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LETTER TO THE EDITOR

FRONTAL FIBROSING ALOPECIA AND LICHEN PLANOPILARIS: CLINICAL, DERMOSCOPIC AND HISTOLOGICAL COMPARISON

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Frontal fibrosing alopecia (FFA) and lichen planopilaris (LPP) are classified as scarring alopecia. Most authors consider FFA as a clinical variant of LPP on the basis of their similar histological findings; other authors think these pathologies are two different entities. We studied 48 cases of FFA and 86 cases of LPP. Clinical diagnosis was histologically confirmed and all patients underwent videodermoscopy. Moreover, histological study, identifying the main targets of these diseases, results helpful to confirm the diagnosis. FFA selectively affects vellus-like hair in the frontoparietal region and is characterized by a mild skin atrophy and a total loss of follicular openings. In LPP an involvement of total preterminal, terminal and vellus-like follicles, partial or total loss of follicular openings, diffuse hair thinning and twisting, perifollicular erythematous or violaceous papules and mild/severe spinous follicular hyperkeratosis with scalp sclerosis are the features observed. Videodermoscopy improves diagnostic capability, appearing to be helpful to underline FFA and LPP features, confirmed by histologic studies which identify and show different intensity of inflammatory process. Therefore, the two diseases could be considered two different entities on the basis of the different clinical features and the different targets, that can be related to a different pathogenetic mechanism.

Lichen planopilaris is an uncommon inflammatory hair loss disease, characterized by autoreactive lymphocytic destruction of hair follicle and progressive scarring alopecia of the scalp. Clinical signs are commonly perifollicular erythema, scaling, and groups of keratotic follicular papules.

Frontal fibrosing alopecia is a rather uncommon form of cicatricial alopecia originally described by Kossard in 1994, that usually occurs in fecund, postmenopausal and older women and men (1-4). The progressive recession of the frontal and parietal hairline is the most constant and characteristic clinical manifestations with skin atrophy and follicular or perifollicular erythema. We would like to underline how videodermoscopy enables dermatologists to view the scalp or skin surface at a rapid and high resolution and leads to digital recording the viewed images, considered also useful for patient follow-up.

MATERIALS AND METHODS

This is a retrospective study. From 2003 until

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DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

2011 we studied 48 cases of FFA, (46 F and 2 M) and 86 cases of LPP (86 F). We examined these patients with clinical evaluation. A complete dermatological medical history was taken. The entire scalp was examined and a complete general examination was performed. Then all patients were evaluated by videodermoscopy. Videodermatoscopic images were usually obtained by computerized polarized light using lenses with 20 to 70 factors of magnification with x10 increments (Tricoschan). Skin 5 mm punch biopsies were taken from the affected area and the material was fixed in formalin and embedded in paraffin. Routine histological sections were stained with hematoxylin-eosin.

RESULTS

Clinical diagnosis

Patients affected by LPP presented follicular hyperkeratosis, atrophic and scarring patches on the scalp and complete loss of follicular orifices. These lesions were located in the central area of the scalp. In 12 patients we had positive pull test of anagen hair, that indicates disease activity. Most patients presented increased hair shedding, severe itching, scaling, burning, and tenderness.

Patients affected by FFA presented recession of the frontal hairline that was symmetrically and bilaterally jagged giving rise to a band of alopecia between 0.5 cm and 8 cm from the original hairline. In five patients, who were in the final stage, we observed a total loss of hair from the frontoparietal area giving the "clown" pattern. In two patients fibrosing alopecia was observed, starting in the occipital site and involving this area. In all patients, the skin of the scalp appears pale, smooth, and clear with loss of follicular orifices (Table I). Only three patients had inflammatory papules, follicular and perifollicular erythema and mild hyperkeratosis follicular (Table I).

These manifestations, which are usual in LPP, are present in the initial stages of FFA and correlate with the inflammatory phase of the disease. FFA affects, typically, vellus-like hair. In LPP the inflammatory

Table I. *Clinical, dermatoscopic and histological features.*

	CLINICAL ASPECTS	VIDEODERMATOSCOPIC ASPECTS	HISTOLOGICAL ASPECTS
LPP	Central area -Follicular hyperkeratosis -Skin atrophy -Atrophic patches and complete loss of follicular orifiies	-Diffuse hair thinning -Perifollicular blue-gray dots -Mild/severe follicular hyperkeratosis -White structureless areas -Involvement of total preterminal and vellus like follicles	-Infiltrate: dense lymphocytic peristhmus. -Apoptosis: moderate -Lamellar fibrosis: present -Follicle target: terminal, preterminal, vellus like.
FFA	Frontoparietal, temples, occipital regions -Skin atrophy -Recession of the frontal hairline -Mild follicular hyperkeratosis	-White structureless areas -Hair thinning -Partial or total loss of follicular openings Involvement of hair vellus like follicles.(ma si ve questo all'epiluminesc)	-Mild Infiltrate: lymphocytic perinfundibular and peristhmus. -Apoptosis: prominent -Lamellar fibrosis: present -Follicle target: vellus like

The LPP histological figure presents Hematoxylin-Eosin stain; 1 magnification x 100. The FFA histological figure presents Hematoxylin-Eosin stain; 1 magnification x 250.

damage is stronger, therefore it is possible to observe involvement of total preterminal, terminal and vellus-like follicles.

