A Man with a Prosthetic Aortic Valve and Subacute Calf Pain

A 27-year-old man presented with a few-month history of increasing fatigue. He denied fever, chills, or night sweats. Twenty-one months prior to presentation, he had had a congenital bicuspid aortic valve replaced with a Toronto stentless St. Jude bioprosthesis because of severe aortic regurgitation. Six months prior to presentation, he had undergone routine dental cleaning with appropriate antibiotic prophylaxis. Three weeks prior to presentation, he developed claudication in the right calf. His local hospital confirmed that the patient had arterial thromboses of the distal popliteal, anterior tibial, and tibioperoneal arteries by angiography.

The patient was transferred to our institution, at which time his temperature was 36.0°C, his pulse rate was 90 beats/min, and his blood pressure was 130/65 mm Hg. On hospital day 1, he developed fever; his temperature reached 39.0°C, but fever did not recur. Six sets of blood samples for culture were obtained during the 24-h period prior to initiation of antibiotic therapy. A transesophageal echocardiogram demonstrated a 3–5 mm layer of echo-dense material on the ventricular side of the aortic valve bioprosthesis; a 16-mm, highly mobile aortic valve vegetation; and a mild periprosthetic leak.

Cultures of all blood samples obtained prior to antibiotic administration showed growth on the third day of incubation. A Gram stain of the organism isolated is shown in figure 1.

What is your diagnosis?