Commentary on dermoscopy in general dermatology

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Summary

Dermoscopy has enormously facilitated and integrated the clinical diagnosis in general dermatology by magnifying both surface structures and subsurface features invisible to the unaided eye and reflected the different histopathological background of each condition. The aim of this article is to provide a rapid overview of the most important observations in the evolving field of dermoscopy in general dermatology.

KEY WORDS: dermoscopy in general dermatology.

Introduction

The ongoing research in the field of dermoscopy in inflammatory or infective skin diseases makes dermoscopy increasingly relevant and useful in the dermatological arena. The aim of this article is to summarize the new dermoscopic acquisitions in general dermatology and to provide an up-to-date practical and rapid overview of the most common differential diagnoses. Beyond the well-known value of dermoscopy for the diagnosis of skin tumours, its role in general dermatology is increasingly gaining appreciation among clinicians. The expansion of dermoscopy has been facilitated by the development of handheld polarized dermatoscopes, which are portable, do not require skin contact and immersion fluid, therefore allowing a fast screening of cutaneous lesions. In recent times, several terms have been suggested to describe the use of dermoscopy in different fields, such as inflammoscopy for inflammatory skin diseases, entomodermoscopy for skin infestations, trichoscopy for hair disorders and onychoscopy for nail abnormalities (1, 2). The application of dermoscopy for non-tumoral lesions should however follow the standard procedure, in fact its findings should be always interpreted considering the medical history and within the overall clinical context of the patient.

Some dermoscopic criteria appear to be highly specific for a given disease; whereas others can be seen in more than one entity and subsequently are considered “non-specific”. However, a “non-specific” feature may be rendered particularly valuable when coupled with certain other clinical-dermoscopic criteria, forming a set of clues that frequently leads to either an accurate single diagnosis or a narrowed list of possible differential diagnoses (3, 4).

Inflammatory diseases

Among common dermatologic conditions, a widely-studied example is psoriasis, which dermoscopically displays a consolidated pattern showing white scales and dotted vessels regularly distributed. Among papulosquamous disorders, inflammoscopy simplifies the differential diagnosis, allowing clinicians to promptly recognize conditions such as eczema (yellow crusts and patchy dotted vessels) (Figure 1A), pityriasis rosea (peripheral white scales) (Figure 1B), and lichen planus (Wickham striae) (Figure 1C). Moreover, the detection of a yellow-orange background is considered a dermoscopic clue for the diagnosis of granulomatous skin disorders, such as sarcoidosis (Figure 2A), lupus vulgaris (Figure 2B), and necrobiosis lipoidica (Figure 2C).

Dermoscopy has also been found to be useful in the diagnosis of some facial dermatoses like rosacea, showing the presence of linear vessels arranged in a polygonal network (Figure 3A) and discoid lupus erythematosus, characterized by erythema, perifollicular whitish halo, keratotic plugs, red dots, white scales (especially in early lesions), inhomogeneous pigmentation, and fine telangiectasia (the latter 2 seen in latest stage) (Figure 3B).

As concerning sclero-atrophic dermatoses, morphea is dermoscopically characterized by whitish fibrotic beams and linear arborizing vessels (Figure 4A), while in lichen sclerosus the dermoscopic hallmarks are follicular keratotic plugs and whitish patches (Figure 4B) (1-5). Recently, the dermoscopic pattern of perforating dermatosis has also been described. The lesions of perfo-
Figure 1 - A) Typical dermoscopic appearance of eczema showing multiple yellow crusts, whitish scales and unfocused dotted vessels; B) Pityriasis rosea lesion showing a peripheral rim of scales; C) Dermoscopy in lichen planus uncovers Wickham striae.

Figure 2 - A yellow-orange background is evident in dermoscopic images of each granulomatous skin disorder showed in the Figure: A) cutaneous sarcoidosis; B) Lupus vulgaris; C) Necrobiosis lipoidica.

Figure 3 - A) Linear vessels arranged in a polygonal network typically seen in facial rosacea; B) Erythema, perifollicular whitish halo, keratotic plugs, red dots, white scales in the dermoscopic image of a facial discoid lupus erythematosus.

Figure 4 - A) Fibrotic beams and linear arborizing vessels seen in a morphea; B) Follicular keratotic plugs and whitish patches typically observed in extra genital lichen sclerosus.
rating folliculitis, including Kyrle’s disease and reactive perforating collagenosis, usually show a three-zonal concentric dermoscopic pattern with bright/whitish scales or yellowish crust in the center, a structureless whitish-gray area in the middle and a peripheral brown delicate pigmentation (Figure 5A). Elastosis perforans serpiginosa reveals instead a bi-zonal dermoscopic pattern with a central whitish structureless area surrounded by a crown of arborizing vessels (6-8).

Dermoscopy can be particularly useful also in the diagnosis of pigmented purpuric dermatoses (Shamberg disease, Majocchi’s disease, lichen aureus, Gougerot-Blum Disease and eczematid-like purpura of Doucas and Kapetanakis), which often show purpuric dots and clods over a brown structureless background color (9, 10) (Figure 5B). Concerning acantholytic and dyskeratotic disorders including Grover’s disease and Darier’s disease, they show a polygonal (star-like) yellowish/brownish area surrounded by a white halo and a pinkish structureless area or whitish scales in a reddish-yellowish background (11).

