Case Report
Development of Eosinophilic Fasciitis during Infliximab Therapy for Psoriatic Arthritis

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Eosinophilic fasciitis (EF) is a rare disorder involving chronic inflammation of the fascia and connective tissue surrounding muscles, nerves, and blood vessels. While its pathogenesis is not entirely understood, this disorder is thought to be autoimmune or allergic in nature. We present here a case of a 59-year-old male who developed peripheral eosinophilia and subsequent eosinophilic fasciitis during treatment with infliximab. To our knowledge, eosinophilic fasciitis has not been previously described in patients during treatment with a tumor necrosis factor-α (TNF-α) inhibitor.

1. Introduction
Eosinophilic fasciitis is a rare disorder involving chronic inflammation of fascia and connective tissue surrounding muscles, nerves, and blood vessels [1]. We report a case of eosinophilic fasciitis in a 59-year-old male patient undergoing treatment with infliximab for psoriatic arthritis. Infliximab infusion triggered eosinophilic fasciitis three months after his medication dose was increased from 3 mg/kg to 5 mg/kg. To our knowledge, eosinophilic fasciitis has not been described in patients during treatment with an inhibitor of tumor necrosis factor α.

2. Case Description
Mr. E was a 59-year-old former mechanic and current smoker with psoriatic arthritis who presented to the hospital with a 2-month history of worsening lower extremity swelling, arthralgias of his hands and feet, and new onset of muscle pain. He had a 20-year history of poorly controlled psoriasis and had developed psoriatic arthritis about 3 years prior to admission. He had been treated with methotrexate, azathioprine, etanercept, adalimumab, and golimumab without success due to either poor clinical response or infectious complications largely related to cellulitis from large open skin lesions. For the past 9 months, he had been taking infliximab 3 mg/kg IV infusion every 6 weeks along with erythromycin for prophylaxis against infections with an initial good response for both his skin and joint disease. When his synovitis recurred four months prior to admission, the infliximab dose was increased to 5 mg/kg every 6 weeks. The patient reported initial improvement in his joint and skin symptoms with this dose adjustment. However, over the several weeks prior to admission, he noted increasing muscle pain, stiffness, swelling in his legs, and weight gain.

He denied fevers, weakness, or recent acute respiratory or gastrointestinal illness but did note some night sweats. Past medical history was notable for depression and COPD. Review of systems was otherwise negative. Family history was notable for a poorly characterized autoimmune disease in a grandmother.

Medications on admission were citalopram 40 mg daily, infliximab 5 mg/kg every 6 weeks, naproxen 220 mg BID, hydrocodone/acetaminophen 7.5 mg/325 mg every 6 hours as needed, tramadol 50 mg every 6 hours as needed, folic acid 1 mg daily, fluocinonide 0.05% cream topically for psoriasis, erythromycin 250 mg BID for infection prophylaxis, and topical clotrimazole.

His vital signs at the time of admission were a temperature of 98.2 F, pulse of 87, respiratory rate of 16, blood pressure...
Figure 1: Deltoid muscle biopsy. (a) Low power view showing marked thickening and edema of epimysium and, to lesser extent, perimysium accompanied by diffuse chronic inflammation (H&E stain). There is only minor focal involvement of underlying endomysium. Muscle fascicles are relatively spared. (b) Higher power view of epimysium demonstrating noncohesive chronic inflammation and rarefaction/necrosis of connective tissue (H&E stain). A single necrotic fiber undergoing phagocytosis is observed in the adjacent fascicle. (c) Infiltrates are composed primarily of histiocytes, highlighted as red-staining cells in this preparation (acid phosphatase stain). (d) High power view of more focal collection of eosinophils within the epimysium (H&E stain).

of 133/73, and oxygen level of 95% on room air. His weight was 63.4 kg which was 7 kg greater than his previous recorded weight 6 months ago. He had mild synovitis of the second and third metacarpophalangeal joints of his left hand. Both wrists were tender to palpation. He also had new leg edema bilaterally with diffuse muscle tenderness to palpation. His legs were warm and erythematous. Muscle strength in upper and lower extremities modestly decreased due to pain in all extremities proximally and distally. Scattered small psoriatic lesions were noted over his bilateral knees, distal legs, and dorsal feet.

Laboratory studies revealed creatinine kinase level of 22 U/L (normal 39–308 U/L) and an aldolase level which was mildly elevated at 11 U/L (normal < 8 U/L). He had a peripheral eosinophilia with eosinophils accounting for up to 30% of his white blood cells. During the hospital stay, his absolute eosinophil count varied between 700 and 2200/μL. He had developed new, mild, normocytic anemia with hemoglobin of 12.0 g/dL and mean corpuscular volume of 94.8 fl. Previous hemoglobin 1 month priorly was 13.8 g/dL. Erythrocyte sedimentation rate was 36 mm/h (normal 0–15) and C-reactive protein was 78.7 (normal 0–10).

Dermatology, rheumatology, and hematology services were consulted. The differential diagnosis included DRESS syndrome (drug rash with eosinophilia and systemic symptoms), malignancy, hypereosinophilic syndrome, inflammatory myopathy, and eosinophilic fasciitis. DRESS syndrome was felt to be unlikely due to the absence of liver involvement. The patient improved with supportive care and outpatient workup was arranged.

The patient underwent a bone marrow biopsy to evaluate hypereosinophilic syndrome. The biopsy showed hypercellular marrow with marked eosinophilia, but no other significant abnormal cell populations were noted. A scheduled infliximab infusion was performed 2 weeks after hospitalization but had to be stopped due to the development of urticaria during the infusion. A CT scan of the chest, abdomen, and pelvis revealed no evidence of malignancy. The patient underwent an EMG of his right upper extremity to evaluate inflammatory myopathy which showed no definite evidence of a myopathic process. Because of the elevated aldolase level which subsequently increased to 14.3 U/L 3 weeks later, a muscle biopsy of the left deltoid muscle was performed. The biopsy showed diffuse thickening and edema of the epimysium and, to a lesser extent, perimysium, accompanied by a chronic, polymorphic inflammatory infiltrate and foci of fibrinoid necrosis of the involved fibrous connective tissue (Figures 1(a) and 1(b)). The inflammatory cells included
In conclusion, we report a case of a 59-year-old male who developed peripheral eosinophilia and subsequent eosinophilic fasciitis during treatment with infliximab for psoriatic arthritis. To our knowledge, this is the first reported case of eosinophilic fasciitis developing from tumor necrosis factor-α inhibitors. The mechanism of the development of eosinophilic fasciitis from these medications is unknown, but the description of other eosinophilic syndromes with TNF-α inhibitors suggests a possible etiologic link that warrants further study.

Competing Interests

The authors declare that they have no competing interests.

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