***Corresponding Author:** Midago M. Janvier
Abidjan Heart Institute (Institut de Cardiologie d'Abidjan), Ivory Coast

Electrocardiography (Figure 1) revealed bradycardia at 42 beats per minute, blocked P waves, alternating bundle branch blocks, and atrioventricular conduction abnormalities necessitating temporary pacing. Chest radiography (Figure 2a) demonstrated cardiomegaly, with a cardiothoracic ratio of 0.60, and confirmed the presence of a pacing lead positioned in the right ventricle. Pulmonary fields were clear. Transthoracic Doppler echocardiography revealed a large abscess cavity located within the interventricular septum measuring approximately 55 × 35 mm. The aortic valve, of tricuspid morphology, demonstrated altered echotexture due to the abscess fistulizing into the septum, with perforation of the right coronary cusp resulting in moderate aortic insufficiency. Left ventricular systolic function was preserved (Figure 2b). Biological analysis demonstrated an inflammatory response suggestive of bacterial infection. The white blood cell count was elevated at 15.1 × 10^3/mm^3 (reference range: 4–10 × 10^3/mm^3), with neutrophils accounting for 80% of the differential. C-reactive protein was markedly increased at 135 mg/L (normal < 5 mg/L), and procalcitonin was elevated at 0.17 ng/mL (normal < 0.05 ng/mL). Blood cultures and HIV serology were negative. All other laboratory parameters were within normal limits. Transesophageal echocardiography revealed an aortic valve abscess extending into a 55.6 × 40 mm dissecting septal cavity with a 5 mm entry point. The tricuspid aortic valve was thin with moderate regurgitation, and left ventricular function was preserved (Figure 3a). Cardiac Computed tomography revealed a large abscess involving the right anterior cusp and aortic annulus, dissecting both the membranous and muscular interventricular septum. The cavity measured 79.5 × 40.3 mm with a 5 mm entry point, exerting mass effect on the right heart chambers (Figure 3b). The patient's follow-up was coordinated by a multidisciplinary team. The electrophysiology unit managed pacing lead placement and removal based on clinical evolution, while the cardiac surgery team was consulted for potential abscess drainage. Imaging specialists monitored abscess progression throughout treatment. The clinical course was favorable, with improvement in symptoms and laboratory markers (white blood cells at 11x10^3/mm^3, C reactive protein decreased at 74 mg/l, Pro-calcitonine decreased at 0.10 ng/ml). ECG showed conversion to first-degree atrioventricular block (Figure 4), and echocardiography confirmed a reduction in abscess size to 49.1 × 24 mm under medical therapy alone.

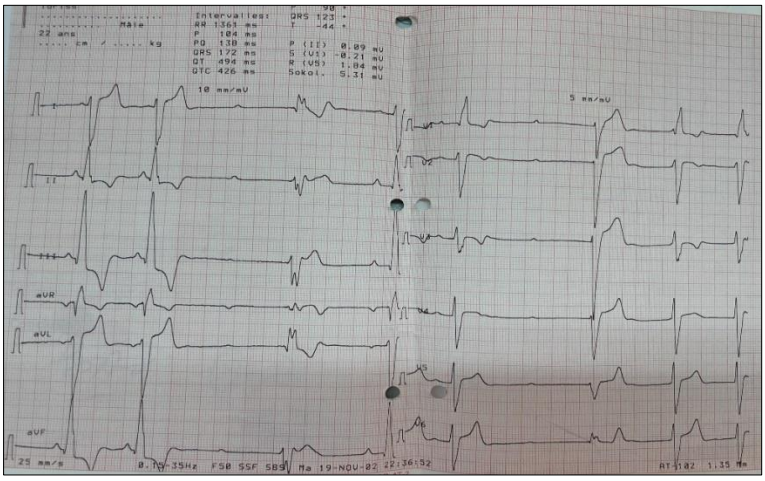

Figure 1: The admission ECG revealed high-degree AV block

Figure 2a: Chest X-ray with cardiomegaly and a pacing lead in the right ventricle (A = cardiac pacing lead; B = right pulmonary parenchyma; C = cardiac silhouette)

