

Sepsis with multiple abscesses caused by staphylococcus warneri: a case report

Case Report

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Abstract: Coagulase-negative *Staphylococcus warneri* is a rare cause of human disease, which as a rule manifests as an insidious and protracted infection of various prostheses and endovascular catheters. A case of *Staphylococcus warneri* sepsis with multiple abscesses in an immunocompetent patient free from the usual predisposing factors for coagulase-negative staphylococcal infection is presented. To our knowledge, this is the first case of sepsis with multiple abscesses caused by this bacterium reported in the literature.

Keywords: Abscess • *Staphylococcus warneri* • Sepsis

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1. Introduction

Staphylococcus warneri (*S. warneri*) belongs to the coagulase-negative group of staphylococci. It is a common commensal organism of the skin in humans and animals [1]. On Gram stain, it appears as gram-positive cocci forming spherical cells in tetrads and clusters [2]. Like other coagulase-negative staphylococci, *S. warneri* generally causes infections in individuals with heart valve prostheses, cerebrospinal fluid derivation shunts, orthopedic endoprotheses, and peripheral and central venous catheters, in particular in the intensive care unit setting [3-8]. A case of *Staphylococcus warneri* sepsis with multiple abscesses in an immunocompetent patient free from risk factors for coagulase-negative staphylococcal infection is presented.

2. Case report

A 35-year-old man was admitted to the hospital for painful redness and edema of the left lower leg, accompanied by shivering and fever, elevated body temperature up to 40°C, and productive cough with dense brown expectorate, persisting for 7 days. The patient was an ex-heroin addict; however, he denied intravenous inoculation in the past two years and reported good general health. He was aware of his positivity for hepatitis C virus antibodies (anti-HCV), but he did not seek medical help. On admission, the patient was febrile (39.6°C), conscious, mobile; he looked exhausted, respiratory frequency was 30/min, peripheral O₂ saturation 92%, arterial pressure 120/80 mm Hg, and heart rate 140/min. The anterior aspect of the left lower leg showed skin redness and fluctuating edema suspect of subcutaneous abscess, without visible enlargement of regional lymph nodes. Bronchial crackles and inspiration crepitus were heard over lungs bilaterally. There were no cardiac murmurs. The rest of the physical findings were within the normal limits. Laboratory findings on admission in-

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licated acute bacterial infection (increased C-reactive protein and erythrocyte sedimentation rate, leukocytosis with pronounced neutrophilia, mild anemia, and normal platelet count). Alanine aminotransferase showed normal values, and other serum biochemistry findings were also within the normal limits or slightly impaired. Urinalysis yielded normal finding and urine tested negative for opiates. Hepatitis B surface antigen and anti-HIV were negative, while anti-HCV was positive. Chest x-ray revealed multiple abscesses of both lungs without signs of pleural effusion. Upon urgent surgical drainage of the left lower leg with evacuation of purulent content, vancomycin therapy was initiated.

Several days later, using a blood culture system (bio Mérieux BacT/ALERT 3D) gram-positive cocci in tetrads and clusters were isolated from two sets of the patient's blood cultures (bio Mérieux BacT/ALERT FA aerobic culture bottles and BacT/ALERT FN anaerobic culture bottles). In subculture, beige to yellow colonies, about 2-4 mm in diameter, grew on 5% sheep blood agar after 48-h incubation in air at 35°C. The organism was catalase positive and produced negative coagulase reaction by Slidex (bioMérieux). It showed positive results for urease, acetoin production (Voges-Proskauer) and acid production from maltose, trehalose and sucrose. Negative results were recorded for oxidase, coagulase-rabbit plasma, clumping factor, heat-stable nuclease, nitrate reduction, ornithine decarboxylase and acid production from arabinose, raffinose, xylose, mannose and mannitol. Automated identification system VITEK-2 (bioMérieux, Marcy l'Etoile, France) confirmed the isolate as *S. warneri* (ID-GP VITEK-2 card). Antibiotic sensitivity testing performed according to the European Committee on Antimicrobial Susceptibility Testing [9] revealed sensitivity of the organism to oxacillin, penicillin G, clindamycin, erythromycin, gentamicin, tetracycline, ciprofloxacin, TMP/SMX, vancomycin and linezolid. The strain was sensitive to novobiocin and polymyxin B. The same organism was isolated from pus of the left crus along with *Streptococcus viridans* group and *Prevotella disiens*. The patient was switched from vancomycin to intravenous cloxacillin. After 5-day therapy, his body temperature was still elevated up to 39.6°C, while his left thigh gradually became swollen and moderately painful. Plantar arteries showed normal pulsations. Ultrasonography of the left extremity revealed marked edema of the upper leg soft tissues, without signs of venous thrombosis or pus collection. Serum creatine

kinase was within the normal limits. Therapeutic doses of low molecular heparin were introduced. On day 8 of treatment, computerized tomography with angiography revealed large abscess collection in the left upper leg without signs of deep vein thrombosis. Two days after surgical drainage of the abscess the patient became afebrile and recovered with complete healing of both abscesses of his left lower extremity. Transesophageal echocardiography showed no vegetation of the heart valves. The patient was discharged from the hospital after 4-week antibiotic therapy. Chest CT performed at discharge showed consolidation of the lung abscesses. On chest x-ray taken two months later, no pulmonary sequelae were observed.

3. Discussion

Staphylococcus warneri rarely causes infection in individuals free from risk factors such as endovascular prosthetic devices or catheters. These rare cases include reports on a patient with multifocal discitis and another one with natural valve endocarditis [10,11]. To the best of our knowledge, this is the first case of *S. warneri* sepsis with multiple abscesses in an immunocompetent individual. The subcutaneous abscess of the left lower leg was the origin of sepsis. Multiple lung abscesses suggested presence of right sided infective endocarditis or large vein infection, conditions that are usually seen in intravenous drug addicts. In our patient neither endocarditis nor septic phlebitis was verified. In addition, his urine was negative for opiates. Therefore, although previous intravenous drug abuse may have constituted a risk factor, we believe that recent intravenous drug abuse was not the route of infection in our patient. Most patients with invasive *S. warneri* infection have a subacute or even quite insidious course of disease [3,5,6,10]. In contrast, our patient presented with acute disease that did not differ from sepsis caused by more virulent coagulase-positive staphylococci. The lung abscesses followed course as if they had been caused by *Staphylococcus aureus*- they were drained by bronchial route with expectoration of the pus and healed in a manner that is regular for this type lesions without additional complications such as pyopneumothorax. In conclusion, the case presented indicates that *S. warneri* can cause serious community acquired infections in individuals free from predisposing factors.

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