

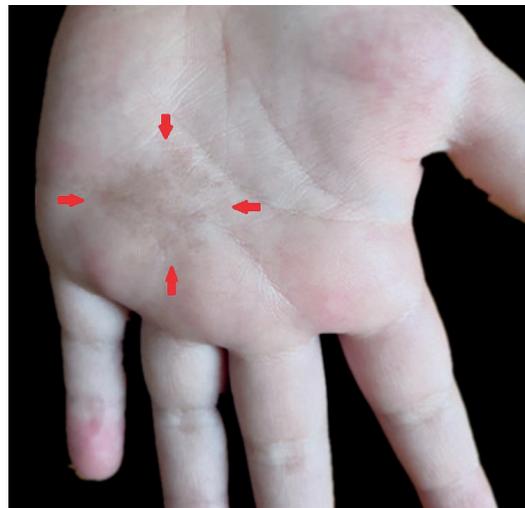
## Hyperpigmentation on the Palm in a Three-year-old Girl: A Quiz

Gongjun XU<sup>1</sup>, Huan MEI<sup>2</sup>, Zhigang HONG<sup>3</sup>, Suying FENG<sup>4</sup>, Jinglun XU<sup>1</sup>, Jinxian FANG<sup>1</sup>, Xianghua LV<sup>1</sup> and Xiaohua ZHOU<sup>1</sup>

<sup>1</sup>Department of Dermatology and <sup>3</sup>Department of Mycology, the Fifth Hospital of Jinhua city, No. 208 Wuyi Road Jinhua, China, <sup>2</sup>Department of Mycology, Institute of Dermatology, Chinese Academy of Medical Sciences and Peking Union Medical College, and <sup>4</sup>Department of Dermatology, Institute of Dermatology, Chinese Academy of Medical Sciences and Peking Union Medical College, China. E-mail: jxfxxgj2009@163.com

A 3-year-old girl presented with a 2-year history of hyperpigmentation on her left palm. First, the girl's parents accidentally found an asymptomatic pale brown spot the size of a rice grain on her left palm, which did not disappear after scrubbing. Later, the number of pale brown spots gradually increased and subsequently spread and merged with one another, forming irregular pale brown patches. The lesion was diagnosed as an acral naevus or acral melanoma. The girl had no history of trauma prior to disease onset or any history of flower or soil contact, did not live in a rural or coastal area, and did not have any history of systemic diseases. Physical examination revealed a brown non-scaly macule with a geographic shape, which measured 1.5×1.5 cm in diameter and was present on the left palmar area. It had sharp borders without scales or signs of inflammation (Fig. 1).

*What is your diagnosis? See next page for answer.*



**Fig. 1.** Brown, non-scaly macule on the left palm.

## ANSWERS TO QUIZ

## Hyperpigmentation on the Palm in a Three-year-old Girl: A Commentary

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Diagnosis: *Tinea nigra palmaris*

A direct mycological examination showed dark septate hyphae with budding pigmented yeast-like cells (Fig. 2A). Fungal cultures on Sabouraud's agar exhibited moist, shiny, black colonies, growing along the inoculation line (Fig. 2B). Amplification of the primers ITS1 and ITS4 revealed that the sequence of the transcribed spacer in the ribosomal DNA (rDNA) of the strain was identical to that of *H. werneckii* in GenBank (accession no. JQ863218). According to these findings, we diagnosed tinea nigra palmaris. The girl was administered with 1% butenafine hydrochloride daily for 2 weeks, and she experienced complete regression of the lesion. At the 6-months follow-up visit no lesion recurrence was noted.

Tinea nigra (TN) is a rare dermatomycosis of the stratum corneum. This infection is characterized by asymptomatic hyperpigmented irregular spots or patches, which range in colour from brown to dark brown or black; these spots or patches have clear boundaries and centrifugal expansion. It is more common in palmoplantar regions but is also reported in other parts of the body, usually on one side; it rarely has a bilateral occurrence. TN usually occurs in young people aged <20 years, especially females (1). It is mainly caused by the pigmented yeast *H. werneckii*, and a few cases may be a result of an infection by *Stenella araguata*, *Scopulariopsis brevicaulis*, *Phoma eupyrena*, and *Chaetomium globosum* (2).

*H. werneckii* is a dematiaceous, polymorphic, halotolerant, and halophilic fungus that was first isolated by Horta in 1921. This fungus is found in soil, plants, and wood and survives at high-salt concentrations, such as the beach sand. However, the fungus is naturally adapted to different salt concentrations and can grow without salt (3). It grows optimally in the stratum corneum of humans when humidity and heat conditions are adequate. The predisposing factors for the fungus to localize in the stratum corneum are hyper-

hidrosis and minor injuries, such as those caused by playing on the beach, running barefoot, and animal bites (4). Direct mycological examination revealed short, tortuous, thick, light brown hyphae and occasional appearance of short filaments and yeast-like cells with spores. The colonies grown on Sabouraud's agar were moist, rough, and black. The fungus appeared brown due to the presence of melanin in the cell wall (2). Zalar et al. (5) found a limited variation in the ITS sequences of *H. werneckii* in 1999 (5), and Abliz et al. (6) developed specific primers based on ITS data in 2003. At present, rDNA ITS sequencing has become an effective method for the molecular diagnosis of *H. werneckii*. In 1997, the typical dermoscopic feature of TN was first described by Gupta et al. (7) as pigmented spicules, which appear as ultra-fine, wispy, light brown strands and together form an almost reticulated patch, which is usually uniform brown in colour (8). Reflective confocal microscopic examination of TN revealed multiple bright circular structures between the aggregates of septate filaments in the stratum corneum, possibly corresponding to arthroconidia and filamentous hyphae (9).

Differential diagnoses include fixed drug eruptions, post-inflammatory pigmentation, palmar lichen planus, exogenous pigmentation, "athlete's purpura," and simple chemical stains, such as silver nitrate impregnation. Clinically, TN and melanocytic lesions, especially dysplastic naevi and malignant melanoma, can be confused with one another. TN can be easily diagnosed by KOH and dermoscopic examinations; hence, facilitating the patient to avoid unnecessary biopsy or surgical procedures.

Topical application of various antifungal drugs, such as terbinafine and butenafine, usually eliminates lesions in 2–4 weeks; hence, systemic treatment is not warranted.

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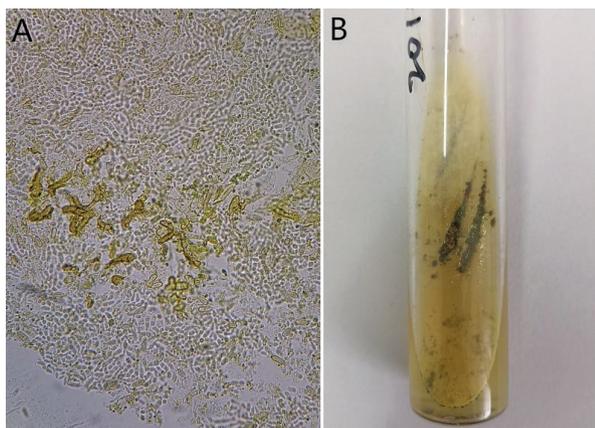


Fig. 2. (A) Dark septate hyphae with budding pigmented yeast-like cells. (B) Moist, shiny, and black colonies growing along the inoculation line on Sabouraud's agar.