Acitretin-Induced Poliosis With Concurrent Alopecia

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ABSTRACT

Acitretin, a metabolite of the aromatic retinoid etretinate, has been utilized successfully in the treatment of psoriasis since the late 1980s. Of the oral retinoids available, etretinate and acitretin are the most likely agents to induce various dose-dependent hair changes, but to our knowledge this is the first reported case of acitretin-induced poliosis. Additional cutaneous findings included skin atrophy and stickiness. Here we report a case of full body acitretin-induced poliosis with concurrent alopecia in a patient with psoriasis. A proposed mechanism for the poliosis is also presented here. Closer examination of retinoid-induced hair changes is needed in order to help physicians better counsel their patients regarding the adverse effects of acitretin and to expand the current knowledge on hair follicle biology.

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CASE REPORT

A 50-year-old Thai male with a 13-year history of psoriasis presented with psoriatic lesions covering 70% of his body surface area (BSA). At the time of presentation, his hair was normal density and black in color. Three years prior to this presentation the patient had been successfully treated with a six-month course of acitretin 25 mg/day and experienced complete resolution of his psoriasis without any adverse events. Acitretin 50 mg/day was reinstituted due to previous amelioration. The patient had no other significant past medical history.

Two months after reinstitution of acitretin therapy, the patient reported significant hair loss from his scalp, face, and body as well as a whitening and graying of previously black hair (Figures 1). He also complained of skin thinning, tackiness, peeling, and itching. Upon physical examination, the patient was noted to have white and gray scalp and facial hair, thin eyebrows, few eyelashes, and diffuse absence of arm and leg hair. His pull test was negative. Additionally, the patient's BSA had significantly improved to 3%. His thyroid stimulating hormone level was normal. A diagnosis of acitretin-induced alopecia with poliosis was made and acitretin was discontinued.

One month after the termination of therapy, worsening of his psoriasis was noted, but he had significant regrowth all body hair (Figures 2 with complete regrowth and partial repigmentation in four months. To date, the patient has not had any further hair abnormalities. He is currently being treated with adalimumab 40 mg subcutaneously every other week and has a BSA of 1%.

DISCUSSION

Acitretin, a metabolite of the aromatic retinoid etretinate, has been utilized successfully in the treatment of psoriasis since the late 1980s.[1] In psoriasis, as with other disorders of keratinization, acitretin regulates epidermal cell proliferation, differentiation, and cornification. Additionally, it is thought to have immunomodulatory effects by inhibiting neutrophil migration and dermal microvascular endothelial cells.[2,3]

While acitretin is well-known for its mucocutaneous side effects, hair abnormalities are another common side effect, with alopecia being reported in up to 75 percent of patients.[4] Acitretin-induced hair shaft abnormalities occur less frequently, with only one case of hair-curling and one case of hair-kinking being reported.[5,6] Mucocutaneous effects seen with this patient, such as pruritus, have been reported in up to 50 percent of patients during the original acitretin clinical trials. Skin atrophy and stickiness were also reported less frequently in up to 25 percent of patients.[1] To our knowledge, there are no reports of acitretin affecting hair melanin. In direct contrast to our patient, repigmentation of previously white hair has been observed while on acitretin.[6] Additionally, the repigmentation in that previously reported case persisted despite discontinuation of acitretin. In our

FIGURE 1: a-b) Significant hair loss and graying two months after reinstitution of acitretin therapy.

