

VIDEODERMOSCOPY IN THE EVALUATION OF HAIR AND SCALP DISORDERS

Standard methods used to diagnose scalp and hair disorders vary in sensitivity, reproducibility and invasiveness. Recent data show that videodermoscopy can be used as a method which can improve our clinical and diagnostic accuracy in the evaluation of these disorders, since clinical diagnosis is not always sufficient, and pathological findings can sometimes be unspecific and therefore not always very helpful.

It is not uncommon that some conditions require scalp biopsy in order to confirm clinical diagnosis and therefore clinicians need to use a more invasive method such as a probation biopsy.

On the other hand, hand-held dermoscope has changed our point of view in managing and follow up of pigmented lesion, and has therefore become important help to clinicians in differentiating melanocytic from nonmelanocytic lesions, follow up of dysplastic nevi syndrome, and diagnosis of early stage of melanoma.

There are a growing number of reports which show the use of this very helpful tool and related devices in the evaluation of scalp and hair disorders. Interesting results have been reported from some recent studies, and these new results and achievements are discussed and cited below.

Unlike conventional hand-held dermoscopy, evaluation of scalp and hair disorders requires videodermoscopy, since this method allows high resolution and magnification up to x1000 with up-to-date, advanced models. Common magnifications used in the studies discussed below were x20 to x70.



Figure 1. Videodermoscopy device

Like conventional dermoscopy, videodermoscopy also permits storage of digital images and their later use and examination.

Videodermoscopy has been used in the evaluation of several clinical diagnoses such as psoriasis, seborrheic dermatitis, alopecia areata, androgenetic alopecia, chronic telogen effluvium, trichotillomania, discoid lupus erythematosus, lichen planopilaris, and folliculitis decalvans.

Also, videodermoscopy features of normal and diseased scalp and skin have been evaluated and defined.

Several patterns using videodermoscopy have been identified. Some of these features are discussed below.

Some of these features can be observed using hand-held dermoscopy, however, comparative studies to support similarities between the two methods are not yet available. Videodermoscopy has greater potential in scalp and hair disease differentiation. Generally, two findings are commonly found: twisted loops in psoriatic scalp and yellow dots as a sign of alopecia areata.

It is important to bear in mind that vascular patterns are best seen using the epiluminescent mode of operation. There are three types of vascular structures seen with regularity: interfollicular simple loops, twisted loops, and arborizing red lines.

Interfollicular simple red loops are described as multiple, relatively equally spread fine red lasso-shaped loops, and they are present in isolation, or are articulated with an underlying plexus of wider red lines. These structures are best seen with camera probe angled tangentially and at magnification of x50. Simple loops are a feature of both normal and diseased scalp, except for discoid lupus. The distribution of red loops is described as diffuse or patchy.

Interfollicular twisted red loops are described in all cases of psoriasis and folliculitis decalvans. These structures are also seen in some cases of seborrheic dermatitis.

As stated above, they are best visualized if

the camera probe is angled tangentially. In case of camera positioned above, these structures appear as a striking array of red dots at lower magnification, or polymorphous beaded lines and circles at higher magnification. The distribution of these structures is also described. According to literature data, the distribution of these twisted red loops is diffuse in psoriasis and seborrheic dermatitis, and centered on actively affected follicles in folliculitis.

It is important to mention that twisted loops are also found in unaffected psoriatic scalp. Twisted loops are considered as a dermoscopic sign of psoriasis, since this feature was found in all cases of psoriasis but in only 20% of seborrheic dermatitis cases and never in patients with discoid lupus. Interestingly enough, these features are also found in psoriasis-like seborrheic dermatitis, and can provide dermoscopic evidence for the coexistence of both diseases in a patient.

Based on the studies using surface microscopy, simple and twisted loops correspond to capillary loops in dermal papilla. Therefore, simple loops correlate with normal epidermis, and twisted loops are found when epidermal hypertrophy is found. Loops are not seen in cases of epidermal atrophy. These loops are not seen in DLE, as atrophy is marked in this condition. On the other hand, twisted loops are found in psoriasis and seborrheic dermatitis-like seborrheic dermatitis.

