

## Can Leg Pain Be the Sole Presenting Symptom of Infective Endocarditis? A Case Report

Cevdet Ugur Kocogullari, MD,<sup>1</sup> Alaattin Avsar, MD,<sup>2</sup> Ercüment Ayva, MD,<sup>1</sup>  
Önder Sahin, MD,<sup>3</sup> Ahmet Cekirdekci MD<sup>1</sup>

<sup>1</sup>Department of Cardiovascular Surgery, Medical Faculty, Kocatepe University, Afyon, Turkey;

<sup>2</sup>Department of Cardiology, Medical Faculty, Kocatepe University, Afyon, Turkey; <sup>3</sup>Department of Pathology, Medical Faculty, Kocatepe University, Afyon, Turkey

### ABSTRACT

Infective endocarditis is a serious septic disease that can be life threatening unless effective therapy is instituted following the correct diagnosis. The complication of septic embolism and mycotic aneurysm in patients with infective endocarditis may increase morbidity and mortality. We present a case of peroneal artery aneurysm with coincident double native heart valve endocarditis in a patient.

### INTRODUCTION

Infective endocarditis (IE) is a serious septic disease that can be life threatening unless effective therapy is instituted following the correct diagnosis. Regardless of the developments and improvements in diagnostic and therapeutic methods, the clinical diagnosis of IE is sometimes difficult and the annual incidence, morbidity, and mortality rates are still relatively high [Nakatani 2003]. Among IE causing pathogens, *Staphylococcus aureus* endocarditis has a higher mortality than endocarditis caused by most other microorganisms. Overall mortality associated with *Staphylococcus aureus* bacteremia ranges from 11.9% to 46.52% [Mylotte 1987]. The complication of septic embolism and mycotic aneurysm in patients with infective endocarditis may increase morbidity and mortality [Lin 2000]. Since antibiotics have been widely used in the treatment of bacterial endocarditis, mycotic aneurysms caused by septic emboli have become extremely rare [Kreidy 2006]. Peripheral mycotic aneurysms can occur when septic emboli lodge in either the lumen or the vasa vasorum of a peripheral vessel [Akers 1992]. This case is interesting in several aspects: there were no clinical findings of peroneal artery aneurysm or IE, the patient received physical therapy for 3 months because of leg pain, and the endocarditis developed following rheumatoid valve insufficiency. Mycotic aneurysms,

especially in the popliteal artery and its branches, are relatively rare (1%-2%) [Huang 2004].

### CASE REPORT

A 37-year-old man presented to the cardiology department with complaints of shortness of breath, palpitation, pain, and tenderness in the right calf. The patient history was unremarkable regarding any chronic diseases. He had received physical therapy for 3 months because of persistent right leg pain. His physical examination revealed a systolodiastolic murmur, and an increase in temperature of the lateral aspect of the right lower extremity with accompanying respiratory insufficiency. Peripheral pulses were palpable in the right lower extremity. His echocardiography revealed severe aortic and mitral insufficiencies with vegetations on mitral valve anterior leaflet (dimensions: 1.6 × 2 cm) (Figure 1A). Magnetic resonance imaging (Figure 1B) studies revealed an aneurysm in the right peroneal artery (dimensions: 6 × 8 cm). He had neither an evidence of underlying heart disease nor any history of intravenous drug abuse or hospitalization.

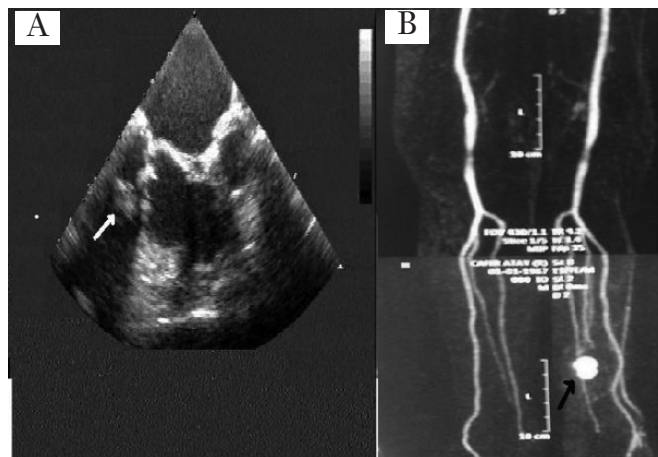


Figure 1. A, Preoperative echocardiography showed severe aortic and mitral insufficiencies with vegetations on mitral valve anterior leaflet (white arrow). B, Magnetic resonance imaging revealed an aneurysm in the left peroneal artery (black arrow).

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Correspondence: Cevdet Ucur Kocogullari, Assist. Prof., MD, Dervispasa Mah. Dr. Mahmut Hoca Cad. No: 43 Buse Apt. A Blok B Giris D: 4, 03000 Afyon, Turkey; 90-542-2355603; fax: 90-272-2133066 (e-mail: [cevdetkoc@hotmail.com](mailto:cevdetkoc@hotmail.com)).

The patient was given antibiotic therapy and was then transferred to the operating room with the diagnosis of IE. We performed emergency surgical treatment. The patient underwent aortic valve replacement (St. Jude 19) and mitral valve replacement (St. Jude 29) with extracorporeal circulation. The right lower extremity was exposed from the lateral side and the aneurysmal sac of the peroneal artery was excised. As there was no deficit of pulsation, and the artery was inappropriate for anastomosis, proximal and distal ends of the peroneal artery were ligated. The mitral and aortic valves were sent to histopathology and microbiology examination following removal (Figures 2 and 3). Methicillin-resistant *Staphylococcus aureus* was cultured in samples from both the aneurysmal artery and the valves. The patient was given antibiotic therapy and was discharged on postoperative day 34. There were no abnormal findings in his 3rd and 9th month controls.