**Infectious diseases**

Nowadays, infectious diseases can be easily recognized and diagnosed by using dermatoscopes without slide that avoid direct contact with skin and minimize the cross-infection risk. The dermoscopic aspects of molluscum contagiosum, wart and scabies were first described a few years ago. These 3 conditions are easily diagnosed for the presence, respectively, of white lobules and crown vessels (Figure 6A), dotted vessels or multiple splitter haemorrhages inside an area delimited by whitish clean edges (Figure 6B), and the ‘delta-wing jet with contrail’ sign (Figure 6C).

Beyond the aforementioned diseases, dermoscopy can be useful for the following conditions directly or indirectly correlated to insects: cutaneous leishmaniasis showing an orange-yellowish areas with linear vessels and follicular plugs (in some cases central ulceration); pediculosis exhibiting lice or nits; tick bite revealing the anterior legs protruding from the skin surface and brown to greish translucent shield (1-3).

Figure 5 - A) The three-zonal concentric dermoscopic pattern seen in perforating dermatosis and charactherized by central bright/whitish scales, a structureless whitish/gray area in the middle and a peripheral brown delicate pigmentation; B) A coppery-red/brownish background, red dots and linear vessels exhibited in dermoscopic image of a lichen aureus.

Figure 6 - A) Dermoscopy of molluscum contagiosum showing a central orifice surrounded by whitish amorphous areas and crown vessels; B) Dermoscopy of a viral wart showing dotted vessels located in the centre of the papillae (’frogspawn’ appearance); C) Dermoscopy in a patient affected by scabies shows the diagnostic “delta wing jet with contrail sign”. The ‘delta wing’ corresponds to the head of mite and the ‘contrail’ to the burrow.
Genital diseases

The dermoscopic examination is becoming increasingly useful also in the diagnosis of dermatological diseases of the genital area, ranging from infectious lesions to inflammatory conditions. Most of them show the same dermoscopic pattern of lesions occurring in other body sites (e.g. warts, molluscum contagiosum, psoriasis, lichen planus, lichen aureus, etc.) (Figure 7 A, B). Other dermatological diseases show a different dermoscopic pattern when arising on genitalia (e.g. lichen sclerosus). However, genital district harbor also diseases specific of this body area and not occurring elsewhere, and dermoscopy could give useful clues for their diagnosis (e.g. Zoon’s balanitis, Queyrat erythroplasia, Bowenoid papulosis, etc.). Genital lichen sclerosus (LS) reveals structureless white to yellowish area, which are most commonly associated with linear teleangiectasia of different caliber and dotted vessels (visible independently from duration of disease). Erosions could be observed, while keratotic plugs typically seen in extragenital LS are not detectable in genital LS (12). Zoon’s balanitis reveals at dermoscopy fairly focused curved vessels, orange brownish structureless areas and linear and dotted vessels (13). The main dermoscopic criterion visible in Queyrat erythroplasia is the presence of glomerular scattered vessels while dermoscopy of Bowenoid papulosis exhibits dotted vessels regularly distributed (5) (Figure 7 C).

Hair and scalp disorders

One of the most interesting fields of dermoscopy in general dermatology is trichoscopy, i.e. dermoscopy of hair and scalp disorders. In daily practice, the early clinical diagnosis of both common and uncommon hair and scalp diseases may be challenging. Therefore, trichoscopy could give an important diagnostic support, enabling dermatologists to quickly diagnose tinea capitis and alopecia areata, differentiate telogen effluvium from early androgenetic alopecia (AGA), and distinguish scarring from non scarring alopecia. In tinea capitis the most striking dermoscopic sign is comma hairs, i.e. curved short hairs produced by Microsporum infection. Other dermoscopic features have been found, such as corkscrew, broken, dystrophic, and bar-code hairs (14-17). Alopecia areata typically shows black dots (cadaverized hairs) and yellow dots, often correlated with disease severity, and tapering or broken hairs correlated with disease activity; on the other hand the detection of short vellus hairs is a marker of low disease severity and activity (18) (Figure 8). Acute telogen effluvium may be often hardly distinguished from early alopecia areata, but dermoscopy can help in this difficult differentiation. While in telogen effluvium empty follicles and numerous short regrowing hairs of normal thickness are detectable, AGA typically shows ‘anisorotrichosis’, i.e. hair diameter variability greater than 20%, variably associated with yellow dots, vellus hairs, and perifollicular discoloration (19-21).

As concerning scarring alopecia, there are some common dermoscopic features such as decreased hair density and loss of follicular openings easily detectable in non pigmented scalp, but not on dark skin. Beyond the common features, each form of scarring alopecia shows several distinguishing features, such as peripilar casts in lichen planopilaris (22), yellowish keratotic follicular plugs in discoid lupus erythematosus (23), and tufted hairs in folliculitis decalvans (24). Trichoscopy is a progressively expanding field in dermoscopy with interest arising towards all hair and scalp diseases, including genodermatoses and inflammatory diseases, such as psoriasis and seborrheic dermatitis, whose differential diagnosis could be made on the basis of dermoscopic features.

Conclusions

Recently, dermoscopic practical tips have been suggested to optimize the diagnostic power of clinicians in their everyday practice. However, given that only a few appropriately designed studies have assessed the diagnostic accuracy of dermoscopy in other fields than skin tumours, these suggestions are based on the expert opinions of a group of clinicians and researchers and thus should be read with a critical eye, pending further higher-level evidence.

Figure 7 - A) Dermoscopic appearance of a genital wart; B) Evident Wickham striae in a genital lichen planus; C) Dotted vessels regularly distributed in a dermoscopic view of Bowenoid papulosis.
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