Dermoscopy in the Diagnosis of Tinea Nigra Plantaris

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Tinea nigra is a relatively uncommon dermatophyte fungal infection, usually caused by Phaeoannelomyces werneckii, that may mimic a melanocytic lesion. We describe the value of epiluminescent dermoscopy of tinea nigra plantaris compared with other common diagnostic tools and procedures available (clinical appearance, potassium hydroxide [KOH], culture, culture mount preparation, and biopsy). A case of tinea nigra plantaris was evaluated clinically, microscopically with KOH, and dermatoscopically. Dermatoscopic findings were evaluated according to the Stolz system. Dermoscopy, clinical presentation, and microscopy with KOH all confirmed the diagnosis, with dermoscopy being the fastest and simplest procedure. Dermoscopy is a useful clinical adjunctive tool in differentiating tinea nigra from a melanocytic lesion.

Figure 1. Hyperpigmented macula on the plantar surface of the right foot.

Case Report
A 35-year-old man from a coastal area of Florida presented with an asymptomatic, slowly enlarging hyperpigmented macula on the plantar surface of the right foot (Figure 1). The patient had noticed the macula 6 months earlier.

Dermatoscopic (magnification ×10) examination of the lesion showed a homogeneous nonmelanocytic pigment pattern that did not follow the dermatoglyphic lines in the irregular macula (Figure 2). Microscopic examination of a superficial scraping of the lesion in 20% potassium hydroxide (KOH) with dimethyl sulfoxide showed brown, septate, branching hyphae (Figure 3). A culture of the lesion grew a non–P. werneckii entity that could not be confirmed as either the pathogen or a common contaminant.
Tinea nigra is most frequently seen in tropical or subtropical areas where fungus is ubiquitous (e.g., found in soil, sewage, decaying vegetation). Children and young adults are most commonly infected. Predominance in females has been reported. Higher incidence in the palms and soles may be related to increased concentration of sweat pores in these areas. The incubation period, studied in both humans and animals, ranges from 2 to 7 weeks; there has been a single report of a 20-year incubation after an experimental inoculation.

Tinea nigra usually presents as a solitary, unilateral, brown-to-black, sharply margined, slowly enlarging macula. Bilateral and multiple lesions have been reported. Tinea nigra can easily be mistaken for junctional nevi, lentigines, and malignant melanoma. The benign nature of this infection can be determined by KOH, culture, dermoscopy, or surgical procedure. Pigmented, septate, branching hyphae can easily be seen from KOH examination of scraped lesions. P. werneckii grows slowly in Sabouraud dextrose agar or in an equivalent medium. Initially, the colony is yeastlike, but then it turns greenish.
black. A wet-mount preparation taken from the culture shows bilobate conidia and hyphae. Biopsy specimen sections stained with hematoxylin and eosin (H&E) show brown hyphae in the stratum corneum (Figure 4). Dermoscopy offers a simple, rapid, and noninvasive alternative for the diagnosis of tinea nigra. Physicians using the dermatoscope should be familiar with the patterns of melanocytic lesions in various anatomic locations, including acral skin. Gupta et al originally described the dermatoscopic findings of tinea nigra as a nonmelanocytic pattern of pigmented spicules. The spicules and the pseudonetwork created (Figure 2) may be misinterpreted as a melanocytic pigmented network if the dermatoscopist is unfamiliar with the dermatoscopic appearance of acral melanocytic lesions. This macula, scored according to the Stolz system, could be interpreted as a melanoma and, thus, could lead to unnecessary biopsy. (If a dermatoscopist interpreted the pattern as a melanocytic pattern, the score for this lesion could be as high as 5.5; scores of 5.45 or higher are “highly suggestive” of melanoma.) Dermatoscopic interpretations are
always best considered in the light of the histopathologic correlates of each finding. Acral skin is characterized by long parallel ridges that often follow dermatoglyphic lines. When considering the normal anatomy of acral skin, we quickly realize that the pattern seen here could not possibly be a neoplasm arising at the dermal-epidermal junction or papillary dermis because tinea nigra lacks the characteristic streaking along the papillary ridges. Figure 5 shows a benign palmar junctional nevus with a homogenous pattern of pigmentation following the dermatoglyphs. Even in nonmelanocytic lesions (eg, those resulting from trauma to acral skin), hemorrhage in the upper dermis and lower epidermis follows dermatoglyph lines (Figure 6). Melanocytic nests in the dermis may fail to show these streaks, but we would not see the fine crisp lines and “spicules.” Absence of parallel streaks in tinea nigra (Figure 2) suggests that the pigment is within the stratum corneum.

Dermoscopy is a useful tool in the diagnosis of tinea nigra, thus aiding in differentiating this lesion from a pigmented lesion that should be biopsied. Until the dermatoscopic pattern of tinea nigra is verified in a larger series, dermoscopy should be used with KOH examination of superficial scrapings of the lesion for confirmation.

REFERENCES