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(CASE REPORT)

Under Ultraviolet Light: Unmasking Concomitant Trichobacteriosis and Erythrasma in a Dark Phototype Patient

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Abstract

Trichobacteriosis axillaris and erythrasma are superficial infections caused by *Corynebacterium* species that affect intertriginous areas and may coexist despite being infrequently recognized. We report the case of a 48-year-old man with well-controlled type 2 diabetes who presented with axillary bromhidrosis and pruritus involving the axillary and inguinal folds. Clinical examination revealed yellowish hair shaft concretions in the axillae and brownish scaly patches in the inguinal folds. Dermoscopy demonstrated characteristic sheath-like concretions surrounding the hair shafts and a homogeneous brownish background with fine scaling. Ultraviolet examination showed coral-red fluorescence of the inguinal lesions together with enhanced visualization of yellowish-green luminescent hair shaft concretions, confirming concomitant erythrasma and trichobacteriosis. The patient was successfully treated with hygiene measures and oral erythromycin, resulting in marked clinical improvement. This case highlights the value of combining dermoscopy and ultraviolet imaging as rapid, non-invasive diagnostic tools for concomitant corynebacterial infections, particularly in patients with darker skin phototypes.

Keywords: Corynebacterium; Dermoscopy; Erythrasma; Trichobacteriosis; Ultraviolet imaging

1. Introduction

Superficial bacterial infections caused by the genus Corynebacterium are common in intertriginous areas, particularly in warm and humid environments. Among these, érythrasma and trichobacteriosis axillaris represent two distinct clinical entities involving the skin and hair shaft, respectively.

Erythrasma is caused primarily by *Corynebacterium minutissimum* and typically presents as well-demarcated brownish patches in intertriginous areas, with characteristic coral-red fluorescence under Wood's lamp due to porphyrin production [1]. Trichobacteriosis, on the other hand, is a superficial colonization of hair shafts by corynebacteria, leading to yellow, black, or red concretions along hair shafts [2].

Although both conditions share a common bacterial origin, their coexistence is infrequently reported. The so-called "corynebacterial triad" (erythrasma, trichobacteriosis, and pitted keratolysis) further supports their shared pathogenesis [3]. Dermoscopy and ultraviolet (UV) dermoscopy have recently emerged as valuable non-invasive tools that enhance the visualization of infectious dermatoses and may improve diagnostic accuracy [4].

We report a rare case of concomitant erythrasma and trichobacteriosis axillaris with detailed dermoscopic and UV findings.

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2. Case Presentation

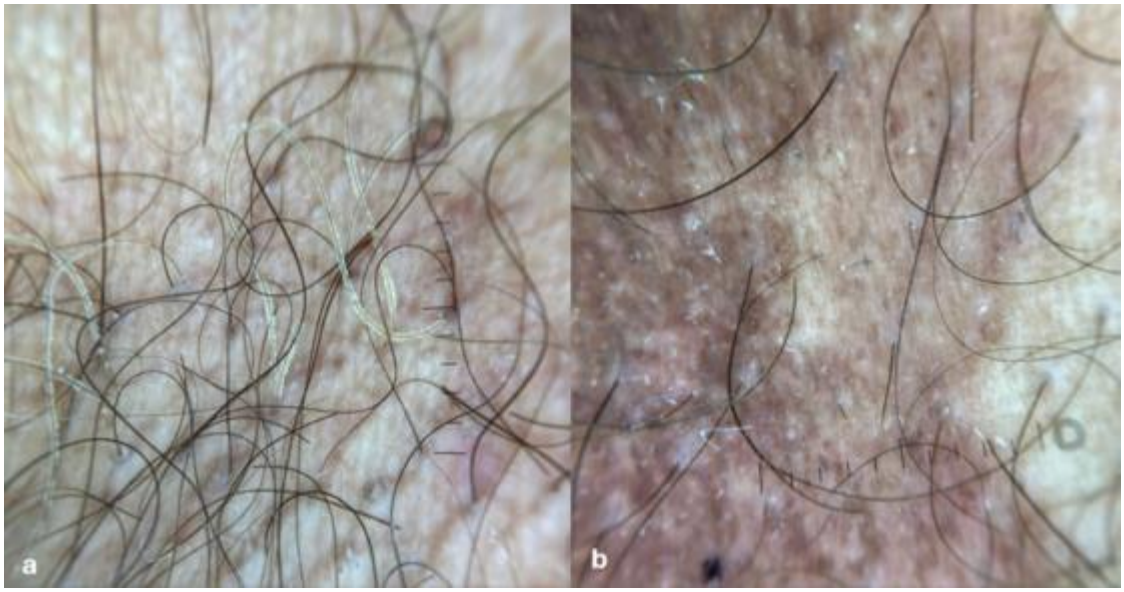
A 48-year-old male, followed for five years for type 2 diabetes mellitus treated with metformin and with good glycemic control, presented to our department for the management of axillary bromhidrosis associated with pruritus involving the axillary and inguinal folds, evolving for eight months.

