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CASE AND RESEARCH LETTERS

Acral Pustules as the Key Manifestation in the Diagnosis of Subacute Infective Endocarditis

Pústulas acrales como manifestación clave en el diagnóstico de una endocarditis infecciosa subaguda

To the Editor:

Infective endocarditis is a potentially serious disease that consists of the infection of a heart valve or the mural endocardium altered by prior conditions such as rheumatic fever, congenital valve abnormality, prosthetic valve replacement, parenteral drug use, congenital heart anomalies, or cardiomyopathy.[1] The condition is classified as either acute or subacute. The acute form leads rapidly to heart failure within a matter of days, while subacute cases can develop over months as a vague constitutional syndrome. The typical pathogen in acute cases is *Staphylococcus aureus*, while chronic disease can be due to various agents, including *Streptococcus viridans* in more than 50% of cases, *Enterococcus*, and the HACEK group: *Haemophilus* species, *Actinobacillus actinomycetemcomitans*, *Cardiobacterium hominis*, *Eikenella corrodens*, and *Kingella* species.[2]

We present the case of a 54-year-old man with hypertension, insulin-dependent diabetes, a history of rheumatic fever in childhood, with a double mitral valve lesion (stenosis-insufficiency) and slight involvement of the aortic and tricuspid valves, and a mechanical mitral valve prosthesis. The patient presented in the emergency department with a 15-day history of fever of 38.5°C associated with swelling of the left ankle. Blood tests showed a discrete elevation of the transaminases. A presumptive diagnosis of cellulitis was made and blood cultures were taken. Amoxicillin-clavulanic acid 2 g/125 mg every 12 hours was prescribed, achieving transitory defervescence. The patient was referred to the dermatology department where pustular lesions were noted on the pads of several fingers of both hands (Figure 1A). Splinter hemorrhages were also present (Figure 1B) and edematous plaques were observed on both elbows and the tip of the nose.

Biopsies were taken from a pustular lesion on a finger and from one of the plaques on the elbow. Both samples showed collections of polymorphonuclear cells forming an abscess, together with finely granular basophilic material compatible with septic emboli (Figure 2A). The blood vessels in the digital lesion contained thrombotic aggregates with a minimal inflammatory response in the wall (thrombotic vasculopathy) (Figure 2B).

Based on a suspected diagnosis of lesions secondary to infective endocarditis, we requested transesophageal

a

b

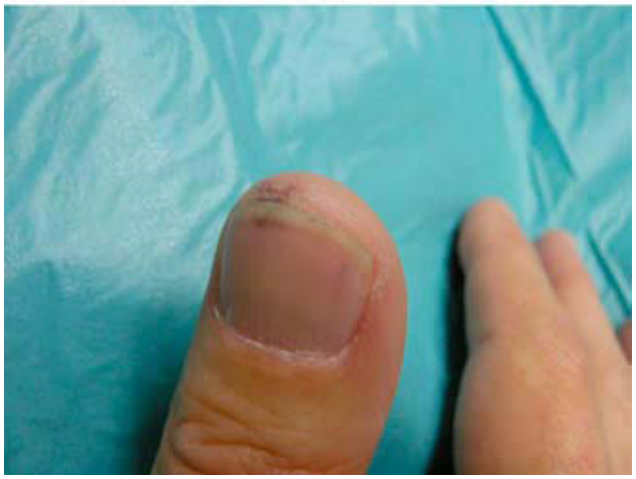

Figure 1 a, Acral pustule with a purpuric base in the paronychium of a finger. b, Splinter hemorrhage on the tip of the thumb.

