Comment on Follicular Inflammation and Fibrosis in Pattern Hair Loss

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“Quotations are useful in periods of
ignorance or obscurantist beliefs”
Guy Debord (1931–1994)

Dear Editor,

Patterned hair loss (PHL) is understood to represent a hereditary, androgen-induced, age-dependent progressive thinning of the scalp hair that follows a defined pattern with sex-dependent differences in incidence, pattern, and severity. It is assumed that the genetically predisposed hair follicle is the target for androgen-stimulated hair follicle miniaturization in affected areas, resulting in a progressive decline in visible scalp hair density. And yet, the limited success rate of treatment with minoxidil and modulators of androgen metabolism means that further pathogenic pathways must be taken into account, with follicular inflammation and fibrosis acting as the main suspects, as they have emerged from earlier histological studies. Specifically, Whiting [1] provided the clinical evidence by showing that a smaller proportion of male PHL patients with follicular inflammation and fibrosis had regrowth in response to topical minoxidil in comparison to those without inflammation and fibrosis.

An important question has been how the inflammation is generated around the hair follicle. Ultimately, Mahé et al. [2] provided sophisticated reflections on the putative role of follicular inflammation going well be-

yond plain morphology, at the same time proposing the term “microinflammation” because the process involves a slow, subtle, and indolent course, in contrast to the inflammatory and destructive process in the classical inflammatory scarring alopecias.

Finally, fibrosing alopecia in a pattern distribution (FAPD), as originally reported by Zinkernagel and Trüeb in 2000 [3], represents the most definitive evidence for PHL with clinical evidence of follicular inflammation and fibrosis with a lichen planopilaris (LPP)-like inflammation targeting the androgenetic hair follicle. Moreover, the observation of cutaneous GvHD presenting as FAPD [4] may provide a mechanistic model for a better understanding of the pathogenic events underlying cicatricial PHL. GvHD is a complication following allogeneic tissue transplantation and is induced and maintained by immunocompetent cells from the donor tissue that particularly attack epithelia of fast-proliferating tissues in the recipient. Meanwhile, LPP is also regarded to be a T-cell-mediated autoimmune reaction that triggers apoptosis of the follicular epithelial cells. This autoimmune process is thought to be in response to some antigenic challenge, but a specific antigen has yet not been identified. Where a causal or triggering agent is identified, this is termed a lichenoid reaction rather than lichen planus. This may include drug reactions, viral hepatitis, cutaneous GvHD, and ultimately PHL in FAPD.

Ultimately, Olsen [5] approved the existence of cicatricial PHL, while more recently, others [6–8] have acknowledged that FAPD earns its own entity due to its lichenoid inflammation exclusively affecting the androgenetic alopecia area of involvement, which differentiates it from all other types of LPP. And yet, some authors continue to ignore the peculiarity of the condition and its nosology in relation to PHL, either failing to differentiate it from LPP or interpreting it as a diffuse variant of LPP [9, 10], or totally denying the significance of follicular microinflammation and fibrosis in PHL. Precisely, Valdebran et al. [11] performed studies on histological sections in PHL and controls and did not find any significant differences in follicular inflammation and fibrosis between the 2 groups, thus concluding that follicular inflammation and fibrosis play no role in PHL. In fact, their comparative histopathology was inappropriate with regard to differences between the 2 groups in sex and age with a predominance of older males in the control group (71% males with 44% >70 years of age with the probability of senescent alopecia vs. 84% females with 3% >70 years of age in the PHL group). In addition, the authors failed to take into account the possibility that the androgenetic hair follicle may react differently to environmental stress and inflammation, as evidenced by basic research [12], or to acknowledge cicatricial PHL or FAPD, as evidenced by the respective clinical observations [6–8].

In summary, denial of the significance of follicular inflammation and fibrosis in PHL [11] and of the existence of FAPD as a distinct entity [9, 10], despite the wealth of

respective observations and reflexions, represents a backslide into obscurantism at the cost of our current understanding of the pathogenesis of PHL beyond androgen metabolism and genetics and of effective treatment for PHL with evidence of inflammation and fibrosis.

Statement of Ethics

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Conflict of Interest Statement

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