Clinical examination revealed a patient with Fitzpatrick skin phototype IV. Examination of the inguinal folds showed well-demarcated brownish patches with fine scaling and mild maceration, consistent with typical features of erythrasma. In the axillary regions, yellowish adherent concretions encasing multiple hair shafts were observed, characteristic of trichobacteriosis axillaris. These concretions were more clearly visualized under Wood's lamp examination. Similar but less prominent hair shaft concretions were also noted in the inguinal area (Figure 1).

(A) Inguinal region showing well-demarcated brownish patches with fine scaling, consistent with erythrasma.
(B) Axillary region demonstrating yellowish adherent concretions encasing the hair shafts, characteristic of trichobacteriosis axillaris. (C) Axillary region under Wood's lamp, highlighting enhanced visualization of hair shaft concretions with yellowish-green fluorescence.

Figure 1 Clinical and ultraviolet features of concomitant corynebacterial infection

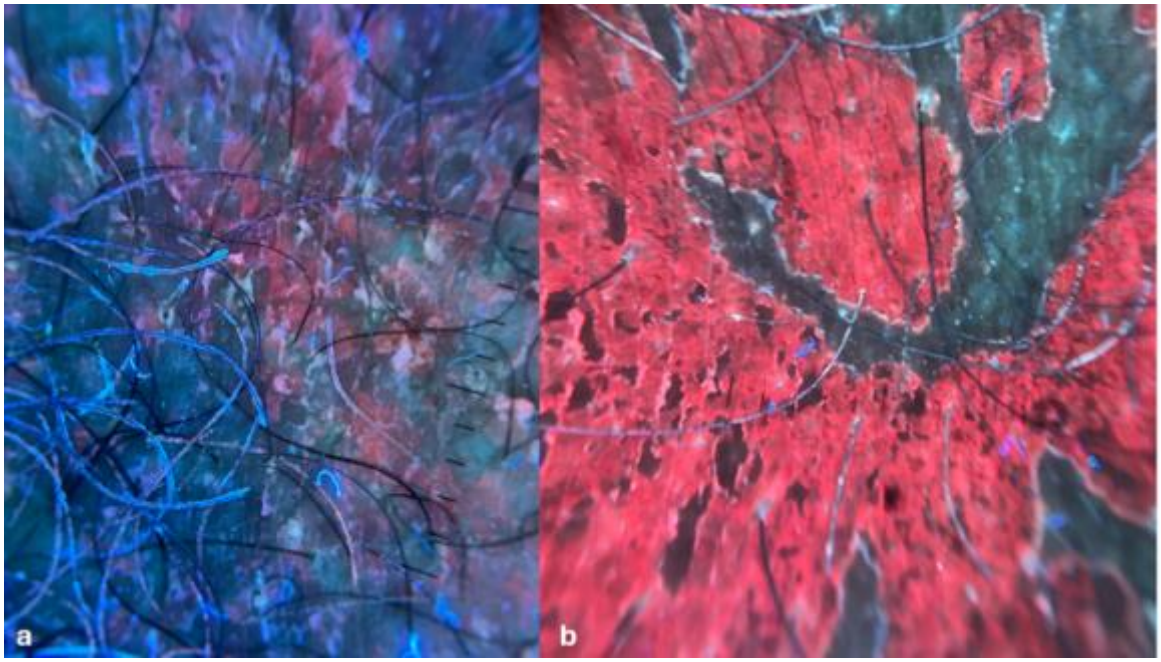
Polarized dermoscopy of the axillary region revealed yellowish-white, sheath-like concretions surrounding the hair shafts, forming irregular and adherent structures along their length. Background erythema and mild scaling were also noted in intertriginous areas (Figure 2).



