

## Dermoscopic Features of Dermatophytosis: A Case Series

**Rym Zmiti\*, Nouredine Litaïem and Faten Zeglaoui**

Department of Dermatology, Charles Nicole Hospital, Tunis, Tunisia

**\*Corresponding author:** Rym ZMITI, Department of Dermatology, Charles Nicole Hospital, Tunis, Tunisia, Tel: +49015736395395

### Abstract

**Introduction:** Dermatophytosis is a fungal infection of the glabrous skin, affecting 20 to 25% of individuals worldwide. While the diagnosis of dermatophytosis is not difficult, it can become challenging in certain situations.

**Materials and Methods:** Ten patients with dermatophytosis were included in our study.

**Results:** Six men and four women were included. The median age was 46 years, and the median duration was 3 months. The upper back, buttocks, hands, and face were the most frequently infected areas (20%). Armpits and thighs (2 patients) were also affected. Whitish peripheral scales with outward desquamation on a red-brown background were observed in all cases. Brown dots were present in 60% of cases, micropustules in 30%. Unevenly distributed dotted vessels were observed in 2 patients (20%). Trichoscopy of these lesions revealed translucent vellus hairs in 30% of cases,

hypopigmented broken hairs in 60%, and superficial perifollicular white scales in 20%.

**Discussion:** The main dermoscopic signs of dermatophytosis reported in the literature include unevenly distributed linear and dotted vessels with white scales on a red and yellow background, micropustules, brown spots surrounded by a white-yellow halo, broken hairs, wavy hairs, and barcode-like hairs. The trichoscopic characteristics of dermatophytosis have not been extensively studied. Severe fungal infection of the hair shaft could explain these features.

**Summary:** Our study highlights the value of dermoscopy as a rapid, affordable, and non-invasive diagnostic technique, as it allows for direct observation of certain trichoscopic and dermoscopic features.

**Keywords:** Dermatophytosis; Dermoscopy; Tinea Corporis; Clinique

**Abbreviations:** TC: Tinea Corporis; KOH: Potassium Hydroxide

## Introduction

Dermatophytosis also known as ringworm or Tinea Corporis (TC) is a fungal infection of glabrous skin. Its prevalence worldwide is 20%–25% [1]. The most common agent *Trichophyton rubrum* [2]. Diagnosing dermatophytosis can be challenging especially if lesions are partially treated or if corticosteroids are used. Dermoscopy is useful for the diagnosis of several infectious diseases but the dermoscopic aspects of dermatophytosis are still not well documented. The aim of this study was to describe the dermoscopic aspects of TC and provide a comprehensive review of the literature.

## Material and Methods

The present study included ten patients diagnosed TC. This study was performed at the dermatology department of Charles Nicole Hospital in Tunisia. The patients underwent clinical evaluation, mycological study (KOH and cultures) (for 5

patients) and dermoscopic examination. DermLite DL4 dermoscope was employed. Canon SX710HS digital camera was attached to save the images. Both polarized and non-polarized modes were used and ultrasound gel was utilized as an interface medium.

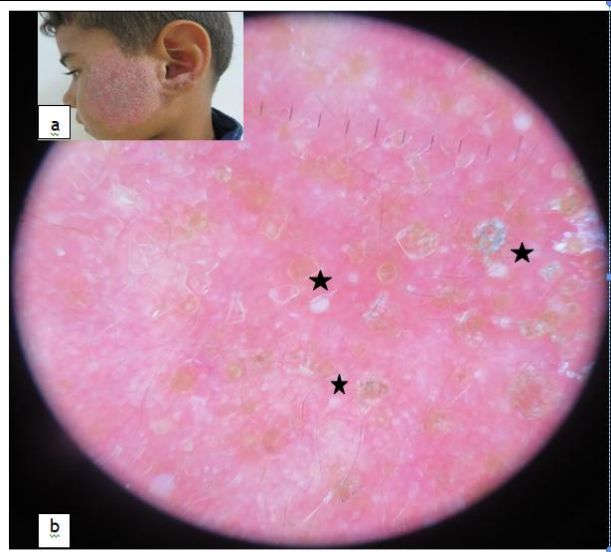
## Results

Ten patients (6 men and 4 women) with a median age of 46 years (range, 6–77 years) were included. Median disease duration was 3 months (range: 1–6 months). The sites of infection were the upper back (n=2), buttocks (n=3), hands (n=2), and face (n=2). The last patient had lesions on the armpits. **Table 1** and **(Figure 1-6)** outline the dermoscopic features seen in our patients. Six patients were treated with systemic antifungals. Four patients were treated with topical antifungals with good outcomes.

