MEDS Clinical Medicine (2023)
Clausius Scientific Press, Canada

DOI: 10.23977/medsc.2023.040506
ISSN 2616-1907 Vol. 4 Num. 5

One case of comorbidity benefit of secukinumab for severe plaque psoriasis

Fangfang Dong[1], Hui Wang[1], Chan Zhao[2,*]

[1]*First Clinical School of Medicine, Shaanxi University of Chinese Medicine, Xianyang, 712046, China*
[2]*Department of Dermatology, Baoji Hospital of Traditional Chinese Medicine, Baoji, 721001, China*
[*]*Corresponding author*

Keywords: Secukinumab, plaque psoriasis, IL-17A, psoriasis co-morbidities

Abstract: The patient was a 66-year-old male with recurrent erythematous and scaly plaques all over the body for more than 16 years. Generalized erythema on the head, trunk, and extremities, with some plaques fusing to form a map, covered with oyster shell-like hypertrophic white scales, film phenomenon (+), punctate hemorrhage (+), localized skin visible as scabs, scratches, and mossy changes, no pustules or joint swelling or deformity. Skin condition: PASI score: 56; BSA: 70%; DLQI: 17. Diagnosis: severe plaque psoriasis Metabolic syndrome. After administration of traditional treatments such as avitamin A, carbotriol ointment and glucocorticoids, which were ineffective, the skin lesions returned to normal and the psoriasis co-morbidities improved without adverse effects after treatment with stauchyuzumab.

1. Introduction

Psoriasis is an inflammatory systemic skin disease. Because inflammatory cells and cytokines can circulate in various organ systems, the symptoms are not only limited to the skin, but often involve multiple organs of the body, often combined with cardiovascular diseases, obesity, diabetes, hyperuricemia, kidney diseases, and neuropsychiatric diseases, which are co-morbidities of psoriasis, and systemic treatment can not only reduce the severity of psoriasis itself and its co-morbidities but also reduce the psychological burden of patients, thus improving the quality of life[1-2]. This article reports a case of co-morbidity benefit of sauce with monotherapy for psoriasis, which provides a reference for improving the quality of life of psoriasis patients.

Clinical information

The patient, a 66-year-old male, presented to the clinic with the chief complaint of "recurrent erythema and scaling all over the body for more than 16 years". The patient first developed erythematous flaking on the head and face 16 years ago without any obvious cause, and was diagnosed with "psoriasis" in a foreign hospital, which improved after treatment with oral and topical drugs (details unknown). Since then, the disease has been repeatedly aggravated with itching, and the lesions have gradually expanded to the trunk and extremities. He was hospitalized in our department in 2016 and was discharged after being given oral herbal soup and amineptine tablets,

topical carbo triol ointment, and mometasone furoate cream. After being discharged from the hospital, she repeatedly visited our outpatient clinic, where she was given Aviagen, Chinese herbal soup, topical carbo triol ointment, glucocorticoid cream, combined with phototherapy and medicated bath, etc. The effect was poor, with hypertrophy of plaques, increased scaling, and itching, and the lesions gradually spread all over the body.

2. History

The patient had a previous history of hypertension, diabetes mellitus, coronary artery disease, and interstitial pneumonia, and her blood pressure and blood sugar were poorly controlled, while the rest of her conditions were still relieved by adherence to oral medications.

3. Physical examination

Examination: BP 168/82 mmHg, BMI 27.68, clear consciousness, mental health, coarse breath sounds in both lungs, no significant rales were heard, no abnormalities in the cardiac and abdominal examination, no positive neurological signs were elicited.

4. Skin specialist examination

Generalized erythema on the head, trunk, and extremities, with some plaques fusing to form a map, covered with oyster shell-like hypertrophic white scales, film phenomenon (+), punctate hemorrhage (+), localized skin visible as scabs, scratches, and mossy changes, no pustules or joint swelling or deformity. Skin condition: PASI score: 56; BSA: 70%; DLQI: 17.

5. Laboratory tests

Fasting blood glucose 8.5mmol/L, glycosylated hemoglobin ratio: 8.8% (reference range: 4.5~6.5%), urine routine: urine sugar 2+, urine protein 2+, uric acid 486umol/L (reference range: 134~420umol, L), blood sedimentation 22.0mm/h (reference range: 0~15mm/h), blood routine, liver function, blood lipid, ANA No abnormalities were found in blood routine, liver function, blood lipid, ANA, infectious disease 4 items, etc.

