

REVISTA CHILENA DE PEDIATRÍA



www.revistachilenadepediatria.cl

www.scielo.cl

Rev Chil Pediatr. 2018;89(4):506-510 DOI: 10.4067/S0370-41062018005000404

CLINICAL CASE

Tinea nigra: Report of three pediatrics cases

Tiña negra: reporte de tres casos pediátricos

María Consuelo Giordano L.ª, Alicia De la Fuente L.ª, María Bernardita Lorca I.b, Daniela Kramer H.b,c

^aMedical School Intern, Universidad del Desarrollo-Clínica Alemana

Received: 15-12-2017; Approved: 23-04-2018

Abstract

Introduction: Tinea nigra is a superficial mycosis caused by *Hortaea werneckii*. Its clinical characteristic is the appearance of a blackish brown macula of rapid growth, caused by the pigment produced by the fungus itself. The presence of a dark, fast growing, acral pigmentary lesion causes concern among patients and their treating physician about the possibility of a malignant pigmentary lesion. **Objective:** To present a series of three clinical cases in pediatric patients with this pathology and to show the tools that help to make a differential diagnosis. **Clinical cases:** Three patients between three and five years of age, which present a macular pigmented lesion on palms or soles, whose parents reported a rapid growth over a short period of time. Two of the patients reported previous trips to the Caribbean. Clinical and dermatoscopy suspicion of tinea nigra lead to a direct mycological examination, which confirmed the diagnosis. In all three cases, treatment with topical antifungals led to complete healing of the lesions. **Conclusions:** Although tinea nigra is rare in a dry climate, increasing travel of patients to tropical countries will increase the number of cases. Dermatoscopy and direct mycological examination are the tools that allow performing a correct diagnosis and avoiding unnecessary biopsies and/or surgeries.

Keywords:

Tinea nigra; *Hortaea werneckii*;

Dermatoscopy.

Correspondence: María Bernardita Lorca blorca@alemana.cl

^bDermatologist Clínica Alemana de Santiago

^cPediatric dermatologist, Hospital Luis Calvo Mackenna

Introduction

Tinea nigra is a superficial cutaneous mycoses caused by *Hortaea werneckii* (*H. werneckii*), described by McGinnis and Schell in 1985, previously named *Phaeoannellomyces werneckii* and *Exophiala werneckii*. The current taxonomic classification of this fungus corresponds to the Kingdom Fungi: Phylum Ascomycota; Class: Dothideomycetes; Order: Dothidales and Genus: Hortae¹

Tinea nigra is a mycosis of universal distribution, mainly in tropical and subtropical climates, with a higher incidence rate in Central and South America (Panama, Costa Rica, Mexico, Colombia, Venezuela, Brazil, Argentina, Uruguay and Peru), Asia (India, Sri Lanka and Myanmar), Shores of Africa and the Caribbean². In the literature, there are 155 reported cases of tinea nigra in Latin America between 1966 and 2017.

Due to the low incidence in Chile, the objective of this report is to present 3 characteristic cases in children, and to analyze diagnostic and therapeutic tools.

Clinical cases

Case 1

A 5-year-old male patient with history of a pigmented macula on the foot sole, asymptomatic and with a quick growth. In a previous dermatological examination, a plantar nevus was diagnosed, however, the parents requested another opinion due to the quick growth of the lesion. During the interview, the parents did not refer any recent trips or animal bites. On physical examination, it was possible to observe a brown two-centimeter macula, with irregular pigmentation and shape; it had defined edges, without scales or signs of inflammation (Figure 1). On dermatoscopy, a non-melanocytic lesion was observed, which was characterized by multiple cross-linked brown strands forming a heterogeneous pigment network (Figure 2). In the mycological study, various pigmented septate filaments, which are characteristic of H. werneckii (Figure 3) were seen. The fungal etiology of the pigmented macula reduced the family anxiety after ruling out a nevoid lesion. Topical antimycotics (ciclopirox 1% cream, twice a day for three weeks) were indicated and the patient had a total regression of the lesion.

Case 2

A 3-year-old male patient with a six-month history of a pigmented lesion on the foot sole, which had grown, and without associated symptoms. The patient had visited the Caribbean before the onset of the clinical manifestations. He was referred by his pediatrician due to a "mole which has grown" (Figure 4). The



Figure 1. Pigmented macule on the foot sole.



Figure 2. Dermatoscopy reveals a non melanocytic lesión (multiple interlacing brown strands).

dermatoscopy ruled out a nevoid lesion and multiple septated filaments were observed on the KOH. The treatment indicated was 15% urea and 1% bifonazole cream for three weeks and the patient had an excellent evolution.

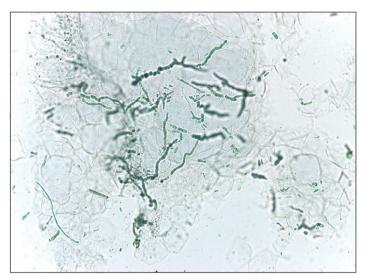


Figure 3. Pigmented septated hyphae characteristic of H. Werneckii.



