

Value of the Scraping Test in a Case of Exogenous Henna-Induced Pigmentation Mimicking Acral Melanoma

B. El Idrissi^{1*}, S. Mheimer¹, N. Ait Abdelali¹, Z. Mortaji¹, S. Chhiti¹, M. Chaouche¹, R. Chakiri¹

¹Department of Dermatology and Venereology, Souss Massa University Hospital, Agadir, Morocco

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*Corresponding author: B. El Idrissi

Department of Dermatology and Venereology, Souss Massa University Hospital, Agadir, Morocco

Abstract

Case Report

We report the case of a 70-year-old woman hospitalized for erysipelas of the lower limbs, in whom an acral pigmented lesion was incidentally discovered during clinical examination. Dermoscopic evaluation revealed a parallel ridge pattern, raising strong suspicion of acral melanoma. In view of this suspicion, a biopsy-excision was considered. However, a simple superficial scraping test using a scalpel blade completely removed the pigmentation, pointing towards an exogenous origin. A detailed patient history subsequently revealed that henna had been applied approximately four months earlier. This case highlights the importance of combining dermoscopy, non-invasive tests, and thorough anamnesis to establish an accurate differential diagnosis of acral pigmented lesions.

Keywords: Exogenous Pigmentation, Henna, Acral Melanoma, Dermoscopy, Parallel Ridge Pattern, Scraping Test.

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INTRODUCTION

Dermoscopy is a valuable tool for the early diagnosis of acral melanoma, with the identification of the parallel ridge pattern traditionally considered a highly suggestive sign of malignancy. However, several benign or exogenous conditions may display similar clinical and dermoscopic features, thereby increasing the risk of overdiagnosis and unnecessary invasive treatments. We present a case of exogenous pigmentation induced by henna application that mimicked acral melanoma, and emphasize the usefulness of the scraping test, a simple and rapid technique, combined with meticulous history-taking.

Objectives

To report a case of exogenous pigmentation due to henna application that clinically and dermoscopically mimicked acral melanoma, and to highlight the importance of complementary diagnostic tools — particularly the scraping test — in improving the

differential diagnosis of acral pigmented lesions. This article also aims to encourage the use of the scraping test as a simple, non-invasive method to help reduce unnecessary biopsies.

CASE REPORT

Medical History and Clinical Context

A 70-year-old woman with a medical history of type 1 diabetes, hypertension, hypercholesterolemia, and inflammatory polyarthralgia was admitted to our department for erysipelas affecting both lower limbs.

Clinical and Dermoscopic Presentation

During hospitalization, dermatological examination incidentally revealed an acral pigmented lesion. Clinically, it appeared as a 6-mm brown macule with heterogeneous pigmentation and poorly defined borders (Figure 1-A). Dermoscopy revealed a parallel ridge pattern (Figure 1-B), a feature traditionally associated with a high suspicion of acral melanoma.

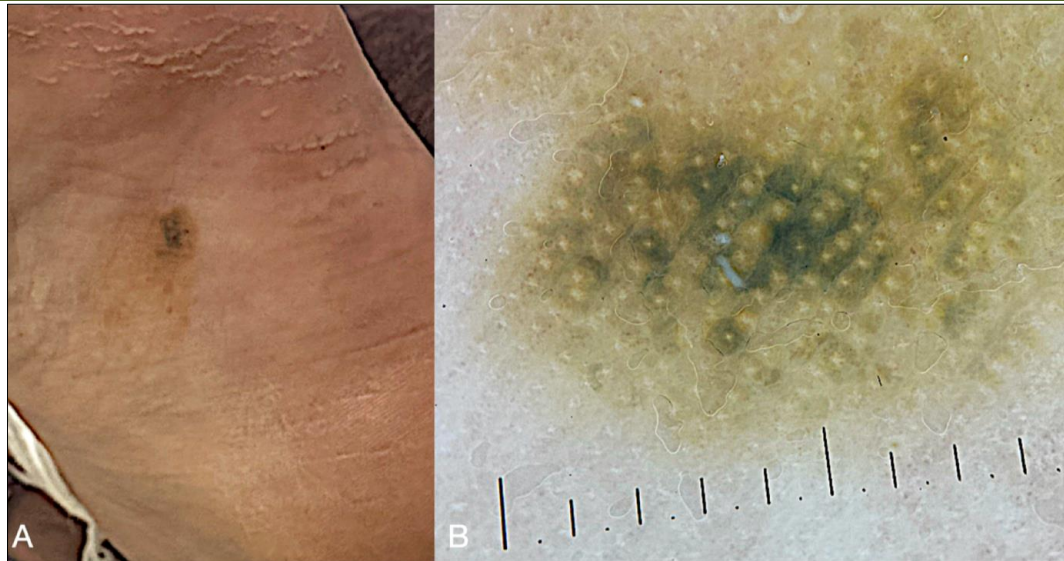


Figure 1: Clinical image showing a 6-mm plantar brown macule with heterogeneous pigmentation and ill-defined borders (A); dermoscopic image revealing a parallel ridge pattern (B)

Diagnostic Procedure

Given the suspicious clinical and dermoscopic features of the lesion, a biopsy-excision was initially considered to rule out acral melanoma. However, a superficial scraping test using a scalpel blade was performed instead. This non-invasive procedure

completely removed the pigmentation (Figure 2), thereby confirming its exogenous origin. In addition, a thorough history revealed that the patient had applied henna to the affected area approximately four months earlier, establishing the link between the exogenous exposure and the observed lesion.

