SKIN

BRIEF ARTICLE

Complete Resolution of Localized Granuloma Annulare with Oral Abrocitinib

Victoria Pajak, BS[1], Erik Domingues, MD[2,3]

[1] University of Massachusetts Chan Medical School, Worcester, Massachusetts, USA
[2] Modern Dermatology of Massachusetts, Fall River, Massachusetts, USA
[3] Department of Dermatology, University of Massachusetts Chan Medical School, Worcester, Massachusetts, USA

ABSTRACT

Granuloma annulare is an inflammatory granulomatous reaction of the skin with unknown etiology. Currently, first line treatments include topical or intralesional corticosteroids, followed by systemic therapies, although these interventions have variable effectiveness and risk of adverse events. Recently, the JAK-STAT pathway has been implicated in the pathogenesis of the disease, promoting the emergence of JAK inhibitors as therapeutic options. In this report, we describe resolution of granuloma annulare on the hands in a patient treated for atopic dermatitis with the selective JAK1 inhibitor, abrocitinib.

INTRODUCTION

Granuloma annulare (GA) is an inflammatory granulomatous skin reaction with varied clinical presentations that preferentially affects women. Most commonly, it presents as erythematous to flesh-colored or brown papules coalescing into annular plaques on the hands or feet but may present more commonly as disseminated disease in older individuals. While GA has been associated with autoimmune disorders, diabetes mellitus, hyperlipidemia, malignancy, and infections, its exact etiology remains unknown.[1] The inflammatory profile of GA has been associated with increased Th1 and Th2 signaling driving a persistent immune reaction mediated by TNF-α, IFN-γ, IL-4, IL-31, as well as chemokines and oncostatins.[2] While GA is often self-limited, incomplete pathologic understanding poses therapeutic challenges. Primary treatment includes topical or intralesional corticosteroids, although these are most efficiently utilized for localized lesions and often require repeat injections. Success has been reported with systemic therapies including antibiotics, hydroxychloroquine, methotrexate, TNF-a inhibitors, pentoxifylline as well as phototherapy, although they are associated with variable outcomes and potential adverse events. Currently, there are no standard, FDA-approved therapies for GA.[3]

More recently, dysregulation of the JAK-STAT pathway has been implicated in the pathogenesis of the disease, offering a new potential therapeutic target.[2,4] Case reports of the selective JAK1/JAK3 inhibitor tofacitinib have shown promise in reducing cytokine profiles related to JAK-STAT and non-JAK-STAT pathway-mediated granuloma formation, resulting in marked improvement or complete resolution of

localized GA.[4,5] Oral abrocitinib, a selective JAK1 inhibitor initially FDA-approved in 2022 for the treatment of moderate-to-severe atopic dermatitis, is currently being evaluated as a potential therapeutic option for GA in a clinical trial.[6,7] However, only one report of localized GA successfully treated with this medication exists in the literature.[8] While treatment of GA with JAK inhibitors seems promising, optimal treatment regimens and outcomes remain unknown. Here, we present a case of localized GA on the hands that rapidly resolved after six weeks of oral abrocitinib.

CASE REPORT

We report a case of a 53-year-old woman who initially presented for follow up of atopic dermatitis on the palmar hands, which she had been treating with ruxolitinib 1.5 % topical cream twice daily, without improvement. She also had a several-year history of a mildly pruritic, annular pink-brown plaque on the left dorsal hand previously unresponsive to clobetasol propionate 0.05%, topical calcineurin inhibitors, and ruxolitinib 1.5% cream. Other pertinent past medical history included hypertension, hyperlipidemia, fatty liver disease, hypothyroidism, and a 90 pack-year smoking history. Upon physical examination, there were focal, infiltrative pink-brown papules coalescing into a larger annular plaque on the left dorsal radial hand, most consistent with granuloma annulare (**Figure 1**). Due to the lack of improvement of her atopic dermatitis, the decision was made to discontinue ruxolitinib and start a two-week course of oral abrocitinib 100mg daily. There was discussion around the boxed safety warning for abrocitinib in this high-risk patient, including increased risk of infections and cardiovascular events.[9] Ultimately, these risks were deemed tolerable due to the patient's stable laboratory workup. Given the impact of the patient's condition on her quality of life and desire to achieve rapid results with avoidance of an injectable therapy, she elected to treat her atopic dermatitis with a JAK inhibitor. A screening comprehensive metabolic panel, complete blood count, lipid panel, hepatitis panel, and tuberculosis test were consistent with the patient's baseline. After two weeks of treatment, the atopic dermatitis and granuloma annulare lesions markedly improved with a thin residual plaque remaining on the left dorsal hand (**Figure 2**). Abrocitinib 100 mg daily was continued for an additional four weeks. Repeat labwork was normal, and on follow-up, the GA lesions had entirely resolved (**Figure 3**).

