Case Report

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Successful secukinumab treatment of erythrodermic psoriasis and psoriatic arthritis concomitant with severe noninfectious uveitis: a case report

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Abstract

Uveitis is considered a relatively rare but serious ocular complication of psoriasis. We report the first successful treatment of severe noninfectious uveitis with secukinumab in a 70-year-old woman with erythrodermic psoriasis and psoriatic arthritis. Anti-tumor necrosis factor (TNF) agents were administered for 5 years for the treatment of erythrodermic psoriasis and psoriatic arthritis. Although the symptoms improved, she later developed noninfectious uveitis, resulting in a sharp decline in vision. After switching to secukinumab, her vision slightly improved, her skin lesions subsided, and her joint symptoms were relieved. Given the rarity of psoriasis combined with uveitis, it is unclear whether uveitis is related to anti-TNF therapy. In addition, the selection of effective biological agents for the treatment of uveitis remains a challenge and requires extensive clinical experience.

Keywords

Uveitis, erythrodermic psoriasis, psoriatic arthritis, secukinumab, etanercept, infliximab

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Introduction

Psoriasis is an inflammatory skin disease mediated by dysregulated T helper 1 (Th1) and Th17 cell responses.[1] It occurs

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concomitantly with several other immunologically mediated diseases, such as inflammatory bowel disease, rheumatoid arthritis, sicca syndrome, and uveitis.[2] In particular, uveitis is considered a rare but serious ocular complication of psoriasis. Psoriasis vulgaris, psoriasis arthritis, and pustular psoriasis associated with uveitis have been reported. Here, we report the first successful treatment of severe noninfectious uveitis with secukinumab in a patient with erythrodermic psoriasis and psoriatic arthritis.

Case report

In this article, we report the case of a 70-year-old Chinese woman with a 16-year history of psoriasis and a 5-year history of uveitis with no other medical or family history. In 2003, the patient was first diagnosed with psoriasis vulgaris. During outpatient treatment, good clinical efficacy of irregularly administered oral acitretin (20 mg/day) and Chinese medicine was observed until 2010. In the middle of 2010, her skin lesions progressively worsened and developed into erythroderma. At the same time, the patient experienced joint pain and swelling in both fifth fingers. She was diagnosed with erythrodermic psoriasis and psoriatic arthritis and then treated with anti-tumor necrosis factor alpha (TNFα) inhibitors, including etanercept (25 mg twice a week) for 7 months and infliximab (5 mg/kg at weeks 0, 2, and 6 and then every 8 weeks) for 10 months. Although the lesions significantly improved, her vision in both eyes became impaired in 2013. The visual acuity of the left eye was 0.4, and that of the right eye was 0.8. She was diagnosed with noninfectious uveitis by the Ophthalmology Department and received methylprednisolone treatment (12 mg/day) for 5 years. In February 2014, she became blind in her right eye, and the vision in her left eye gradually declined to 0.03. In August 2018, a dexamethasone injection was administered to the left eye, and the vision returned to 0.5 in October 2018 (Figure 1). Unfortunately, the vision in her left eye dropped to 0.01, and her eye was no longer light-sensitive by December 2018. In addition, her skin lesions and joint symptoms worsened (Figure 2). Following the introduction of secukinumab in China in 2019, the patient was treated with secukinumab by subcutaneous injection (300 mg once a week for 5 weeks and then subsequently every month). The visual acuity in her left eye began to improve, and her vision returned to 0.03. Before the use of secukinumab, her body surface area was 90%, and her Disease Activity Score in 28 Joints (DAS28) was 7.07. By week 12, her psoriatic lesions had completely cleared, and her DAS28 was 3.22 (Figure 3). She is currently being administered 150 mg secukinumab every 4 weeks as maintenance therapy (Figure 4). Although the long-term side effects are unknown, the current outcomes are promising.

Discussion

Uveitis is a leading cause of permanent sight impairment and has an association with various forms of psoriasis.[3] Noninfectious uveitis and psoriasis show a similar immune-mediated mechanism, including dysregulated Th1- and Th17-mediated immune responses. It can be associated with various types of psoriasis and is most frequently observed in patients with psoriasis vulgaris and psoriatic arthritis.[4] However, it has not been reported in patients with erythrodermic psoriasis.