Figure 5. Fast growing macular pigmented lesión on the hand palm.

Case 3

A 3-year-old male patient, with a four-month history of a pigmented, quick growing lesion on the palm. The patient was referred by his pediatrician due to a "recent mole", which was asymptomatic (Figure 5). He had visited the Caribbean in the last semester. The dermatoscopic diagnosis and the mycological confirmation validated the diagnosis of tinea nigra. The patient had an excellent response to 1% ciclopirox cream twice daily for three weeks.

Discussion

In the differential diagnosis, it is very important to perform a correct anamnesis, emphasizing in the

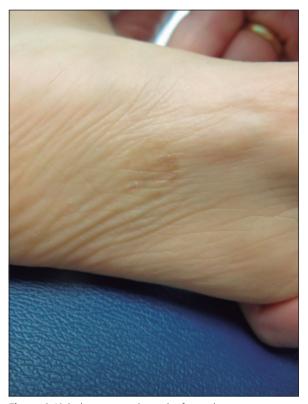


Figure 4. Light brown macule on the foot sole.

progression time, associated symptoms, trips abroad, presence of associated hyperhidrosis, history of bites, drug intake, and occupational or recreational exposure to chemical substances. The dermatoscopy can often be an essential tool in order to differentiate between pigmentation of melanocytic origin, both benign and malignant, from other non-melanocytic pigmentations.

The mycological study, both direct KOH examination and culture, is the key element to confirm the etiological diagnosis in the cases of tinea nigra. The filament pigmentation allows differentiating tinea nigra from other types of dermatophytosis¹.

This disease is more frequent in females than males (2:1) and has a higher incidence rate in children and young adults³.

Pathogenesis

H. werneckii is a halophilic species, which has the ability to survive in high salt concentrations so that most of the cases are reported in coastal zones¹. It is an environmental pathogen found in plants, decomposing plant material, sand, wastewaters, sea mollusks, earth, food with high salt content, even in showers in humid environments. In humans, it feeds the lipid material on the surface of the skin. It tolerates high salt concentrations and low pH levels; therefore, it grows

adequately in the stratum corneum when the humidity and heat conditions are adequate⁴. The predisposing factors for the inoculation of the fungus in the stratum corneum are hyperhidrosis, presence of micro-traumas, such as running barefoot, playing water sports or playing on the river or lake banks³ and animal bites⁵.

It is unknown if it is possible to directly transmit this microorganism from person to person⁴.

After an incubation period of 15 to 20 days, the *H. werneckii* grows forming filaments and brown spores, remaining exclusively at the stratum corneum level. Changes in skin color are due to the accumulation of a substance similar to the melanin inside the fungus⁶.

Clinical presentation

It often appears as an asymptomatic and well delimited, brown, green or grey, single macula or patch, which can be velvety or with a slight scaling. It has also been clinically described as having the aspect of "salt and pepper"7. The most common localization is on the palm of the hand, usually unilateral, and on the feet sole (10% to 20%)8, it can also appear on the neck and trunk. Bilateral involvement is uncommon9. It must be taken into account as part of the differential diagnosis of pigmented lesions such as melanocytic nevi, especially those junctional and acral, lentigo maligna, and malignant melanoma. It should also be considered as a diagnostic alternative in inflammatory pathology, such as fixed drug eruption, post-inflammatory hyperpigmentation or in cases of staining due to chemical products, pigments and dyes (henna, silver nitrate)10.

Dermatoscopy

The dermatoscopy, a non-invasive and handy method that allows the visualization of amplified cutaneous structures, is useful in both pigmented and non-pigmented lesions. The dermatoscope is a modified glass that reveals the cutaneous surface and magnifies the image ten times, which allows the visualization of submacroscopic structures. The presence of polarized light in some of these devices allows its use without direct contact with the skin, which prevents the transmission of infectious agents. Its utility in the diagnosis of skin infections and infestations is demonstrated and it is known as Entodermoscopy¹¹.

It is a quick and effective tool for clinical orientation for the diagnostic suspicion of tinea nigra. In this pathology, the presence of multiple light brown thin lines that cross forming a weave is characteristic¹². It has also been described as a hyperchromic patch with a regular distribution of the pigmentation and the presence of spicules on the edges¹³. In the case of benign acral nevi, the presence of nevus cell nests, which tend to localize predominantly in the furrows is characteris-

tic¹⁴. The pigmentation does not follow the parallel ridges pattern described for melanomas, even when there are two reports that reject this^{15,16}.

Diagnosis

In most of the patients, the diagnosis is clinical and dermatoscopical, which can be confirmed by a direct mycological KOH test or fungal culture. The visualization of the scale smear is often diagnostic, where it is possible to observe pigmented septate filaments⁴. *H. werneckii* cultures grow fast in usual fungal media, observing black colonies in five to eight days, creamy at first, then fluffy¹⁷.

