

Tinea nigra: a rare case report from the Recôncavo region of Bahia, Brazil

Tinea nigra: um raro relato de caso na região Recôncavo da Bahia, Brasil

George Gonçalves dos Santos¹

¹MD, Health Sciences Center, Federal University of Recôncavo da Bahia – UFRB, M.Sc, Ph.D in Interactive Processes of Organs and Systems, Health Sciences Institute, Federal University of Bahia – UFBA, Adjunct I Professor, Health Sciences Center, Federal University of Recôncavo da Bahia – UFRB, Physician, Family Health Strategy, Amargosa-BA.

Abstract

Introduction: *Tinea nigra* is a rare dermatophytosis caused by the fungus *Phaeoannellomyces werneckii* that occurs predominantly in coastal areas of tropical and subtropical regions. Although the diagnosis is primarily clinical, in some cases, microbiological confirmation with direct microscopy of the skin scraping may be necessary due to the variety of differential diagnoses with semiological characteristics similar to *Tinea nigra*. Definitive treatment of this dermatophytosis can be easily achieved using topical antifungals, such as imidazole derivatives. **Case report:** this study reported a case of *Tinea nigra* identified in a four-year-old male patient treated at the Primary Health Care Center in Amargosa, a city located in the Recôncavo region of Bahia. **Discussion:** despite the diversity of existing clinical forms, the lesion described in this report presented clinical-epidemiological and semiological characteristics in agreement with most cases reported in the national and international literature. During treatment with topical clotrimazole, the lesion regressed completely after two weeks. **Conclusion:** therefore, the present study ratified the importance of clinical accuracy in the approach to *Tinea nigra*, to avoid diagnostic errors and unnecessary medical procedures that can be harmful to patients.

Keywords: Dermatophytoses; hand dermatoses; fungi; tinea.

Resumo

Introdução: a *Tinea nigra* é uma rara dermatofitose causada pelo fungo *Phaeoannellomyces werneckii* que ocorre, predominantemente, em áreas litorâneas de regiões tropicais e subtropicais. Embora o diagnóstico seja iminentemente clínico, em alguns casos pode ser necessário a confirmação microbiológica com microscopia direta do raspado dérmico, devido à variedade de diagnósticos diferenciados com características semiológicas semelhantes à *Tinea nigra*. O tratamento definitivo dessa dermatofitose pode ser facilmente alcançado com uso de antifúngicos tópicos, como derivados imidazólicos. **Relato de caso:** no presente trabalho foi reportado um caso de *Tinea nigra* identificada em um paciente masculino, quatro anos de idade, atendido na Atenção Primária à Saúde de Amargosa, município situado na região Recôncavo da Bahia. **Discussão:** apesar da diversidade de formas clínicas existentes, a lesão descrita nesse relato apresentou características clínico-epidemiológicas e semiológicas de acordo com a maioria dos casos relatados na literatura nacional e internacional. Ao longo do tratamento com clotrimazol de uso tópico, a lesão regrediu totalmente após duas semanas. **Conclusão:** portanto, o presente trabalho ratificou a importância da precisão clínica na abordagem à *Tinea nigra*, de modo a evitar erros diagnósticos e, dessa maneira, procedimentos médicos desnecessários que podem lesivos aos pacientes.

Palavras-chave: Dermatomicoses; dermatoses da mão; fungos; tinea.

INTRODUCTION

Tinea nigra, also known as “pitiríase negra”, “ceratofitose negra”, “microsporosis nigra”, “keratophytia nigra”, “cladosporiose epidérmica”, and “keratomycosis nigricans”¹, is a cosmopolitan dermatophytosis – a benign superficial fungal infection – caused by the dematiaceous fungus *Phaeoannellomyces werneckii*²⁻⁵, belonging to the *Phaeoannellomyces* family⁴. This microorganism induces a chronic infection in the stratum corneum of the epidermis, characterized by the appearance of well-defined brownish-black macules, which are generally asymptomatic². It is believed that the infection occurs through

the inoculation of *Phaeoannellomyces werneckii* from a contamination source such as soil, sewage, wood, or compost, following trauma to the affected area. This clinical condition more frequently affects young individuals, particularly females, with a higher socioeconomic status, and its most common location is the palmar region^{1,2}.

