

Lithium-Associated Generalized Ostraceous Psoriasis Treated with Adalimumab: A Case Report

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Abstract: Ostraceous psoriasis is a rare variant of psoriasis, characterized by severe hyperkeratotic lesions resembling an oyster shell. Adalimumab is a biological agent that antagonizes tumor necrosis factor (TNF) and is used clinically in plaque psoriasis. Some medications such as lithium carbonate (LC) may aggravate or trigger psoriasis. Here, we describe a case of generalized ostraceous psoriasis associated with lithium carbonate, whose lesions completely improved after discontinuing lithium carbonate and using adalimumab.

Keywords: ostraceous psoriasis, adalimumab, lithium carbonate

Introduction

The term ostraceous psoriasis was first published by Deutsch as “atypical psoriasis” in 1898.¹ It is a rare variant of psoriasis characterized by severe hyperkeratotic lesions resembling an oyster shell.^{1,2} There are many factors that can trigger and exacerbate psoriasis, such as infections and medications.³ Some drugs can induce psoriasis or exacerbate pre-existing psoriasis, such as beta-blockers, lithium, synthetic antimalarials, non-steroidal anti-inflammatory drugs and tetracyclines.^{3,4} Adalimumab is a monoclonal anti-tumor necrosis factor (TNF) that blocks the interaction with p55 on epithelial cells and p75 on the endothelial cells, thereby suppressing the TNF-mediated inflammation.⁵ Here, we describe a case of generalized ostraceous psoriasis in a patient associated with lithium carbonate (LC) who experienced complete improvement in lesions after discontinuation of LC and use of adalimumab.

Case Presentation

An 18-year-old male came to our hospital with a generalized hyperkeratotic lesion associated with pruritus for 12 months, which was exaggerated for 4 months. Physical examination revealed generalized firmly demarcated erythematous circular plaques covered with thick adherent greasy yellowish scales resembling oyster shells over his scalp, face, trunk, upper and lower extremities, groin, and buttocks (Figure 1A and B). The baseline psoriasis activity severity index (PASI) and body surface area (BSA) scores were 22.8% and 14% respectively. The patient had a history of bipolar disorder for 1.5 years for which he was taking LC. After the dose of LC increased, his condition significantly deteriorated. He denied any infectious disease or arthritis. The patient was treated in the local hospital for neurodermatitis, for which topical steroids were given with no improvement.

Tuberculosis, HIV, hepatitis, syphilis and other related laboratory screenings showed no obvious abnormalities, except for elevation of C-reactive protein levels (12.00 mg/L). Histopathology revealed psoriasiform hyperplasia of the epidermis with confluent parakeratosis, neutrophils infiltration in the stratum corneum, and a moderate amount of lymphocytes around small vessels in the superficial dermis (Figure 2).