The most common treatment for noninfectious uveitis is steroid therapy, but the long-term use of steroids can cause many side effects, including both ocular and systemic complications, cataracts, glaucoma, and visual impairment.[5] Therefore, the current approach is to taper and discontinue steroid treatment as soon as possible to

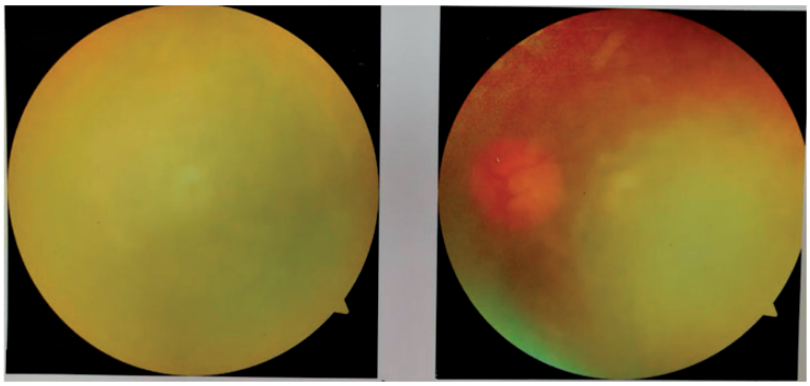

Figure 1. Severe retinal edema in the left eye, posterior chamber uveitis.

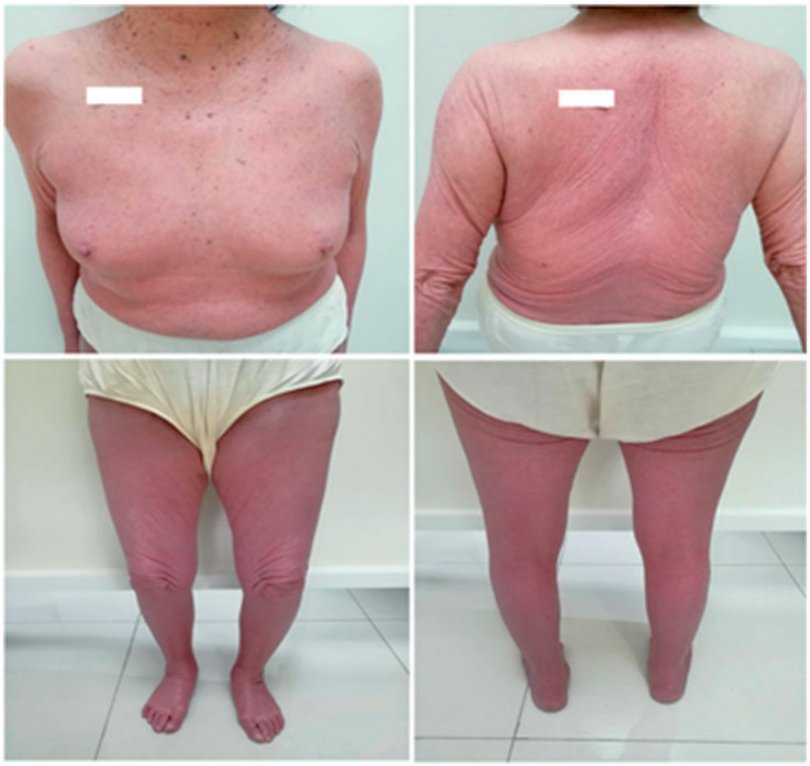

Figure 2. Erythrodermic psoriasis and psoriatic arthritis before the initiation of secukinumab treatment.

avoid the risk of cataracts and other complications. Immunosuppressive agents are used as steroid-sparing drugs to control the disease as well as the reactivation or onset of new complications.[6] The next medications in the step-ladder approach for the treatment of noninfectious uveitis are biological agents, which are particularly

