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LETTER TO THE EDITOR

Invasive infections with a coagulase-negative staphylococcus in an immunocompromised patient: case report and review of the literature

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Dear Editor,

In immunocompromised patients, coagulase-negative Staphylococci (CoNS) have emerged as a major cause of infection, especially in those with indwelling foreign bodies [9, 10]. Herein, we present a case of septic arthritis caused by CoNS in a neutropenic patient.

A 29-year-old-male patient was diagnosed with common T-cell acute lymphoblastic leukemia after a brief period of sore throat, night sweats, and progressive lymphadenopathy. On February 15 2007, a central venous catheter was placed, and on the next day, induction chemotherapy was initiated (vincristin, daunorubicin, cyclophosphamide, L-asparaginase, intrathecal methotrexate, prednisone). Antimicrobial prophylaxis consisted of colistin, trimethoprim-sulfamethoxazol, and fluconazol. On day 22, he experienced an episode of neutropenic fever, having 0.3×10^9 neutrophils/L. Blood cultures were obtained and empiric therapy with vancomycin, and ceftazidim was initiated. On day 27, one out of four microbial blood cultures appeared positive for CoNS. Because the fever had subsided and neutrophil count returned to normal, antibiotic treatment was discontinued, and the patient was discharged after removal of the central venous catheter. On March 27, consolidation therapy was initiated (6-thioguanine, cyclophosphamide, subcutaneous cytarabine, intrathecal methotrexate) in the outpatient clinic. On day 29, however, he was admitted for evaluation and treatment of neutropenic fever (0.42×10^9 neutrophils/L) and severe pain in the left inguinal area, with impaired range of left hip movement. Physical examination revealed no swelling or edema of his left inguinal and hip area. There were no heart murmurs or other abnormalities. Empiric antibiotic treatment with flucloxacillin and gentamicin was initiated. Conventional radiography and magnetic resonance imaging showed normal bony configurations and little joint fluid and synovitis of the left hip. An arthrotomy with joint lavage was performed, showing hypertrophied capsule but no fluid, pus, or cartilage damage. One of four lavage fluid cultures turned out positive for CoNS. Because there were no indwelling foreign bodies and the clinical aspect of the hip was near normal during arthrotomy, the CoNS were considered as culture contaminants. Symptoms persisted despite empiric antibiotic therapy with flucloxacillin and, eventually, vancomycin treatment was initiated, resulting in a decrease of plasma C-reactive protein (CRP) levels. Because of persistent pain symptoms, a decision

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Table 1 Susceptibility patterns of the different Staphylococcus epidermidis strains cultured over time

Staphylococcus epidermidis	Blood culture MAR 08 2007	Fluid left hip MAR 17 2007	Cartilage left hip JUNE 22 2007	Capsule left hip JUNE 22 2007
Penicillin	0	0	0	0
Flucloxacillin	0	0	0	0
Tetracyclin	+	+	+	+
Gentamicin	0	0	0	0
Sulfamethoxazol	0	0	0	0
Trimethoprim	0	0	0	0
Erythromycin	0	0	0	0
Clindamycin	0	0	0	0
Rifampicin	+	+	+	+
Vancomycin	+	+	+	+
Fusidic acid	0	0	0	0
Tobramycin	0	0	0	0
Ciprofloxacin	0	0	0	0

was made to perform a Girdlestone resection arthroplasty of the hip. Cultures taken during surgery (June 22) from the acetabulum, femur, and joint cartilage were all positive for *Staphylococcus epidermidis*. The strain cultured from the hip joint was apparently identical to the strain obtained from previous cultures, based on the susceptibility pattern of the different strains (Table 1). The patient was treated with vancomycin and rifampicin, following the susceptibility pattern, which resulted in normalization of the CRP.

There are few cases reported in the literature of invasive infections caused by CoNS in immunocompromised patients. Native valve endocarditis caused by *S. epidermidis* has been described in a patient who was misdiagnosed with arteritis temporalis and subsequently treated with high dose prednisone [8], a patient with myelodysplasia and a Mediport [6], and a patient with AIDS and an indwelling dialysis catheter [6]. *S. epidermidis* arthritis has been described before in a patient with acute lymphocytic leukemia, 6 weeks after evident *S. epidermidis* bacteremia [4]. Other *S. epidermidis* infections in patients with acute leukemia include necrotizing dermatitis [3], mandibular osteomyelitis [1], and even septic meningitis [7] and pneumosepsis [2]. Finally, *Staphylococcus cohnii* has been identified as the causative pathogen in a HIV-positive patient with community-acquired pneumonia [5].

The most important observation made in our patient and in others is that although CoNS infections are associated with mild clinical symptoms in the majority of cases, it is, in fact, able to cause severe infections, sometimes weeks after the initial bacteremia and removal of the central venous catheter. The culture of *S. epidermidis* should always be considered potentially hazardous in immunocompromised patients and may necessitate prompt treatment. In future studies on CoNS-related complications, both combination of antibiotics (as opposed to monotherapy) and duration of therapy should be investigated.

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