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Ischemic Stroke Revealing Infectious Endocarditis : Two Cases Reports in Lome (Togo)

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ABSTRACT

Introduction: *Infective endocarditis (IE) is a severe condition which is often not diagnosed until it is in an advanced stage, particularly in low-resource settings. Neurological complications, particularly ischaemic stroke, are major contributors to morbidity and mortality. In this article, we present two cases of IE that were revealed by ischaemic stroke, in order to highlight the diagnostic and therapeutic challenges in this context.*

Case presentations: *The first case was a 17-year-old girl who had an ischemic stroke caused by Staphylococcus aureus endocarditis on a structurally normal mitral valve. The second case was an eight-year-old boy with rheumatic mitral valve endocarditis. Diagnosis was based on the modified Duke criteria. Echocardiography revealed large mitral vegetations and severe regurgitation. Both patients received prolonged antibiotic therapy instead of surgery due to a lack of technical facilities. The clinical outcome was favourable in both cases.*

Conclusion: *Ischemic stroke may be the first sign of infective endocarditis, even in a native valve. In low-resource settings, any prolonged fever accompanied by a focal neurological deficit should prompt an investigation for IE. Early diagnosis, echocardiographic screening and the establishment of cardiac surgery units are crucial to improving outcomes.*

Keywords

Stroke, Infective endocarditis, Complications, Rheumatic.

Introduction

Despite advances in diagnosis and treatment, infective endocarditis (IE) remains a serious condition. The prognosis is particularly poor in low-income countries. IE typically affects heart valves that have previously been damaged by acute rheumatic fever or congenital heart disease. However, cases affecting healthy valves have been reported, particularly when highly invasive bacteria such as Staphylococcus aureus are present [1-3].

Neurological complications are common during IE, affecting 20–40% of patients [4]. Ischemic stroke is the most common manifestation. Stroke occurring as a revealing symptom of native valve endocarditis in adolescents and rheumatic endocarditis in children is exceptional. Here, we present two cases observed in Togo to highlight the diagnostic and therapeutic challenges faced in countries with limited resources.

Observation 1

This was a 17-year-old female patient referred for an etiological assessment of an ischemic stroke. The onset of symptoms dated back six weeks, with prolonged fever and headaches, vomiting, which led to antibiotic therapy during a previous hospitalization. With no improvement, the course was marked by the sudden onset of right hemiplegia, leading to her admission to the neurology department of the Campus University Hospital. She had no history of recurrent angina or known heart disease. On admission, her general condition was classified as WHO stage III, with preserved consciousness and stable hemodynamics. She presented with an infectious syndrome with a fever of 40°C, proportional right hemiparesis, and Broca's aphasia. Her NIHSS score was 13. Cardiovascular examination revealed a systolic murmur of intensity 3/6 at the mitral valve with no signs of heart failure. Otherwise, she had good oral health with no skin or joint involvement.

A cerebral angiography scan with injection revealed hypodensities affecting the right posterior inferior cerebellar artery and the right and left superficial middle cerebral arteries (Figure 1).

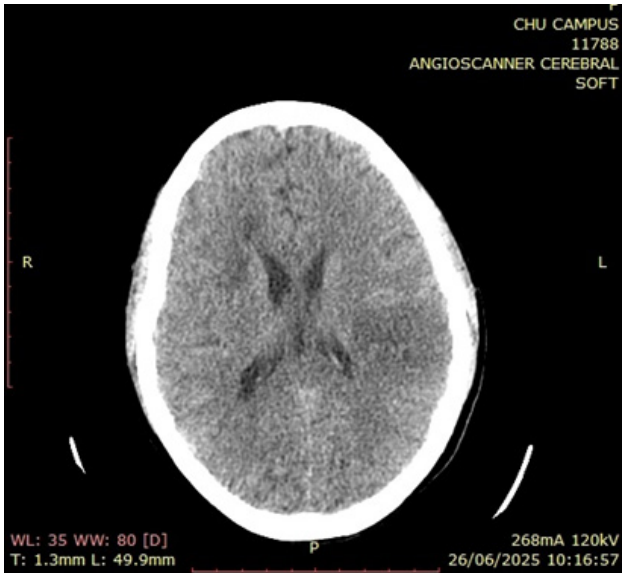

Figure 1: Brain CT scan showing left and right superficial Sylvian infarcts.

Laboratory tests revealed an infectious syndrome with predominantly neutrophilic hyperleukocytosis (leukocytes at 27,020/mm³; neutrophils at 23,890/mm³; CRP at 96mg/l), and severe microcytic hypochromic anemia (hemoglobin level: 5.9g/dl). Blood cultures revealed Staphylococcus aureus. HIV serology was negative.