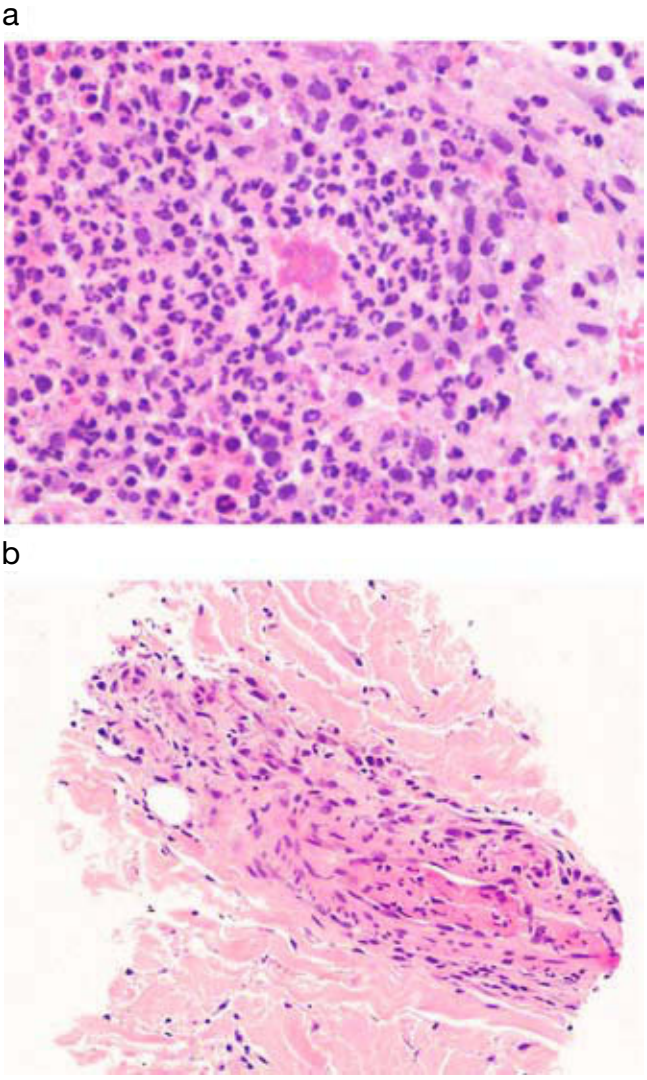

Figure 2 a, Abscess of polymorphonuclear cells with septic emboli observed as granular basophilic masses (Hematoxylin-eosin, original magnification ×200). b, Thrombotic mass within a vessel with a minimal inflammatory response in the vessel wall. Thrombotic vasculopathy (hematoxylin-eosin, original magnification ×200).

echocardiograph, which revealed an image of a mobile mass of 0.5 cm in diameter on the anterior cusp of the aortic valve compatible with a vegetation. A gram-negative bacillus was isolated in 2 of the blood cultures taken in the emergency department and this was identified as *Actinomycetemcomitans* after 6 weeks of incubation.

The patient was treated for 6 weeks with a course of intravenous ceftriaxone and gentamicin, and was given a further 2 weeks of treatment with oral ciprofloxacin once the agent had been identified.[3] Treatment led to the remission of symptoms and normalization of the echocardiography image.

Actinomycetemcomitans is a gram-negative bacillus of the HACEK group, a group responsible for 5% to 10% of all cases of native valve endocarditis. Dissemination tends to occur following dental work and it typically affects the aortic valve; anchoring of the microorganism to the valve requires there to have been a previous cardiopathy. The disorder has a subacute presentation (low-grade fever, anorexia, etc.) that leads to delays in diagnosis, with the consequent formation of large vegetations and an increased risk of embolism.[1,4]

Isolated petechiae (secondary to septic embolism and vascular damage), Roth spots (exudative edematous lesions on the retina), and splinter hemorrhages (petechiae on the nail bed) are skin lesions traditionally related with infectious endocarditis, although Olser nodes and Janeway lesions are more specific to the condition. Osler nodes develop in acral regions; they are pale or violaceous in appearance and are painful due to involvement of the glomus body. Histology reveals microabscesses with vasculitis, and they are thought to be related to aggregates of immune complexes. Janeway lesions are painless purpuric macules that develop in more proximal regions. They present histologically as abscesses and are due to septic emboli.[1,5] It is possible that both Osler nodes and Janeway lesions are produced by a combined mechanism with predominance of either the bacterial or the immune component and where the size of the inoculum or the size of the immune complex generated will determine involvement of more distal (Osler) or more proximal (Janeway) sites. These lesions can develop into pustules, purpuric pustules, abscesses, or even cutaneous vasculitis with skin necrosis.[6]

The Duke criteria for infective endocarditis were satisfied in our case: a typical agent isolated in 2 separate blood cultures and abnormal echocardiography (2 major criteria); and fever, an underlying cardiopathy, and vascular phenomena in the form of skin lesions (3 minor criteria).[1,7]

