

Letter to the Editor

## Autonomic denervation unilateral pompholyx: A rare presentation of a common dermatosis

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Dear Sir,

Pompholyx, a variant of chronic eczema of the palm and sole, is characterized by recurrent episodes of vesicles and bullae on the bilateral palms, soles, and lateral aspect of fingers.<sup>[1,2]</sup> Unilateral pompholyx has rarely been reported.<sup>[2,3]</sup> Autonomic denervation dermatitis has been reported previously as dermatitis following surgery over and around the incision site due to transection of dermal nerves, which may lead to autonomic disturbance in that area leading to dermatitis.<sup>[4]</sup> Hence, we would like to propose the entity “autonomic denervation pompholyx” as a cause of unilateral pompholyx occurring in and around the site of surgery and trauma.

A 21-year-old man came with a 1-month history of itchy, fluid-filled blisters over the left sole. It was associated with increased sweating. He had undergone surgery on the left foot for venous malformation 6 months before the onset of the symptoms. He denied any personal or family history of atopy or local application at the site. Clinical examination showed multiple grouped deep-seated vesicles over the instep and medial margin of the left foot [Figure 1a and b]. Dermoscopic examination (DermLite, DL4, ×10 magnification) under polarized mode revealed a featureless pattern. Differential diagnoses of pompholyx, tinea pedis, and post-traumatic dyshidrosiform bullous pemphigoid were considered. Histology showed marked spongiosis, intraepidermal spongiotic vesicles, and upper perivascular lymphocytic infiltration [Figure 2]. Special stains for bacterial and fungal organisms were negative. The diagnosis of pompholyx was made, and the patient was treated with topical clobetasol ointment twice daily local application with significant improvement in 1 month [Figure 3].

Various direct and indirect factors point to the relation of pompholyx with increased sweating. These factors are as follows: Association between pompholyx and hyperhidrosis varies from 7.5% to 33.3%; pompholyx is exclusively seen in the areas with a high concentration of sweat glands such as palms and soles; aggravation of pompholyx in the summer or factors causing increased sweating such as stress, smoking, and use of occlusive gloves; perspiration volume in pompholyx patients is 2.5 times higher than the same aged control subjects; and iontophoresis as a treatment modality of pompholyx.<sup>[1,5]</sup> This is further supported by the high concentration of cytokines and proteases in sweat and the resultant inflammation, spongiosis, and the development of pompholyx.<sup>[5]</sup>

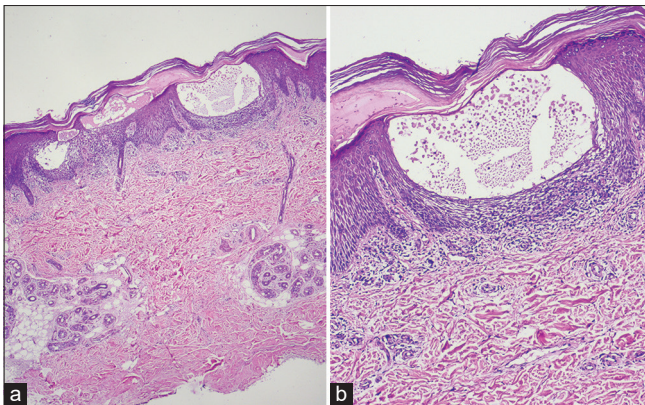
Nakai *et al.* described a unilateral right-sided palmar pompholyx in a case of amyotrophic lateral sclerosis (ALS) and speculated unilateral hyperhidrosis due to sympathetic overactivity may be the cause of the above phenomenon. The initial phase of ALS shows sympathetic overactivity

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**Figure 1:** (a) Multiple deep-seated vesicles over the instep of the left foot (arrow) with normal-looking right foot. (b) Closer view showing multiple grouped deep-seated vesicles (blue arrows) over the instep and medial aspect of the left foot. Red arrow pointing to the surgical scar.



**Figure 2:** (a) Histology showing marked spongiosis, intraepidermal spongiotic vesicles, and mild upper perivascular lymphocytic infiltration (H&E,  $\times 50$ ). (b) Intraepidermal spongiotic vesicle (H&E,  $\times 100$ ).

leading to increased sweating due to increased sympathetic firing or denervation hypersensitivity of sweat glands.<sup>[3]</sup> The role of the sympathetic system is further backed by the resolution of the right-sided eczema and hyperhidrosis with the persistence of contralateral hyperhidrosis and eczema following right-sided sympathectomy.<sup>[2]</sup> In the index case, the absence of sweating over the surgical scar and hyperhidrosis over the pompholyx site supports the view that the localized autonomic denervation and the resultant compensatory hyperhidrosis possibly led to the development of the pompholyx. As per our search, we did not come across a unilateral presentation of pompholyx following surgery.

In conclusion, we report an unusual unilateral presentation of a common dermatosis, pompholyx. The autonomic denervation of the surgical site on the ankle, in conjunction with compensatory hyperhidrosis of the adjacent site, can



**Figure 3:** Resolution of pompholyx following therapy.

explain the unilaterality and location of the pompholyx on the sole.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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#### Conflicts of interest

There are no conflicts of interest.

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