Doppler echocardiography revealed a 19 x 10 mm vegetation (Figure 3) on the atrial side of the mitral valve. The valves appeared normal on echostructure. Grade III mitral regurgitation was noted. The cardiac chambers were not dilated. The left ventricular ejection fraction was normal at 74%. The electrocardiogram showed regular sinus tachycardia. The search for a point of entry (otolaryngological and stomatological examination, cytobacteriological study of urine) revealed nothing. The diagnosis of infectious endocarditis was made according to the modified DUKE criteria, i.e., one major criterion (presence of vegetation) and three minor criteria (fever, positive blood culture, arterial embolism).

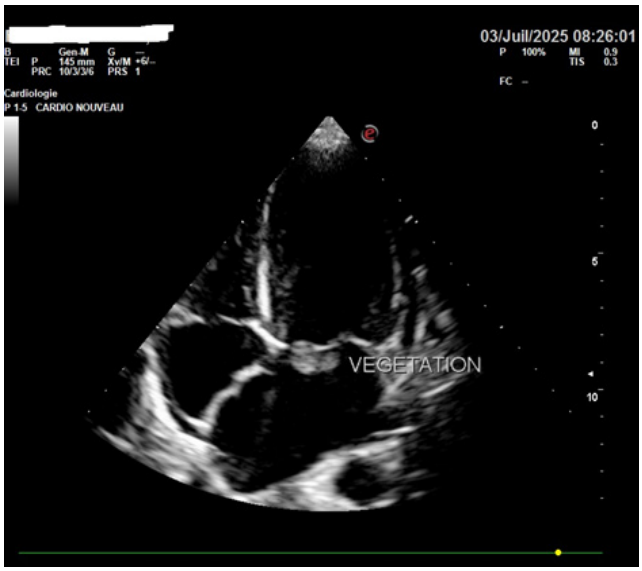

Figure 2: Four-chamber echocardiogram showing the presence of a 19 x 10 mm vegetation on the atrial side of the large mitral valve.

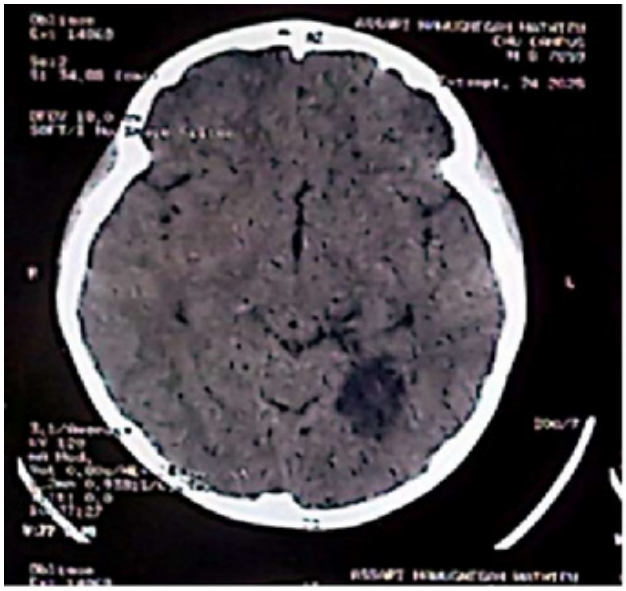

Figure 3: Brain CT scan demonstrating a left posterior cerebral infarction.

From a therapeutic standpoint, this is a surgical indication. A lack of technical facilities and financial resources meant that this treatment could not be provided. Treatment was therefore solely medical, consisting of triple antibiotic therapy: a combination of bactericidal agents (carbapenems and glycopeptides) for four weeks, and an aminoglycoside (gentamicin, 180 mg/24 hours) for two weeks. Daily physical therapy was also provided. During their hospital stay, the patient showed signs of improvement, including a

normal body temperature on day 22 of treatment, improved motor strength, and a normalised inflammatory response. The patient was discharged after four weeks.

Observation 2

An eight-year-old patient was admitted to the echocardiography unit for an aetiological assessment of an ischaemic stroke. His symptoms had begun 3 weeks previously and were characterised by a persistent fever, migratory polyarthralgia and headaches. He had previously been hospitalised for antibiotic therapy, but this had not improved his condition. The disease progressed with the sudden onset of right hemiparesis. The patient had a history of recurrent untreated tonsillitis, but no known heart disease. On admission, his general condition was classified as WHO stage III, with preserved consciousness and stable haemodynamics. He had a fever of 40.5°C, disproportionate right hemiparesis and Broca's aphasia. Cardiovascular examination revealed a systolic murmur of intensity 4/6 at the mitral valve, with no signs of heart failure. Petechial purpura was also noted on the arms and trunk. The oral and dental status were normal.