This rare condition mainly occurs in cities with coastal areas, making *Tinea nigra* a disease of tropical and subtropical regions^{1,3-6}. The limited epidemiological data available indicate that *tinea nigra* has occurred sporadically in different parts of the world, including the Americas and the Caribbean, southern Africa, Australia, Europe, and the Far East. In Brazil, the few cases reported in the literature have been identified in the states of Paraná, São Paulo, Rio de Janeiro, Espírito Santo, and Bahia, all of which are coastal regions¹.

In Brazil, this superficial mycosis was first observed in the year 1891, in the state of Bahia, by the researcher Al-

Correspondente/ Corresponding: *George Gonçalves dos Santos
<https://orcid.org/0000-0001-8601-5825> – End: Centro de Ciências da Saúde, Universidade Federal do Recôncavo da Bahia, Avenida Carlos Amaral, Cajueiro, CEP 44574-490, Santo Antônio de Jesus, Bahia, Brasil.
Tel.: (75) 36321724 – E-mail: geogoncalves@yahoo.com

exandre Evangelista Cerqueira, although this investigation was never published. Posteriorly, in the year 1916, these observations were mentioned by his son, Antonio Castro Pinto Cerqueira, in his doctoral thesis, with the report of eight clinical cases of *Tinea nigra*^{2,4,6,7}, described as *Keratomycosis nigricans palmaris*⁸. However, this description was also not disseminated in a scientific publication in its entirety⁶. Ears later, in 1921, João Ramos e Silva diagnosed *Tinea nigra* in a patient in Rio de Janeiro⁶, city where, subsequently, in 1922, the microbiologist Parreira Horta carried out the microbiological isolation, classification, and the first detailed description of the fungus, giving it the denomination *Cladosporium werneckii*^{4,7}. In this context, as a rule in the scientific community, priority is given to dated publications, the credits for the first records and investigations of *Tinea nigra* in the Americas belong to Silva and Horta.

The diagnosis of *Tinea nigra* is predominantly clinical, which can be established through the completion of a complete and detailed anamnesis regarding the epidemiological aspects and the clinical evolution of the lesion; and a well-defined and thorough physical examination⁴, with the aid of dermatoscopy, for example, a non-invasive method used in the last twenty years as a facilitator in the diagnosis of numerous skin diseases, such as infectious diseases and other infestations (Entodermoscopy)^{5,8}. In general, *Tinea nigra* manifests clinically with the appearance of a single macule of chronic evolution, asymptomatic⁴, characterized by a brownish-black pigmentation, irregular, acral, usually located on the palms of the hands and soles of the feet, which gradually increases in size and may be confused with melanocytic lesions^{1-3,5,8}. Despite these peculiar characteristics, it may sometimes exhibit a geographic shape, alluding to the "Coeur de Voh"⁴. Therefore, during the clinical investigation of a suspected case of *Tinea nigra*, considering the numerous dermatoscopic patterns of existing skin lesions, some differential diagnoses should be taken into account, with the main ones being the junctional nevus and melanoma^{1,4}.

Although the diagnosis is clinical, in cases of doubt, direct mycological examination can be performed for microbiological confirmation^{1,4,6,9}, through tissue sampling from the dermal scraping of the lesion, from which potassium hydroxide (KOH) is used, with a concentration between 10% to 20%, in an aqueous solution of dimethyl sulfoxide $[(CH_3)_2SO]$ ^{2-4,7}. When used, this method, considered the main one to be applied for this purpose, can show the presence of multiple dematiaceous hyphae (dihydroxynaphthalene melanin pigment), short, branched, with septa^{1,2,4}, which present thick or thin ends, usually hyaline, of variable diameter, light brown conidia, elliptical, unicellular and bicellular, peculiar characteristics of *Phaeoanellomyces werneckii*⁴.