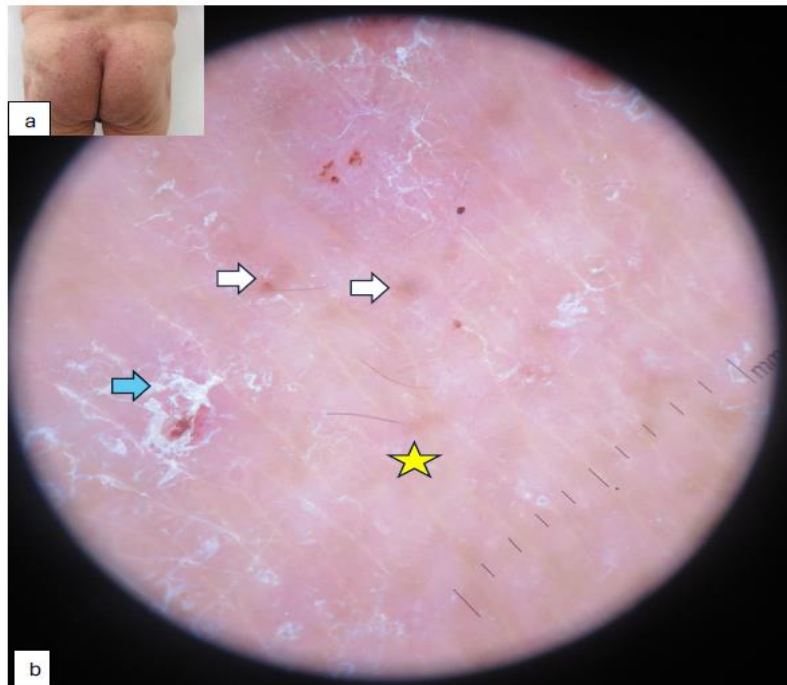
**Table 1:** Comparative dermoscopic features of reported cases of Dermatophytosis.

Studies	Lekkas and al. (2020)	Bhat and al. (2019)	Balachandra and al. (2020)	Gomez and al. (2020)	Pakornphadungsit and al. (2023)	Our case series (2023)
Dermoscopy variable	n=36	n=30	N=30	N=6	N=3	n=10
Diffuse erythema/red dull background	100%	100%	100%		66.7%	100%
Brown dots		100%				40%
White scales	86%	100%	100%	100%	66.7%	100%
Brown spots surrounded by a white-yellowish halo		20%				0
Patchy Dotted vessels	100%		73.33%		100%	20%
Perifollicular scales	13.8%		16.66%			20%

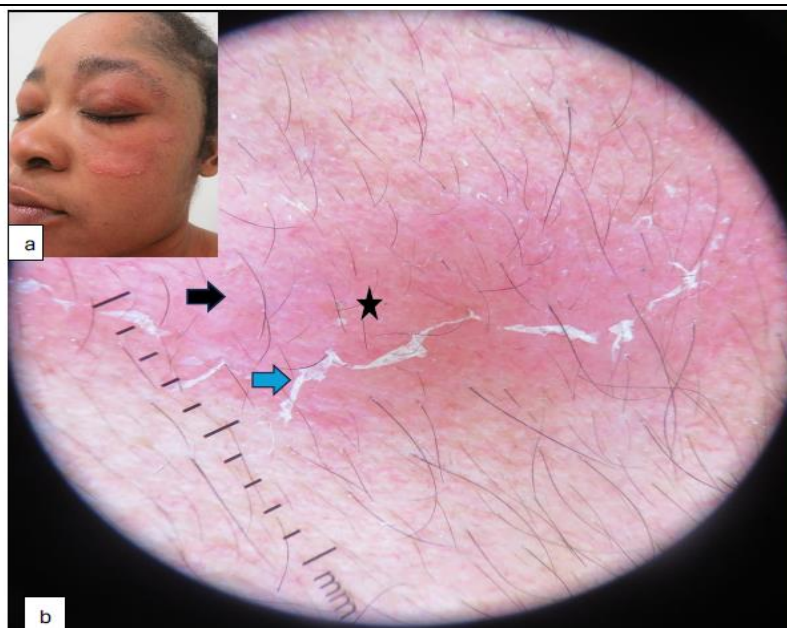
Micro-pustule		36.66%	16.66%	67%		30%
Translucent hair			16.66%	83%	66.7%	60%
Broken hairs	63%		16.66%	50%	50%	20%
Morse code hairs of vellus hairs		3.33%		17%	100%	0
Corkscrew hairs			16.66%	17%		0
hypopigmented terminal hair with interrupted medulla			16.66%			10%