A non-contrast cerebral scan revealed a left posterior cerebral infarction (see Figure 3). Doppler echocardiography revealed a vegetation measuring 16 x 15 mm (Figure 4) on the atrial side of the mitral valve. The mitral valve was remodelled and thickened, with perforation of the valve body and grade III central mitral regurgitation. The left chambers were dilated, and the left ventricular ejection fraction was normal at 68%.

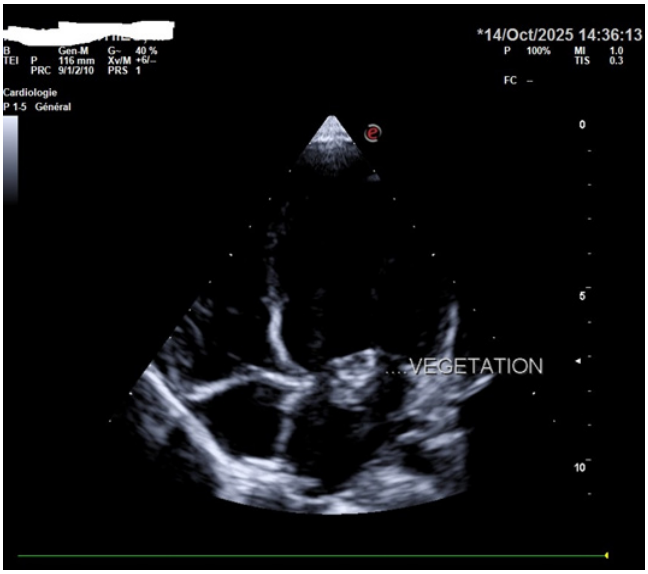

Figure 4: Four-chamber echocardiogram showing the presence of a vegetation on the atrial side of the mitral valve. The mitral valve is remodeled and thickened.

Laboratory tests revealed an infectious syndrome with hyperleukocytosis of 28,560/mm³, a predominance of neutrophils of 18,050/mm³ and a CRP level of 96 mg/L. Moderate microcytic hypochromic anaemia was present (haemoglobin level: 9.5 g/dL). Three blood cultures were taken, but no bacteria were identified. HIV serology was negative. No entry point was found.

According to the modified DUKE criteria, the diagnosis of infectious endocarditis with rheumatic mitral insufficiency was made, i.e. one major criterion (the presence of vegetation) and three minor criteria (fever). The diagnosis of infectious endocarditis with rheumatic mitral insufficiency was made according to the modified DUKE criteria, i.e., one major criterion (presence of vegetation) and three minor criteria (fever, major arterial embolism, purpura). The initial treatment consisted of dual antibiotic therapy: a bactericidal combination (carbapenems and glycopeptides) for four weeks, as well as daily physical therapy. The surgical treatment indicated in this case could not be performed due to a lack of technical facilities and financial resources.

Discussion

Infective endocarditis (IE) remains a serious condition with a poor prognosis, particularly in countries with limited resources. Our two case studies present unusual presentations of IE revealed by ischaemic stroke, one involving a healthy valve and the other a rheumatic mitral valve, in young patients.

Frequency and epidemiological characteristics

Neurological complications occur in 20–40% of patients with IE [4,5]. Among these, ischaemic stroke is the most common, often resulting from septic emboli originating from valvular vegetations. In our cases, stroke led to the discovery of IE, which is rare, particularly in children and adolescents. In African countries, where diagnosis is often delayed and additional tests are limited, cases presenting with neurological complications are probably underestimated [6].

Neurological complications occur in 20 to 40% of patients with IE [4,5]. Among these, ischemic stroke is the most common, often resulting from septic emboli originating from valvular vegetations. In our cases, stroke was the circumstance that led to the discovery of IE, which is rare, particularly in children and adolescents. In African countries, where diagnosis is often delayed and additional tests are limited, forms revealed by neurological complications are probably underestimated [6].

Clinical and diagnostic aspects

A prolonged infectious syndrome, a heart murmur and a stroke should systematically raise suspicion of infective endocarditis. However, diagnosis is often delayed in our settings due to late access to care and limited access to specialised investigations, such as echocardiography and blood cultures.

In the first case, identifying Staphylococcus aureus confirms this bacterium's invasive potential, as it is responsible for native valve involvement and frequent embolic complications [7,8]. The second case illustrates post-rheumatic endocarditis, which is common in countries with a high incidence of acute rheumatic fever [9]. Doppler echocardiography was crucial for diagnosis, enabling visualisation of the vegetations, valve leakage and associated

complications. This examination remains the method of choice for diagnosing and monitoring endocarditis, as reiterated in the European Society of Cardiology's recommendations [10].