6. Clinical treatment

According to the Guideline for the diagnosis and treatment of psoriasis in China (2018 complete edition)[3]: BSA ≥ 10%, or PASI ≥ 10, or DLQI ≥ 10, this patient was diagnosed with severe plaque psoriasis. According to the diagnostic criteria for metabolic syndrome in the Chinese guidelines for the prevention and treatment of type 2 diabetes mellitus (2020 edition)[4], this patient was abdominally obese (waist circumference ≥ 90 cm in men), had fasting glucose ≥ 6.1 mmol/L and was under glucose-lowering treatment for diagnosed diabetes mellitus, and had blood pressure ≥ 130/85 mmHg and was currently under antihypertensive treatment for confirmed hypertension, and met the above three diagnostic criteria. Therefore, the diagnosis of metabolic syndrome was made, which included type 2 diabetes mellitus diabetic peripheral neuropathy diabetic nephropathy stage III, hypertension grade 3 (very high-risk group), and hyperuricemia. Current diagnosis: severe plaque psoriasis; metabolic syndrome; coronary atherosclerotic heart disease; interstitial pneumonia.

The patient's head, face, trunk, and extremities can be seen as large erythema and scaling, and the skin lesions have not improved significantly after years of systematic use of traditional therapy,

and the combination of diabetes, hypertension, and other co-morbidities seriously affects daily life, resulting in strong emotional and psychological changes, and urgently needs to improve the skin condition to live a normal social life. The Chinese Guidelines for the Treatment of Psoriasis with Biologics (2021) [5](hereafter referred to as the psoriasis biologics guidelines) state that biologic therapy should be considered for patients with moderate-to-severe plaque psoriasis who have little effect from conventional therapy or whose lives are severely affected, with a preference for a fully human-derived agent, secukinumab, for safety reasons in this case. After a comprehensive assessment of the condition by completing relevant examinations, the patient was confirmed to have no contraindications to biologics and was given secukinumab 300 mg subcutaneously once a week for weeks 0, 1, 2, 3, and 4, and once a month thereafter, with close observation of changes in condition and adverse reactions.

Before treatment, the patient had erythema all over the body, covered with hypertrophic scales and some blood crusts (Figure 1a~7a); after 4 weeks of treatment with secukinumab injection, the erythema all over the body decreased, the scales subsided and thinned, some white scales remained on the back and the blood crusts decreased (Figure 1b~7b), PASI: 33 points; BSA: 51%; DLQI: 12 points; after the 12th week of treatment, the erythema and scales all over the body subsided, the skin gradually flattened and only pigmentation remained (Figure 1c~7c), PASI: 5 points; BSA: 6%; DLQI: 5 points. Dermatoscopy showed a red background with scattered punctate vessels and a large number of yellowish-white scales before the use of biological agents (Figure 8a); after 12 weeks of treatment, the dermatoscopy showed a dark red background with the deepening of the furrow, and the punctate vessels and scales disappeared, leaving a large hyperpigmented spot (Figure 8b). The results of the follow-up examination showed: uric acid 432.00 umol/L, glucose 8.36 mmol/L glycosylated hemoglobin ratio 6.70% Monitoring fasting glucose 5~7 mmol/L, postprandial 7~8 mmol/L (Figure 9), monitoring blood pressure: blood pressure 120~140/80~100 mmHg, blood and urine routine, liver function, and other abnormalities were not seen, and no significant changes in weight.

7. Discussion

Psoriasis is an immune-mediated polygenic genetic skin disease with scaly erythema as its main manifestation[6]. The cause of this disease is not yet clear, and research suggests that it is closely related to genetic, environmental, and immune factors. Among them, plaque psoriasis is the most common type, mainly manifesting as well-defined erythematous and scaly patches, with lesions often involving the elbows, knees, scalp, and intergluteal groove[7].