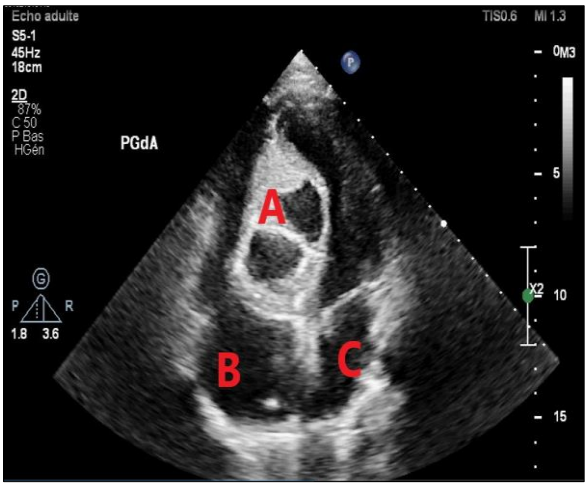

Figure 2b: Transthoracic Doppler echocardiography in apical four-chamber view (A = abscess cavity within the interventricular septum; B = left atrium; C = right atrium)

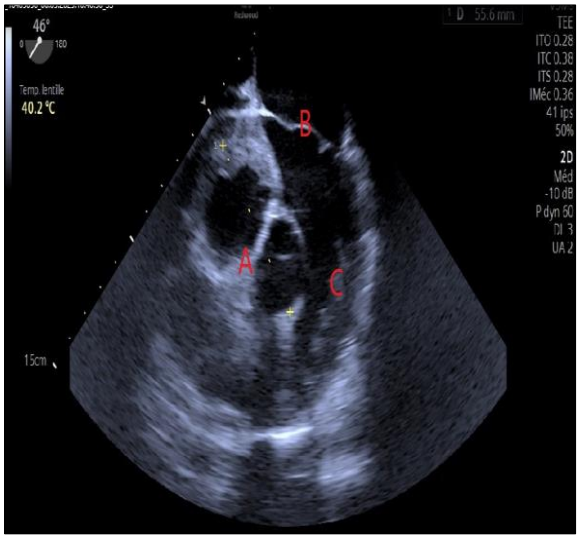

Figure 3a: Transesophageal Doppler echocardiography performed at the mid-esophageal level, apical four-chamber view at a 40.2° angle (A = septal abscess cavity; B = mitral valve; C = left ventricle)

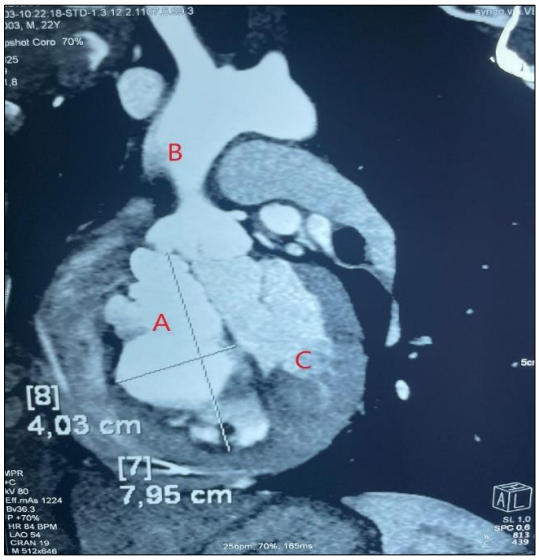

Figure 3b: Cardiac CT scan through the ventricular plane, oblique anterolateral view at 54° and cranial angulation at 19° (A = interventricular septal collection; B = aortic arch; C = left ventricle)

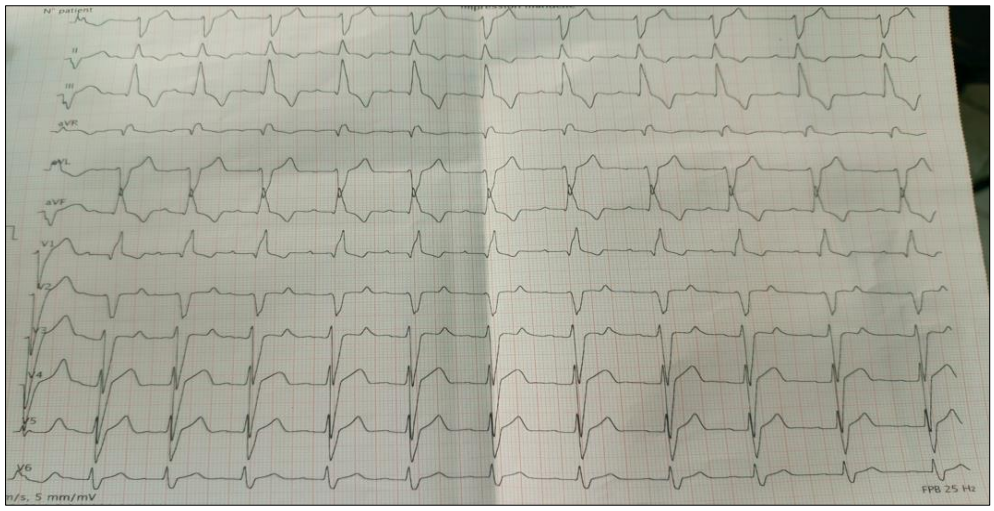

Figure 4: Twelve-lead surface electrocardiogram performed at hospital discharge showing conversion to first-degree atrioventricular block

