

LETTERS TO THE EDITOR

Successfully treatment with Dupilumab for systemic contact dermatitis following hair dye in a patient with dermatomyositis

Dear Editors,

A 43-year-old female patient with 5-year history of well-controlled dermatomyositis. The patient complained with 2 days history of skin lesions on her forehead with severe itching to our department for further seeking, topical corticosteroids and antihistamine was given with poor response, the skin lesions was rapid developed and gradually involved eyelid, limbs and trunk within next 5 days. A history of hair dye using before onset was confirmed. Physical examination showed the normal muscle strength of limb, redness-pleomorphic skin lesions with a little scale involving forehead, eyelids, limbs and trunk (Figure 1). In further laboratory examination, the positive findings of increased eosinophils and serum total Immunoglobulin E was found, the biological parameters of dermatomyositis such as creatine kinase and lactate dehydrogenase were within the normal range. A skin biopsy from skin lesions was performed and sent to histological examination, the result presented the typical histological pattern with spongiotic eczematous dermatitis, the perivascular lymphocyte and eosinophils infiltration in the superficial dermis was also seen. The allergy consultation and patch test were performed,

the strong positive allergic reaction for p-Phenylenediamine (PPD) was verified in patch test. These findings were consistent with a diagnosis of systemic contact dermatitis (SCD) induced by PPD. The treatment option of Dupilumab subcutaneous injection was taken, 600mg initial dose then 300mg was injected again 2 weeks later was given. The skin lesions improved and nearly recovered completely only a little flushing remained (Figure 1). During the 6-week follow-up and stop Dupilumab treatment, no any evidence of recurrence, dermatomyositis worsening, complications were found.

Dermatomyositis, which is a multifactorial chronic autoimmune systemic disease and usual involve of multiple organ systems like skin, muscles, lungs and others, the pathogenesis was remained unclear and complex, whatever the adaptive or innate immune also the nonimmune pathways were contributed to the disease mechanisms, persistent type I interferons (IFNs) response related to chronic stimulation of antigen presenting cells was highlighted.¹⁻³ Also, inflammation of skin as pathological base of contact dermatitis, the cytokines with IFN and its dependent chemokines play an important role in pathogenesis of contact dermatitis.⁴ However, the



FIGURE 1 Clinical picture. (A–D) Physical examination showed the normal muscle strength of limb, redness-pleomorphic skin lesions with a little scale involving forehead, eyelids, limbs and trunk. (E–H) The skin lesions improved and nearly recovered completely only a little flushing remained after dupilumab treatment at 6-week follow-up

risk level and contribution of IFN in comorbidity of systemic contact dermatitis in patients with dermatomyositis are unclear, but the higher severity also the poor treatment response with conventional treatment option of SCD in dermatomyositis patient was observed. Current treatment options are mainly included avoidance to causative allergen, topical steroids and oral antihistamine, actually, the clinical needs that remain unmet in clinical practice.⁵ The trend of biologics using has gained momentum in patients with contact dermatitis was showed, Dupilumab as a fully human anti-interleukin-4 receptor α monoclonal antibody presented good efficacy and safety in severe contact dermatitis, although the mechanism was not complete clear, also the contact dermatitis is considered and preferred a helper T-cell 1 (TH1 cell) mediated process, certain allergens sensitize by induction of TH2 pathways, the evidence suggested dupilumab might be effective in the inhibition of weaker allergens that elicit a TH2-mediated IL-4 dependent allergic contact dermatitis.⁶ Our case demonstrated a severe SCD flowing hair dye due to allergy to p-Phenylenediamine in a patient with dermatomyositis, the poor response to conventional treatment and successfully treatment with Dupilumab also showed good efficacy and safety. We believe that patients with autoimmune diseases have chronic abnormal immune response, if allergy presented, it may be serious. Although the comorbid mechanism is not completely clear and the response to conventional treatment is poor, dupilumab shows good effectiveness and safety and should be considered as an option for such patients.

AUTHOR CONTRIBUTIONS

Conceptualization, administration, and validation: Lili Zhi and Liang Dong; Data collection: Peng Jin, Chen Yang and Jianxue Bai.; Writing-Original Draft: Peng Jin and Lili Zhi; Writing - Review & Editing: Lili Zhi and Liang Dong. All authors approve the final version.

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CONFLICT OF INTEREST

None.

DATA AVAILABILITY STATEMENT

Data sharing not applicable - no new data generated, or the article describes entirely theoretical research.

CONSENT

The written informed consent for publish her medical details was obtained.

ETHICS STATEMENT

Ethical approval was obtained from Institutional Review Board (IRB).

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