Lichen planus associated with secukinumab treatment for plaque psoriasis

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Abstract

Secukinumab and ixekizumab are IL17A inhibitors most commonly used to treat psoriasis. Common side effects include upper respiratory tract infections, injection site reactions, and mucocutaneous candidiasis. Recently, these medications have been reported to trigger lichen planus and lichenoid reactions have also been reported as an emerging side effect of biologics, especially tumor necrosis factor inhibitors. Herein, we report a patient with lichen planus that appeared after initiation of secukinumab for the treatment of psoriasis.

Keywords: drug eruption, IL17A, interleukin 17, lichen planus

Introduction

Lichen planus (LP) is a poorly understood inflammatory disease of the skin and mucous membranes. Lichenoid reactions have been reported as an emerging side effect of biologics, especially tumor necrosis factor inhibitors [2]. Recently, IL17 inhibitors have been reported to trigger LP in a few patients.

Case Synopsis

Our patient is a 39-year-old woman who was initially diagnosed with severe psoriasis refractory to methotrexate and halobetasol ointment and was prescribed secukinumab. The patient was not taking any other medications and tested negative for hepatitis C and other liver disease. Two-and-a-half months later, the patient demonstrated complete resolution of psoriasis. At her next appointment 6 months later, the patient presented with purple papules on both upper extremities (**Figure 1**) and reported that she had never experienced a similar rash before. The patient also reported that the lesions progressively increased during the duration of secukinumab treatment. On physical examination, there were numerous purple flat-topped papules on flexural surfaces of both arms. No mucous membrane involvement was observed. Two biopsies of the left arm were performed and the patient was prescribed clobetasol ointment; secukinumab was discontinued. The biopsy (**Figure 2**) showed epidermal hyperplasia with hyperkeratosis and wedge-shaped hypergranulosis with areas of hydropic degeneration in the basal cell layer. The upper dermis showed a band-like infiltrate of lymphocytes and scattered melanophages. The findings were most consistent with lichen planus. Two months after stopping the secukinumab, no new lesions had appeared and some of the previous

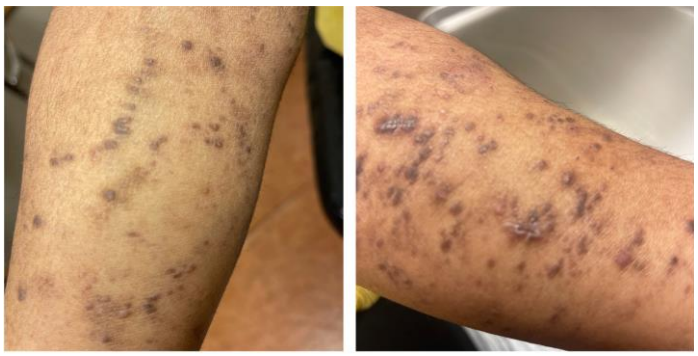

Figure 1. *Numerous purple flat-topped papules on flexural surfaces of bilateral arms.*

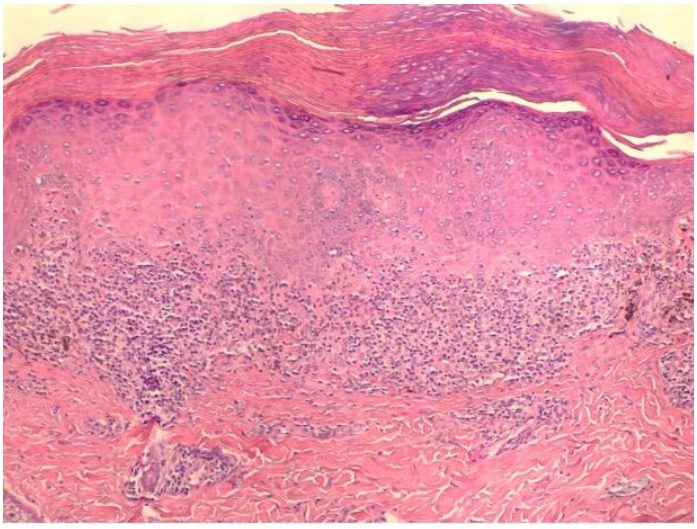

Figure 2. *Epidermal hyperplasia with hyperkeratosis and wedge-shaped hypergranulosis with areas of hydropic degeneration in the basal cell layer. The upper dermis showed a band-like infiltrate of lymphocytes and scattered melanophages. H&E, 4×.*

papules and plaques had flattened (**Figure 3**). After another four months, the patient reported further flattening of the existing lesions.