Neurological complications

Cerebral embolisms are the most feared neurological complication of infective endocarditis (IE), responsible for increased morbidity and mortality. They occur most frequently in cases of Staphylococcus aureus infection and in patients with large (>10 mm) or highly mobile vegetations [11,12]. In our observations, the vegetations measured 19 mm and 15 mm, respectively, which explains why multiple strokes occurred.

Brain imaging (CT or CT angiography) can be used to determine the location of ischaemic lesions and to check for possible haemorrhagic complications, which may sometimes make early cardiac surgery inadvisable [13].

Therapeutic management

The treatment of infective endocarditis (IE) is based on prolonged antibiotic therapy and, in some cases, surgery. Surgery was indicated for both of our patients due to large vegetation, severe mitral regurgitation and embolic complications. However, it could not be performed due to a lack of technical facilities and financial constraints, which illustrates the structural limitations of healthcare systems in low-resource countries. Nevertheless, the favourable results obtained through medical treatment alone (normalised temperature, clinical improvement) demonstrate the effectiveness of appropriate antibiotic therapy when diagnosis is prompt and management rigorous.

Challenges and prospects

These two cases highlight a number of challenges.

- The need to raise clinicians' awareness of any combination of fever and unexplained stroke.
- The importance of wider access to echocardiography and blood cultures for a rapid diagnosis.
- The need for cardiac surgery facilities in African countries to avoid missed opportunities.

Finally, there is a need to strengthen the prevention of rheumatic fever, which is the main cause of valvular heart disease.

Limitations of our observations

These are two isolated cases that do not permit general conclusions to be drawn. The absence of pathological or surgical examination means that a full etiological confirmation is not possible. Nevertheless, these observations highlight an important clinical reality in our context.

Conclusion

A stroke may be the initial manifestation of an infection of the heart valves, even in young people with native or rheumatic valves. A diagnosis should be considered in any case of prolonged fever accompanied by neurological impairment. Echocardiography remains the key examination. In countries with limited resources, improving technical facilities and preventing rheumatic valve disease are essential for improving the prognosis of this serious condition.

References

1. Habib G, Lancellotti P, Antunes MJ, et al. 2015 ESC Guidelines for the management of infective endocarditis. Eur Heart J. 2015; 36: 3075-3128.
2. Cahill TJ, Prendergast BD. Infective endocarditis. Lancet. 2016; 387: 882-893.
3. Holland TL, Baddour LM, Bayer AS, et al. Infective endocarditis. Nat Rev Dis Primers. 2016; 2: 16059.
4. Thuny F, Di Salvo G, Belliard O, et al. Risk of embolism and death in infective endocarditis: prognostic value of echocardiography. Circulation. 2005; 112: 69-75.
5. Duval X, Delahaye F, Alla F, et al. Temporal trends in infective endocarditis in the context of prophylaxis guideline modifications: three successive population-based surveys. Lancet Infect Dis. 2012; 12: 650-659.
6. Aw F, Ndiaye MB, Ndoye G, et al. Profil clinique, évolutif et mortalité de l'endocardite infectieuse : à propos d'un suivi de 40 cas à Dakar. Jaccr Infectiology. 2020; 2: 1-8.
7. Fowler VG Jr, Miro JM, Hoen B, et al. Staphylococcus aureus endocarditis: a consequence of medical progress. JAMA. 2005; 293: 3012-3021.
8. Chu VH, Sexton DJ. Staphylococcus aureus bacteremia and endocarditis. Infect Dis Clin North Am. 2020; 34: 849-866.
9. Carapetis JR, Steer AC, Mulholland EK, et al. The global burden of group A streptococcal diseases. Lancet Infect Dis. 2005; 5: 685-694.
10. Habib G, Badano L, Tribouilloy C, et al. Recommendations for the practice of echocardiography in infective endocarditis. Eur J Echocardiogr. 2010; 11: 202-219.
11. García-Cabrera E, Fernández-Hidalgo N, Almirante B, et al. Neurological complications of infective endocarditis: risk factors, outcome, and impact of cardiac surgery: a multicenter observational study. Circulation. 2013; 127: 2272-2284.
12. Baddour LM, Wilson WR, Bayer AS, et al. Infective endocarditis in adults: diagnosis, antimicrobial therapy, and management of complications. Circulation. 2015; 132: 1435-1486.
13. Hess A, Klein I, Iung B, et al. Brain MRI findings in infective endocarditis: a prospective study. Cerebrovasc Dis. 2013; 35: 430-436.