CASE REPORT

HIGH-DOSE ORAL VITAMIN C WITH MINIMAL TOPICAL BETAMETHASONE IN THE MANAGEMENT OF MILD POMPHOLYX ECZEMA: A CASE REPORT

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Pompholyx eczema presents as vesicular skin eruptions in hands and feet and follows a chronic and relapsing disease course. While topical corticosteroids are routinely used for treatment, long-term use remains a major concern. Vitamin C is known for its role in immunity and wound healing. However, it has not been widely investigated in pompholyx eczema. We report the clinical case of a 45-year-old Pakistani male with a 22-year history of mild pompholyx eczema. Eczematous flares in this patient are associated with the use of medicated soaps, dishwash detergents and dryness induced by water. Interestingly, during the COVID-19 pandemic, he began taking high-dose oral vitamin C (2000 mg/day). This coincided with a significant reduction in symptoms. The patient was inspired by this improvement and designed a self-monitored case observation in consultation with a dermatologist. He started with one self-inflicted active lesion after using dishwash detergent. He started using 2000 mg/day vitamin C for 8 days and only single nightly dose of topical 0.1% betamethasone on day 6 and 7. This led to complete resolution of the lesion on day 9 and the patient documented the healing process photographically. The adjunctive role of vitamin C has the potential to reduce corticosteroid dependence in Pompholyx eczema management. However, further clinical research is warranted to explore the clinical efficacy of vitamin C in eczema.

Keywords: Pompholyx eczema; Vitamin C; Betamethasone

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INTRODUCTION

Pompholyx eczema, also referred to as dyshidrotic eczema, is a skin condition with a chronic and relapsing course that affects hands and feet. Clinically it presents with pruritic vesicles, erythema, and scaling as a single or multiple lesions.[1,2] It is triggered by medicated soaps, dish detergents and even tap water exposure.[1,3,4] It could significantly affect the quality of life of the affected individuals in the workplace and social circles.

The management includes regular use of emollients as a preventative measure, oral antihistamine and topical corticosteroids for treatment. Nonetheless, prolonged use of topical steroids leads to adverse effects such as skin pigmentation, skin thinning and susceptibility to infections.[5,6] Thus, adjunctive management strategies that could reduce reliance on corticosteroid use have recently gained interest.

Vitamin C (ascorbic acid) is an immunomodulator with a potent antioxidant and wound healing role. Mild pompholyx eczema is a 'wound' that is believed to result from dysregulation in immune processes.[7,8] A recommended daily intake of 200 mg/day is expected to achieve an optimal plasma saturation.[9,10] However, the upper tolerable dose of vitamin C is 2000 mg/day to avoid gastrointestinal disturbances.[11] Therefore, I present a case of long standing mild pompholyx eczema in which high-dose oral vitamin C supplementation enabled effective treatment of pompholyx eczema with minimal use of topical corticosteroid.

CASE REPORT

A 45-year-old Pakistani male presented with mild pompholyx eczema affecting both hands. He has a long-standing history of the disease and was first diagnosed 22 years ago. His condition is characterized by acute itchy, scaly and vesicular lesions mainly affecting hands. The disease flares are associated with the use of medicated soaps (e.g., Lifebuoy, Safeguard), dishwash detergents and exposure to water. These flares are more pronounced in summer and dry weather. Skin dryness further exacerbates the condition. Over the last 22 years, the disease has followed a chronic and relapsing course with periods of no lesions to more than 4 or 5 lesions on the dorsum of both hands and in-between fingers. The lesions are sometimes extremely itchy, especially at night and when hands are dry after using soap and water.

The patient has been using 0.1% betamethasone valerate ointment since diagnosis. Lesions are healed very well using 0.1% betamethasone. Some lesions heal completely without any event, while others progressed to skin pigmentations (Figure-1). The patient reported that lesions with skin pigmentation tend to recur in the same

place. In addition, some lesions recur in same place while others arise randomly. The use of emollients in the form of oils, creams and lotions helps in the prevention of eczematous lesions and dryness is the main trigger. Moreover, the patient reported that dishwash detergents and medicated soaps are the most important risk factors for flare-ups.

While there is no empirical evidence, the patient informally noticed that the use of citrus fruits (lemon and Lime) improves the healing and even prevents the eczematous lesions. This may be attributed to the role of vitamin C in the prevention of lesions. It is important to note here that the patient has mild disease.

During the COVID-19 pandemic, the patient began taking four tablets of vitamin C (500mg vitamin C in each tablet) daily as an immune booster from date of diagnosis for 3 to 4 weeks. The patient observed relatively better healing of eczematous lesions with minimal doses of 0.1% betamethasone valerate ointment. In addition, the frequency and severity of eczema flare-ups were reduced, suggesting a preventive and potential therapeutic impact of vitamin C in mild pompholyx eczema.

The study participant is a known patient of hypertension and has been using 5mg amlodipine and 80mg valsartan for the last 12 years. Blood pressure is well controlled. The patient, a physician by profession, was inspired by this improvement and designed a self-monitored case observation in consultation with a dermatologist. He started with one self-inflicted active lesion after using dishwash detergent. The lesion was identified and confirmed by dermatologist to be pompholyx eczema.

