Presence of Psoriasis in Areas of Balding in Patients with Both Androgenic Alopecia and Scalp Psoriasis

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INTRODUCTION

Scalp psoriasis is present in 2% of the Western population and is the most common site at the onset of psoriasis and throughout the disease course. The Gelfand study reported that 79% of patients diagnosed with psoriasis have psoriasis of the scalp. Scalp psoriasis is often seen spreading beyond the hairline, with involvement onto the face and retroauricular area. Although psoriasis in other areas of the body is generally not pruritic, itching is a major symptom in those affected by scalp psoriasis.

Currently, there are many treatment options available for scalp psoriasis. The gold standard therapy is corticosteroids. Although known to be very effective, their use needs to be balanced with their adverse effects, which include vasoconstriction and a decrease in mitotic activity in the epidermis. Other second-line treatments are also available. Keratolytics, such as salicylic acid in an ointment base, are often used for patients with very thick plaques to help break them down. These ointments can be applied nightly and washed away in the morning; however, their untidy nature makes it difficult for patients. Coal tar shampoos and lotions have long been popular options and help to decrease pruritus while reducing epidermal proliferation and inflammation. However, new research indicating their systemic absorption has led to a decrease in their use. Dithranol is noted for its antipsoriatic effects, which are believed to be mediated by free radicals. In scalp psoriasis, it often leads to long remission periods, although adverse effects include irradiation and staining of light-colored hair. Vitamin D3 analogues come in a variety of formulations and aid in psoriasis treatment through their anti-inflammatory effects, enhancement of keratinization, and by reducing the growth of epidermal cells. Transient scalp irritation leads to discontinuation of therapy in ~5% of individuals. Vitamin D3 can also be combined with other therapies, which allows for it to be used as either a primary treatment or in conjunction with other modalities. Treatments other than those requiring topical application are also available. Phototherapy has long been used as a psoriasis therapy. For the scalp in particular, UVA and UVB combs can be used; however, with the emergence of topical and systemic therapies, which are easier to use, phototherapy for scalp psoriasis is not popular. Although scalp psoriasis can be treated with topical medications, in recalcitrant psoriasis, systemic therapies, including biologics, methotrexate, or cyclosporine, may be needed.

Although many report no association between scalp psoriasis and hair loss, others have noted frequent hair loss at the site of psoriatic plaque. The association between androgenic alopecia and psoriasis has not been described in the literature. In our clinical experiences, men with both androgenic alopecia and psoriasis are less likely to be affected by psoriasis in areas of balding. The purpose of this study was to validate our finding regarding the relationship between male pattern baldness and lack of psoriasis in areas of balding.

METHODS

After attaining institutional review board exemption, the electronic medical chart system of

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a dermatology practice in Fresno, California, was used as a tool to search for male patients with psoriasis. A survey was mailed to a total of 500 patients. The survey questions included whether psoriasis and male pattern baldness were present and whether psoriasis was present in areas of male pattern baldness. Options for answering the second question included whether psoriasis was on areas with remaining hair but not in balding areas, areas with balding but not on areas with remaining hair, on the entire scalp in both areas, or whether there was no presence of psoriasis of the scalp. The data were compiled and analyzed while maintaining patient confidentiality.

**Results and Analysis**

After a period of 6 months, 97 (19.4%) of 500 mailed surveys were returned to the clinic, with no compensation offered for a received survey. All of the surveys received were anonymous. Of these patients, 21 (21.6%) of 97 reported having both scalp psoriasis and androgenic alopecia. Fourteen (66.6%) of these 21 patients reported having no evidence of psoriasis in the areas of balding. Two (9%) of 21 had psoriasis only in areas of balding, and 5 (23.8%) of 21 had psoriasis both in balding and nonbalding areas of the scalp (see Figure 1).

**DISCUSSION**

Although it is a preliminary study, the results validate our clinical findings that men with both male pattern baldness and psoriasis are less likely to be affected by psoriasis in areas of balding. Small sample size and low response rate are disadvantages of the study, and a more expansive group with a greater response rate would better validate these results. In addition, the specific features of male pattern baldness, including loss of hair in the frontal, bitemporal, and vertex areas of the scalp, were not elaborated on in the survey, and no image was provided for clarity. Questions on our survey were very specific for those who had male pattern baldness and psoriasis; there was no assessment of patients who had scalp psoriasis but did not have androgenic alopecia or vice versa. Our study was also very cursory, and further information regarding subjects, including age, other medical comorbidities, degree of skin involvement, medication used for the management of their psoriasis and any past treatment failures, and age at onset of balding in relation to age of onset of psoriasis in these areas could further help in correlating the incidence of psoriasis and male pattern baldness.

In the general population, androgenic alopecia is present in 30% of whites by the age of 30 years and 50% by the age of 50 years. As noted previously, scalp psoriasis has a 2% prevalence. In our study, 21.6% of subjects reported being coaffected by both androgenic alopecia and scalp psoriasis in particular. Although our survey did not collect the age or race of subjects, androgenic alopecia and scalp psoriasis together appear at lower rates than androgenic alopecia alone. Although the Renbok phenomenon, which is defined as normal hair growth in psoriatic plaques in patients experiencing both psoriasis and alopecia areata, has been described, whether scalp psoriasis is a protective barrier to developing male pattern baldness has not been analyzed.

The lack of psoriasis in areas of male pattern baldness may be attributed to a number of reasons, including sun exposure, in which the amount of plasmacytoid dendritic cells, particularly a subclass of myeloid dendritic cells that produce interferon-α, and dermal dendritic cells, which both have been found to contribute to the pathophysiology of psoriasis, were reduced. Reduction of dermal dendritic cells after 1 day of sun exposure was detected before any appreciation of clinical change. Another study directly correlated the reduction in size of psoriatic plaques with exposure to UVB radiation because of the reduction of interleukin 17 and interleukin 22 mRNA production and suppression.
of the interleukin 17 inflammatory pathway.\textsuperscript{7} In addition, changes in the hormonal environment that have long been attributed to the development of androgenic alopecia\textsuperscript{8} and their role in the development of psoriasis in balding areas have not been assessed.

REFERENCES