DISCUSSION

We report a case of a 53-year-old woman with a history of atopic dermatitis previously treated with topical ruxolitinib, who experienced complete resolution of granuloma annulare on the dorsal hand with oral abrocitinib 100 mg. After only two weeks of treatment, the lesions markedly reduced in size, texture, and color. Following four weeks of additional therapy, the lesions completely resolved. This case highlights the success of a novel JAK inhibitor in the treatment of GA, which may benefit patients who have contraindications to corticosteroids, experience recalcitrant disease, or have concomitant atopic dermatitis. It is possible that the shared Th2 and JAK-STAT immune profiles in atopic dermatitis and GA suggest additional common therapeutic targets which should be investigated.

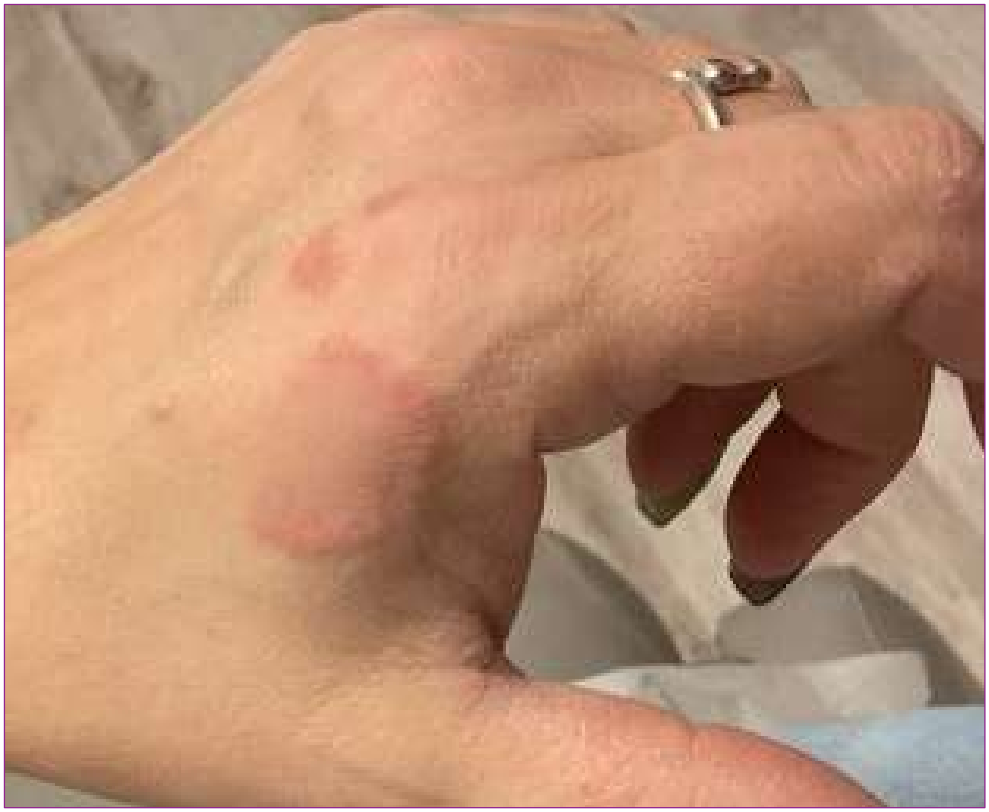

Figure 1. Granuloma annulare on initial presentation

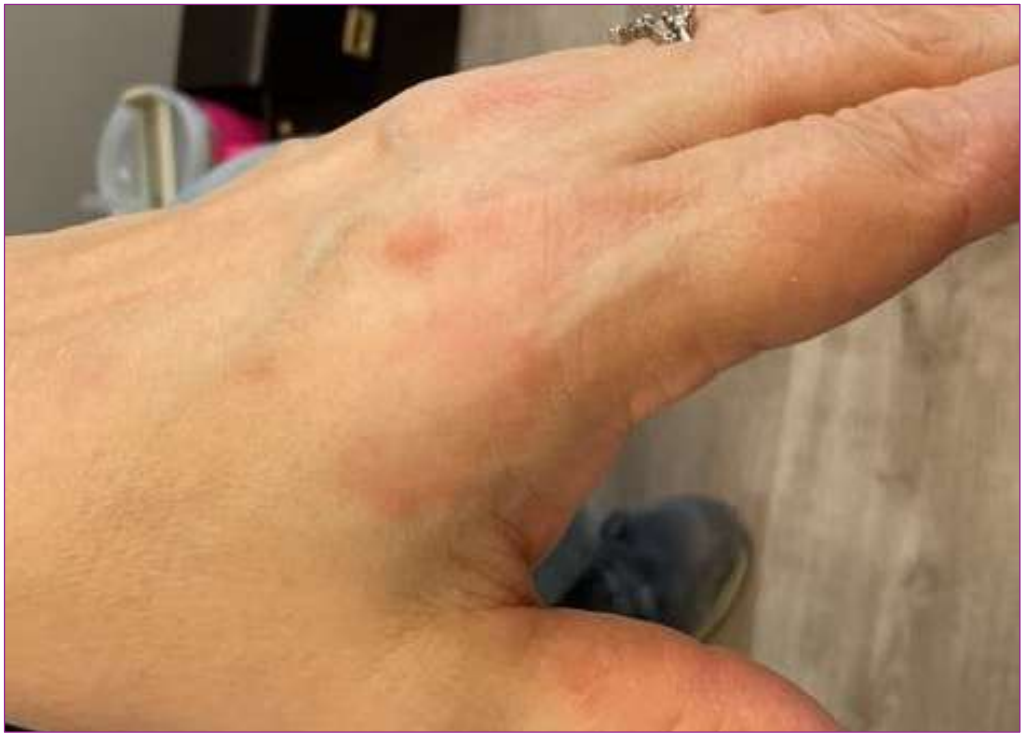

Figure 2. Granuloma annulare following two weeks of oral abrocitinib

Figure 3. Resolved granuloma annulare following four weeks of abrocitinib

While JAK inhibitors have been associated with increased risk of infection, malignancies, and cardiovascular events, our patient experienced no adverse effects on this medication. A pooled analysis of 3,802 patients demonstrated that the long-term safety profile of oral abrocitinib is tolerable with treatment-emergent adverse events more frequent in patients aged 65 and older and those receiving higher doses (200 mg) compared to younger patients and those on 100 mg daily.[9] For persistent or recurrent disease, indefinite low-dose (100 mg) therapy may be justifiable with comprehensive monitoring including lipid panels, CBC, infection surveillance, and cancer risk assessment. Given our patient's multiple cardiovascular risk factors, she was tapered off daily abrocitinib for her atopic dermatitis at six weeks. She has since been well-managed on topical roflumilast 0.15% cream, with the option to resume abrocitinib if needed. Further research on the safety and efficacy of JAK inhibitors in the treatment of granuloma annulare, particularly in patients with comorbidities, is necessary to provide evidence-based therapies for clinical practice.