Treatment

Topical keratolytics are effective, such as Whitfield's ointment (salicylic acid 3% and benzoic acid 6%), and urea-based products, as are topical antifungals (azoles and allylamines). The use of topical terbinafine and butenafine have recently also reported with an effective response. With these measures, it is possible to accomplish a complete recovery in two to four weeks; however, there can be a recurrence in case of re-exposure. In the literature, there are also reports of successful cases where the patients were treated with oral itraconazole, with doses that vary from 100 to 200 mg/day per three to four weeks^{1,18}. Likewise, there are some cases of spontaneous recovery from this mycosis¹⁹.

Conclusion

Despite being a rare pathology in dry weather countries such as Chile, its incidence rate can increase due to the globalization and the trend of the population traveling abroad, therefore pigmented lesions of diffwerent etiologies should be considered during examinations.

Pigmented acral lesions are often a diagnostic challenge for the treating physician. The dermatoscopy allows an easy diagnostic approximation by ruling out, in these cases, the presence of nevus-like structures in these lesions.

The examination with mycological test, which confirms the tinea nigra diagnosis, prevents the performance of unnecessary biopsies.

Ethical Responsibilities

Human Beings and animals protection: Disclosure the authors state that the procedures were followed according to the Declaration of Helsinki and the World Medical Association regarding human experimentation developed for the medical community. **Data confidentiality:** The authors state that they have followed the protocols of their Center and Local regulations on the publication of patient data.

Rights to privacy and informed consent: The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the correspondence author.

Financial Disclosure

Authors state that no economic support has been associated with the present study.

Conflicts of Interest

Authors declare no conflict of interest regarding the present study.

References

- Cabrera R, Sabatini N, Urrutia M, Sepúlveda R. Tiña negra (tinea nigra): comunicación de un caso alóctono en Chile. Rev Chilena Infectol 2013;30(1):90-3.
- González A, Carballido C, Bello O. Tinea nigra: a report in Matanzas. Rev Med Electron. 2016;38:2.
- Romero M, Castillo A, Sánchez A, Arenas R. Tiña negra. Revisión de la literatura internacional y énfasis de casos publicados en México. Dermatología CMQ 2012;10(3):206.
- Sobera J, Elewski B. Infecciones por hongos. En Bolognia J., Jorizzo J., Rapini R., Dermatología, Madrid: editorial Elsevier 2004;1172-74.
- Rossetto A, Rossetto P, Cruz R,
 Figueiredo E, Junior V. A case of
 Tinea nigra associated to a bite from a
 European rabbit (Oryctolagus cuniculus,
 Leporidae): the role of dermatoscopy in
 diagnosis. An Bras Dermatol. 2014;89:1.
- 6. Motta A, Sopó L, Knudson A. Haga usted

- el diagnóstico, Segunda parte. Revista Biomédica 2008;28:295-7.
- Arenas R. Capítulo 97: Tiña negra palmar. En: Dermatología; atlas, diagnóstico y tratamiento. Editorial McGraw-Hill 6ª edición 2015.
- Sánchez L, Matos R, Kumakawa H. Infecciones micóticas superficiales, Revista Dermatología Peruana 2009;19(3):254-6.
- Pitiouras P, Allison S, Rosendahl C, Buettner P, Weedon D. Dermoscopy improves diagnosis of tinea nigra: A study of 50 cases. Austral J Dermatol 2011;52:191-4.
- Sarangi G, Dash D, Chayani N, Patjoshi S, Jena S. Bilateral Tinea Nigra of palm: A rare case report from Eastern India. Ind J Med Microbiol 32(1):88.
- Zalaudek I., Giacomel J., Cabo H. et al. Entodermoscopy: A New Tool for Diagnosing Skin Infections and Infestations. Dermatology 2008; 216:14-23.
- 12. Cabo H. Dermatoscopia, Segunda edición, Buenos Aires 2016, Ediciones

- Journal, capítulo 14 pag. 328.
- Navarrete M, Castillo A, Sánchez A, Arenas R. Dermatología CMQ 2012;10(3):205-11.
- 14. Cabo H. Dermatoscopia, Segunda edición, Buenos Aires 2016, Ediciones Journal, capítulo 11.2, pag 282.
- Noguchi H, Hiruma M, Inoue Y, Miyata K, Tanaka M, Ihn H. Tinea nigra showing a parallel ridge pattern on dermoscopy. J Dermatol 2015;42:1-3.
- Nazzaro G, Ponziani A, Cavicchini S. Tinea nigra: A diagnostic pitfall. J Am Acad Dermatol 2016;75 e219-20.
- Chávez M, Estrada G, Estrada R, Bonifaz A. Tiña negra. Comunicación de cinco casos en Acapulco. Dermatol Rev Mex 2013;57:473-8.
- Gupta G, Burden A D, Shankland G S, Fallowfield ME, Richardson MD. Tinea nigra secondary to Exophiala werneckii responding to itraconazole. Br J Dermatol 1997;137:483-4.
- 19. Rossetto A, Bella Cruz R. Spontaneous cure in a case of tinea nigra. An Bras Dermatol 2012; 87(1):160-2.