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CASE REPORT

Septic arthritis by *Sphingobacterium multivorum* in immunocompromised pediatric patient

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KEYWORDS
Arthritis;
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Abstract
Objective: To report a case septic arthritis with a rare pathogen in a immunosuppressed child.
Case description: Male patient, 6 years old, had liver transplant five and half years ago due to biliary atresia. Patient was using tacrolimus 1mg q.12h. This patient started to have pain in left foot and ankle and had one episode of fever 3 days before hospital admission. Physical examination showed weight 17kg, height 109cm, temperature 36.4°C, with pain, swelling and heat in the left ankle, without other clinical signs. Initial tests: hemoglobin 11.7g/dL hematocrit 36.4%, leukocyte count 17,600μL^{-1} (7% banded neutrophils, 70% segmented neutrophils, 2% eosinophils, basophils 1%, 13% lymphocytes, 7% monocytes) C-reactive protein 170.88mg/L. Joint ultrasound showed moderate effusion in the site. Patient was submitted to surgical procedure and *Sphingobacterium multivorum* was isolated from the effusion. The germ was susceptible to broad spectrum cephalosporins (ceftriaxone and cefepime) and fluoroquinolones (ciprofloxacin and levofloxacin), and it was resistant to carbapenemic antibiotics and aminoglycosides. He was treated intravenously with oxacillin for 15 days and ceftriaxone for 13 days, and orally with ciprofloxacin for 15 days, with good outcome.
Comments: The *S. multivorum* is a gram negative bacillus that belongs to Flavobacteriaceae family and it is considered non-pathogenic. It has rarely been described as a cause of infections in humans, especially in hospital environment and in immunosuppressed patients. This case report is relevant for its unusual etiology and for the site affected, which may be the first case of septic arthritis described.

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PALAVRAS-CHAVE
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Artrite séptica por *Sphingobacterium multivorum* em paciente pediátrico imunossuprimido

Resumo
Objetivo: Relatar um caso de artrite séptica de etiologia rara em uma criança imunossuprimida.
Descrição do caso: Paciente masculino, seis anos, transplantado hepático havia cinco anos e meio devido à atresia de vias biliares, em uso de tacrolimus 1 mg de 12/12 horas, iniciou dor em pé e tornozelo esquerdo e um episódio de febre três dias antes da internação. Ao exame físico, peso 17 kg, estatura 109 cm, temperatura de 36,4°C, com dor, edema e calor no tornozelo esquerdo e sem outras alterações. Exames da entrada: hemoglobina 11,7 g/dL, hematócrito 36,4%, leucócitos, 17.600/uL (7% bastões, 70% segmentados, 2% eosinófilos, 1% basófilo, 13% linfócitos, 7% monócitos), proteína C reativa 170,88 mg/L. Ultrassonografia articular evidenciou moderado derrame no recesso tíbio talar anterior esquerdo. Feita limpeza cirúrgica com o isolamento do *S. multivorum* na cultura do líquido articular, suscetível a um amplo espectro de cefalosporinas (cefepime e ceftriaxone) e fluoroquinolonas (ciprofloxacino e levofloxacino), esistente a carbapenêmicos e aminoglicosídeos. Tratado com oxacilina por 15 dias e ceftriaxone 13 dias intravenoso e ciprofloxacina via oral por mais 15 dias com boa evolução.
Comentários: O *Sphingobacterium multivorum* é um bacilo gram negativo, pertencente à família *Flavobacteriaceae*, considerado não patogênico, tem sido raramente descrito como etiologia de infecções em seres humanos principalmente em ambientes hospitalares e em imunossuprimidos. O relato deste caso é relevante por sua etiologia incomum e pelo sítio acometido, pode ser este o primeiro caso de artrite séptica descrito.

Introduction

Septic arthritis is caused by the presence of a pathogenic microorganism in the joint space and represents a diagnostic and therapeutic challenge. It affects mainly children and *Staphylococcus aureus* is the most common etiological agent. The implementation of early and appropriate treatment is essential for a favorable evolution without sequelae.[1]

Unusual etiologies of septic arthritis have been reported, also in immunocompetent children, as in the case described in India, from which Achromobacter xylosoxidans was isolated,[2] but immunosuppression is a determining factor regarding the presence of other etiological agents rather than *S. aureus* and unfavorable evolution.

Immunocompromised patients are more likely to develop infections with unusual etiologies, such as *Mycoplasma hominis*, which has been associated with septic arthritis in the immunosuppressed pediatric population.[3] In these patients, the diagnosis is often delayed, which can determine the evolution to erosive arthritis, joint space destruction and sepsis.[4]

Sphingobacterium multivorum is a gram-negative, saprophytic bacillus of the Flavobacteriaceae family, naturally found in soil, plants and water,[5] first described in 1981.[6] It was considered nonpathogenic for a long time, but for some years now it has been described as a cause of infectious processes in human beings.[7]

The objective of this study is to report the case of an immunosuppressed pediatric patient who developed septic arthritis by *S. multivorum*.

Case description

A six year-old male patient was admitted to the Pediatric Emergency Room with a history of pain in the left foot and ankle, together with difficulty in ambulation for five days, with reports of an isolated fever peak (39°C) three days before admission.

At admission, his weight was 17kg, height 109cm, body mass index of 14.3, heart rate of 120bpm, blood pressure of 95×62mmHg, temperature of 36.4°C, with swelling and warmth in the left ankle and mild pain at mobilization. The remaining physical examination was uneventful.

The patient was born at 39 weeks, by cesarean section. The mother reported an uneventful prenatal period. On the second day of life the patient had jaundice and was submitted to phototherapy for eight days. It progressed without improvement and he was referred for outpatient treatment. At three months of age, he was diagnosed with biliary atresia and at six months he was submitted to liver transplantation. He has received immunosuppressive medication since then (currently receiving tacrolimus, 1mg q.12hs). Due to the presence of some phenotypic deviations and single kidney on the right, he is also followed by the genetics discipline of the same institution, but still without a diagnosis. He has a normal karyotype. He is being followed at the Child Development Outpatient Clinic of the same service and all his vaccines are up-to-date for his age.

Laboratory tests at admission: hemoglobin 11.7g/dL, hematocrit 36.4%, white blood cell count of 17,600μL^{-1} (7% band cells, 70% segmented, 2% eosinophils, 1% basophils, 13% lymphocytes, 7% monocytes) and C-reactive protein,