Considering the fact that it is a benign dermatophytosis, the treatment of *Tinea nigra* is predominantly clinical and, in general, does not present difficulties. Over the course of days, the lesions already show satisfactory regression with the use of topical antifungals, with the option of using imidazole derivatives^{1,7,9}.

Therefore, in view of being a rare clinical condition, the purpose of this study was to present a case report of *Tinea nigra* diagnosed in Amargosa, Recôncavo region of Bahia.

CASE REPORT

A 4-year-old male patient, white, with no previous comorbidities, was admitted to the medical outpatient clinic of Primary Health Care accompanied by his mother who reported the appearance of a circular, darkened spot on the palm of the left hand, which has been progressively increasing in size for approximately three months prior to the appointment. Denied pain, itching, scaling, laceration, abrasion, or any other associated signs or symptoms. Denied using topical or systemic medications to treat the lesion during the observation period. The patient resides and comes from Amargosa, a city located in the territory of Vale do Jiquiriçá, southwest of the Recôncavo region of Bahia, Brazil. According to the mother, he usually visits the beach monthly and frequently handles plants and soil. Additionally, she reported that the patient had no prior history of other skin conditions, nor was there any report of maternal or paternal relatives having undergone treatment for more complex epidermal comorbidities, such as neoplasms.

In the physical examination, the presence of a single macule, with a circular shape, measuring approximately 2.5 centimeters in diameter, located in the thenar eminence area on the palmar region of the left hand, was noted (Figure 1). The macule presented subtly delimited borders, without the presence of scaling, with irregular pigmentation, brownish-black in color, distributed within and at the edges of the lesion (Figure 2). During a general inspection of other anatomical sites, such as the arms, legs, trunk, back, and scalp, no noteworthy alterations or other epithelial lesions similar to the one described were detected.

Figure 1 – Photograph depicting the anatomical location of the pigmented macule.



Note the pigmented lesion in the thenar eminence area of the left palm.

Source: Own authorship.

Figure 2 – Photograph highlighting the pigmentation of the macule.



Note the irregular distribution of brownish-black color throughout the lesion, characteristic of *Tinea nigra*.
Source: Own authorship.

The mycological examination was requested for microbiological confirmation. However, during the technical evaluation for performing the dermal scraping, in the collection sector, considering the patient's age, skin thickness, and the necessary amount of tissue to be removed to obtain a satisfactory sample for enabling a robust and conclusive analysis, the medical principle 'Primum non nocere' was employed, and due to the potential risk of unnecessary injury, the dermal scraping was not performed.

After establishing the clinical diagnosis of *Tinea nigra*, the patient underwent drug treatment with a topical antifungal derived from imidazole (clotrimazole). During clinical follow-up, just one week after the start of treatment, a noticeable regression of the lesion was observed (Figure 3), where the pigmentation of the macule appeared lighter (Figure 4).

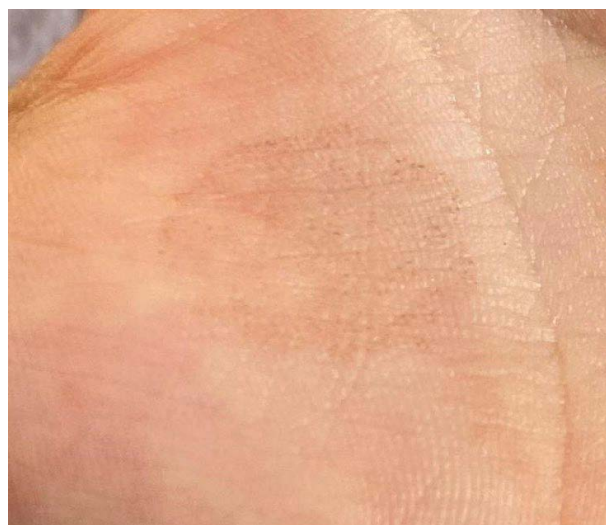
Figure 3 – Photograph depicting the anatomical location of the pigmented macule, after one week of treatment.



