inantly peripheral arterial occlusive disease.[5,6] These lesions are thought to be due to elastin degeneration in the arterial tunica media with secondary deposition of calcium.[6] Angina and claudication are commonly seen.[1,5,6] There is no standard effective therapy for the disorder or for its ischemic symptoms.[6]

Pentoxifylline is an orally active hemorheologic agent. It is a xanthine derivative that inhibits adenosine 3',5'-monophosphate diesterase and increases intracellular cyclic adenosine monophosphate secretion.[2,3] It is used to treat conditions characterized by compromised regional microcirculation, most commonly peripheral vascular and cerebrovascular disease.[2] Pentoxifylline reduces hypoxia in the microcirculatory vascular beds by improving blood flow, primarily through changes in the vascular wall and increased fluidity of the blood.[3,7,8] In addition to improving microvascular blood flow, pentoxifylline may also act by reducing inflammation in the vascular bed because it inhibits the release of tumor necrosis factor and interleukin-1.[7-9]

N-of-1 trials are designed to assist clinicians in management decisions. The technique is used to justify individual therapy when large, randomized control trials have not been done or where individual response to therapy or dose is highly variable. Common areas of study are antidepressant use for chronic pain syndromes, response to therapy for reactive airway disease, and myasthenia gravis.[4]

Because we could not complete our original plan of three pairs of interventions, a problem often found with n-of-1 trials, we could not demonstrate statistical significance in this study. But the trial did clarify management in this patient, thereby fulfilling Guyatt and associates' clinical criteria for a "definite trial."[4] The drug was shown to be efficacious for this patient's pain, and this benefit was shown not to be a placebo effect.

After this trial, a second patient with pseudoxanthoma elasticum, a 43-year-old otherwise healthy woman, presented with right arm pain with exertion. She was started on a regimen of pentoxifylline, 400 mg orally three times a day, and returned two weeks later with complete relief of her arm pain.

Although there are no previous reports of pentoxifylline use in pseudoxanthoma elasticum, its benefit for these patients and in other dermatologic disorders characterized by microvascular ischemia is encouraging.[10] Larger trials are needed to confirm that pentoxifylline is useful in patients with pseudoxanthoma elasticum.

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Rothia dentocariosa Endocarditis

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Rothia WAS FIRST DESCRIBED as a genus in 1967 by Georg and Brown and shown in 1969 to be pathogenic but of low virulence.[1] This aerobic organism is gram-positive and varies in form from coccoid to filamentous to rod shaped. Branching is seen at times in the filamentous form, which thus resembles *Actinomyces, Corynebacterium,* and *Nocardia* species.[2-4] It is a component of normal oral flora that can be recovered from dental caries and plaque.[3,5] Since its original description, well-documented cases of infection establishing *Rothia dentocariosa* as a human pathogen have included periodontal inflammatory disease,[3,5] an infected pilonidal cyst,[6] a periappendiceal abscess,[7] five cases of endocarditis,[1,8-11] and an infected arteriovenous fistula.[2] The organism has also been identified by the Centers for Disease Control and Prevention in 39 specimens, but the clinical role of *R dentocariosa* in these cases was not defined, and the organism's infectious role was speculative. In this report I describe a case of *R dentocariosa* endocarditis involving a prosthetic valve that was successfully treated with antibiotics alone.

Report of a Case

The patient, a 71-year-old man, underwent aortocoronary bypass grafting with a Starr-Edwards aortic valve replacement in 1977. Fourteen years later, a week before he was admitted to the hospital, he noted malaise, bilateral lower extremity myalgias, chills, and a transient temperature elevation to 39.4°C (103°F). Initially treated symptomatically as an outpatient, he was admitted on November 22 with the diagnosis of prosthetic valve endocarditis when cultures of two blood specimens obtained at the office visit grew a gram-positive bacillus. He had no arthralgias, skin rash, diplopia or other neurologic symptoms, or recent invasive procedures. On physical examination at the time of his admission, the patient was afebrile, no Roth spots were noted, and the integument was normal.

(Ruben SJ: *Rothia dentocariosa* endocarditis. West J Med 1993; 159:690-691)

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Results of both the neck vein and chest examination were normal. Examination of the heart revealed a quiet precordium. The prosthetic valve sounds were crisp. No gallops or murmurs of valvular insufficiency were found. The abdominal examination revealed no abnormalities.