Interleukin (IL)-23 and helper T-cell (Th)17 pathways are key to the pathogenesis of psoriasis, and IL-17A is its main effector. Overexpression of IL-17A causes epidermal proliferation and a strong inflammatory response, ultimately leading to psoriatic plaques and inflammation; therefore, IL-17A inhibitors have proven to be effective drugs for the treatment of moderate-to-severe plaque psoriasis[8]. The guideline on biologics for psoriasis[3] states that there are two types of IL-17A inhibitors currently used for the treatment of psoriasis in China, namely, secukinumab and eculizumab, which is a fully human monoclonal antibody against IL-17A and is mainly used for the treatment of moderate-to-severe plaque psoriasis. It has been shown that secukizumab may have a beneficial effect on the risk of comorbid cardiovascular disease by improving endothelial function in patients with plaque psoriasis[9]. A pooled analysis of data on metabolic disease and liver aspects from three phases 3 randomized controlled trials in moderate to severe plaque psoriasis showed that patients with psoriasis showed a trend of decreasing weight and uric acid over 52 weeks with secukinumab and that obesity, impaired glucose metabolism, and hyperuricemia were associated with increased baseline levels of hypersensitive C-reactive protein (hs-CRP). Whereas secukinumab

reduced hs-CRP levels in the treatment of plaque psoriasis, the analysis yielded a neutral to favorable long-term trend for indicators of metabolic and liver disease under secukinumab treatment[10]. This shows that secukizumab is not only very effective in plaque psoriasis but also improves the clinical symptoms of its many co-morbidities.

In this case, the patient with severe plaque psoriasis combined with obesity, hypertension, diabetes mellitus, hyperuricemia, and coronary heart disease, all of which are common co-morbidities of psoriasis, and the patient had used traditional therapy for many years with no obvious effect. Therefore, in patients with severe plaque psoriasis who suffer from more co-morbidities that interfere with the use of conventional treatments, the use of biologics, especially the IL-17A inhibitor secukinumab, can be considered, which has a rapid onset of action and good efficacy and has played a significant role in the control of psoriasis co-morbidities.

Photographs of the patient's skin lesions:

