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Onychomycosis by *Fusarium oxysporum* probably acquired in utero

Vania O. Carvalho [a,*], Vania A. Vicente [b,e], Betina Werner [c], Renata R. Gomes [b,f], Gheniffer Fornari [b], Patricia F. Herkert [b], Cristina O. Rodrigues [d], Kerstin T. Abagge [a], Renata Robl [a], Ricardo H Camiña [c]

[a] Department of Pediatric Dermatology, Federal University of Paraná, Hospital de Clínicas, General Carneiro, 181, CEP 80060-900, Curitiba, Parana, Brazil
[b] Postgraduate Program in Microbiology, Parasitology and Pathology, Biological Sciences, Department of Basic Pathology; LabMicro – Laboratory of Microbiology and Molecular Biology, Federal University of Parana, Curitiba, Parana, Brazil
[c] Medical Pathology Department, Federal University of Paraná, Hospital de Clínicas, General Carneiro, 181, CEP 80060-900, Curitiba, Parana, Brazil
[d] Department of Pediatric Infectology, Federal University of Paraná, Hospital de Clínicas, General Carneiro, 181, CEP 80060-900, Curitiba, Parana, Brazil
[e] Fellowship from Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brasilia, Brazil
[f] Fellowship from Coordination for the Improvement of Higher Education Personnel (CAPES), Brasilia, Brazil

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ABSTRACT

Fusarium oxysporum has been described as a pathogen causing onychomycosis, its incidence has been increasing in immunocompetent and disseminated infection can occur in immunosuppressed individuals. We describe the first case of congenital onychomycosis in a child caused by *Fusarium oxysporum*. The infection being acquired in utero was proven by molecular methods with the identification of the fungus both in the nail and placenta, most probably as an ascending contamination/infection in a HIV-positive, immunosuppressed mother.

1. Introduction

Onychomycosis is any nail plate infection caused by dermatophytes, yeasts and non-dermatophyte molds (NDMs). The prevalence of onychomycosis is low in children when compared to adults due to reduced exposure to infected environments, less trauma due to smaller and thinner nail surface and faster linear nail growth [1]. Nevertheless, onychomycosis should be considered in differential diagnosis of nail plate disorders in children and even newborns [2,3].

Fusarium oxysporum is a NDM that has been described as a pathogen causing onychomycosis only in adults [4–6]. Predisposing factors include family history of onychomycosis, habit of walking barefoot, hyperhidrosis, close contact with soil, frequent emersion of hands in water, hot humid climate, systemic immunossupression and diabetes [4,7]. Onychomycosis by *Fusarium oxysporum* was found with high prevalence in immunocompetent patients in a study performed in Brazil [5].

We describe a case of onychomycosis by *Fusarium oxysporum* diagnosed in a 60-days-year-old child whose placenta, umbilical cord and amniotic membranes were also infected. As far as the authors are concerned, this is the first case of *Fusarium oxysporum* onychomycosis in a new born, acquired in utero.

2. Case

A 60-days-old Caucasian girl weighting 4850 g was admitted at a pediatric infectology division (day 60) with fever without source and nail dystrophy with leukonychia of all nails (that her mother described being present since birth). All screening tests for bacterial infection were negative. The child's mother was an 18-year-old vertically HIV infected asymptomatic primigravida with immunosuppression (TCD4 Lymphocytes at delivery of 101 cell/μl). The mother was being treated with high active antiretroviral therapy (HAART), which included zidovudine, lamivudine, tenofovir and lopinavir/ritonavir, but she stopped treatment 30 days before delivery. The baby was born (day 0) by cesarean section with intact membranes at 37 weeks of gestation, weighed 2655 g with Apgar scores of 8 at 1 min and 9 at 5 min, and screening for other congenital infections were negative (syphilis, hepatitis B and C, toxoplasmosis). She received AZT prophylaxis at birth and the first viral load (day+30) was undetectable.

* Correspondence to: Rua Richard Strauss, 62, Vista Alegre, CEP 80 820 110, Curitiba, Paraná, Brazil. Tel.: +55 41 33388313; fax: +55 41 33353477.
E-mail address: rcarvalho50@hotmail.com (V.O. Carvalho).

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Because all tests resulted negative and the fever persisted, she was clinically diagnosed with onychomycosis by candida and probable candidemia, when oral fluconazole (6 mg/kg/d) was started. A clipping of the fingernail showed hyphae on microscopic analysis, but culture was not performed by the time she was evaluated. Blood cultures were negative for fungus and bacteria. Uroculture was negative for bacteria (day+64). Two days after admission the baby was afebrile and then discharged being addressed to Pediatric Dermatology division.

After 30 days of fluconazol (day+94) all nails have improved, but all the fingernails and the 1st and 2nd toenails bilaterally still presented yellow-white discoloration and thickening with involvement of the distal surfaces (Fig. 1).

