

Clinical Review: Fever and Arthritis. Diagnosis: Endocarditis Due to *Enterococcus*

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Clinical signs of infective endocarditis are inespecific. Fever and heart murmur are the most frequent symptoms. Arthralgias's association is fairly common but presentation as polyarthritis is unusual. We report a case of infective endocarditis that begins with subacute fever and polyarthritis.

Key words: Endocarditis. Polyarthritis. *Enterococcus*.

Clínica: fiebre y artritis. Diagnóstico: endocarditis por enterococo

El cuadro clínico de la endocarditis infecciosa es inespecífico. La fiebre y la auscultación de un soplo cardíaco son los síntomas más frecuentes. La asociación de artralgias es relativamente común, y es inusual la presentación en forma de poliartritis. Presentamos un caso de endocarditis infecciosa que se inicia con clínica subaguda de fiebre y poliartritis.

Palabras clave: Endocarditis. Poliartritis. Enterococo.

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Introduction

Infectious endocarditis is defined as the proliferation of microorganisms in the cardiac endothelium, with a greater frequency on the cardiac valves. Endothelial lesion due to any cause leads to an abnormal flow that leads to infection by different microorganisms, especially bacteria. Though fever and heart murmur are infectious endocarditis' most frequent manifestations, atypical manifestations are often found, obliging the clinician to carry out a diagnosis by exclusion. We present a case of infectious endocarditis with fever and polyarthritis as a form of presentation.

Case Report

A 43-year-old male, without any history of interest, presented a case of a 39°C fever, predominant during the afternoons and lasting for 2 months prior to the diagnosis. He also presented pain, swelling, and functional loss of the right hand and the left ankle. Upon physical examination he presented pain on palpation and swelling of the right wrist, second, third, fourth, and fifth metacarpophalangeal joints, and left ankle with limitation due to pain of the range of movements, as well as a diastolic aortic murmur. The rest of the examination was normal. The laboratory tests showed: leukocytosis (16 000) with neutrophilia (85%); ESR, 52 mm/h; and CRP, 4.6 mg/dL. Coagulation and blood chemistry were normal. The immunologic study showed rheumatoid factor, antinuclear antibodies, anti-DNA antibodies, immunoglobulins, and complement as negative, as well as bacteria and virus serology. Blood cultures were taken after the first fever spike and before the start of antibiotic therapy and were positive for *Enterococcus faecalis*. A chest x-ray showed a discreet bilateral pleural effusion and echocardiography showed a severe aortic insufficiency with a thickening of the valvular leaflets (Figure). With the diagnosis of bacterial endocarditis by *E. faecalis*, intravenous ampicillin and

Figure. Echocardiography: aortic valve widening that causes severe aortic insufficiency.

gentamycin were started, with progressive improvement of the patient in regard to the joint signs and the fever, as well as the imaging tests, until the patient was asymptomatic.

Discussion

Though many microorganisms have been described as capable of infecting the cardiac endothelium, most infections are produced by a small number of bacterial species. The most commonly associated with endocarditis are *Staphylococcus aureus*, *Streptococcus*, and *Enterococcus*.¹ Congenital cardiac malformations, valve defects, prosthetic valves, and addiction to intravenous drugs² are considered risk factors for the development of bacterial endocarditis. *Enterococcus* causes 8% of community acquired endocarditis in natural valves and 16% of the hospital-borne cases, 8% of those on prosthetic valves in the first 2 months after surgery, 12% of cases between 2 and 12 months after the procedure and 11% after a year, as well as 9% of endocarditis associated with intravenous drug use.¹

The clinical presentation is variable and unspecific. The most frequent symptoms are fever, which appears in 80% to 90% of cases and the presence of a heart murmur in 80%-85%. Acute bacterial endocarditis is manifested as a high fever and systemic affection. The subacute forms have unspecific symptoms such as fatigue, weakness, anorexia, arthralgias, and low-grade fever for weeks to months; in this variety it is more common to see the appearance of autoimmune manifestations (glomerulonephritis, Osler's nodules, Roth's spots, and positive rheumatoid factor). Extracardiac manifestations are correlated to the duration of the disease, which are ever more infrequent due to early diagnosis and treatments. The usual osteomuscular

symptoms are arthralgias and myalgias (15%-30%) and back pain (7%-15%). The appearance of polyarthritides, as happened in our case, is extremely unusual.³⁻⁵

On physical examination one can find signs of congestive heart failure, heart murmur, petequiae, spleen enlargement, and conjunctiva or retinal hemorrhages, and the lab tests show anemia, leukocytosis, an increase in ESR, and macroscopic hematuria.

The diagnosis of infectious endocarditis⁶ is established according to Dukes criteria (Table).

Intravenous antibiotics must be administered. The recommended guidelines are the association of gentamycin at a dose of 1 mg/kg/8 h iv, with penicillin G 3-4 million U/4 h iv, with ampicilline 2 g/4 h iv, or vancomycin 15 mg/kg/12 h iv, for 4-6 weeks. Fever usually disappears after 24-48 h of the start of treatment. The persistence of fever after a week of treatment indicates septic embolization, and its recurrence, resistance to antibiotics. It is recommended to obtain blood cultures

Dukes' Criteria^a

Major criteria

Positive blood culture

Typical microorganisms of bacterial endocarditis found in 2 different blood cultures (*Streptococcus viridans*, *Streptococcus bovis*, HACEK group microorganisms, *Staphylococcus aureus*, or *Enterococcus*) acquired in the community with the absence of a primary source
Persistent positive blood culture defined as the isolation of a microorganism compatible with infectious endocarditis obtained from:

Blood cultures extracted with an interval of >12 h or 3, or the majority of 4, or more different blood cultures, with a single interval of at least 1 h between the extraction of the first and last

A single positive result of a culture with *Coxiella burnetii* or an antibody titer phase I IgG >1:800

Signs of endocardial affection

Positive echocardiogram:

Intracardiac mass which oscillates on a valve or support structures, in the pathway of insufficiency flow, or in material implanted without an alternative anatomical cause or

Abscess or

A new dehiscence of a valvular prosthesis or

A new valvular insufficiency (increase or change in a previous murmur is not enough)

Minor criteria

Predisposition: Predisposing heart lesions or use of intravenous drugs

Fever equal or over 38°C

Vascular phenomena: relevant arterial embolism, septic lung infarction, mycotic aneurysm, conjunctiva hemorrhage, and Janeways' lesions

Autoimmune phenomena: glomerulonephritis, Osler's nodules, Roth's spots, rheumatoid factor

Microbiological data: positive blood cultures that do not comply with major criteria or serologic signs of active infection due to a microorganism compatible with infectious endocarditis

^aDiagnosis of infectious endocarditis: 2 major criteria, 1 major criterion, and 3 minor, or 5 minor criteria.

in order to follow-up on the eradication of the microorganism.^{7,8}

It is important to point to arthritis as an unusual form of clinical presentation of infectious endocarditis, taking into account the importance of early diagnosis and treatment.

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