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Single Case

Remarkable Improvement of Nail Changes in Alopecia Areata Universalis with 10 Months of Treatment with Tofacitinib: A Case Report

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Tofacitinib · Alopecia areata · Nails

Abstract
Alopecia areata (AA) is a chronic, autoimmune disease. The main symptom is massive hair loss, localized or diffuse, in the scalp and the whole body. However, nails may also be involved, and brittleness, fragility and pitting can be signs of nail dystrophy in AA patients. Here, we report the case of a male patient with AA refractory to various treatments, including oral, topical and intralesional corticosteroids, immunosuppressants, cyclosporin and PUVA (oxoralen plus ultraviolet light), all interrupted due to side effects. The patient's nails had erythematous blotches (striated lunulae) with regular and superficial pitting as well as fragility (trachyonychia), and he could no longer play the guitar because of these symptoms. With patient consent, we introduced tofacitinib (5 mg twice daily), which resulted in remarkable improvements not only regarding hair regrowth but also nail changes, with function recovery within 10 months.

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Introduction

Alopecia areata (AA) is a chronic, autoimmune disease [1–4], which affects the pilar follicles leading to hair loss, localized or diffuse, in the scalp and the whole body. Nails are involved in 10–66% of all AA cases [4, 5]. Nails can be affected before or after hair loss, and nail involvement may persist even after treatment and hair regrowth [4]. Nail changes are more frequently seen in the severe forms of AA, present in 15.4% of the AA universalis cases [1]. It is accepted that the presence of nail changes in AA can be an indicator of AA severity and possibly reflects a more refractory disease [4]. Nail changes can also lead to dysfunction [6].

In this report, we present the case of a patient with AA universalis refractory to various types of treatments. With patient consent, we introduced oral tofacitinib, an agent that has shown results in AA universalis [7, 8]. Tofacitinib is currently approved for the treatment of rheumatoid arthritis in many countries, including Brazil [7, 9–11], and we have recently reported the case of successful treatment of AA with this drug [8]. The patient reported here showed remarkable improvements not only regarding hair regrowth but also nail changes associated with AA.

Case Presentation

A 38-year-old male presented to our service with a 10-year history of hair loss evolution. He had AA universalis, with the hair loss affecting the entire integument. Hair loss was associated with dystrophy of the fingernails. Clinical examination showed total absence of the eyebrows, eyelashes, beard, hairs in the trunk, scalp, genitals, armpits, arms and legs. Fingernails were dystrophic, with erythematous blotches (striated lunulae) with regular and superficial pitting and nail fragility (trachyonychia) (fig. 1). The patient reported nail brittleness (onychorrhexis) and pain in the fingertips leading to difficulty in performing simple tasks and being unable to play the guitar.

Many treatments had been tried previously: oral, topical and intralesional corticosteroids, immunosuppressants such as methotrexate (32.5 mg weekly for 9 months), cyclosporin (200 mg for 6 months and then 300 mg for 3 months) and finally PUVA (oxoralen plus ultraviolet light) therapy. The patient also used diphencyprone, but the drug also caused skin irritation (blisters) even in small doses so that the treatment had to be interrupted. During these therapies, the patient presented some adverse effects, such as weight gain with oral corticosteroids (12 kg in 4 months), hyperglycemia, dyslipidemia and hypertension. Due to the adverse events, all therapies were discontinued.

The patient was then started on tofacitinib as an off-label treatment, with previous consent. Routine laboratory work was performed, including a complete blood count coagulation profile and the following tests and measurements: liver function, purified protein derivative test, HIV test, serology for hepatitis B and C, antinuclear antibodies, thyroid function, lipid profile, blood glucose, erythrocyte sedimentation rate, C-reactive protein, urea and creatinine. All these examination results were within ranges.

Oral tofacitinib was started with 5 mg twice daily. After 1 month of therapy, new hair had emerged in the eyebrow and scalp as well as small eyelashes. After 2 months, the patient had new hair in the beard, scalp, eyelashes and eyebrows. At 4 months, nails started to show increased growth, making them less fragile, and the longitudinal cracking was not so evident anymore (fig. 2). At 10 months of therapy, there was growth in all fingernails and normaliza-

tion of the nail plate (fig. 3). At this point, the patient reported that he resumed his habit of playing the guitar.

Total hair regrowth occurred after 10 months of therapy. Currently, the patient maintains the same treatment, being constantly monitored, and no adverse effects or laboratory abnormalities were observed.

Discussion

AA is a chronic autoimmune disease that leads to atrophy of the pilar follicles mediated by T cells in a typical autoimmune response. The disease can be associated with other autoimmune disorders such as vitiligo [8]. Nails are involved in a variable percentage of patients and can be affected before, during or after hair loss and may persist after treatment and hair growth [8, 11]. The most common nail change in AA is pitting (in a somewhat different form than that seen in psoriasis), occurring in approximately one third of the patients [11].

The treatment of AA is targeted to reduce disease activity, but no definitive cure has yet been found, although several immune and nonimmune therapies have been proposed and described, with conflicting results [12].