Note the less noticeable macule in the area of the thenar eminence of the left palm.

Source: Own authorship.

Figure 4 – Photograph showing the pigmentation of the macule, after one week of treatment.



Note that the lesion exhibits a fainter and less distinct brownish coloration, indicating a significantly considerable regression of the lesion.

Source: Own authorship.

After two weeks of treatment, under clinical evaluation, complete disappearance of the macule was evidenced (Figures 5 and 6). With the purpose of preventing new recurrence and the possibility of relapse, continuation of the treatment for another four weeks was advised. Following this, the patient was monitored for an additional two weeks without any pharmacological intervention, during which no signs of lesion recurrence were observed. Thus, a total of two months elapsed from the patient's admission to the conclusion of the case as resolved.

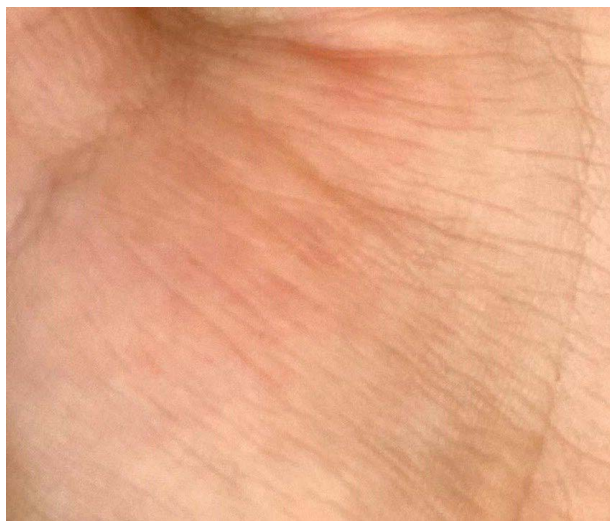
Figure 5 – Photograph of the previous anatomical location of the pigmented macule, after two weeks of treatment.



Note that in the image, clearly, it is not possible to observe the presence of the lesion in the area of the thenar eminence of the left palm, where it was previously evident.

Source: Own authorship.

Figure 6 – Photograph certifying the absence of pigmentation of the macule, after two weeks of treatment.



Note that there are no longer any traces of the brownish coloration, confirming the complete regression of the lesion, resulting from the treatment.

Source: Own authorship

DISCUSSION

Tinea nigra, a dermatophytosis considered rare in the medical field, is a fungal infection that occurs more frequently in coastal areas of tropical and subtropical regions, considering that its etiological agent, *Phaeoanellomyces werneckii*, appears isolated in soil, on plants, in moist locations, and with a high concentration of salt, such as beach sand⁹. In the first decade of the 2000s, 65 cases of *Tinea nigra* were reported in Brazil, of which 37 were published in scientific journals and 28 were presented at conferences². Of these, 18 did not report the age of the patients, highlighting the challenges in obtaining comprehensive data in our country². Although this microorganism was first detected in Salvador, there are currently few published case reports from the state of Bahia, and no cases have been reported in the Recôncavo region to date. In the case reported in this study, despite the pediatric patient being a resident and originating from a non-coastal city – Amargosa, in the interior of the Recôncavo region of Bahia – he has a habit of visiting the beach, which indicates the main hypothesis of infection occurring on the coast, although he also has daily direct contact with plants at home. In view of this, it is important to consider, during clinical practice, the possibility of this diagnosis even in cities in non-coastal regions, in individuals with skin lesions with semiological characteristics similar to *Tinea nigra* that may fit this mycosis as a differential diagnosis.