As is usual in endocarditis due to *Actinomycetemcomitans*, our patient had a history of heart disease (rheumatic fever), the affected site was a native aortic valve, and there was a subacute presentation; however, diagnosis occurred unusually early. This early diagnosis explains the atypical findings such as the small size of the vegetation and the absence of embolism to internal organs. The skin lesions observed were identified as splinter hemorrhages and purpuric pustules and abscesses. Interestingly, the underlying histological changes observed in the purpuric lesions were those traditionally associated with Janeway lesions (large collections of polymorphonuclear cells and septic emboli). However, as explained above, the lesions have a combined septic-autoimmune mechanism. Those arising in acral regions can be considered to have developed from Osler nodes, while the more proximal, swollen lesions on the elbows and nose, could represent progression towards a true abscess (as was confirmed on histology). The painless, inflammatory nature of these lesions and their more proximal situation means they may be considered to be in the same spectrum of alterations as Janeway lesions.

In conclusion, we present a patient with skin lesions that led to the early diagnosis of infective endocarditis due to *Actinomycetemcomitans* that satisfied the Duke criteria. We would like to encourage physicians to maintain a high level of suspicion of infective endocarditis in any susceptible patient with a history of heart disease, particularly when pustular acral lesions are observed, in order to initiate early treatment and avoid systemic complications and surgery.

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Management of Basal Cell Carcinoma with Perineural Invasion

Manejo del carcinoma basocelular con infiltración perineural

To the Editor:

The presence of perineural invasion in skin tumors constitutes a major risk factor for local recurrence.[1-3] Perineural invasion is not a common finding in basal cell carcinomas, with an estimated incidence that, depending on the series, varies between 0.17%[2] and 3.8%.[4] The frequency is higher in more aggressive histological subtypes and in recurrent tumors.[1,2,4,5]

The patient was a 69-year-old woman who consulted for an 8-month history of a slow-growing, asymptomatic lesion on the right ala nasi. On examination there was a slightly elevated, infiltrated plaque of 1.2 cm in diameter, with poorly defined borders, a smooth, shiny surface, and superficial telangiectasias (Figure 1A). A previous biopsy of the lesion at another center led to a histological diagnosis of superficial and morpheaform basal cell carcinoma with perineural invasion. The patient had no medical or surgical history of interest and, given the results of the biopsy, the lesion was completely excised using Mohs surgery. Two stages were required to achieve disease-free margins (Figure 2A). In view of the presence of perineural invasion, an additional Mohs stage was performed (Figure 1B), also with negative margins. However, subsequent study of paraffin-embedded surgical specimens from each stage, prepared after taking frozen sections for evaluation of the margins, showed no tumor infiltration in the specimen corresponding to the second stage but the presence of tumor tissue in the third stage (Figure 2B).

Perineural invasion enables a tumor to spread to sites well away from the primary site and to establish

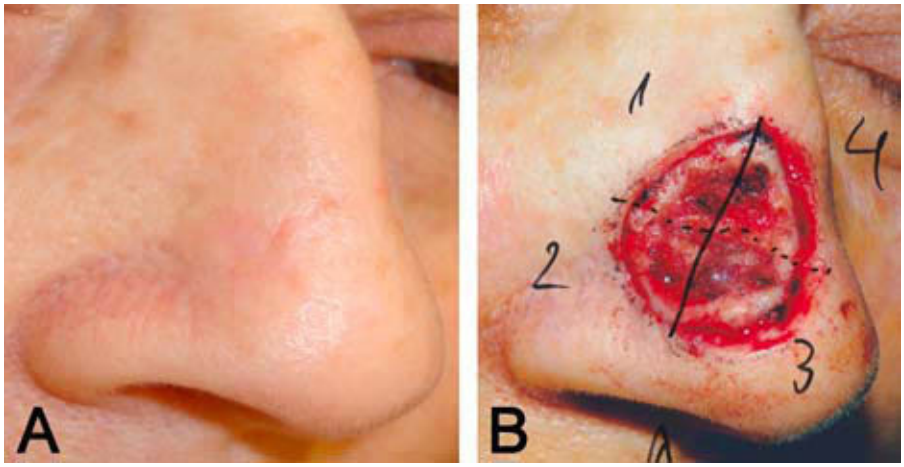

Figure 1 A, On the right ala nasi there was a 12-mm diameter plaque with poorly defined borders and a surface that appeared slightly atrophic. B, Third stage of Mohs surgery.