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Case Report

Isolated psoriatic plaque over burn scar- A rare presentation of Koebner's phenomenon

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Abstract Koebner's phenomenon is well known in patients of chronic plaque psoriasis. It usually results from physical or chemical trauma. Generally lesions resulting from trauma are present in a linear fashion along with other primary lesions of psoriasis. We report a rare case of psoriasis in which a single plaque was present for last 5 years at the site of previous burn. Patient did not have any lesions of psoriasis elsewhere on the body. This report support traditional hypothesis that trauma can trigger psoriasis in a psoriasis naïve patient and a single plaque at burn site can have psoriasis as a differential diagnosis.

Key words
Psoriatic plaque; Burn scar; Koebner's phenomenon.

Introduction

Surgical incisions or trauma is known to cause onset of isomorphic new lesions in the uninvolved skin of patients with previous history of certain cutaneous disorders.[1] This is known as Koebner phenomenon and is classically seen in psoriasis, apart from other diseases like vitiligo, lichen planus, etc. We report a case of patient with new onset psoriasis, which was limited only around a burn wound with no prior history of the same or any other site involved.

Case report

A 35 year old male presented to the Dermatology OPD with chief complaints of itchy, scaly lesion on the left leg above the ankle since 5 years on and off.

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Patient had sustained a second degree burn from the silencer of his motorbike 5 years ago. He took treatment for the burn and it healed in few days with darkening of skin. Thereafter, he started to notice a coin sized lesion over the healed burn area which gradually increased in size to the current size over the next 3 months. It was associated with severe itching. He gave history of winter exacerbation of the lesion with near complete clearance during the summers without any medication. There was no history of presence of similar lesions over other sites like elbows, knees or lower back. Patient had no systemic disease such as hypertension or diabetes mellitus and no family history of psoriasis.

On examination, a single, oval to elliptical, well defined skin coloured to erythematous indurated plaque of size 12x8cm with white, adherent scaling was present on the lateral aspect of the left leg, 4cm above lateral malleolus **(Figure 1)**. The plaque had a hyper pigmented border and the surrounding skin appeared normal. Scalp

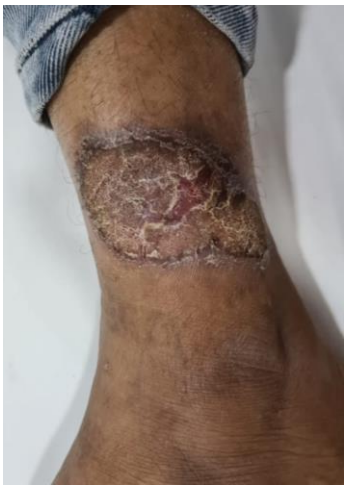

Figure 1 Single, oval well defined indurated plaque with white scaling present on left leg at burn site. No other site involved.

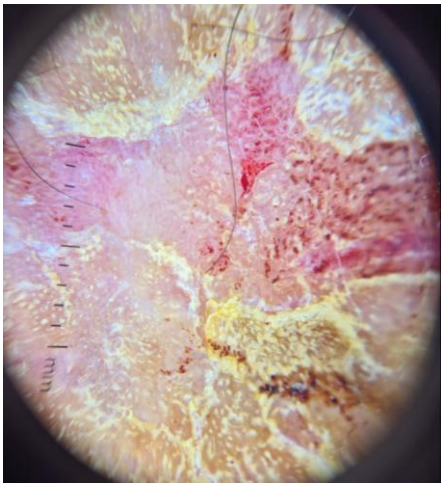

Figure 2 Dermoscopy (10x magnification) Dotted vessels over a pinkish background with patchy white scales. Black stars show dot blood haemorrhages.

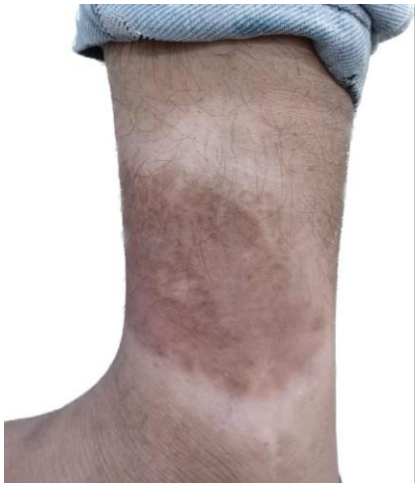

Figure 3 Lesion healed with post inflammatory hyperpigmentation after 4 weeks of treatment with clobetasol propionate 0.05% and salicylic acid 3% combination.

showed mild, loose, diffuse white scaling. Auspitz sign was negative.

Dermosocopy revealed dotted vessels which had a scattered distribution over a pinkish background with patchy white scales. Some areas also showed dot blood haemorrhages **(Figure 2)**. Diagnosis of Psoriasis was made considering clinical and dermoscopic findings. On probing specifically, patient gave history of some scaly well defined lesions though at the time of presentation scalp was clear.

Histopathology examination, hyperkeratosis with parakeratosis was seen. There was presence of acanthosis with elongation of rete ridges. Suprapapillary thinning was present with mild perivascular inflammation, all suggestive of psoriasis.

The patient was started on topical treatment with potent corticosteroid clobetasol propionate 0.05% and salicylic acid 3% combination for 4 weeks along with an emollient. Patient showed marked improvement with the therapy with almost complete resolution of itching as well as raised plaque **(Figure 3)**. Patient came for follow-up for the next 8 months and was maintained on topical therapy.

Discussion

Koebner phenomenon is defined as the development of new lesions of psoriasis in non-psoriatic skin regions following different triggers including drugs, sun exposure, cutaneous trauma, etc.[2]

Multiple mechanisms have been discussed underlying Koebnerisation, specially various signalling pathways including mast cell tryptase (MCT), a chemoattractant, and inflammatory mediators like IL-6, IL-8, IL-17, IL-36γ, etc. Keratinocyte-derived IL-33, TLR-3, and nerve growth factor are also said to play a role. Other contributory mechanisms that are postulated are increased formation of VEGF, increased presence of psoriasin and koebnerisin in the epidermis, presence of α 2 β1 integrin in the suprabasal epidermal layers, predominance of $CD4^+$ cells, increase in chemokines (CXCL8 and CCL20), down-regulation of ACKR2, polycystin 1 and NMDA receptors.[2,3]

Generally Koebnerisation plaques are seen along with primary lesions or in patients with prior history of psoriasis. They are also known to be triggered even with post surgical procedures.[4]

On literature search, we could not find many reports in which single large psoriatic plaque was the presenting feature without any other lesions elsewhere. Shape and site of the lesion was consistent with the area of silencer burn and there was clinical and histological surety about our diagnosis of Psoriasis. Only positive correlation in our case was history of probable scalp psoriasis though we could not observe any plaque during next 8 months of follow up.

We are reporting this case for its very unusual presentation and importance of keeping psoriasis as a differential in case of an isolated plaque with history of trauma.

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