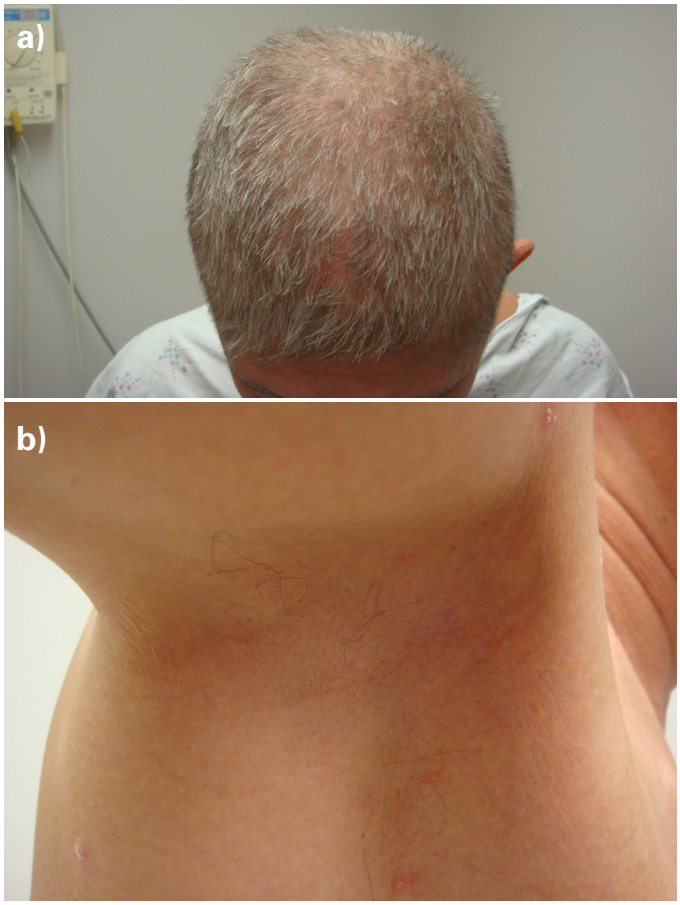
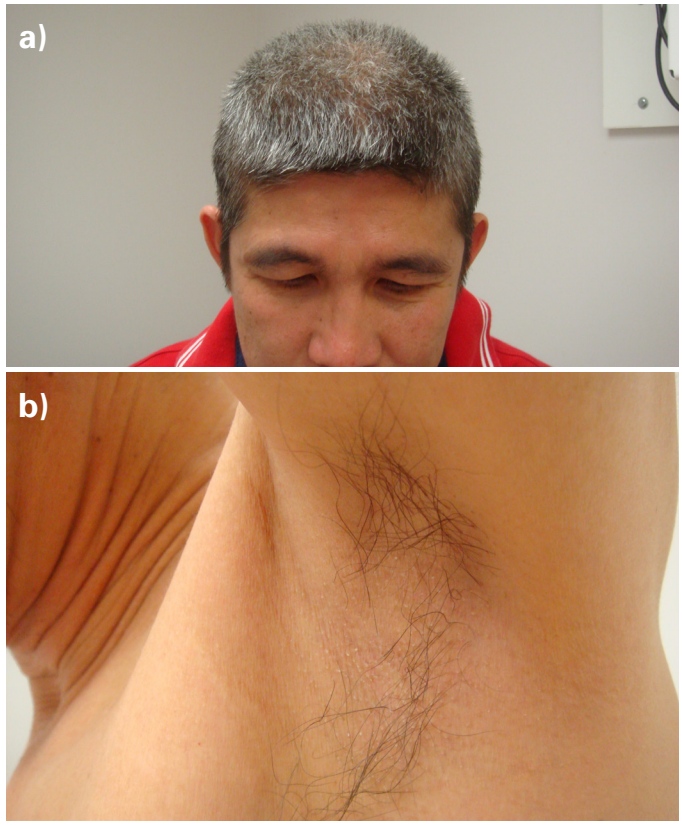


FIGURE 2: a-b) Complete regrowth and partial repigmentation four months after discontinuing acitretin therapy.



patient, the poliosis resolved when acitretin was discontinued and repigmentation to the patient's original black hair color occurred over two-four months.

The mechanisms by which retinoids induce hair changes are not well understood. Retinoids are thought to cause telogen effluvium through shortening of the telogen phase resulting in premature detachment of club hairs from their follicles.[7] Another mechanism, termed immediate anagen release telogen effluvium, involves shortening of the anagen phase resulting in premature entry into the telogen phase. In our patient, the time from insult to hair loss and subsequent re-growth was three months, which reflects the average time of a normal telogen phase.[8,9] Although clinically subtyping telogen effluvium is difficult, we postulate our patient likely experienced a drug-induced immediate anagen release telogen effluvium. Additionally, a negative pull test, as seen with our patient, is often associated with shortened anagen phase telogen effluvium.[9]

Although there are no proposed mechanisms for acitretin-induced poliosis, it is possible that it may be a result of the immunomodulatory effects of the drug. Acitretin may affect melanocyte stem cells and/or lead to loss of differentiated melanocytes at the hair matrix causing depigmentation.[10] Closer examination of retinoid-induced hair changes is needed in order to help physicians better counsel their patients regarding adverse effects and to expand the current knowledge on hair follicle biology.

DISCLOSURES

The authors have no relevant conflicts of interest to disclose.

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