Treatment of Bullous Pemphigoid with Dupilumab: A Case Report

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INTRODUCTION

Bullous Pemphigoid is the most common autoimmune blistering condition with onset most common in the elderly population. BP results from formation of autoantibodies against hemidesmosome proteins, specifically BP180 and BP230. Classic BP presents as pruritic, tense blisters on the trunk and extremities, most commonly in individuals over 70 years of age. Of note, mucosal involvement is rare as opposed to Pemphigus Vulgaris, another autoimmune blistering disorder[1-2]. Dupilumab is an IgG monoclonal antibody targeted at the IL4-α receptor. It works to attenuate the IL4/IL13 pathway that controls T2 differentiation. Thus, Dupilumab has clinical applications for T2 mediated disease including atopic dermatitis, asthma and chronic rhinosinusitis[3]. Our case presents a patient with BP resistant to standard therapies that had success with biweekly Dupilumab injections.

CASE DESCRIPTION

An 83-year-old Asian male presented in spring of 2019 with a chief complaint of blistering lesions accompanied by significant pruritus. Past medical history and family history were negative for any autoimmune or skin disorders.

Tense bullae were noted on the arms, hands, thighs, feet, groin and head. The blistering rash appeared to be urticarial lesions which were unresponsive to prednisone therapy (Figure 1). Hypersensitivity reaction and drug eruption were suspected.

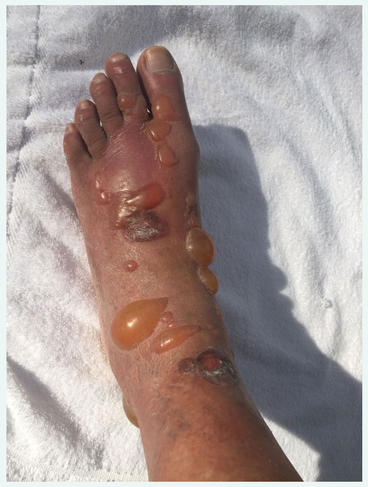

Figure 1. Left foot prior to Dupilumab, 2019

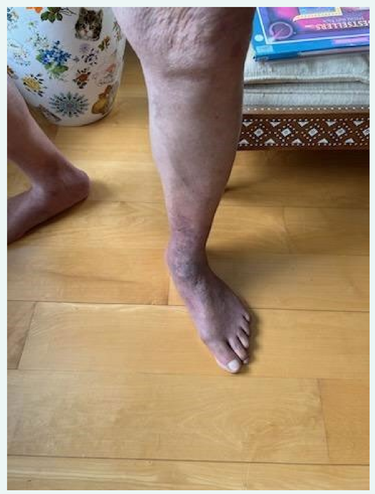

Figure 2. Left foot after Dupilumab, April 2023

Figure 3. Right arm after Dupilumab, April 2023

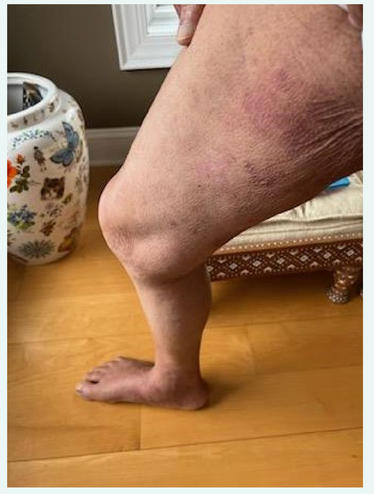

Figure 4. Right thigh after Dupilumab, April 2023

DIAGNOSTICS

- September 2019: Three punch biopsies
  - Forearm & abdomen returned as spongiotic dermatitis, buttock as spongiotic dermatitis with eosinophilic spongiosis
- Scattered eosinophils in epidermis, dermis and dermal-epidermal junction
- October 2019: Direct Immunofluorescence from right thigh biopsy confirmed BP
- Negative BP 180/230 antibodies: suggests non BP pemphigoid or decreased antibody presence since testing was done after rituximab therapy

THERAPEUTICS

- Failed therapies:
  - Oral prednisone, doxycycline 100mg bid, topical triamcinolone (0.1%) bid, topical silver sulfadiazine (1%)
  - Mycophenolate mofetil (1g bid) & dapsone (25mg bid, up to 2 x 25mg bid)
    - Significant neuropathy and parasthesias
  - IVIg (5 rounds, 2gm/kg per cycle)
  - Rituximab (3 rounds, 1000cc over 6 hours)

- Dupilumab therapy (600mg dose at day 0, followed with biweekly 300mg doses)
  - Started in October 2022
  - Stopped Dupilumab injections in March of 2023 with complete clearance
  - On maintenance doxycycline 100mg daily

DISCUSSION

Treatment of BP can pose clinical difficulties due to the vast number of therapies with variable responses. The pathophysiology of BP is known to involve eosinophilia and increased levels of IL4, IL5 and IL13 in both skin lesions and the serum[2]. Additionally, eosinophils are a large source of IL31 which has been shown to mediate pruritus in atopic disorders[4]. Dupilumab blunts the effects of IL4, IL13 and eosinophils which has been suggested as the mechanism for efficacious treatment in BP. Because of its inhibitory effect on eosinophils and thus IL31, Dupilumab has been shown to decrease pruritus in BP patients. Several case studies have reported profound results from Dupilumab, and a multicenter case series conducted by Abdat et al. saw 12/13 patients have disease clearance or satisfactory response to Dupilumab therapy[5]. This in conjunction with our report suggests the possibility of successful management of treatment resistant BP with Dupilumab therapy.

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