COMUNICACIÓN

Nosema like organisms found in an immunocompetent human patient. First report in Central América

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ABSTRACT

*Stool samples of a immunocompetent hypertense 61-year old woman were stained by the Weber et al. method and studied by electronic microscopy. Mature microsporidia spores were found and according to their diplokaryotic nuclei, as well as the typical polar filament with 12 coils, the organisms was classified as **Nosema** like genus.*

Key words: *Nosema, Microsporidia, Immunocompetent patient*

INTRODUCTION

Microsporidia infections have been specially associated with AIDS patients. Primary site of infection could be the gastrointestinal tract or other sites and the genera reported are *Enterocytozoon*¹ *Microsporidium*, *Encephalitozoon*,² and *Septata*³ later described as *Encephalitozoon hellem* and *E. cuniculi* has been reported from eye lesions as well as from other tissues^{5,6}. *Pleistophora* spp⁷ and *Trachipleistophora hominis*⁸ have been described from muscle of immunodeficiency or AIDS patients. However microsporidial infections have also been found in immunocompetent patients. It is the case of Vittaforma cornea and *Nosema ocularum*⁹ and *Enterocytozoon bienewisi*¹⁰ and *Microsporidium africanum* or *M. ceylonensis* found in eye lesions. In addition *Brachiola* species has been related with stromal Keratitis,

myositis and skin lesions¹¹. High antibody titers against *Encephalitozoon* species have been reported in immunocompetent subjects¹².

Microsporidia have been reported in Chile¹³⁻¹⁴ and Argentina¹⁵ and thus far, the first report in Central America is the presence of *E. bienewisi* in Costa Rica¹⁶.

This paper reports, the intestinal presence of *Nosema* like organism in an immunocompetent human patient.

DESCRIPTION OF THE FINDING

A stool sample was collected from a hypertense 61-year old woman who had complained a three days diarrhea period with intense abdominal ache. The specimen was studied by light microscopy and stained by the Weber et al. technique¹⁷. Groups of bright pink-red organisms suggested the presence of

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microsporidian spores, different in morphology to *E. bienewisi* specially regarding to the size. Part of the specimen was fixed with 3% glutaraldehyde followed by 1% osmium tetroxide, dehydrated in an ascending series of alcohol solutions, and embedded in Spurr's epoxy resin.

Ultrathin sections were cut, mounted on copper, grids and stained with 2% uranyl acetate and 2% lead hydroxide. The sections were studied using a Hitachi 7.100 electron microscope.

Characteristic spores end sporoblasts were detected (Figure 1). Sporoblasts and matures spores were oval in shape. Some sporoblasts

presented the characteristic diplokaryotic nuclei (Figure 1, arrow) and in the matures spores a polar filament with 12 coils was shown.

Fürthermore these spores were bounded by a two layer well-developed wall: the electron-dense exospore and the electron-lucent endospore layers (Figure 1, arrow). Other interesting finding is the presence of the tubular appendages reported for *Septata intestinalis* (later *E. intestinalis*)³. They mentioned that this appendages "ocurr singulary, apparently originating from the sporont surface and terminating in an enlarged bulb-like structure"³. These tubular appendages are also reported for *Nosema* in the present study (Figure 2) and a sporoblast with complete appendage (Figure 3) confirms the suggestions³.

All the morphological characteristics already mentioned identify this parasite as a *Nosema* like microsporidia¹⁸. Human infections for this organisms has been reported from corneal lesions; such is the case of *V. cornea* (earlier *N. cornea*) and *N. ocularum* findings¹. On the other hand, *N. connori* has been isolated from different tissues of an athymic male infant 12 and there is a report of an incidental findings of *Nosema* evolutive stages in muscle digested cells, present in feces from a human immunodeficient patient¹⁹. It is interesting to mention that according with Weiss (1998) many of the *Nosema* species has been included in the *Brachida* genus. It has been postulated that the

Figure 1. Mature spore with 12 coils. Note endospore layers (arrow). (0.6 cm = 0.1 μ m).

Figure 2. Tubular appendage (Initial). (0.92cm = 0.1 μ m)

Figure 3. Tubular appendage (complete structure). (1.74 cm = 0.1 μ m)

presence of Microsporidia organisms in fecal samples does not mean intestinal infections²⁰ and that it could only reflect asymptomatic microsporidian carriage⁶. A biopsy examination, besides electron microscopy studies, is suggested for definitive diagnosis. However in our case, treatment with albendazole improved clinically the patient, even when spore excretion continued. Therefore it appears that this report do not represent an incidental findings as the report of McDougall et al.²⁰. In addition, the report of these parasites in human feces is useful for screening purposes. On the other hand, this paper represents the first report in Latin-American countries of this genus of Microsporidia.

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