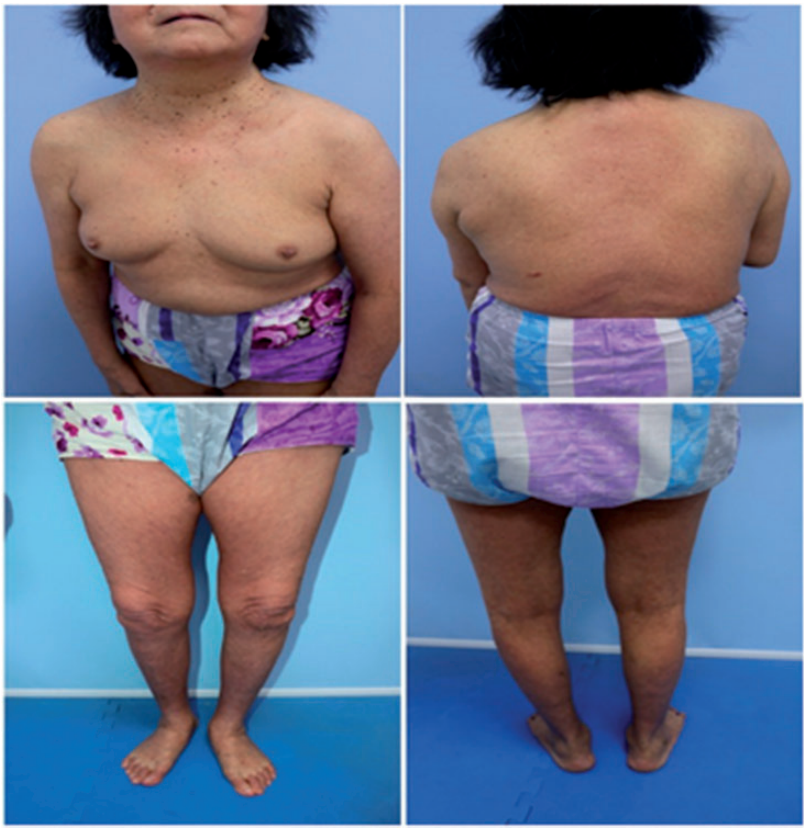

Figure 3. Complete psoriasis remission in the described patient at week 12 after treatment with secukinumab by subcutaneous injection (300 mg once a week for 5 weeks and then subsequently every month).

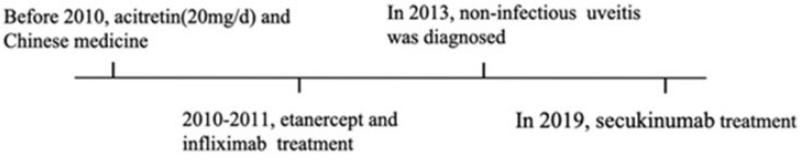

Figure 4. Treatment timeline in the described patient.

recommended in patients with psoriasis concomitant with uveitis because of the similar pathogenesis of both diseases.

Anti-TNF agents, which are the most widely used biological agents for the treatment of psoriasis concomitant with uveitis, have shown promising effects in previous studies. Huynh *et al.*[7] evaluated the use of biologic agents in patients with psoriatic ocular inflammatory disease and found that seven out of eight patients treated with infliximab or adalimumab achieved remission of their ocular inflammation. Additionally, chronic anterior uveitis associated with psoriasis vulgaris successfully treated with certolizumab pegol has been reported.[8] However, some patients do not benefit from anti-TNF therapy.

Whether the uveitis in our patient is related to the use of etanercept or infliximab remains unclear. Although anti-TNFα drugs are the main therapeutic agents for noninfectious uveitis, they may cause or exacerbate the condition, and the relationship between uveitis and biological agents needs to be clarified. Singla *et al.*[9] reported a case of infliximab-induced anterior uveitis in a patient with ulcerative colitis. Lee *et al.*[10] showed that 15 out of 54 patients treated at least one time with anti-TNFα agents experienced the first uveitis flare after receiving this therapy. These conditions of anti-TNFα-induced uveitis may be a natural progression of the disease, a possible result of the production of anti-antibodies during treatment, or the result of insufficient doses of TNF inhibitors and plasma drug concentrations.

Given the rare incidence of erythrodermic psoriasis concomitant with uveitis and the complex pathogenic mechanism, the biological agents used for therapy need to be carefully selected. Other molecular pathways have received increasing attention, mainly the interleukin (IL)-23/IL-17 axis. Secukinumab is a fully human monoclonal antibody that directly targets IL-17A. It is the first IL-17A inhibitor approved for the treatment of moderate-to-severe psoriasis and noninfectious uveitis. Intravenous secukinumab was effective and well-tolerated in noninfectious uveitis, which requires systemic corticosteroid-sparing immunosuppressive therapy.[11] It has been reported that secukinumab could effectively control severe plaque psoriasis and psoriatic arthritis concomitant with uveitis in two patients.[12] In addition, a patient with long-standing ankylosing spondylitis was diagnosed with new onset uveitis after 6 months of secukinumab therapy.[13] Their uveitis was mild, and the patient was given conventional local treatments while continuing secukinumab. After close follow-up, the uveitis had completely resolved. Whether secukinumab caused the uveitis flare remains uncertain. Furthermore, the uveitis was relieved without discontinuing the use of secukinumab. Therefore, further research on the paradoxical effect of secukinumab is still needed. Based on previous studies, secukinumab is not only effective for the treatment of psoriasis and other complications, but it also has a good safety profile.[14,15]

In conclusion, erythrodermic psoriasis concomitant with uveitis is relatively rare, and it is essential to treat both the ocular inflammation and primary disease.[16] Treatment with biological agents should be recommended as a primary strategy for erythrodermic psoriasis with uveitis because of their rapid onset of action and achievement of long-term remission. The selection of biological agents for this condition remains a challenge. It requires both the identification of predictive biomarkers of clinical responses and the optimization of the timing of therapy and drug administration route.

Ethics statement

The patient in this case report provided written informed consent.

Declaration of conflicting interest

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