(A) Polarized dermoscopy of the axillary region showing yellowish-white, sheath-like concretions encasing the hair shafts, consistent with trichobacteriosis axillaris. (B) Polarized dermoscopy of the inguinal region revealing a brownish background with fine scaling and subtle erythema, consistent with erythrasma.

Figure 2 Dermoscopic features of concomitant corynebacterial infection.

Ultraviolet (Wood's lamp) examination demonstrated a characteristic coral-red fluorescence of the inguinal folds, consistent with erythrasma, along with yellowish-green luminescent concretions along the affected hair shafts, supporting the diagnosis of trichobacteriosis (Figure 3).



(a–b) Ultraviolet examination showing coral-red fluorescence of the intertriginous skin consistent with erythrasma, associated with yellowish-green luminescent concretions along the hair shafts, supporting concomitant trichobacteriosis.

Figure 3 Ultraviolet (Wood's lamp) findings of concomitant corynebacterial infection

Given the typical clinical, dermoscopic, and ultraviolet findings, no additional investigations were deemed necessary, and a diagnosis of concomitant corynebacterial infection was established.

The patient was managed with hygiene measures, including regular shaving of the affected areas and improved local care, combined with oral erythromycin at a dose of 1 g/day (500 mg twice daily) for 14 days. A marked clinical improvement was observed, with resolution of malodor and pruritus and regression of lesions.

3. Discussion

Superficial infections caused by *Corynebacterium* species frequently involve intertriginous areas, where warmth, humidity, and occlusion create a favorable environment for bacterial proliferation [5]. Within this spectrum, erythrasma and trichobacteriosis axillaris represent two distinct clinical expressions affecting the skin surface and hair shafts, respectively [5]. Their coexistence, although pathophysiologically plausible, remains underreported in the literature.

The present case illustrates this association and highlights the continuum of corynebacterial infections. The concept of a "corynebacterial triad," which includes erythrasma, trichobacteriosis, and pitted keratolysis, supports the idea that these conditions may occur simultaneously or sequentially in predisposed individuals [3]. Shared risk factors such as hyperhidrosis, poor hygiene, and occlusive environments likely contribute to this overlap [6].

Dermoscopy is a useful non-invasive tool in trichobacteriosis, showing yellowish-whitish adherent concretions encasing the hair shafts [2]. Under ultraviolet examination, these concretions may appear more prominent and display a yellow-green fluorescence, further supporting the diagnosis [7].

Similarly, dermoscopy is a useful non-invasive tool in erythrasma, typically revealing a homogeneous brownish background with fine scaling and subtle erythema [8]. Under ultraviolet examination, a characteristic coral-red fluorescence is observed, corresponding to porphyrin production by *Corynebacterium*, which helps to confirm the diagnosis and differentiate erythrasma from other intertriginous dermatoses [8].

Recognition of concomitant infections is essential for appropriate management. While both conditions respond to similar therapeutic strategies, including topical antibiotics and improved hygiene measures, failure to identify the dual involvement may lead to incomplete treatment and persistence of symptoms.

4. Conclusion

Concomitant erythrasma and trichobacteriosis axillaris represent an underrecognized yet clinically relevant association. This case highlights the value of combining dermoscopy and ultraviolet imaging as a rapid, non-invasive diagnostic approach, particularly in intertriginous areas and in patients with darker phototypes, where clinical signs may be subtle.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare that they have no conflicts of interest regarding the publication of this paper.

Statement of ethical approval

All procedures performed were in accordance with the ethical standards of the institutional and national research committee and with the principles of the Declaration of Helsinki.

Statement of informed consent

Written informed consent was obtained from the patient for publication of this case report and the accompanying clinical and dermoscopic images.

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