Anatomically, the literature cites the left palmar region as the most affected site by *Tinea nigra*^{1,4,6}, similar to the involvement presented in this case report. However, there is the possibility of involvement in other sites¹⁰ and

with other formats, such as the geographic⁹. The predominant hand could be related to this more frequent pattern of involvement, due to constant contact with surfaces colonized by the fungus, although, in the report, during the anamnesis, the mother stated that it has not yet been possible to identify the patient's predominant hand, due to his age. Thus, in the face of the variety of presentation, bilateral, observed in other case reports¹, it is emphasized that it is not possible to attribute the predominant hand as a determining factor of the site of involvement of *Tinea nigra*, especially in the case of younger children.

In recent decades, dermatoscopy has emerged as an auxiliary method during dermatological physical examination for the diagnosis of *Tinea nigra*, especially in those cases where the lesions present semiological characteristics very similar to other pathologies, such as melanoma and melanocytic junctional nevus^{5,8}. The latter, through dermatoscopy, presents a regular pigment network 'in honeycomb', with a brownish and uniform tone or more prominent in the center and gradually fading towards the edges. In cases of cutaneous melanoma, the lesions present an asymmetrical aspect, with polymorphism of structures and colors, and irregular shape. *Tinea nigra*, despite presenting a brownish-black lesion, affects only the stratum corneum of the epidermis, as noted in the physical examination of the case reported in this study, unlike these two previously mentioned pathologies^{1,2}. This becomes crucial during the diagnostic differentiation, as elucidated by Criado, Delgado, and Pereira⁸ (2013), who emphasized the importance of dermatoscopy in the diagnosis of *Tinea nigra*, considering that this lesion presented 'pigmented spicules' that formed an almost reticulated patch. It is noted, therefore, that the routine use of other diagnostic methods, such as histopathology, becomes unnecessary in the vast majority of cases, being exceptionally used when the main diagnostic hypothesis is not the mycosis under study¹. In the case reported in this study, the diagnosis was established strictly clinically, and the decision not to perform mycological examination, through dermal scraping, took into consideration the safety and maintenance of the patient's physical integrity, which did not compromise the diagnosis and did not influence the treatment. This decision highlights the importance of knowing the pathology for establishing the correct clinical diagnosis, through careful anamnesis and thorough physical examination. Furthermore, considering that this is a dermatophytosis that frequently affects younger children, the risks of routine microbiological collection should be weighed.

It is established in the literature that *Tinea nigra* regresses considerably after the correct use of topical antifungals, with imidazole derivatives being the most commonly employed for disease remission⁴. Generally, treatment should be continued for an additional period ranging from two to four weeks after complete resolution, which can prevent recurrences and avoid relapses⁴. This fact was corroborated in the clinical case reported in this

study, in which the lesion showed complete regression after two weeks of treatment with topical antifungal based on imidazole derivative (clotrimazole). However, in some peculiar situations, where the lesion is not classically located on the palmoplantar surfaces, such as involvement in the interdigital region of the feet, treatment tends to become more complicated¹⁰.

CONCLUSION

The present case report corroborates that, despite *Tinea nigra* being a condition easily resolved with simple topical clinical treatment, conducting non-criteria-based clinical approaches can lead to frequent diagnostic errors. It is essential for generalist physicians, not just dermatologists and other specialists, to have knowledge of this dermatophytosis. This way, excessive laboratory testing requests, unnecessary referrals to specialists, and harmful medical procedures can be avoided, along with damaging treatments such as surgical resections.

Therefore, the importance of thoroughly investigating the clinical-epidemiological history of patients suspected of *Tinea nigra* is emphasized, beyond the clinical aspect of the lesion, especially regarding the origin of individuals residing in regions relatively close to coastal areas where most infection episodes may occur, as in the case reported in this study.

ACKNOWLEDGMENT

To Mrs. Wanessa Geórgia França Cunha de Oliveira and J. F. F. O., for their consent, understanding, availability, patience, and collaboration during the provision of the necessary information for the conception, feasibility, elaboration, conduct, and completion of this study.

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Submetido em 02/10/2024

Aceito em 02/01/2025