

Pathology of Infectious Diseases and Oncology 2019: Dermoscopy - The new non-microbiological diagnostic tool for mycotic infections - Sidharth Sonthalia - The Skin Clinic and Research Centre

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Background: The rampant use of over-the counter steroids for tinea has resulted in the epidemic of tinea incognita leading to the epidemic of antifungal therapeutic failures in South Asian countries. Intermittent or prolonged use of oral/ topical corticosteroids in cutaneous fungal infections not only renders treatment difficult, but also jeopardizes clinical as well as laboratory diagnosis by standard KOH smear and fungal culture methods, since the scaling (that contains the fungi) is dramatically suppressed. Dermoscopy or dermatoscopy alludes to the assessment of the skin utilizing skin surface microscopy and is moreover called 'epiluminoscopy' and 'epiluminescent microscopy'.

Dermoscopy is especially wont to evaluate pigmented skin lesions. In experienced hands it can make it simpler to analyze Melanoma cutaneous diagnosis is often, but not always, visually based. Dermatologists tend to encounter situations where the possibility of multiple differentials complicates the diagnosis and mandates investigations for confirmation. Methods commonly employed for cutaneous diagnosis may be invasive (skin and scalp biopsy), semi-invasive (slit skin smears, trichogram, etc.) or non-invasive (e.g., KOH smear, nail clipping, hair count for hair loss).

Dermoscopy, also referred to as epiluminescence microscopy or skin surface microscopy may be a non-invasive, in-vivo technique, which has traditionally found use within the evaluation and differentiation of suspicious melanocytic lesions from dysplasia and melanomas, and non-melanoma skin cancers [NMSCs] such as basal cell carcinoma (BCC). The main purpose for using dermoscopy is to help correctly identify lesions that have a high likelihood of being malignant (i.e., melanoma or basal cell carcinoma) and to assist in differentiating them from benign lesions clinically mimicking these cancers. Colors and structures visible with dermoscopy are required for generating an accurate diagnosis.

Routinely utilizing dermoscopy and perceiving the nearness of atypical shade organize, blue-white shading, and dermoscopy asymmetry will probably improve the spectator's affectability for recognizing pigmented basal cell carcinoma and melanoma. However, over the last several years, the use of dermoscopy has been increasing in the context of general dermatological disorders like inflammatory dermatosis, pigmentary dermatosis, infectious dermatosis, disorders of hair and scalp, and nail. A few terms are utilized to portray explicit signs: pigmentaroscopy, tracheoscopy (dermoscopy of scalp and hair),

Onychoscopy (nails), inflamoscopy (incendiary dermatosis), entomodermoscopy (skin invasions and contaminations). The role of dermoscopy in diagnosing disorders of general dermatology has undergone elaborate discussion.

In this chapter, we shall review the plethora of extra-diagnostic indications of this technique and dwell upon the technical aspects worth considering. DERMOSCOPY is a relatively new non-invasive imaging technique that has till now been used by skin specialists for discerning benign moles from melanomas. However, in this lecture, I shall demonstrate and explain the innovative repurposing of Dermoscopy by my team and me to serve as a dependable tool for prompt diagnosis of cutaneous mycotic infections.

The new generation of dermatoscopes come with inbuilt crossed polarizers, which filter out the scattered light from the periphery, reduce the glare, and permit visualization of the substratal structures without the need of a linkage fluid. For taking and putting away pictures, some dermatoscopes have an inbuilt photography framework with supporting programming for the catch and capacity of pictures. For those dermatoscopes which do not have an inbuilt system, special adapters are available to connect to digital cameras. Advanced devices have whole body mapping systems for detailed analysis and follow from skin lesions. Newer handheld units can attach to smart phones for easier image capture and documentation.

Dermoscopy in diagnosis, selection of choice of treatment and follow-up in patients with steroid-modified tinea/ dermatophytosis:

Onychoscopy [Dermoscopy of the Nail Unit for diagnosis of Onychomycosis]

- Onycholysis with jagged proximal margin
- Aurora borealis pattern (longitudinal striae of different colors)
- Ruin pattern (distal pulverization of nail plate)
- Fungal melanonychia

Tracheoscopy [Dermoscopy of the Scalp & Hair for diagnosis of Tinea Capitis]

- Comma or C-shaped hair Corkscrew hair or coiled hair Broken/ zigzag/ bended/ angulated/ deformable hair
- Black dots, Morse-code hair, and translucent hair
- More specific for ectothrix infections – Morse code hair, endothrix infection – comma/ cork-screw hair.

Dermoscopy OF NON-GLABROUS skin for diagnosing Tinea corporis/cruris INCOGNITO [when KOH and culture are difficult due to suppression of scaling]

Tinea of vellus hair – perifollicular scaling, translucent hair, banded hair, Morse-code hair, corkscrew and comma-shaped hair, brown dots with whitish halo - indication for systemic antifungal treatment and aids in deciding treatment duration.

- Dermoscopy OF GLABROUS skin for diagnosing Tinea of palms and soles
- Tinea pedis/ magnum - localization of scales to palmar and plantar creases.

Conclusion: Thus, in this lecture, I shall share the past 10-years of experience of my team in repurposing DERMOSCOPY as a tool for diagnosis of fungal infections, especially when KOH/culture is not possible or non-diagnostic.