The patient started vitamin C tablets in the morning and evening with a dose of 2000 mg/day. The eczematous lesion was observed daily at the same time of the day (morning) for nine consecutive days. On days 6 and 7 a single dose of 0.1% betamethasone valerate ointment was applied to the lesion. On day 9 the eczematous lesion was completely resolved with no residual erythema, vesicles, or pruritus. Serial photographic evidence was documented showing visible and gradual healing of eczematous lesions (Figure-2).

Figure-1: Skin pigmentation (tip of arrow) from chronic use of corticosteroids for pompholyx eczema.

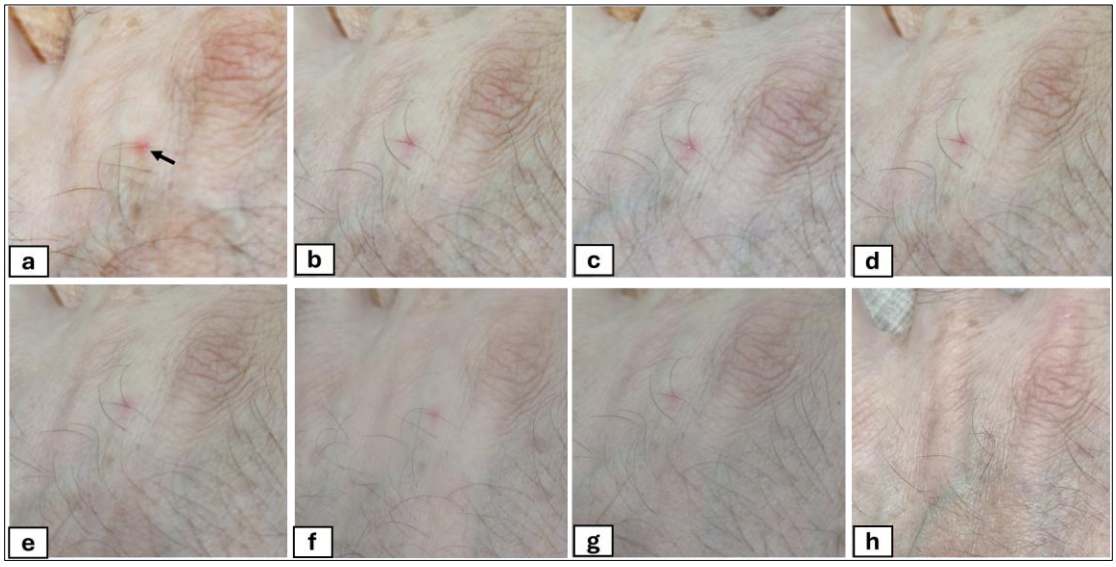

Figure-2: Progressive resolution of mild pompholyx eczema over 9 days.
Legend: Sequential photographs (a–h) show the clinical improvement of a mild pompholyx eczema lesion from day 1 (panel a, black arrow) to complete resolution on day 9 (panel h).

DISCUSSION

Pompholyx eczema is an inflammatory skin condition that results from a combination of immune dysregulation triggered by environmental factors that results in skin barrier dysfunction.[12,13] Topical corticosteroids remain the cornerstone in the management of this condition. However, the chronic use of topical steroids leads to local side effects and exhaustion from daily use.[12] Therefore, there is a growing interest in alternative and adjunctive therapies that have advantages beyond eczema. Vitamin C plays an important role in wound healing and immunomodulation. It acts as a cofactor in collagen synthesis that contributes to better wound healing in eczema. Moreover, it is an antioxidant that helps neutralize reactive oxygen species, thus reducing skin inflammation in eczema.[7,8] The immunomodulation leads to improving the skin barrier integrity to environmental factors.[14,15] These factors lead to quicker and better dermal repair. Taking together, these factors contribute to the biological plausibility of the role of vitamin C in reducing the severity of the eczematous lesions. In this case report, vitamin C contributed to effective management of mild pompholyx eczema with only two applications of 0.1% betamethasone valerate ointment. The results of this single patient and self-monitored case observation are promising as the patient is a physician by profession thereby enhancing the reliability of disease reporting and treatment adherence. The corticosteroid sparing therapeutic benefit of vitamin C reported here makes a strong case for further clinical studies. This study adds to the existing body of evidence on the use of vitamin C for skin diseases in optimal doses. Vitamin C is a water-soluble vitamin that is excreted in urine and the chances of hypervitaminoses are less compared to fat soluble vitamins.[16] Although, we used 2000 mg/day as the maximum dose without any side effects. It is worth investigating 3000 mg/day doses of vitamin C in eczema and other chronic inflammatory skin conditions. The results of this study should be interpreted with caution as it is a single-case study with subjective assessment of a self-monitored clinical case.

CONCLUSION

This case report highlights the role of using vitamin C as an adjunct to corticosteroids in the management of mild pompholyx eczema. Current evidence suggests that vitamin C might potentially have both preventive and therapeutic roles in mild pompholyx eczema. Although this case report is subjective, the results are encouraging, and further clinical validation studies are required to explore the benefit of vitamin C in the management of chronic inflammatory skin diseases including mild to moderate pompholyx (dyshidrotic) eczema.

Ethical Considerations

Ethical approval was obtained according to local institutional guidelines (attached). Informed written consent was obtained from the patient for the publication of this report and associated clinical images.

Conflict of Interest

The author declares no conflicts of interest.

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