Videodermoscopy

In all patients affected by LPP, dermoscopy revealed involvement of total preterminal, terminal and vellus-like follicles, a partial or total loss of follicular openings, diffuse hair thinning, perifollicular blue-gray dots, with white structureless areas corresponding to scalp sclerosis (Table I). These features were not always contemporaneously present.

In patients affected by FFA, dermoscopy revealed white structureless areas, corresponding to skin atrophy, a total loss of the follicular openings with an exclusive involvement of vellus-like hair follicles, mostly located on the frontoparietal region, but also on the temples and the hairline occipital region (Table I).

Histopathological diagnosis

Histological features of both groups revealed a lymphohistiocytic inflammatory infiltrate and a lamellar fibrosis mainly located at the isthmus and infundibulum area of hair follicles. Although the severity of the infiltrate is variable, it is milder in FFA than in LPP. Moreover, the follicle target in LPP is terminal, preterminal and vellus-like. In FFA the follicle target is vellus-like. The apoptosis in FFA is prominent at the isthmus and can appear at the infundibulum (Table I).

DISCUSSION

LPP affects primarily the central area of the scalp, and is characterized by follicular keratosis, atrophic and scarring patches on the scalp and complete loss of follicular orifices, associated with erythema or violaceous papules (5-7). FFA is characterized by recession of frontal hairline, that usually occurs symmetrically and bilaterally jagged giving rise to a band of alopecia between 0.5 cm and 8 cm from the original hairline. Skin of the scalp appears pale, smooth, clear with loss of follicular orifices. Furthermore, it is possible to observe inflammatory papules, follicular and perifollicular erythema and mild follicular hyperkeratosis. In the final state it is possible to observe a total loss of hair from the frontoparietal area giving a "clown" pattern (Table I). In literature some articles have reported thinning and partial loss of eyebrow, in the lateral third (8-11). These manifestations, which are usual in LPP are present in the initial stage of FFA and correlate with inflammatory phase of the disease (2, 12, 13). FFA typically affects vellus-like hair. Lymphohistiocytic inflammatory infiltrate and lamellar fibrosis, mainly located at the isthmus and infundibulum area of hair follicles, are a common finding of LPP and FFA. In LPP the severity of inflammatory infiltrate is stronger, therefore it is possible to observe involvement of total preterminal, terminal and vellus-like follicles. Moreover, apoptosis in FFA is prominent at the isthmus and can appear at the infundibulum. In LPP apoptotic cells are moderate (8, 13, 14). Videodermoscopy is a widely used non-invasive technique of producing high quality, magnified pictures of structures under the skin surface, which the naked eye cannot see (15). This technique in the clinical evaluation of scalp and hair disorders improves diagnostic capability and reveals novel features of disease, which may extend clinical and pathogenetic understanding (16). As known, in literature, dermoscopy allows us to evaluate the slight clinical and morphological variations of scalp diseases. The conditions that we have evaluated included FFA and LPP. This technique, in fact, confirms the different features observed clinically and gives us the possibility to highlight the initial stage of FFA and LPP. Few published studies describe the dermoscopic features of frontal fibrosing alopecia (17).

According to the observations of other authors, some clinical and histological differences can be observed also histologically. In fact, the selective involvement of intermediate and vellus-like follicles of the frontal margin and the eyebrows is present in FFA and not in LLP. Furthermore, in FFA inflammatory infiltrate is perinfundibular and peristhmus, the perifollicular fibrosis is prominent and presence of apoptotic cells is relevant. In LLP, inflammatory infiltrate is dense and localized to peristhmus region. Thus, although FFA is a scarring alopecia currently considered a clinical variant of LPP, our study further demonstrates that these conditions, even if similar, affect different regions of

the hair follicle. Therefore, considering the different clinical, dermoscopic and histological features of these two disorders, FFA and LPP could be considered distinct entities clinically, histologically, dermoscopically and maybe pathogenetically. Moreover, we underline and confirm, once again, how videodermoscopy is useful in evaluating skin tumours, but its applicability extends also to the field of inflammatory skin disorders.

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