Conflict of Interest Disclosures: Victoria Pajak, BS – None; Erik Domingues, MD – Abbvie, Arcutis, BMS, Castle Biosciences, Galderma, Incyte, Johnson and Johnson, Pfizer, UCB

Funding: None

Corresponding Author:
Erik Domingues, MD
Modern Dermatology of Massachusetts, Fall River, Massachusetts, USA and Department of Dermatology, University of Massachusetts Chan Medical School, Worcester, Massachusetts, USA
Email: edomingues02@yahoo.com

References:

1. Schmieder SJ, Harper CD, Schmieder GJ. Granuloma Annulare. In: StatPearls. StatPearls Publishing; 2025. Accessed

February 25, 2025. http://www.ncbi.nlm.nih.gov/books/NBK459377/
2. Min MS, Wu J, He H, et al. Granuloma annulare skin profile shows activation of T-helper cell type 1, T-helper cell type 2, and Janus kinase pathways. J Am Acad Dermatol. 2020;83(1):63-70. doi:10.1016/j.jaad.2019.12.028
3. Joshi TP, Duvic M. Granuloma Annulare: An Updated Review of Epidemiology, Pathogenesis, and Treatment Options. Am J Clin Dermatol. 2022;23(1):37-50. doi:10.1007/s40257-021-00636-1
4. Wang A, Rahman NT, McGeary MK, et al. Treatment of granuloma annulare and suppression of proinflammatory cytokine activity with tofacitinib. Journal of Allergy and Clinical Immunology. 2021;147(5):1795-1809. doi:10.1016/j.jaci.2020.10.012
5. Damsky W, Thakral D, McGeary MK, Leventhal J, Galan A, King B. Janus kinase inhibition induces disease remission in cutaneous sarcoidosis and granuloma annulare. Journal of the American Academy of Dermatology. 2020;82(3):612-621. doi:10.1016/j.jaad.2019.05.098
6. Perche PO, Cook MK, Feldman SR. Abrocitinib: A New FDA-Approved Drug for Moderate-to-Severe Atopic Dermatitis. Ann Pharmacother. 2023;57(1):86-98. doi:10.1177/10600280221096713
7. Damsky W. JAK1 Inhibition in Granuloma Annulare: An Opportunity for Pathogenesis Directed Therapy. clinicaltrials.gov; 2024. Accessed February 25, 2025. https://clinicaltrials.gov/study/NCT05650736
8. Liu W, Chen W, Tian X, et al. Oral abrocitinib in the treatment of granuloma annulare: a case report. Journal of Dermatological Treatment. 2024;35(1):2313090. doi:10.1080/09546634.2024.2313090
9. Cork MJ, Deleuran M, Geng B, et al. Long-Term Safety of Abrocitinib in Moderate-to-Severe Atopic Dermatitis: Integrated Analysis by Age. *The Journal of Allergy and Clinical Immunology: In Practice*. 2025;13(5):1164-1175.e2. doi:10.1016/j.jaip.2025.02.040