Case Discussion

Four case reports have been published regarding the appearance of LP after the use of secukinumab [2-4] or ixekizumab [5]. The results from these case reports are compared with our patient in **Table 1**. In patients who were prescribed secukinumab, two patients presented with both oral LP and oral candidiasis, whereas one patient presented with oral and cutaneous LP. Lichen planus developed one, five, and eight months after secukinumab initiation and was reported to improve or completely resolve after discontinuation of the medication [2-4]. The patient who was prescribed ixekizumab demonstrated cutaneous LP after nine months of using the medication [5]. A history of unspecified liver disease was reported in one patient [2].

The proposed mechanism of action of LP appearing after IL17 inhibitors is believed to be inhibition of IL17 leading to activation of plasmacytoid dendritic cells, as these cells are known to be involved in the pathogenesis of LP. Lichen planus has also been

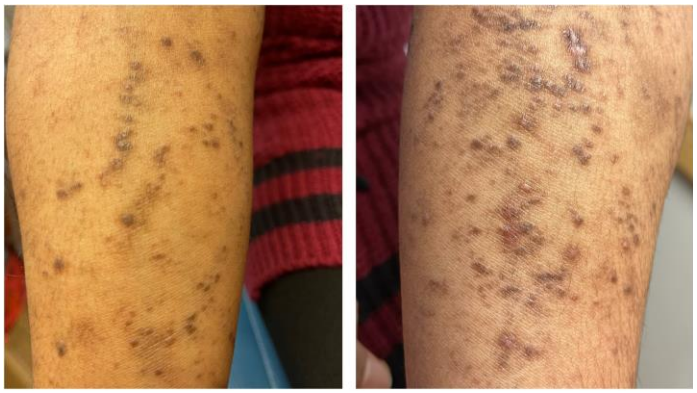

Figure 3. *Lesions two months after secukinumab was discontinued.*

shown to occur after the use of TNF inhibitors [1]. Both TNF and IL17 have been implicated in the pathogenesis of LP and it has been shown that TNF inhibitors may trigger paradoxical psoriasis. One hypothesis is that TNF inhibition may increase the expression of IL17A and IL23 by stimulating the Th17 pathway [6]. Conversely, blockade of IL17 may cause overproduction of cytokines earlier in the pathway (IL23) or those belonging to the other branch of the disease pathway (IL12, TNF), [7].

Because of the appearance of LP eight-and-a-half months after the initiation of secukinumab and the absence of a history of a similar rash, we propose that the LP in our patient was triggered by secukinumab. However, it is known that LP and psoriasis may coexist [8] and this possibility cannot be ruled out in our patient.

Conclusion

We report another case of lichen planus with onset eight-and-a-half months after initiation of secukinumab that improved after topical treatment and secukinumab discontinuation. To date, only four case reports have been published on this subject to our knowledge, which may represent an emerging side effect of IL17 inhibitors.

Potential conflicts of interest

The authors declare no conflicts of interest.

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Table 1. *Comparison of drug-induced lichen planus among five patients treated with secukinumab or ixekizumab.*

	Age	Sex	Race	Drug	Onset of LP after drug initiation	Type and location of LP	Treatment	Follow-up	Other
Our patient	39	F	South Asian	SEK	8.5 months	Cutaneous LP on bilateral forearms	Discontinuation of SEK, initiation of topical clobetasol	No new LP after 2 months. Flattening of existing lesions after an additional 4 months	
Capusan et al.	45	M	Unknown	SEK	8 months	Oral (tongue) LP with candidiasis	Intralesional corticosteroids and oral itraconazole initially; discontinuation of SEK after 12 months	Initially, lesions improved but persisted. After 12 months, SEK was discontinued, leading to complete resolution of oral lesions after 8 weeks	Patient history of unspecified chronic liver disease
Komori et al.	74	F	Unknown	SEK	5 months	Oral LP with candidiasis	Discontinuation of SEK, initiation of oral amphotericin B for candidiasis	Improvement after 2 months	
Maglie et al.	50	M	Unknown	SEK	1 month	Cutaneous LP on trunk, back, lower extremities; oral LP	Discontinuation of SEK, initiation of oral cyclosporin	Resolution of LP after 4 weeks	
Ghiam et al.	63	F	Unknown	Ixekizumab	9 months	Cutaneous LP on back, buttocks, thighs, legs, abdomen	Discontinuation of ixekizumab, initiation of topical triamcinolone and clobetasol	Almost complete resolution after 6 weeks	

LP, lichen planus; SEK, secukinumab.