On admission to the hospital, four additional blood specimens were obtained for culture, and a regimen of vancomycin hydrochloride, 500 mg intravenously (IV) every six hours, and gentamicin sulfate, 60 mg IV every eight hours, was started. After preliminary sensitivities became available on November 27, the patient's regimen was changed to penicillin, 2 million units IV every four hours, plus gentamicin, 80 mg IV every 12 hours. In anticipation of home IV antibiotic therapy, the regimen was then switched on December 3 to ceftriaxone sodium, 2 grams IV every 24 hours. After four days of receiving this antibiotic, the patient became febrile again, and his therapy was changed back to penicillin, 3 million units IV every six hours, which was continued for the duration of the patient's 42 days in the hospital. There was no change in his physical state or complete blood count during this febrile episode.

The admission chest x-ray film was stable, and serial electrocardiograms showed transient atrial fibrillation. A transthoracic and transesophageal echocardiogram revealed no vegetations, perivalvular leaks, or aortic regurgitation. The prosthetic aortic valve showed normal motion and no evidence of a periaortic abscess. Computed tomographic scans of the brain and sinuses revealed changes consistent with a recent infarct in the right temporal parietal region, but no evidence of paranasal sinus infection. The Westergren sedimentation rate on November 22 was 39 mm per hour and by December 22 had returned to normal at 12 mm per hour. A rheumatoid factor titer was positive at 1:80. An admission urinalysis revealed trace protein and 2+ reaction for occult blood with 80 to 100 erythrocytes per high-power field, both of which subsequently cleared. The leukocyte count was 7.4 $\times 10^9$ per liter (7,400 cells per μl) with a normal differential cell count; a hematocrit was normal at 0.41 (41%).

Four blood cultures grew a gram-positive branching bacillus; cultures of 12 additional specimens taken throughout the hospital stay were sterile, including three that were taken when the patient became febrile while on ceftriaxone therapy. Sensitivities indicated that the organism was sensitive to ceftizoxime, ceftriaxone, cephalothin, chloramphenicol, imipenem, penicillin, and vancomycin, with intermediate sensitivity to erythromycin, gentamicin, rifampin, and tetracycline. The organism was resistant to amikacin, ciprofloxacin, kanamycin, and the combination of trimethoprim and sulfamethoxazole. By December 5, the organism had been identified as *R dentocariosa*. Dental consultation revealed disease and decay at teeth 11, 18, and 19. While receiving intravenous penicillin, the patient had his teeth cleaned, and teeth 18 and 19 were extracted.

After discharge from the hospital, follow-up blood cultures were negative, and both the Westergren sedimentation rate and the leukocyte count remained normal.

Discussion

Previously reported preexisting valvular disease in cases of *R dentocariosa* endocarditis included two cases of mitral valve prolapse with myxomatous degeneration,[8,9] a bicuspid aortic valve,[1] and rheumatic mitral valvular disease,[10] none of which required surgical intervention; one patient with mitral valve prolapse required valve replacement.[11] Only two of the patients had recently undergone dental manipulation.[9,10]

Antimicrobial susceptibility is sketchy, but *Rothia* species have been determined to have in vitro susceptibility to the penicillins, erythromycin, vancomycin, cefazolin, rifampin, aminoglycosides, tetracycline, chloramphenicol, and trimethoprim/sulfamethoxazole; susceptibility to clindamycin has been variable.[2] Patients with endocarditis were treated with penicillin G with or without gentamicin or streptomycin. An apparent relapse has previously occurred with vancomycin therapy.[8] Although minimal inhibitory concentrations, minimal bactericidal concentrations, and serum concentrations of ceftriaxone were not measured in this patient, I question the adequacy of ceftriaxone as single-agent therapy for *R dentocariosa*, even though a drug reaction or subtherapeutic dosing cannot be confidently excluded.

Summary

Despite its presence normally in the mouth, *R dentocariosa* appears rarely to cause infection outside the oral cavity. There is no doubt, however, as additional reports accumulate, that this organism should be recognized as having the ability to cause a serious illness in humans. In addition, in vivo experience seems to suggest that a penicillin regimen should remain first-line therapy for this infection, with the efficacy of other agents remaining unproved.

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