**Gardnerella vaginalis Acute Hip Arthritis in a Renal Transplant Recipient**

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We report the case of an acute hip septic arthritis caused by *Gardnerella vaginalis* in a 48-year-old woman under immunosuppressive therapy for kidney transplantation. After surgical resection of the hip and 6 weeks of combination antibiotic therapy, a total hip prosthesis was successfully implanted with no recurrence after 4 years.

**CASE REPORT**

A 48-year-old woman was referred to the orthopedic surgery department of Hôpital Raymond Poincaré for acute left hip pain. The patient had a previous medical history of renal transplant 20 years before and was still receiving immunosuppressive therapy (15 mg daily prednisone and 50 mg daily azathioprine) at the time of admission. The left hip had been chronically painful for over a year due to osteonecrosis of the femoral head. Four weeks before, the pain had gradually worsened after dental care practiced under amoxicillin antibiotic prophylaxis. On admission, the patient presented with severe left hip pain (score of 8 on the visual analog scale). The patient was otherwise apyrexic under corticosteroid and paracetamol therapy. Biology showed elevated white blood cells (10,400/mm³) with 90% polymorphonuclear cells, and elevated C-reactive protein (315 mg/liter). Urine and blood cultures were negative. Radiological evaluation of the left hip showed massive bipolar destruction of the joint space superimposed on the previously known osteonecrosis of the femoral head. A computed tomography scan-guided joint aspiration and bone biopsy, performed prior to the admission, yielded a serous fluid with erythrocytes, polymorphonuclear cells, and no visible microorganisms on Giemsa and Gram stains. Surgical debridement of the hip and drainage were performed the next day, and macroscopic perioperative findings were compatible with acute infective arthritis. Ten specimens were sent for microbiological analysis (3 articular fluid, 2 articular capsule, 3 synovial membrane, and 2 femur and acetabulum surgical biopsies). All of the samples but the bone biopsies and one synovial membrane sample yielded positive cultures for a small pleomorphic rod, also cultured from the preoperative joint aspiration. One of the 10 specimens also yielded *Staphylococcus epidermidis*, as did the joint aspiration. The rod was phenotypically identified by the RAPID 32 Strept biochemical identification system (bio-Mérieux, Marcy l’Etoile, France) as *Gardnerella vaginalis* (code 44006011000; excellent identification; 99.9% identity; typically β-hemolytic on human blood agar. Identification was further confirmed by sequencing a hypervariable 312-bp fragment spanning positions 57 through 369 of the 16S rRNA gene, using BigDye terminator chemistry on an Applied Biosystems genetic analyzer (EMBL database accession no. FM872415). The sequence obtained clustered within GenBank’s 16S sequences for *G. vaginalis*, with >99% identity with the sequence from *G. vaginalis* type strain ATCC 14018 (GenBank accession no. M58744). Antimicrobial susceptibility testing by the agar disk diffusion method (Bio-Rad, Marnes La Coquette, France) showed susceptibility to penicillin, amoxicillin, cefalothin, cefotaxime, vancomycin, macrolides, and rifampin and resistance to gentamicin, fluoroquinolones, tetracycline, cotrimoxazole, colistin, and metronidazole. No β-lactamase was detected with the chromogenic nitrocefin disk assay (Cefinase; Becton Dickinson, Le-Pont-de-Claix, France). The search for carriage of *G. vaginalis* by culture of urine, vaginal swabs, rectal swabs, and throat swabs was negative, and the vaginal smell was not evocative of bacterial vaginosis, with no clue cells and a poor bacterial flora with a predominance of *Lactobacillus*. Resection of the morbid femoral head and neck was performed 7 days after admission, and antibiotic treatment was initiated, consisting of 2 g intravenous amoxicillin three times a day, 400 mg oral (p.o.) pefloxacin, and 600 mg p.o. rifampin three times a day. After 2 weeks, intravenous amoxicillin was switched to p.o. amoxicillin, which was maintained for 4 weeks combined with p.o. pefloxacin and p.o. rifampin. Four months after the hip resection surgery, a negative gallium-technetium scintigraphy ruled out an ongoing infectious process, and an uncemented total hip arthroplasty was performed the next month. Follow-up at 4 years showed a fully functional osteointegrated prosthesis.

*G. vaginalis* is a small nonmotile gram-variable rod most closely related to *Bifidobacterium*, which is commonly associated with bacterial vaginosis (2). To our knowledge, this is the first report of large joint infection caused by *G. vaginalis*. The only previously described bone and joint infection involves a disk space infection (5) that presented as a nonfebrile low back pain of insidious onset in a 50-year-old woman with no remarkable previous medical history. There have also been several reports of reactive arthritis associated with *G. vaginalis* infection with sterile joint fluid (4, 13). In our case, the responsi-
bility of *G. vaginalis* is supported by the recovery of this organism from multiple samples during two distinct procedures. Moreover, it was cultured on blood and chocolate agar, with and without broth enrichment, in a laboratory where *G. vaginalis* had not been previously cultured. The role of *S. epidermidis* is more questionable (12, 15) because this organism was isolated from only two samples, each also yielding *G. vaginalis*. However, superinfection with *S. epidermidis* at a low level could not be totally ruled out, leading us to include pefloxacin in the therapeutic scheme prior to the planned hip arthroplasty.

In such a case of native joint infection, bacteria are thought to seed the joint from the bloodstream during a bacteremic episode (6). *G. vaginalis* bacteremia has occasionally been reported (7, 11, 16) and most often involves neonatal or postpartum settings with patients colonized with *G. vaginalis*. However, the report of bacteremia in a male patient (7) demonstrates that the female genital tract is not the sole reservoir. The dental work performed 3 weeks prior to the acute onset was performed under amoxicillin prophylaxis, but a study of patients with valvular heart disease shows that half of the patients at risk who developed endocarditis had benefited from adequate antibiotic prophylaxis (14). Thus, adequate prophylaxis does not rule out a periodontal portal of entry, even though the oral flora is obviously not the most likely reservoir for *G. vaginalis*. Several factors may have favored *G. vaginalis* infection, including preexisting lesion of the hip due to the osteonecrosis of the femoral head, most likely a complication of long-term corticosteroid therapy, and immunocompromise due to prednisone and azathioprine (6, 8). There is now an increasing body of evidence arguing for infection with noncultivating *G. vaginalis* (1, 3, 9); the abundant cultivating bacteria recovered from our patient could be due to the patient’s impaired immune status.

In the context of a pathological underlying hip, we opted for a radical hip resection as a first step to total hip arthroplasty to restore function of the joint, a strategy successfully used to treat osteonecrosis of the femoral head in the absence of infection (10). In conclusion, we report the first case of large joint arthritis caused by *Gardnerella vaginalis*, a microorganism that can cause significant systemic disease in susceptible patients and is not necessarily confined to the urogenital tract.

**REFERENCES**