

Dermoscopy of Riehl's melanosis: a case report and a short review of the literature

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Abstract

Riehl's melanosis (RM) is a pigmentary disorder, more common in individuals with dark skin phototypes, considered a form of pigmented contact dermatitis. In this paper we present a case of RM due to the rubber component of a work facial mask in which dermoscopy and patch test were the most important tools to help physicians in diagnosis. In addition, we reviewed the main dermo-

scopic clues that may be useful in differential diagnosis with other facial pigmentary disorders.

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Key words: Riehl; melanosis; dermoscopy; patch test.

Contributions: NdM, IZ, CC, defined the design and intellectual content of the paper; BS, GB, searched for literature, wrote the draft, edited the manuscript, and prepared it for submission; EZ, reviewed the article with consistent integrations. All the authors approved the final version to be published.

Conflict of interest: the authors declare no potential conflict of interest.

Funding: none.

Availability of data and materials: data sharing is not applicable to this article as no new data were created or analyzed in this study.

Ethical approval and consent to participate: the patient in this manuscript has given written informed consent to the publication of their case details.

Consent for publication: the patient gave his consent for the publication of this case report and any accompanying images.

Received: 5 March 2023.

Accepted: 14 April 2024.

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Dermatology Reports 2024; 16:9983

doi:10.4081/dr.2024.9983

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Introduction

Riehl's melanosis (RM) is a pigmentary disorder, more common in individuals with dark phototypes (Fitzpatrick III-VI). It is regarded as a form of pigmented contact dermatitis caused by repeated contact with small amounts of allergens (cosmetic and textile materials). Clinically, it presents as diffuse or reticulated hyperpigmentation, ranging in color from brown to gray-blue, that typically affects the face and neck region.¹ Diagnosis is typically established through clinical evaluation, but when the presentation is ambiguous, histopathology is the gold standard, and when patch testing is available, it is a useful corroborative and diagnostic tool.² Histopathology is an invasive procedure; therefore, dermoscopy, a rapid non-invasive diagnostic tool, can be beneficial for diagnosing RM. However, there are limited descriptions of dermoscopic patterns available in the literature. The main outcome was to describe a case of RM dermoscopically diagnosed and to review its main dermoscopic clues that may be useful in differential diagnosis with other facial pigmentary disorders.

Case Report

A 45-year-old man from Bangladesh (phototype V) was referred to our clinic with progressive facial hyperpigmentation, reporting that it had worsened in recent months. Upon physical examination, we observed a circular-shaped hyperpigmented area on his face, extending from the forehead to the chin (Figure 1A). He denied any history of atopy or contact with irritating substances on his face and was otherwise healthy. The only relevant anamnestic information was his work activity at a shipyard, where he used special anti-gas work masks with full face coverage. Dermoscopy revealed a pseudonetwork with non-pigmented prominent follicular openings, associated with peripheral pigmentation admixed with gray dots/granules and perifollicular whitish halos (Figure 1B). The main diagnostic hypothesis was hyperpigmentation due to the rubber component of the work facial mask. Other differential diagnoses, including berloque dermatitis, exogenous ochronosis, and hyperpigmented discoid lupus, were excluded based on clinical appearance, dermoscopy and the patient's history. To further support the diagnosis, the patient underwent a patch test, which came back positive for rubber components. In this case, histopathology was not performed. The diagnosis of Riehl's melanosis was made, and the patient was treated with topical mometasone furoate for two months, in combination with azelaic acid gel, sunscreen, and avoiding contact with the work mask. After four months, a moderate improvement was noted despite the persistence of hyperpigmentation, although it was less pronounced.

Review of the literature

To identify eligible studies, an electronic search of papers published up to December 2023 was performed using the MEDLINE database using the search terms: “Riehl’s melanosis” or “pigmented contact dermatitis” and “dermoscopy”. A total of 5 articles were identified and analyzed; they included single case reports, case series, clinical reports, and reviews of the literature. Table 1 summarizes the typical dermoscopic findings and Table 2 summarizes their histopathological correlations.

In literature, the most common dermoscopic clues of RM were pigmented pseudonetwork (reported in 100% of cases), grey dots/granules (100%), and telangiectatic vessels (73.3%-100%).³⁻⁷

A specific dermoscopic clue of RM is flour-like slight scales (53%-66.7%),³⁻⁷ not seen in other hyperpigmentary disorders and more prominently observed in RM located on the neck, compared to RM of the face.^{4,7} Other less frequently dermoscopic features were perifollicular whitish/hypopigmented halo (46.7%-100%) and follicular keratotic plugs (46.7%-66.7%).³⁻⁷ A significant overlap in dermoscopic features exists between pigmented facial dermatitis; pseudo network, grey dots, and telangiectasias were described not only in RM but also in lichen planus pigmentosus (LPP) and erythema dyschromicum perstans (EDP); however, perifollicular whitish halo and follicular keratotic plugs were described as useful clues to differentiate RM from LPP and EDP.^{3,4}



Figure 1. A) clinical appearance of Riehl’s melanosis, circular-shaped hyperpigmented area involving the face, from forehead to chin; B) dermoscopy appearance of Riehl’s melanosis: pseudo-network with non-pigmented prominent follicular openings associated with peripheral pigmentation admixed with gray dots/granules and perifollicular whitish halo.

Table 1. Frequency of dermoscopic features of Riehl’s melanosis in literature references.

Reference	Number of patients	Dermoscopic findings					
		Pigmentary pseudonetwork	Grey dots/granules	Flour-like slight scales	Telangiectatic vessels	Perifollicular whitish halo	Follicular keratotic plugs
Krueger L <i>et al.</i> ³	15	100%	100%	53%	100%	47%	47%
Wang L, Xu AE ⁴	15	100%	100%	53.3%	100%	46.7%	46.7%
Sitohang IBS <i>et al.</i> ⁵	1	100%	100%	-	100%	100%	-
Shen PC <i>et al.</i> ⁶	30	100%	100%	50%	73.3%	60%	20%
Yim JH <i>et al.</i> ⁷	9	100%	100%	66.7%	100%	66.7%	66.7%

Table 2. Correlation between dermoscopic features and histological background.

Dermoscopic findings	Histological background
Pigmentary pseudonetwork	Pigment incontinence in the dermis
Grey dots/granules	Pigment incontinence in the dermis
Telangiectatic vessels	Dilated dermal vessels
Flour-like slight scales	Epidermal hyperkeratosis
Perifollicular whitish halo	Periolficular fibrosis
Follicular keratotic plugs	Follicular hyperkeratosis

Conclusions

Our case highlights the challenges in diagnosing RM, as the clinical morphology is variable, and there are no established diagnostic criteria. Recent observational studies have suggested that dermoscopy is a promising non-invasive tool to assist clinicians in identifying and differentiating pigmentary disorders.²⁻⁷ Patch testing is also recommended for diagnosing RM due to its higher positivity rates (up to 80%) in RM patients compared to other pigmentary disorders.^{2,8} Patch test plays an important role in finding out the causative allergens of RM and serves as a basis for avoiding the substance in the treatment plan.⁸ The primary limitation of this article is that dermoscopic features were based on low-quality evidence (*e.g.*, case series/case reports) and further high-quality studies will be needed in the future.

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