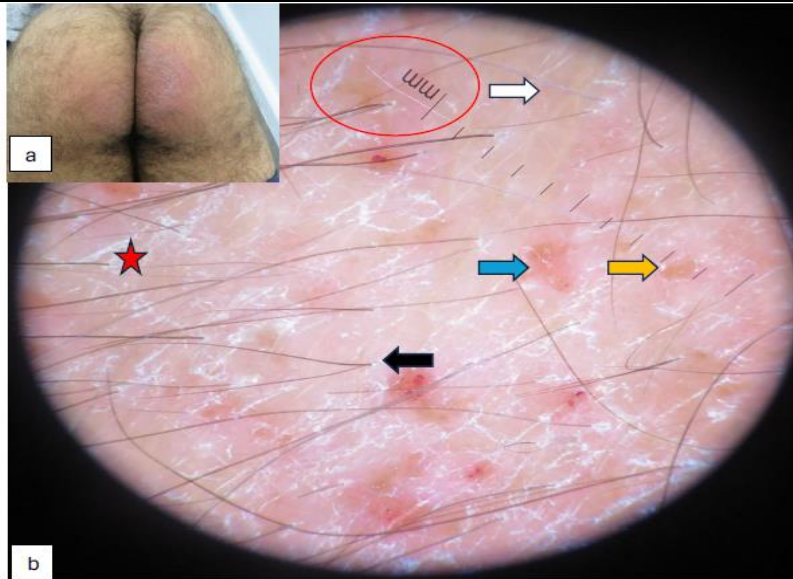
**Figure 1:** Clinical image of dermatophytosis of the face a); dermoscopy of (a) shows micro-pustles on dull red background (red arrows) (black stars) (b [polarized mode with 10 × magnification]).



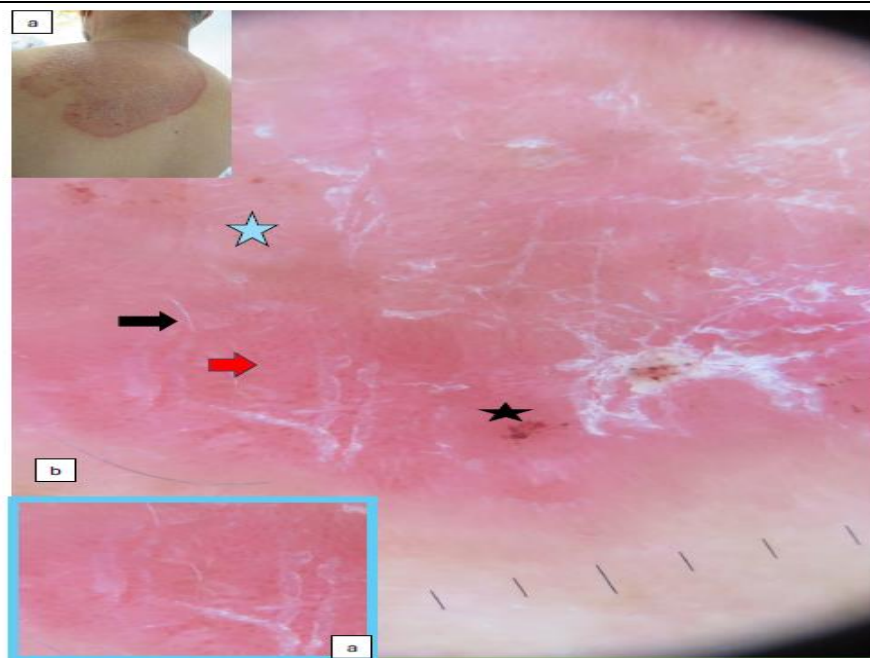
**Figure 2:** Clinical image of dermatophytosis of the buttocks (a); dermoscopy of (a) shows superficial white scales (yellow arrows), and brown globules (white arrows) on reddish-brown background (yellow stars) (b) [polarized mode with 10 × magnification.