In this report, we describe the first case of remarkable improvement on nail changes in a Brazilian patient, with complete resolution of the trophic changes and regrowth of normal nail structures after prolonged therapy with tofacitinib. In our case, nail improvement was also associated with hair regrowth. The only other reports of the treatment of AA with tofacitinib resulting in nail improvements published so far were the brief descriptions of 3 cases (2 males, 1 female) by Dhayalan and King [11] and the report of 1 female case with psoriatic arthritis and AA by Mrowietz et al. [12].

AA is driven by cytotoxic T lymphocytes, and this activity appears to be blocked at the pilar follicle site by Janus kinase inhibition [4, 10]. This new treatment option may turn out to be a window of opportunity for refractory cases, and the issues associated with safety in prolonged use, the duration of treatment and access to high-cost medication will be addressed in the ensuing years. For instance, in a report just released, the initial success in hair regrowth was lost after a few months, indicating that possibly, there are subtypes of AA that will respond to tofacitinib and some that will not [13].

Conclusion

In isolated reports, oral tofacitinib, a drug approved for the treatment of rheumatoid arthritis, has shown good results in hair growth in patients with AA. We herein presented the association with regrowth and strengthening of the nail. This clinical observation should be confirmed by other dermatologists and subjected to randomized clinical trials.

Statement of Ethics

The patient's written informed consent was obtained.

Disclosure Statement

The authors have no conflicts of interest to disclose.

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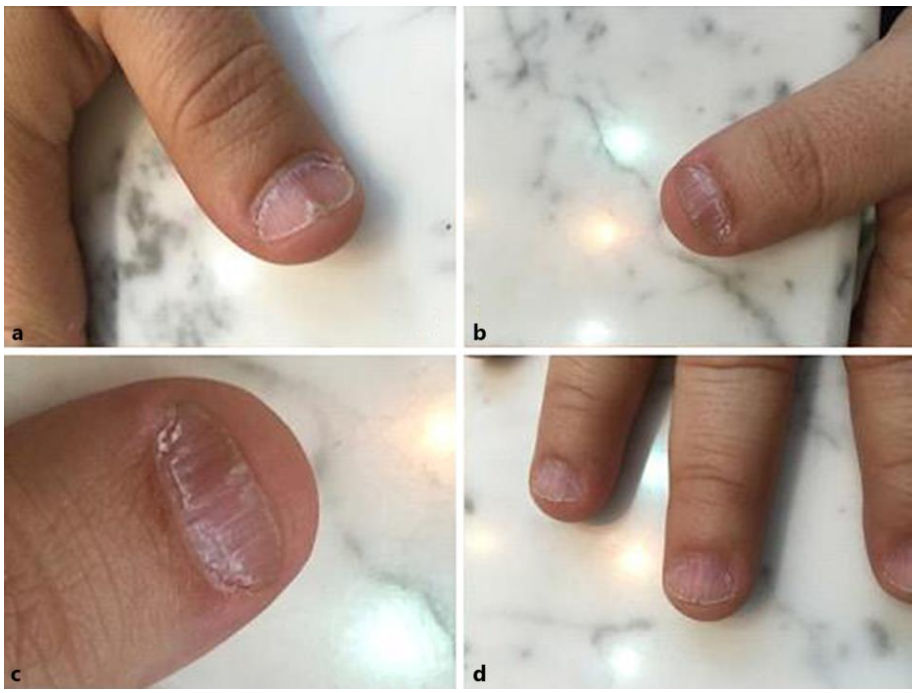

Fig. 1. **a–d** Fingernails of a patient with AA universalis before treatment.

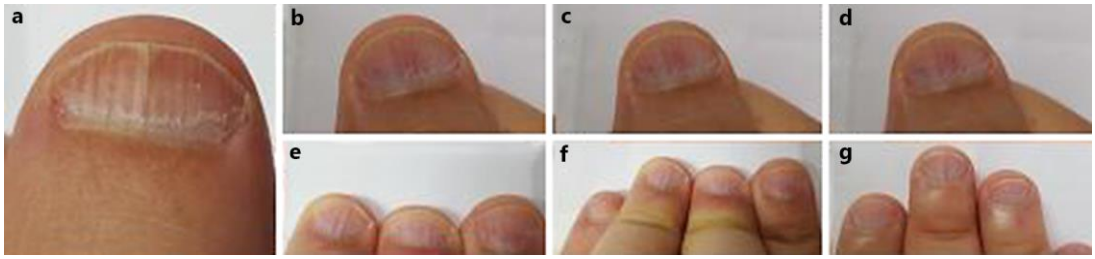

Fig. 2. **a–g** Fingernails of a patient with AA universalis after 4 months of treatment with tofacitinib.

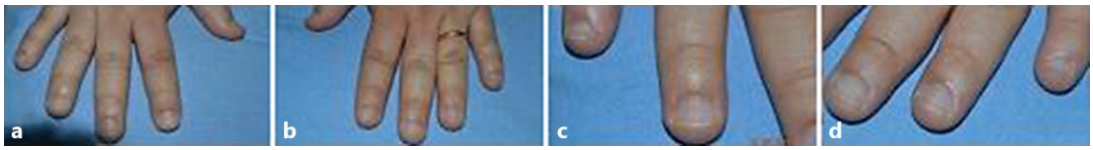

Fig. 3. **a–d** Fingernails of a patient with AA universalis after 9 months of treatment with tofacitinib.