A 74-year-old man with a history of prosthetic aortic valve replacement 4 years before presentation was evaluated for a fever since the previous day. Although multiple blood cultures were positive for penicillin-susceptible *Streptococcus gordonii*, an oral viridans streptococcus vegetation was not detected by echocardiography, and the modified Duke criteria for infective endocarditis were not met. Despite treatment with penicillin G (18 million units daily) for 2 weeks after negative blood cultures, 4 days after the last dose blood cultures turned positive for the identical organism. Results of repeated echocardiography and physical examinations were unremarkable. Laboratory results showed a mild increase in erythrocyte sedimentation rate and a positive rheumatoid factor, which were suggestive of, but still inconclusive for, the diagnosis of infective endocarditis. ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography demonstrated a focal hot spot of fluorodeoxyglucose uptake around the prosthetic valve (Figure), a new major criterion for the diagnosis of prosthetic valve endocarditis in the latest guidelines.¹ We diagnosed prosthetic valve endocarditis, which was cured using a higher dose of penicillin G (24 million units daily) for 6 weeks following negative blood cultures without any complications.

Although echocardiography and blood cultures are central to the diagnosis and management of patients with infective endocarditis,² the modified Duke criteria are inconclusive in more than 20% of patients with suspected prosthetic valve endocarditis.³ ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography is useful for the diagnosis of infective endocarditis in patients with prosthetic valves, especially when the conventional modified Duke criteria are not met despite a high clinical suspicion of the disease.⁴

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