3. DISCUSSION

Diagnosing infective endocarditis remains clinically challenging due to its highly variable presentation [4]. Although uncommon, syncope may occur as a complication in cases involving conduction system disruption, perivalvular abscess formation, or cerebral embolization, as highlighted by Dale *et al*., [5]. In the present case, recurrent transient loss of consciousness was the primary presenting symptom. This was attributable to profound bradycardia. The absence of fever may be explained by prior self-administration of anti-inflammatory medications in the context of suspected, though unconfirmed, malaria. According to the 2023 European Society of Cardiology guidelines, positron emission tomography combined with 18F-fluorodeoxyglucose computed tomography (18F-FDG PET/CT) is now integrated into the diagnostic workup of endocarditis, especially in the presence of valvular prostheses, due to its superior sensitivity and specificity compared to echocardiography [8]. In our case, cardiac CT confirmed the presence of a circulating abscess at the interventricular septum, extending to the anterolateral (right coronary) cusp of the aortic valve. Biological assessment is a key component of the Duke criteria for diagnosing infective endocarditis and its complications, such as septal abscess. Faisal F. *et al*., [9], highlighted the usefulness of molecular techniques, particularly PCR, in cases with negative blood cultures. The patient had elevated procalcitonin and inflammatory markers, with negative blood cultures and HIV serology. Despite the absence of PCR, clinical improvement under antibiotics supported continued empirical therapy. Severe conduction disturbances are frequently associated with abscesses of the aortic annulus and warrant urgent surgical management [10]. The electrocardiogram remains a cornerstone in the evaluation of conduction abnormalities, particularly atrioventricular (AV) block [6]. In this case, the identification of a high-grade AV block prompted further investigation for an infectious etiology. Cardiac imaging is essential for diagnosing intracardiac abscesses. Transthoracic and transesophageal echocardiography are the reference modalities for initial assessment and prognostic evaluation in infective endocarditis. In our patient, these techniques revealed a sizable abscess within the interventricular septum, originating from the anterior aortic annulus [7]. As per the 2023 ESC guidelines, 18F-FDG PET/CT enhances endocarditis diagnosis, especially with prosthetic valves [8]. In this case, cardiac CT confirmed a septal abscess extending to the right coronary cusp of the aortic valve. Biological testing remains integral to the Duke criteria for diagnosing infective endocarditis and its complications, such as septal abscess. Faisal F. *et al*., [9] emphasized the value of molecular diagnostics, including PCR, in culture-negative cases. Our patient exhibited elevated procalcitonin and inflammatory markers, with negative blood cultures and HIV serology. Although PCR was not performed, the clinical and biological improvement under antibiotic therapy supported the continuation of empirical treatment. High-grade conduction abnomalities are often linked to aortic annular abscesses and typically require prompt surgical intervention [10]. In our context, lack of surgical drainage compromised the initial prognosis. However, medical treatment stabilized the abscess progression. Cardiac pacing is essential for managing AV block in infective endocarditis [10]. In this case, a temporary pacing lead was implanted while awaiting potential surgery, but was removed before discharge following clinical and ECG improvement after two weeks of intravenous antibiotics, and in light of limited surgical availability. Antibiotic therapy was initiated empirically with broad-spectrum agents, given the lack of microbiological identification. This treatment strategy was guided by a multidisciplinary endocarditis team. Surgery remains indicated for patients presenting with complications or classified as high-risk according to current clinical criteria [11]. Our patient received triple intravenous antibiotic therapy: amoxicillin/clavulanic acid (200 mg/kg/day in three doses for two weeks, then outpatient

oral switch), metronidazole (500 mg three times daily for two weeks, then outpatient oral switch), and gentamicin (3 mg/kg/day for two weeks). Preoperative oto-rhinolaryngology and dental evaluations were conducted in preparation for potential surgical drainage. Infective endocarditis remains a serious condition with hospital mortality estimated at 20%, five-year mortality of 40%, and high morbidity. Poor prognostic factors include cerebral complications due to ischemic, hemorrhagic, or infectious causes [12]. In our patient, the risk of complications remains high and vital prognosis is compromised without surgical management. Nevertheless, clinical evolution was favorable, with symptom improvement, regression of high-grade AV block to first-degree AV block on ECG, and reduction of the abscess cavity size on echocardiography after two weeks of in-hospital medical treatment. The patient is currently followed by a multidisciplinary team including interventional electrophysiology, multimodal cardiac imaging, and cardiac surgery.

