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The groove sign

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A 26-year-old man presented to a rheumatology clinic in October 2021 with complaints of recurrent polyarticular joint pain and decreased flexibility. Three years prior he was diagnosed with eosinophilic fasciitis and had minimal symptoms after treatment with methotrexate, prompting discontinuation of his medications. One year later he had recurrence of joint pain and skin tightness. He was prescribed prednisone 40 mg daily and upon presentation to the rheumatology clinic his joint pain had resolved but skin symptoms persisted. A physical examination was notable for the “groove sign” (Figure 1) characteristic of eosinophilic fasciitis. Laboratory studies revealed mildly elevated erythrocyte sedimentation rate (ESR, 17 mm/h), normal C-reactive protein (CRP, <0.5 mg/dL), and white blood cell count (WBC, 6,700 cells/mcL, 0.7% eosinophils). MRI of the right upper extremity showed minimal fascial edema and enhancement between flexor muscles of the forearm. His symptoms resolved within 2 months with prednisone and resuming methotrexate.

Eosinophilic fasciitis is a rare disease with an unknown incidence and unclear etiology [1]. It is characterized by acute onset swelling and skin induration of the extremities, often with arthritis, myalgias, and initially peripheral blood eosinophilia [2]. The gold standard for diagnosis is full thickness skin-to-muscle biopsy, although MRI is commonly used [2]. The groove sign occurs because fascial fibrosis creates immobile connective tissue around the veins while the epidermal and dermal layers remain unaffected. When the limb is elevated, venous pressure falls and the overlying skin indents along the course of superficial veins [3]. Treatment involves



Figure 1: Photograph of the groove sign on the right forearm, characterized by skin indentation along superficial veins.

several weeks of high-dose glucocorticoids, often followed by methotrexate as a steroid-sparing agent [2]. Some patients achieve clinical remission allowing for discontinuation of immunosuppressants, but relapses are common [2].

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