Arborizing red lines are another feature that can be seen using videodermoscopy. These are described as inset, red lines, thicker and larger in caliber than the loops and are seen underlying simple loops. These are also seen if the camera probe is placed tangentially. The magnification used for observation of these structures is x20 or higher. It is very likely that these structures observed dermoscopically correspond with subpapillary plexus.

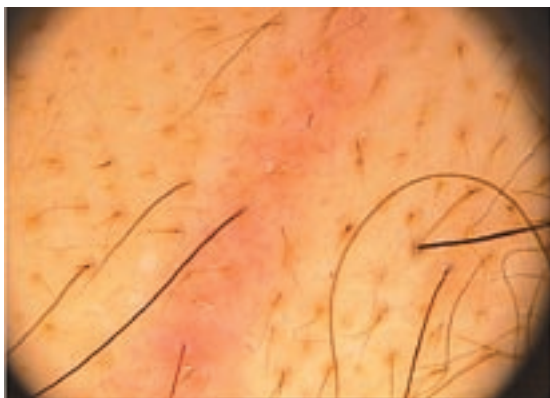


Figure 2. Twisted loops are seen if the camera probe is placed tangentially.

Honeycomb pigment pattern is a homogeneous pigment pattern formed by brown rings. These rings can show variation in color, from light brown to medium brown. This honeycomb pattern is found in sun-exposed skin. However, in light-skinned patients only a faint, tan coloration is found. This pigment pattern is best observed when using x30 magnification or higher, using epiluminescent mode of operation. In the honeycomb pattern, grid or irregular lines are melanin in rete ridges and hypomelanotic areas represent thinner suprapapillary epidermis. It is important to point out that the degree of changes correlates with the amount of hair loss. This pigment pattern can be associated with chronic sun exposure, since hair can provide sun protection. It is considered that honeycomb pattern is a good marker of chronic diseases that cause alopecia.

Some distinctive peripilar patterns can be observed if videodermoscopy is done using the epiluminescent mode of operation, and these patterns present as yellow and white dots. Yellow dots as a peripilar pattern are presented with a distinctive array of yellow dots. These yellow dots show variations in color, shape and size, but they are always of the same color in one patient. According to literature data, this feature was found in almost all patients with alopecia areata. In alopecia areata and androgenetic alopecia, dots are observed in regions where they were devoid of hair, cadaverized or dystrophic hairs. These dots apparently represent distention of affected follicular infundibulum with keratinous material and sebum. Yellow dots can show signs of scaling and protuberance of the lesion when using non-epiluminescent mode, and correlate with keratotic plugs in chronic alopecia areata.

On the other hand, white dots were observed in some patients with lichen planopilaris or folliculitis decalvans. These features are best observed when using x20 magnification. It is thought that these white dots represent sites of targeted follicular destruction. This destruction is a marker of primary cicatricial alopecia. White dots as a dermoscopic feature are not found in discoid lupus due to destruction of hair follicle.

In literature reports, yellow dots as a dermoscopic feature were present in 95% of alopecia areata cases but in only 5% of androgenetic alopecia. The presence of this feature allows us to differentiate alopecia areata from trichotillomania and telogen effluvium. This fact allows us to have correct diagnosis without performing biopsy, which can be a very traumatic procedure in children.

At the end, we can say that videodermoscopy is a very useful tool in clinical management and follow up of scalp and hair diseases, since it gives important information that can help us obtain an accurate diagnosis without performing scalp biopsy. However, it is necessary to perform prospective studies and get information on the power of dermoscopic features described to date.

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News

Certificate of Appreciation Award Letter to Professor Jasna Lipozenčić

President of the International League of Dermatological Societies (ILDS) Professor Robin Marks, on behalf of the Board of ILDS wrote to Professor Jasna Lipozenčić and congratulated her as well as members of Croatian Dermatovenerological Society did, for receiving the ILDS Award – the Certificate of Appreciation.

“Recipients are selected based on the recommendations of the national and international societies of dermatology who are very special people who have given life-long dedication to particular aspects of dermatology far beyond what one would expect of a dermatologists in their normal practicing life” – wrote Professor Marks.

The award to Professor Jasna Lipozenčić will be present on 5th EADV Spring Symposium in Istanbul, May, 2008.

Assist. Prof. Branka Marinović, MD, PhD