4. CONCLUSION

Interventricular septal abscess is a rare but serious complication of infective endocarditis, frequently presenting with high-grade atrioventricular block. Diagnosis depends on specialized imaging, often limited in resource-poor settings. Management requires a multidisciplinary approach including targeted antibiotics, temporary pacing, and ideally early surgical drainage. Without surgery, medical therapy may stabilize the condition temporarily, but prognosis remains poor. Strengthening cardiac surgical capacity and ensuring access to specialized surgical tools are essential for improving clinical outcomes in resource-limited settings.

REFERENCES

1. Trojette F, Di Lena C, Bohbot Y, Rusinaru D, Tribouilloy C. Complications de l'endocardite infectieuse. *Rev Prat*. 2024;74(6):653–659.
2. Habib G, Badano L, Tribouilloy C, Vilacosta I, Zamorano JL, *et al.,* Recommendations for the practice of echocardiography in infective endocarditis. *European Journal of Echocardiography*. 2010;11(2):202–219.
3. Baddour LM, Wilson WR, Bayer AS, Fowler VG Jr, Tleyjeh IM, Rybak MJ, *et al.,* Infective Endocarditis in Adults: Diagnosis, Antimicrobial Therapy, and Management of Complications. *Circulation*. 2015;132(15):1435–86.
4. Bernard A, Chane-Sone N, Dion F, Lemaignen A. Infectious endocarditis: strategy for diagnosis. *Rev Prat.* 2024;74(6):639-45.
5. Dale S, Tayyem Z, Maceyko S, Sikka N, Ganti L, Venkatesh AK, *et al.,* Endocarditis: A review of recent literature. *Curr Emerg Hosp Med Rep*. 2024 Apr;12(2):65–73.
6. Philip M, Hourdain J, Resseguier N, Gouriet F, Casalta JP, Arregle F, *et al.,* Atrioventricular conduction disorders in aortic valve infective endocarditis: Prognostic impact and management. *Arch Cardiovasc Dis*. 2024.
7. Vilacosta I, Olmos C, de Agustín A, López J, Islas F, Sarriá C, *et al.,* The diagnostic ability of echocardiography for infective endocarditis and its associated complications. *Expert Rev Cardiovasc Ther.* 2015 Nov;13(11):1225-36.
8. Habib G, Lancellotti P, Antunes MJ, Bongiorni MG, Casalta JP, Del Zotti F, *et al.,* 2023 ESC Guidelines for the management of infective endocarditis. *Eur Heart J*. 2023;44(30):2785–2876.
9. Faisal F, Sethi S, Sharma M. Molecular diagnostics in culture-negative infective endocarditis: the role of PCR and serology. *J Clin Microbiol*. 2020;58(6):e01859–19.
10. Massoure PL, Kéreun E, Chevalier JM, Rigollaud JM, Bire F, Clémenty J, *et al.,* [Severity of aortic ring abscess complicated by cardiac conduction abnormalities]. *Ann Cardiol Angeiol* (Paris). 2005 June;54(3):132-7.
11. Hoen B, Elfarra M, Huttin O, Goehringer F, Venner C, Selton-Suty C, *et al.,* Treatment of infectious endocarditis. *Presse Med.* 2019 May;48(5):539-48.
12. Selton-Suty C, Goehringer F, Venner C, Thivilier C, Huttin O, Hoen B, *et al.,* Complications and prognosis of infective endocarditis. *Presse Med.* 2019 May; 48(5):532-8.

Cite This Article: N'djessan J. Jacques, Angoran Ines, Migitaba Moctar, Kouame Stéphane, Midago M. Janvier, Niamkey Joseph, Adoubi Anicet, Souaga K. Antonin, Kirioua-Kamenan Aimé, Kramoh K. Eloge (2026). High-Degree Atrioventricular Block as an Initial Presentation of Interventricular Septal Abscess: A Case Report from the Abidjan Heart Institute. *East African Scholars J Med Surg, 8*(1), 34-38.