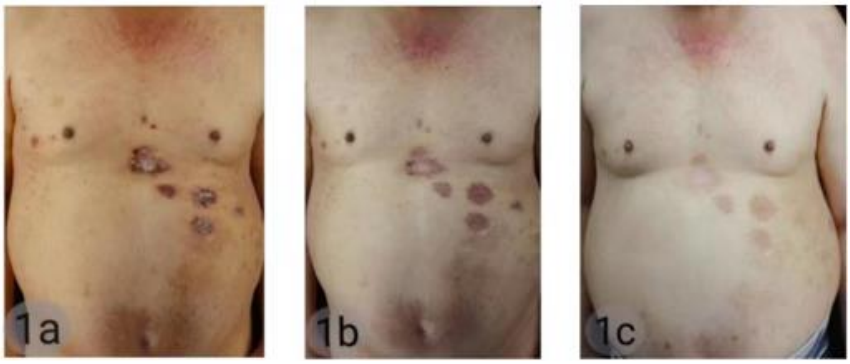

Figure 1: Frontal skin lesion

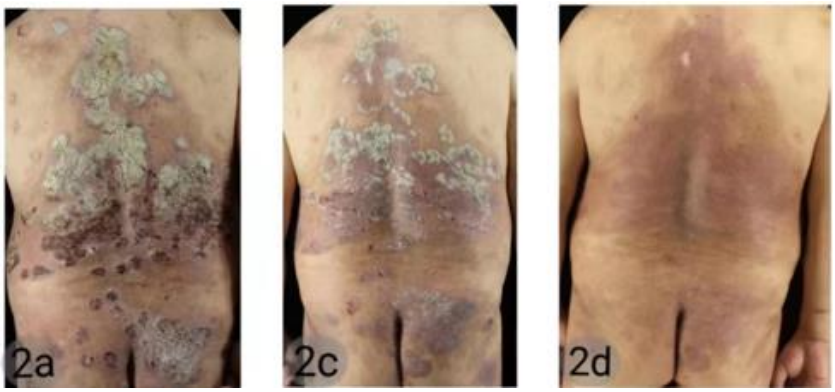

Figure 2: Dorsal skin lesion

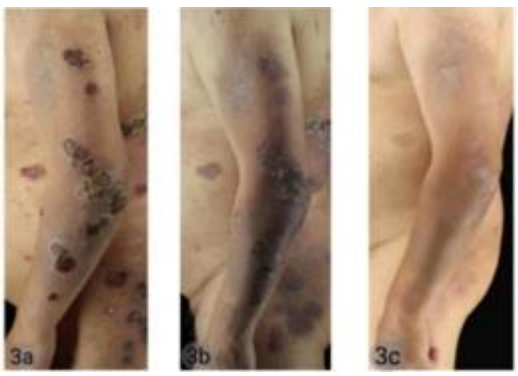

Figure 3: Left upper extremity skin lesion

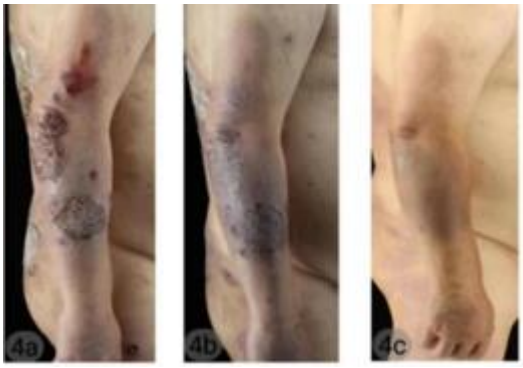

Figure 4: Skin lesion of the right upper limb

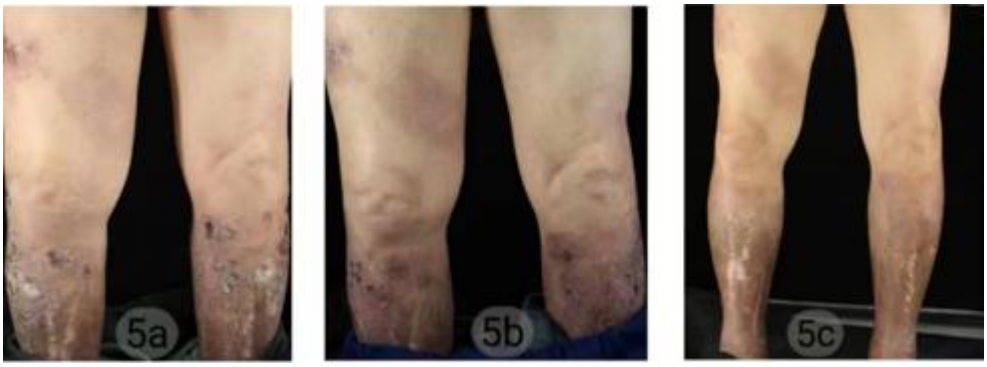

Figure 5: Frontal skin lesion of lower extremity

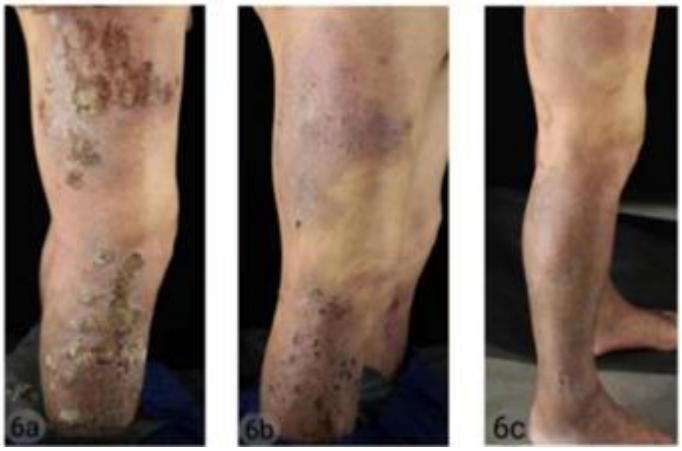

Figure 6: Lateral skin lesions of the lower extremities

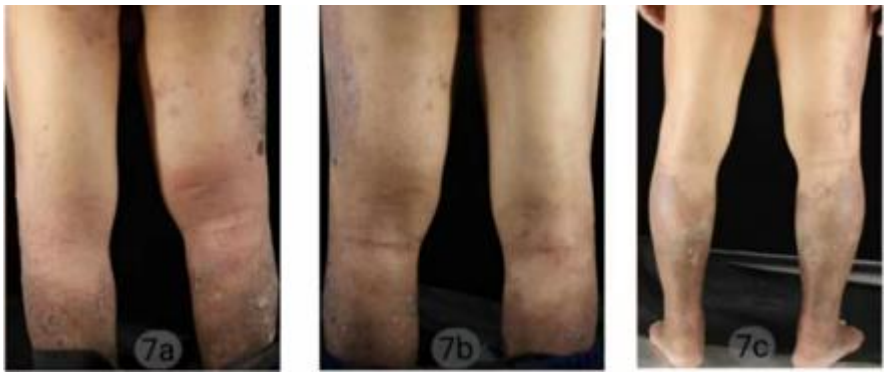

Figure 7: Dorsal skin lesions of the lower extremities

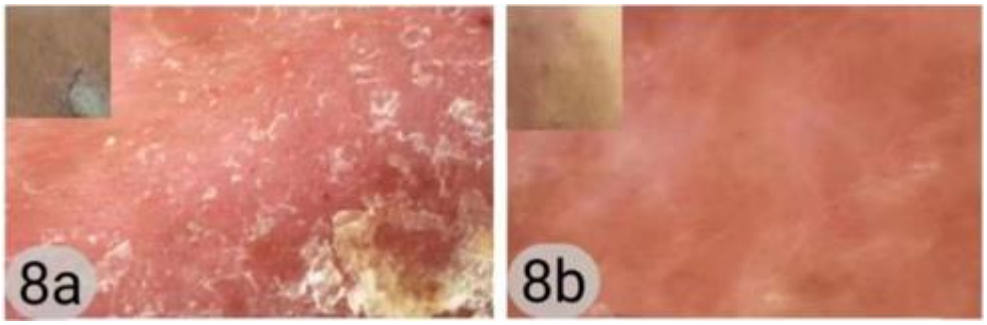

Figure 8: Pre-treatment vs 12-week post-treatment dermoscopic performence

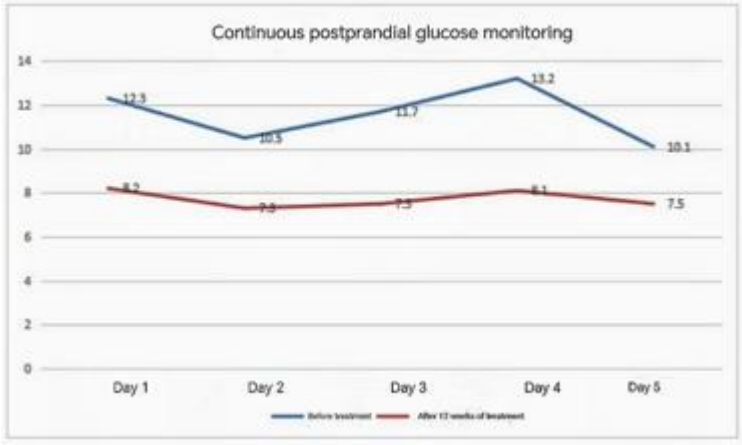

Figure 9: Pre-treatment vs postprandial glucose after 12 weeks of treatment

References

[1] Bens G, Maccari F, Est ève E. Psoriasis: une maladie syst émique [Psoriasis: a systemic disease]. Presse Med. 2012 Apr; 41(4):338-48. French.

[2] Tashiro T, Sawada Y. Psoriasis and Systemic Inflammatory Disorders. Int J Mol Sci. 2022 Apr 18; 23(8):4457.

[3] Psoriasis Professional Committee of the Chinese Medical Association, Dermatology, and Venereology Branch. Guideline for the diagnosis and treatment of psoriasis in China (2018 complete edition). Chinese Journal of Dermatology, 2019, 52(10):667-710.