## DISCUSSION

IE is characterized by colonization or invasion of the heart valves or the mural endocardium by a microbe, leading to the formation of bulky, friable vegetations composed of thrombotic debris and organisms, often associated with destruction of the underlying cardiac tissues. The aorta, aneurysmal sacs, other blood vessels, and prosthetic devices can also become infected. The central nervous system has been the most frequently reported site of embolism, followed by the extremities [Lin 2000]. Mycotic aneurysm and thromboembolism has been reported more often in patients with IE. Mycotic aneurysms were first described by Osler in 1885 in his discussion of bacterial endocarditis. A mycotic aneurysm is a dilatation of an arterial wall resulting from infection from bacterial or fungal contamination that can develop from the seeding of the vasa vasorum in septicemia, septic remobilization in bacterial endocarditis, or direct extension from infection of the adjacent tissues [Rubery 1995]. Most peripheral aneurysms, especially mycotic aneurysms, are from embolic lodging from bacterial endocarditis [How 2006]. The incidence of mycotic aneurysm has markedly decreased with aggressive treatment

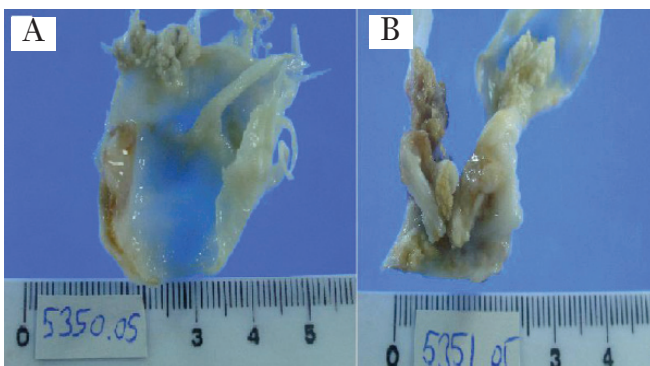


Figure 2. Macroscopically, infective (subacute bacterial), ulcerovegetative endocarditis with the large, friable vegetations. A, Aorta. B, Mitral valve.

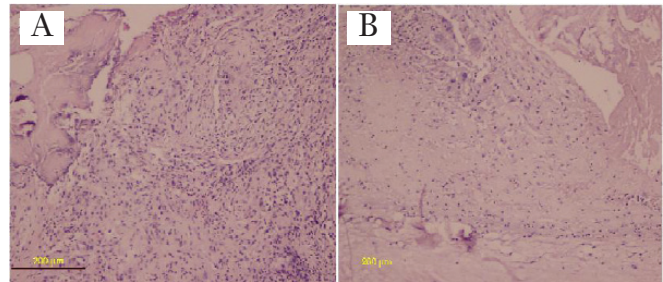


Figure 3. Microscopically, the vegetations of typical subacute infective endocarditis often have granulation tissue at their bases (suggesting chronicity). With the passage of time, fibrosis, calcification, and a chronic inflammatory infiltrate may develop. A, Aorta. B, Mitral valve (hematoxylin and eosin, original magnification  $\times 100$ ).

with antibiotics and valvular replacement surgery in bacterial endocarditis [Akers 1992]. The management of the mycotic aneurysms should be individualized. Most mycotic aneurysms required surgical treatment. Simple ligation of the peripheral aneurysm is recommended in cases with adequate collateral circulation. Another choice is extra anatomic bypass of the infected region using a prosthetic graft. This is an unusual case of a patient operated on for a peroneal artery aneurysm with coincident double native heart valve endocarditis.

## REFERENCES

- Akers DL Jr, Fowl RJ, Kempczinski RF. 1992. Mycotic aneurysm of the tibio-peroneal trunk: case report and review of the literature. *J Vasc Surg* 16:71-4.
- How P, Sikkel MB, Shalhoub J, Law NW. 2006. Mycotic aneurysm of the brachial artery secondary to hospital-acquired methicillin-resistant *Staphylococcus epidermidis* in a complicated case of infective endocarditis. *Ann Vasc Surg* 20:684-6.
- Huang TW, Wang CJ. 2004. Infected total knee arthroplasty complicated with mycotic aneurysms. A case report and review of the literature. *Injury* 35:83-5.
- Kreidy R, Hatem J. 2006. Mycotic aneurysm of the tibio-peroneal trunk. An extremely rare localization with pseudo-phlebitis clinical presentation. *J Med Liban* 54:50-3.
- Lin JC, Wu JS, Chang FY. 2000. Community-acquired methicillin-resistant *Staphylococcus aureus* endocarditis with septic embolism of popliteal artery: a case report. *J Microbiol Immunol Infect* 33:57-9.
- Mylotte JM, McDermott C, Spooner JA. 1987. Prospective study of 114 consecutive episodes of *Staphylococcus aureus* bacteremia. *Rev Infect Dis* 9:891-7.
- Nakatani S, Mitsutake K, Hozumi T, et al; Committee on Guideline for Prevention and Management of Infective Endocarditis, Japanese Circulation Society. 2003. Current characteristics of infective endocarditis in Japan: an analysis of 848 cases in 2000 and 2001. *Circ J* 67:901-5.
- Osler W. 1885. The Gulstonian Lectures on malignant endocarditis. *Br Med J* 1:467-70.
- Rubery PT, Smith MD, Cammisa FP, Silane M. 1995. Mycotic aortic aneurysm in patients who have lumbar vertebral osteomyelitis. *J Bone Joint Surg Am.* 77:1729-32.