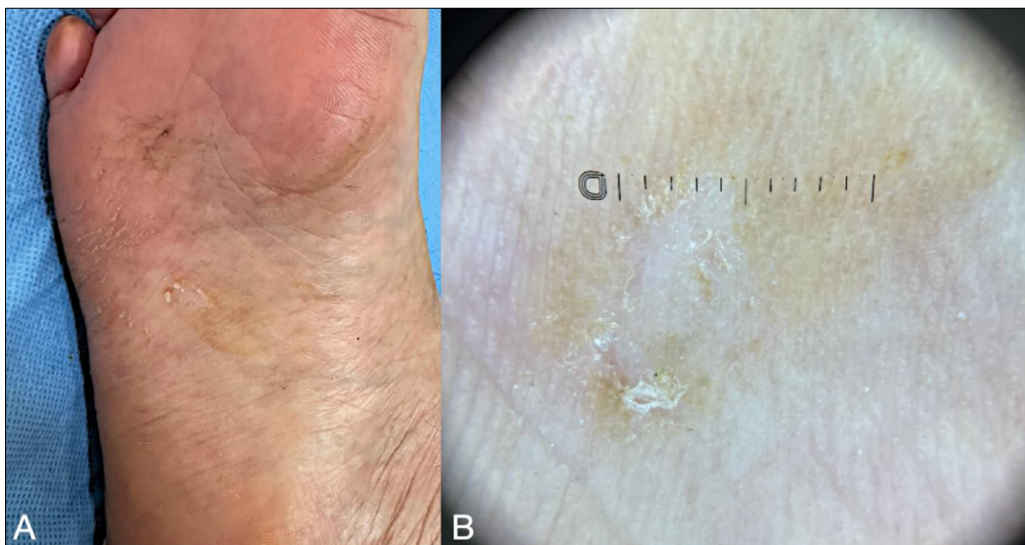


Figure 2: Clinical image after the scraping test (A); dermoscopic image showing complete disappearance of the parallel ridge pattern (B)

DISCUSSION

This case illustrates a potentially frequent but still under-recognized diagnostic pitfall in the evaluation of acral pigmented lesions. The parallel ridge pattern is traditionally considered a major dermoscopic warning sign for acral melanoma, as it reflects the proliferation of atypical melanocytes along the epidermal ridges [1, 2]. Its presence usually prompts histological investigation.

Our case demonstrates that exogenous pigmentation induced by henna application can, by depositing on the stratum corneum, follow the microanatomy of the skin surface and mimic this highly specific pattern. The main dye in henna, lawsone, binds strongly to keratin [3]. In the thick skin of the sole, which exhibits a ridge and furrow architecture, it is plausible that the pigment accumulates preferentially along the ridges during application or via differential desquamation. This is particularly noteworthy since

other exogenous pigments, such as dust or hemorrhagic residues, typically follow the furrows producing a “parallel furrow pattern” [4].

Other pigmenting substances such as tar, silver nitrate, potassium permanganate, and various dyes, as well as certain subcorneal hematomas, may also create diagnostic confusion with acral melanoma [5, 6]. In this context, a meticulous patient history is essential, especially since the application of coloring agents may be forgotten or deemed irrelevant by the patient.

The “scraping test” proves particularly useful: it is simple, rapid, non-invasive, and cost-effective, and it helps identify pigmentation limited to the stratum corneum [7]. Disappearance of the pigmentation after scraping supports the diagnosis of exogenous pigmentation, whereas persistence of color, although not pathognomonic for melanocytic lesions, should prompt further investigation. Moreover, this test can help avoid unnecessary biopsy-excision, a procedure which, when performed on the sole, may be painful, leave functionally or aesthetically disturbing scars, and generate both financial costs and patient anxiety.

In summary, although the parallel ridge pattern remains a dermoscopic feature with high predictive value for acral melanoma, it is not pathognomonic [7–10]. The possibility of exogenous pigmentation, especially due to henna in populations where its use is common, should always be considered when evaluating suspicious acral lesions. Incorporating the scraping test into the diagnostic algorithm may significantly reduce the use of invasive procedures.

However, it is important to note that this report is based on a single case, and further studies are needed to assess the frequency and diagnostic reliability of this type of mimicry.

CONCLUSION

This case illustrates that the presence of a parallel ridge pattern on dermoscopy, although traditionally suggestive of acral melanoma, may also be observed in cases of exogenous pigmentation induced by agents such as henna. Performing a scraping test, in conjunction with thorough history-taking, represents an effective diagnostic approach to distinguish between

these scenarios and to avoid unnecessary invasive procedures.

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