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Case Reports

Septic Arthritis Caused by *Kocuria kristinae* in a Newborn

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Abstract *Kocuria kristinae* can be opportunistic pathogen in immunocompromised or immunosuppressed patients and elderly. We report on the first case of a septic arthritis of the left knee, was treated with antibiotics and surgical drainage, and caused by *Kocuria kristinae* in twenty six-day-old female newborn.

Key words *Kocuria kristinae*; Newborn; Septic arthritis

Introduction

Kocuria kristinae is gram-positive, aerobic microorganism and generally considered as non-pathogenic commensals that colonise on human skin and mucous membranes.[1] But it can be opportunistic pathogen in immunocompromised or immunosuppressed patients and elderly.[2-4] Herein we report a newborn with septic arthritis caused by *K. kristinae.* To our knowledge, this is the first reported case of *K. kristinae* associated with septic arthritis in medical literature.

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Case Report

A twenty six-day-old female newborn was admitted to our hospital with the complaints of a swelling on the left side of the knee, poor feeding and irritability for three days. She had been born in a normal delivery at the 40th weeks' gestation, 2950 gram birth weight, to a 29-year-old mother (G4, P3). There was no history of trauma and heel-prick procedure. Physical examination revealed severe moniliasis in oral cavity and a swelling, warmth, erythema, tenderness, and fluctuance on the left side of the knee (Figure 1). Left lower extremity was moderately flexed. Diameter of the left knee was 19.5 cm, while diameter of the right knee was 14 cm. Laboratory investigation showed white blood count: $15.2x10^3$/uL, haemoglobin: 12.6 g/dL, platelet: $452x10^3$/uL, C-reactive protein: 99.2 mg/L (0-8). Toxic granulation was observed on blood smear examination and immature/total neutrophil ratio was 0.25. Human immunodeficiency virus was negative. Soft-tissue swelling and widening articular space was observed on radiographs of the left knee. Ultrasonography revealed that dense joint effusion and septation. Osteomyelitis was excluded by imaging studies. Needle aspiration from the knee revealed pus. Gram-positive microorganisms and polymorphonuclear leukocytes were observed on gram stains smear. Antibiotics (Cefotaxime and vancomycin) were started. Approximately 60 ml purulent material in the

joint space was drained by surgery. *K. kristinae* was grown in the purulent material culture obtained from knee. *K. kristinae* was identified by using new VITEK 2 gram-positive (GP) identification card (bioMerieux, Marcy l'Etoile, France). Minimal inhibitory concentration determination has been performed for antibiotic susceptibility by Etest. The microorganism was sensitive to cefotaxime (<1) and vancomycin (<1). The treatment was given for four weeks. Blood, cerebrospinal fluid and urine culture were negative. There has not been recurrence of the left knee swelling and there is no any residual destructive bony lesion seen.

Discussion

Infections of the musculoskeletal system are uncommon in newborns. The route of infection is unknown in most cases and is presumed to be haematogenous in origin. The diagnosis of septic arthritis is difficult due to lack of specific symptoms in the neonatal period and usually associated with osteomyelitis.[5] But our patients had specific symptoms of septic arthritis and osteomyelitis was not determined. If septic arthritis is diagnosed promptly and treated early, subluxation and destruction of the joint can be prevented.[5] *Staphylococcus aureus*, group B *Streptococcus*, and enteric gram-negative rods are the most common causative microorganism of acute bacterial arthritis in newborns.[5] Herein, septic arthritis caused by *K. kristinae* is presented.

K. kristinae is part of the flora of the skin and oral cavity. Infection caused by *K. kristinae* is extremely rare. Quite a few case series caused by *K. kristinae* have been reported in the medical literature such as bacteraemia, acute cholecystitis, synovitis and periarticular bursitis.[2-4,6]

Figure 1 Appearance of the left knee.

K. kristinae can be opportunistic pathogen in immunocompromised patient.[2,3] Newborn infants have an increased susceptibility to infection because of a variety of host defense impairments. We accepted as a causative agent of septic arthritis growing of this microorganism in the purulent material cultures and were not accepted as contaminant. We have not found a potential route of entry of the bacterium into the joint except break down of oral mucosal integrity due to severe moniliasis.

The VITEK 2 GP identification card (bioMerieux, Marcy l'Etoile, France has been redesigned to achieve greater accuracy in the identification of gram-positive cocci.[7] It was suggested that the new VITEK 2 GP identification card provides reliable results for the identification of *K. kristinae*.[7-9] We used the new VITEK 2 GP card to identification of the microorganism. The isolate of genotyping was not studied.

Neonatal septic arthritis requires prompt treatment. Irreversible joint damage may occur unless intra articular pus is drainaged and effective antimicrobial therapy started. Until the culture result has been clarified, combine therapy should be initiated with an antistaphylococcal agent and either an aminoglycoside or an extended-spectrum cephalosporin for gram-negative coverage.[10] *Kocuria* species showed in vitro susceptibility to antibiotics such as aminoglycoside (except kanamycin), glycopeptide (vacomycin, teicoplanin), cephalosporins (cephalexin, cephalotin, cefuroxime, cefoperazone, cephazolin, cefotaxime).[9] In our case, microorganism which clarified by culture was sensitive to antibiotics that were initiated empirically. Parenteral therapy should be continued for 3 to 4 weeks or longer until clinical, radiographic and laboratory findings indicate healing. Antimicrobial therapy was given for four weeks in our patient and because of severe illness, no change was made to antimicrobial therapy.

As a conclusion, identification of the microorganism is important in case of infection. Herein we describe the first case of septic arthritis septic arthritis caused by *K. kristinae* successfully treated with antibiotics and surgical drainage.

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