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Dupilumab Induced Psoriasiform Dermatitis

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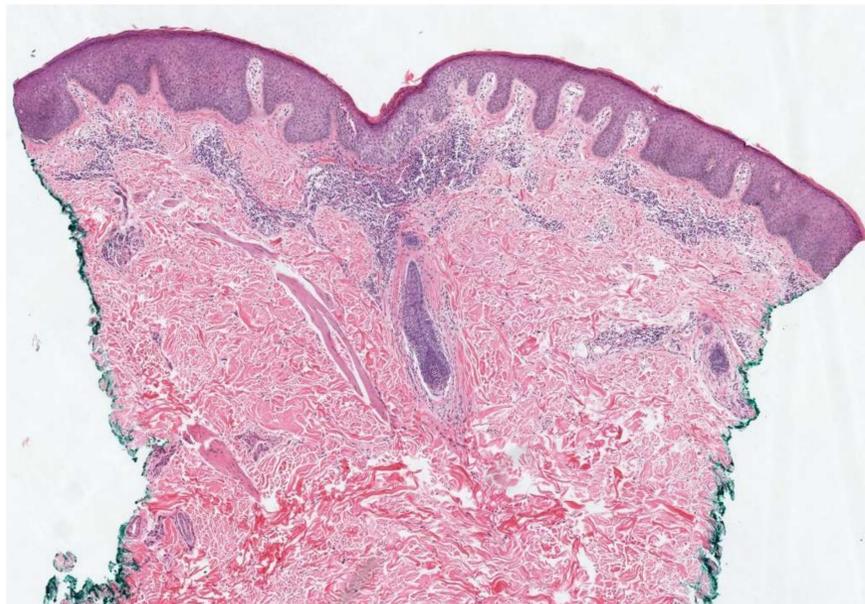
History

- A 40-year-old Indian male with a long-standing history of severe atopic dermatitis (AD), asthma, and allergic rhinitis was started on dupilumab after failing multiple treatment modalities
- Two weeks after the dupilumab 600 mg loading dose, he noted a remarkable improvement in his AD
- Following his fourth injection he developed a new asymptomatic pink scaly rash on his forehead and trunk in addition to red, itchy, watery eyes.
- He reported this to be a new eruption very different in quality than his AD

Examination

- On the forehead, extending throughout the scalp, eyebrows, central face and upper trunk were pink thin plaques and patches with overlying fine white scale
- Prior sites of atopic dermatitis including his antecubital and popliteal fossa were clear
- Bilateral erythema of the conjunctiva

Histopathology



• **Figure 1:** Punch biopsy of the right shoulder. Hematoxylin and eosin staining revealed psoriasiform epidermal acanthosis with mild spongiosis, compact stratum corneum with perifollicular parakeratosis and thinning of the granular layer. The underlying dermis had perivascular lymphocytic inflammation with pigment incontinence

Clinical Photos



• **Figure 2:** pink to erythematous patches to thin plaques on the forehead extending into the scalp with fine white flaky scale



• **Figure 3:** scattered pink patches with fine white scale throughout the upper chest and arms

Course and Therapy

- In office KOH prep negative
- Punch biopsy demonstrated psoriasiform dermatitis and a negative PAS stain with a differential diagnosis including seborrheic dermatitis, chronic atopic dermatitis, and partially treated psoriasis
- Given the seborrheic distribution, we recommended treatment with ketoconazole cream BID for a 3 month trial which resulted in moderate improvement of the erythema and scale

Discussion

- AD is a complex immunologic disorder characterized by the overexpression of Th2 cytokines, with IL-4 and IL-13 among the primary inflammatory mediators.
- Moderate to severe AD can be a challenge to treat but the FDA approved biologic dupilumab has demonstrated significant improvement in the signs and symptoms of AD.
- Dupilumab is a fully human monoclonal IgG4 antibody against IL-4 receptor alpha thereby inhibiting signaling of both IL-4 and IL-13.
- The most common adverse events of dupilumab in all clinical trials were nasopharyngitis, upper respiratory tract infection, injection site reactions, skin infections, and conjunctivitis of unspecified cause.
- We have several hypothesis as to the pathogenesis behind dupilumab-induced psoriasiform dermatitis including:
 - A shift in immune modulation that may allow for the development or dysregulation of other pathways (i.e. Th1, Th17, Th22).
 - Altered immune homeostasis to normal cutaneous flora such as *Malassezia*.
 - Due to the development of psoriasis, analogous to the paradoxical reaction seen with anti-TNF alpha inhibitor.
- There has been one case report of erythrodermic psoriasis in a patient treated with dupilumab

References

1. Beck LA, Thaçi D, Hamilton JD, Graham NM, Bieber T, Rocklin R et al. Dupilumab treatment in adults with moderate-to-severe atopic N Engl J Med 2014;371:130-139.
2. Fleming P, Drucker AM. Risk of infection in patients with atopic dermatitis treated with dupilumab: A meta-analysis of randomized controlled trials. J Am Acad Dermatol 2018;78:62-69.e61.