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Septic Vasculitis From a Femoral Artery Catheterization

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Article Information

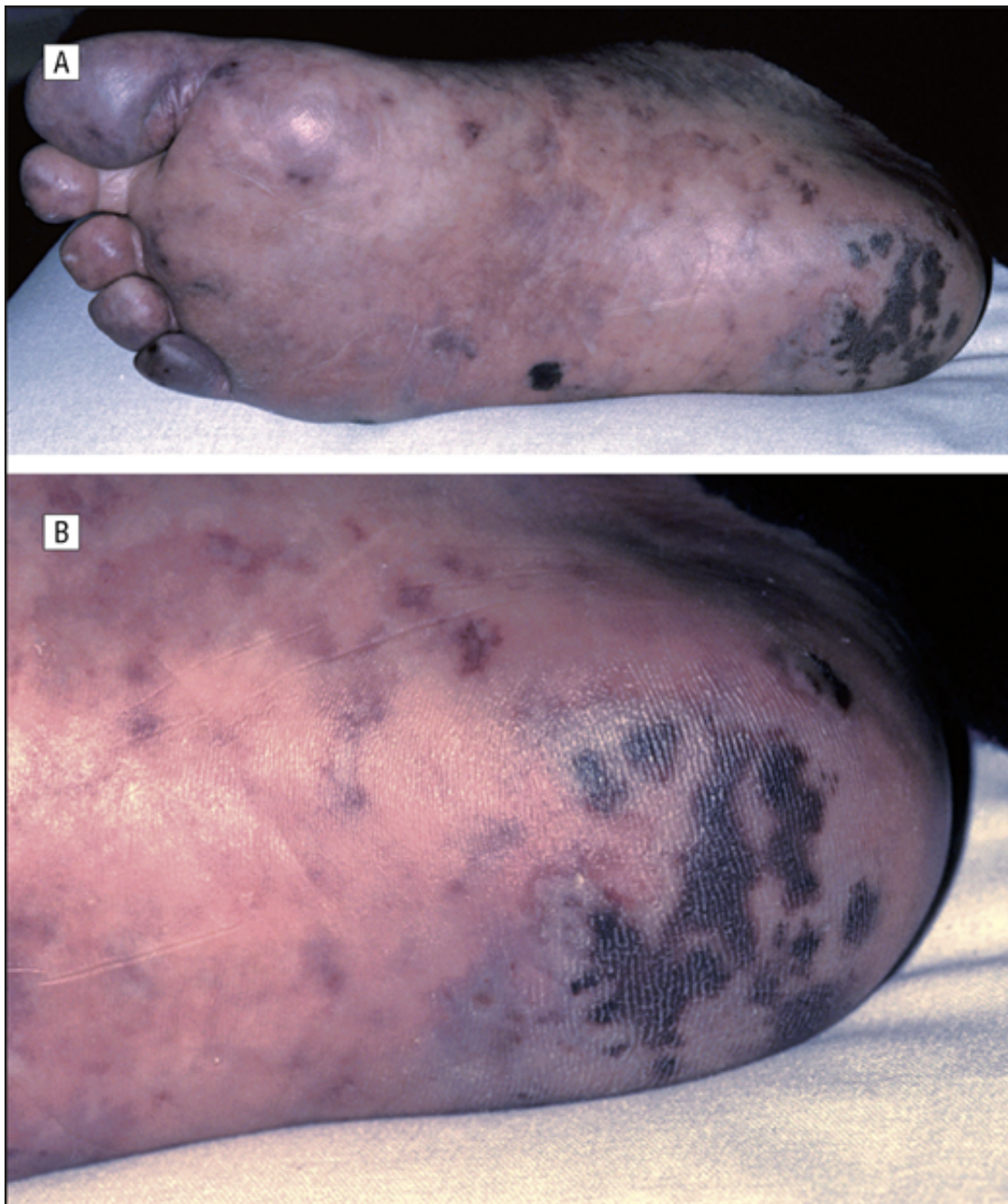
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Septic endarteritis following femoral arterial catheterization for intravascular procedures has a reported frequency of less than 1%.¹⁻³ Risk factors for septic endarteritis include repeat puncture, indwelling sheath for more than 24 hours, and hematoma formation after a procedure.² Patients can present from 2 to 14 days after a procedure with systemic manifestations of infection (fever, chills, and malaise) and commonly localizing symptoms (pain, erythema, edema, and purulent exudate).² However, early in the course, symptoms can be nonspecific.⁴ We describe herein a fatal case of septic endarteritis associated with a pseudoaneurysm of the femoral artery that occurred after a cardiac catheterization.

Report of a Case

A 77-year-old white man presented with painful, purpuric macules and papules on his right foot (**Figure 1**). The patient had recently undergone cardiac catheterization via his right femoral artery. He had no other complaints, was afebrile, and generally felt well.

Figure 1.