A second nail clipping was performed for microscopic analysis and again fungal elements were seen (day+94). Ciclopirox nail laquer was added to oral fluconazole. As congenital fungal onychomycosis was under consideration microscopic evaluation of placenta, umbilical cord and amniotic membranes was made and revealed multiple fungal

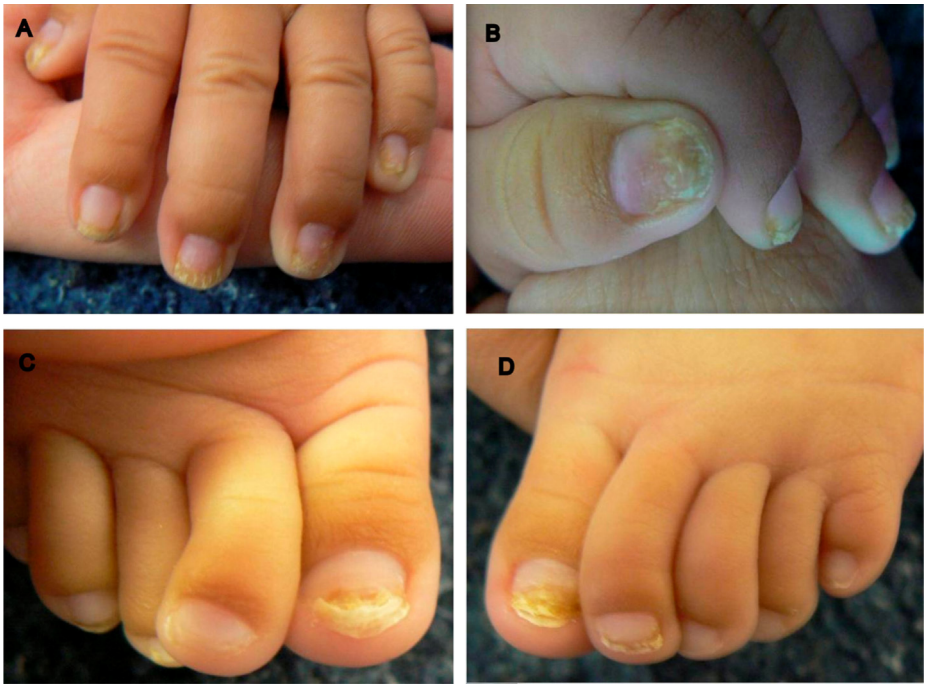

Fig. 1. A and B – Fingers nail with yellow-white discoloration roughness and thickening in distal surfaces. C and D – Toenails with yellowish discoloration, hyperkeratosis and roughness of the distal nail plates.

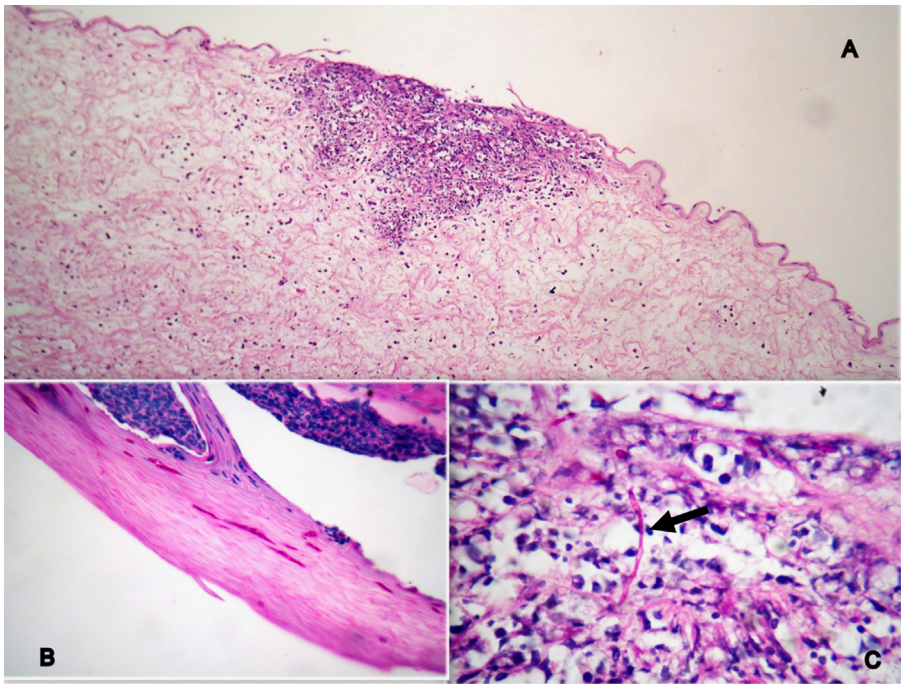

Fig. 2. A. Umbilical chord with foci of acute inflammatory infiltrate at the periphery. PAS with digestion, original magnification x100./ B. Nail Clipping microscopy analysis showed fungal hyphae on nail plate with neutrophil collections. PAS with digestion, original magnification x400. C. Detail of A, the arrow is showing fungal hyphae at the site of acute inflammation. PAS with digestion, original magnification x1000.