Isolated Septic Arthritis Due to *Streptococcus bovis*

*Streptococcus bovis* is commonly present in the rumen of ruminant animals [1] and in the feces of 10%–16% of immunocompetent humans [2]. In humans, *S. bovis* has been identified as a causative agent for endocarditis, bacteremia, and meningitis. Most notably, reports have associated *S. bovis* infection with colonic malignancy. Isolation of *S. bovis* from synovial fluid is a rare finding. We report, to our knowledge, the second documented case of septic arthritis due to *S. bovis* [3]. Since the patient was a dairy farmer, both a ruminal origin of infection and colonic malignancy were investigated.

A 70-year-old male presented to the emergency department with a painful effusion of 2 days’ duration in the left knee. He did not have a known immunodeficiency, injury, or arthropathy. The patient was alert and oriented and had normal vital signs. The effusion was small, and the overlying skin was intact. Aspirated synovial fluid contained 4,000 RBCs/mm³ and 42,400 WBCs/mm³ (94% polymorphonuclear cells and 6% mononuclear cells). Gram staining showed 4+ polymorphonuclear cells and 1+ gram-positive cocci. Polarization microscopy did not reveal the presence of crystals. Septic arthritis was diagnosed, and the patient was discharged with a prescription for oral ciprofloxacin. Culture of the synovial fluid yielded light growth of *S. bovis*.

Two days later, the patient re-presented complaining of an increase in the size of the left knee effusion and pain when he put weight on his left knee. He was admitted to the hospital for surgical drainage of the effusion and was given intravenous vancomycin and gentamicin. Culture of the synovial fluid again yielded light growth of *S. bovis*, which was morphologically and biochemically identical to that previously isolated. Cultures of urine and blood were negative, although they were performed after antibiotic therapy was initiated.

The patient’s knee tenderness and swelling abated over the next week. A pancolonic colonoscopic examination revealed no evidence of pathology. Transthoracic ultrasonography of the cardiac valves did not show evidence of endocarditis. After he had been hospitalized for 2 weeks, he was discharged without sequelae and completed a 10-day course of oral penicillin.

Identification of the patient’s strain of *S. bovis*, termed *S. bovis* RG (author’s initials), was first confirmed by use of the Vitek GPI (bioMérieux Vitek, Hazelwood, MO). The organism was serologically grouped in Lancefield group D by use of Streptex (Murex Diagnostics, Dartford, England) and was identified as *S. bovis* biotype II by use of RapidSTREP (bioMérieux Vitek).

Because the patient was active in the daily operation of a dairy farm, a ruminal origin of infection was considered. Therefore, genomic DNA-DNA reassociations were performed as previously described [4] with DNA isolated from an *S. bovis* human and ruminal bank. The RG strain had <35% homology with JBI and 26 (two different ruminal homology groups) but 68% and 95% homology with human strains ATCC (American Type Culture Collection) 43143 and ATCC 43144, respectively. These findings suggest that the RG strain is probably of human origin.

Accurate differentiation of *S. bovis* biotypes has been recommended on the basis of a correlation between bacteremia caused by *S. bovis* biotype I and gastrointestinal malignancy. *S. bovis* biotype I has been associated with colon cancer in 100% of cases, while biotype II has been associated with colon cancer in only 25% [5]. The lack of findings on colonoscopy is in keeping with this correlation, since the RG strain was biotype II.

Skeletal infections with *S. bovis* are rare, and septic arthritis in particular has been described only once. The patient’s site of infection and lack of risk factors are features unique to this case. Calderon [3] described *S. bovis* septic arthritis in a patient who was immunocompromised because of previous vertebral collapse and progressive functional incompetence and use of oral steroids. The isolation of *S. bovis* RG underscores the potential for infection in an immunocompetent host and confirms *S. bovis* as a rare causal agent of septic arthritis.

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References