[4] Chinese Medical Association, Division of Diabetes. Chinese Guidelines for preventing and treating type 2 diabetes mellitus (2020 edition). Chinese Journal of Diabetes, 2021, 13(04):315-409.

[5] Chinese Society of Dermatology and Venereology, Chinese Physicians Association, Chinese Society of Integrative Medicine, Chinese Society of Dermatology and Venereology. Guidelines for the treatment of psoriasis with biologic agents in China (2021). Chinese Journal of Dermatology, 2021, 54(12):1033-1047.

[6] Zhang J C, Xing X H. Dermatologic venereology. 1 edition. Beijing: People's Health Publishing House, 2015: 204-207.

[7] Lebwohl M. Psoriasis. Lancet. 2003 Apr 5; 361(9364):1197-204.

[8] Ly K, Smith MP, Thibodeaux Q, et al. Anti-IL-17 in psoriasis. Expert Rev Clin Immunol. 2019 Nov; 15(11): 1185-1194.

[9] von Stebut E, Reich K, Tha ç i D, et al. Impact of Secukinumab on Endothelial Dysfunction and Other Cardiovascular Disease Parameters in Psoriasis Patients over 52 Weeks. J Invest Dermatol. 2019 May; 139(5): 1054-1062.

[10] Gerdes S, Pinter A, Papavassilis C, et al. Effects of secukinumab on metabolic and liver parameters in plaque psoriasis patients. J Eur Acad Dermatol Venereol. 2020 Mar; 34(3):533-541.