**Figure 3:** Clinical image (a), (b) Dermoscopy of dermatophytosis of on the face shows (a) outward oriented white scales (yellow arrows) on dull red background (black arrow) broken hair (black stars) [polarized mode with 10 × magnification].

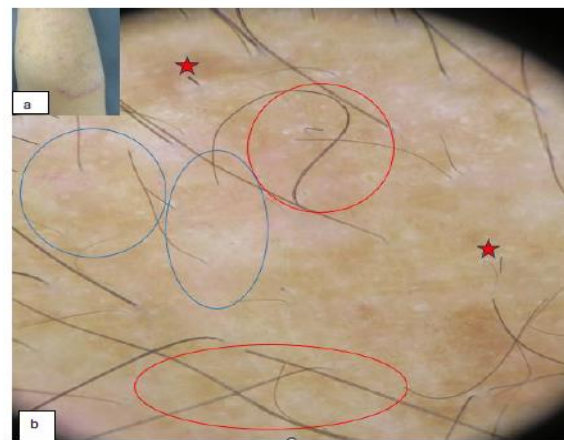


**Figure 4:** Clinical image (a), (b) Dermoscopy of dermatophytosis on the buttocks shows (a) brown-reddish globules (yellow arrows), white scales (red star), perifollicular scales (black arrow) on brown background (black stars), translucent hair (red circle), hypopigmented terminal hair with interrupted medulla (white arrows) [polarized mode with 10 × magnification].



**Figure 5:** Clinical image of dermatophytosis on upper back (a); dermoscopy of (a) shows superficial white scales (yellow arrows), brown globules (black star) on reddish-brown background (yellow stars) (b) translucent hairs (black arrows), dotted vessels (red arrows) are seen (yellow box) with magnified view (c) [polarized mode with 10 × magnification].





**Figure 6:** Clinical image (a), (b) Dermoscopy of dermatophytosis of on the forearm shows (a) broken hairs (red star), patchy dotted vessels (blue circle), hypopigmented terminal hair with interrupted medulla (red circle).

## Discussion

This study describes the dermoscopic aspects of TC and shows frequent hair involvement that could be helpful in daily practice. The main dermoscopic aspects of TC were white scales, brown globules, dotted vessels on a reddish-brown background, and translucent vellus hairs. Another study conducted by Pakornphadungsit showed that dotted and linear vessels distributed in a patchy arrangement with patchy white scaling over a dull red and yellowish background were the predominant dermoscopic features of dermatophytosis [3]. White scales were a constant dermoscopic feature of TC in all studies about TC (Table 1). Lekkas and al reported that the white scale with peripheral distribution was a strong indicator of TC, especially in the case of an outward peeling direction of the scale [4,5]. The earliest stage of reddish-brown globules might be attributed to the presence of serum, red blood cell extravasation, and hemosiderin. Micropustules are seen in three patients in our study. They appear as pale white and yellow globules [6]. While comma, corkscrew, and translucent hairs were described in tinea capitis [7]. Interestingly, some of the dermoscopic features of

tinea capitis can be seen in dermatophytosis involving body hairs. In our study, translucent broken hairs and hypopigmented hairs were frequently found. These features could be explained by intense fungal invasion of the hair shaft [8]. Morse code like hair and croskew hair have also been reported [9]. A study conducted by Kopfel and al. showed that when vellus hair is affected, it may serve as a reservoir for fungal invasion and is associated with poor response to topical treatment and an indication for systemic antifungal treatment [9,10].

## Conclusion

We have reported a case series of TC. The main limitation of our study is the small sample size. Nonetheless, it highlights the utility of dermoscopy for the diagnosis of TC especially in difficult cases or in remote areas with no access to specialized mycological examination.

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