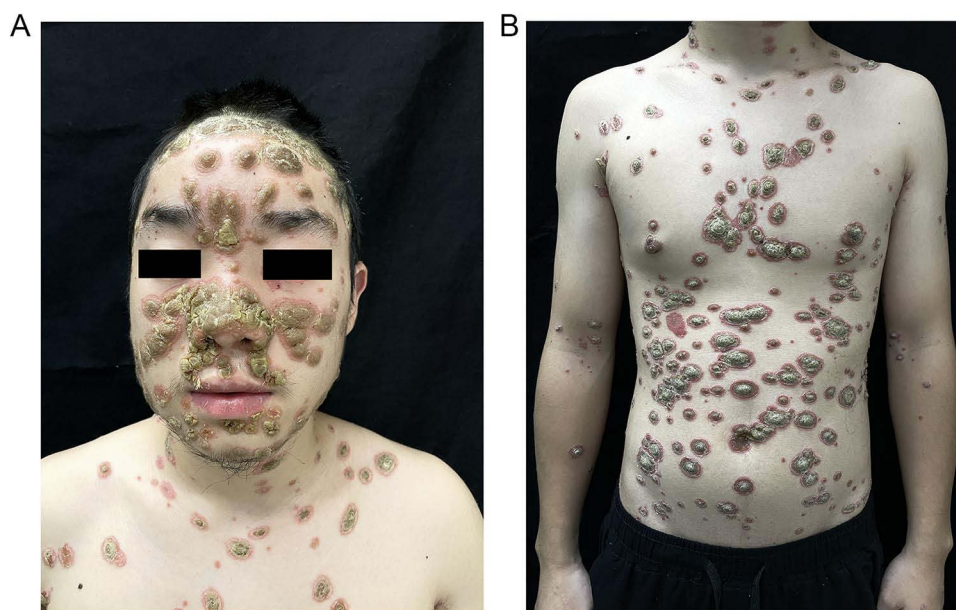


Figure 1 Clinical appearance of the patient before treatment. His head, face (A), torso, and limbs (B) can be seen as extensive, well-defined, round patches of erythema covered with thick, greasy yellow scales, similar to oyster shells.

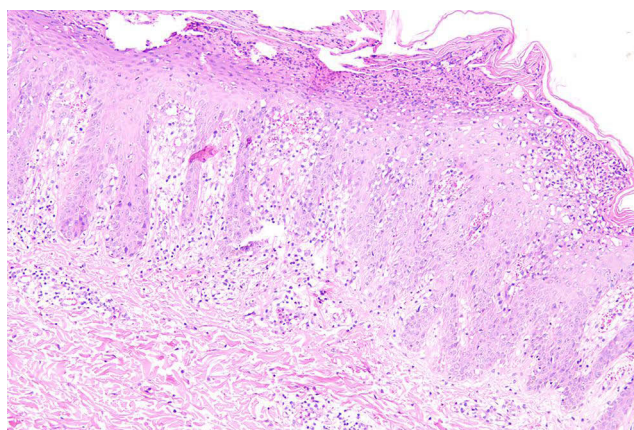


Figure 2 Histopathology of ostraceous psoriasis, psoriasiform hyperplasia of the epidermis with confluent parakeratosis, neutrophils infiltration in the stratum corneum, and moderate amount lymphocyte and neutrophils around small vessels in the superficial dermis (Hematoxylin-eosin, magnification $\times 100$).

The patient was started on adalimumab subcutaneous injection of 80 mg initial dose then 40 mg every 2 weeks. On the 9-week follow-up, a small improvement was seen. With his history of taking LC, which can exacerbate psoriasis, we advised him to stop taking it under the guidance of a psychiatrist. He gradually stopped taking LC and switched to olanzapine tablets and magnesium valproate after consulting a psychiatrist. After 18 weeks of treatment and stopping of LC, there was a marked improvement (Figure 3A and B). On reassessment, his PASI and BSA scores were 0.3% and 0.5%, respectively.

Discussion

Psoriasis is an immune-mediated chronic inflammatory disease that primarily involves the skin and joints. The clinical classification is based on the morphologic evaluation or the anatomical location includes plaque psoriasis, droppy psoriasis, erythrodermic psoriasis, psoriatic arthritis and other types.⁶ Psoriasis may present as intensely hyperkeratotic lesions that include ostraceous, rupioid, and elephantine forms.^{2,7} The ostraceous psoriasis is typically characterized by lesions with firm adherent thick scales and a surface resembling an oyster shell, while the rupioid form is characterized by hyperkeratotic cone-