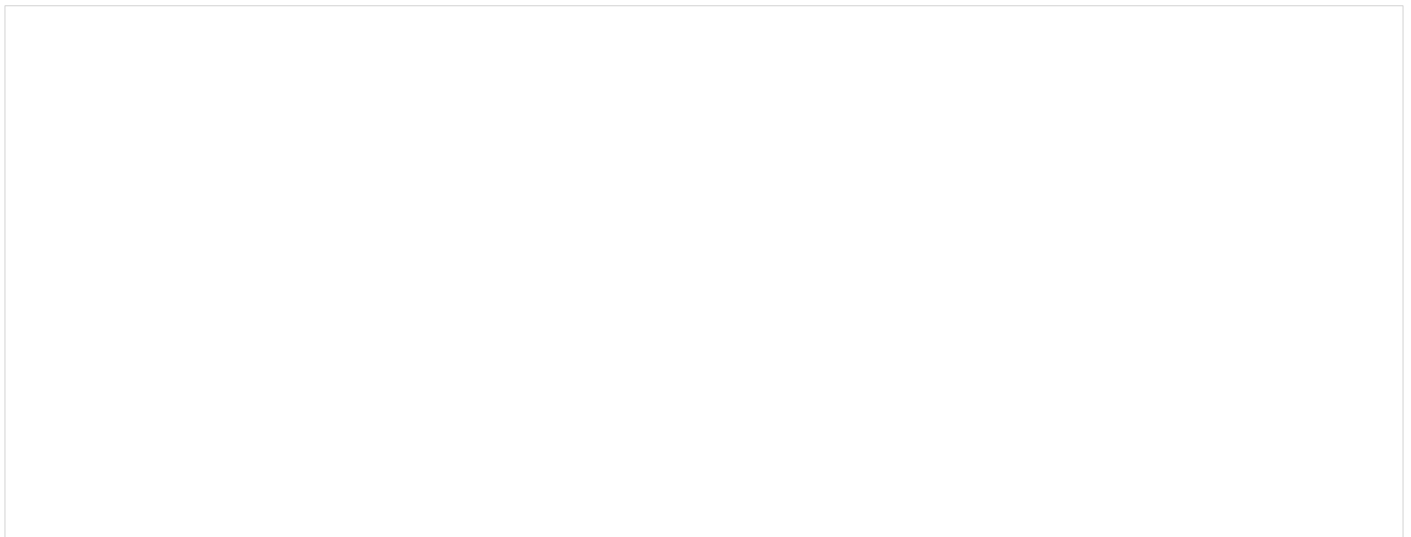
Unilateral, painful, purpuric macules and papules on right foot (A) and a close-up showing the macules on the right heel (B).

The clinical impression was cholesterol emboli or vasculitis. A 4-mm punch biopsy specimen was

obtained. Histopathologic analysis showed a vasculitis with many basophilic organisms, consistent with bacteria present within the vascular spaces. There was a perivascular infiltrate consisting of lymphocytes and neutrophils (**Figure 2A**). Gram stain revealed gram-positive cocci (**Figure 2B**). The clinician was immediately notified, and the patient was admitted to the hospital. Blood cultures were drawn and an echocardiogram performed. The cultures grew *Staphylococcus aureus*. While no evidence of bacterial endocarditis was found, a pseudoaneurysm of the right femoral artery was discovered. Despite rapid admission and treatment, the patient died.



Figure 2.



Basophilic bacteria in the vessel, with surrounding inflammation and hemorrhage. A, Arrow indicates involved vessel (hematoxylin-eosin, original magnification $\times 40$). B, Many gram-positive organisms present in the vessel (gram stain, original magnification $\times 400$).

Comment

The diagnosis of septic endarteritis should be strongly considered in any patient presenting with ipsilateral embolic phenomena occurring after percutaneous arterial puncture. Pseudoaneurysm and septic arthritis and/or osteomyelitis occurs in over 50% of cases.^{2,5} Ipsilateral septic embolism is frequent and manifests as petechiae, palpable purpura, or erythematous painful papules (Osler nodes).^{2,6} Biopsy specimens of cutaneous lesions usually demonstrate gram-positive septic emboli

and may confirm the diagnosis more quickly than blood cultures.⁵ Our biopsy specimen demonstrated an unusually high number of organisms that were readily visible at scanning magnification. The causal pathogen in nearly all cases is *S aureus*.^{2,7-9} Imaging with Doppler ultrasound can identify aneurysm, pseudoaneurysm, or arteriovenous fistula.⁵ Computed tomographic scans can help confirm abscess formation but are often nonspecific. Tagged white blood cell scans may be of use to localize infection.⁵ Coronary involvement should be evaluated with an echocardiogram.

When a septic vasculitis with gram-positive organisms is noted on histopathologic evaluation and prior to culture identification and sensitivities, empirical antibiotic therapy is dependent on local epidemiology and susceptibility patterns. In communities with resistant gram-positive bacteria (methicillin-resistant staphylococci, penicillin-resistant pneumococci, or ampicillin-resistant enterococci), empirical treatment with vancomycin, linezolid, or quinupristin and/or dalfopristin is reasonable.¹⁰ Four to 6 weeks of intravenous antibiotic therapy is required for septic endarteritis, as it is for endocarditis.^{2,5} Surgery is necessary to resect a pseudoaneurysm.² Early diagnosis can be aided by skin biopsy. Even with rapid recognition and initiation of therapy, septic endarteritis may be fatal.

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