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Clinical Case

Granuloma annulare with severe hand deformities significantly improved with upadacitinib

Running title: Granuloma annulare

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I. INTRODUCTION

Granuloma annulare (GA) is a T-cell dependent cutaneous inflammatory disorder, where T-cells activate macrophages and alter the extracellular matrix through cytokines and fibroblasts [1]. Treatment options include dapsone, hydroxycloroquine, Janus Kinase (JAK) and Tumor Necrosis Factor (TNF) inhibitors [2]. We present a case of GA with extreme hand deformities that significantly improved with upadacitinib.

II. CASE STUDY

A 41-year-old woman presented to the rheumatology clinic complaining of progressive loss of hand function, accompanied by smooth raised papules on the dorsal surface of her hands and granulomatous-like tissue at pressure points. The eruption of papules began after she contracted COVID-19. A skin biopsy confirmed a diagnosis of granuloma annulare (GA) and she was treated with oral methylprednisolone. Despite this, she developed bilateral palmar tendon contractures, which caused severe disability. Imaging and laboratory tests ruled out infections and malignancies. A repeat skin biopsy was performed, with a differential diagnosis that included multicentric reticulohistiocytosis (MRH) and generalized GA. The biopsy was consistent with GA. An electromyogram/ electroneurogram showed normal conduction, and a hand MRI revealed high signal in the palmar aponeurosis, indicating inflammation. Upadacitinib was initiated, since it had previously shown efficacy in treating generalized GA. Over the six months prior to starting treatment, the contractures worsened (Figure 1, A and B), but after treatment initiation they have stabilized and have not progressed further (Figure 1, C). The papules showed significant improvement upon re-evaluation after one year. The patient experienced no adverse effects.

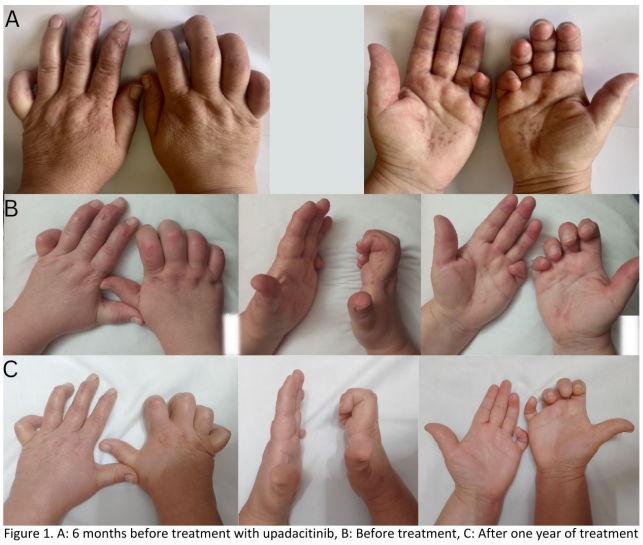

Figure 1. A: 6 months before treatment with upadacitinib, B: Before treatment, C: After one year of treatment

III. CONCLUSION

To the best of our knowledge, this is the first case with GA and severe hand deformities treated with JAK inhibitors. Using JAK inhibitors can inhibit multiple Th1 and Th2 cytokines, making them a therapeutic option for GA [3]. We effectively treated our patient with upadacitinib, as the progression of contractures halted and

the papules resolved. However, the safety and efficacy of upadacitinib in patients with GA require further evaluation.

AUTHOR CONTRIBUTIONS

All authors participated in manuscript preparation. All authors approved the final version of the manuscript.

CONFLICT OF INTEREST

All Authors declare no conflict of interest.

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