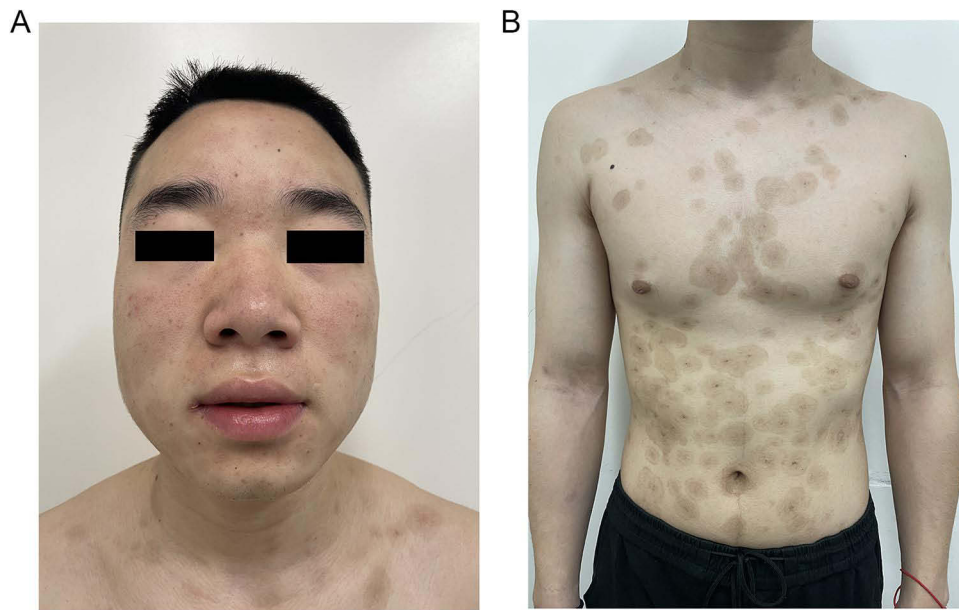


Figure 3 The skin lesions on the patient's face (A), trunk, and limbs (B) have improved significantly after 18 weeks of treatment.

shaped lesions.⁷ Most hyperkeratotic psoriasis including the ostrateous variety is resistant to topical therapy, while systemic drugs, such as acitretin, cyclosporine, methotrexate, and biologics have been tried with varying results.⁷ Adalimumab is a monoclonal antibody against TNF that has been widely used in the treatment of moderate-to-severe chronic plaque psoriasis in adults, especially in patients with psoriatic arthritis.⁵ A case showed complete resolution of lesions within 14 weeks after the addition of adalimumab to treat a case of ostrateous psoriasis.⁸ In addition, there are various factors that can trigger or exacerbate psoriasis, of which drug ingestion is an important one.³ The most common drugs that induce or exacerbate psoriasis are beta-blockers, lithium, synthetic antimalarials, non-steroidal anti-inflammatory drugs and tetracyclines.^{3,4} In addition to medication, emotional stress can also exacerbate many chronic skin diseases, including psoriasis, urticaria and eczema, which are considered psychodermatological disorders.⁹ Majority of psychodermatological disorders can be treated with cognitive-behavioral psychotherapy, psychotherapeutic stress-and-anxiety-management techniques and psychotropic drugs.⁹ There are also some cases that have reported some biological agents, such as Brodalumab and Guselkumab have achieved good results in the treatment of patients with psoriasis combined with psychiatric comorbidities.^{10,11} Our patient's condition deteriorated significantly after the dose of lithium carbonate was increased. Also, there was no significant improvement in the first 9 weeks of treatment, and only after stopping lithium carbonate at the later stage did his lesions improve significantly. The etiology of psoriasis is complex and may be influenced by many factors. The influence of bipolar disorder cannot be completely ruled out in this patient, but lithium carbonate is more likely to be related in this case.

Conclusion

Although one case cannot provide adequate evidence, this is a rare variant of psoriasis that highlights the dramatic improvement with adalimumab and discontinuation of lithium. We believe it will help physicians to choose the right treatment and adalimumab could be a good choice. It also alerts physicians to pay attention to the medication history of psoriasis patients, especially lithium carbonate.

Ethics Approval and Consent for Publication

This case report has been performed in accordance with the principles stated in the Declaration of Helsinki. A written informed consent, provided by the Department of Dermatology and Venereology, West China Hospital, Sichuan University for publication of this case report and including photography and medical information, was signed by the patient. Institutional approval was not required to publish the case details.

Acknowledgment

The authors would like to thank the patient recruited for participation in this study.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Funding

No specific funding was received from any bodies in the public, commercial or not-for-profit sectors to carry out the work described in this article.

Disclosure

The authors have declared no conflicts of interest in this work.

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