A Rare Presentation of Concurrent Onset and Coexistence of Generalized Lichen Planus and Psoriasis in a Child

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Abstract

Independently, psoriasis and lichen planus (LP) are common inflammatory skin conditions affecting around 2–3% and 1% of the population, respectively. However, the coexistence of both diseases is rare. Common immunological mechanisms with altered T-cell-mediated autoimmunity, cytokine milieu, and Koebner phenomenon play a role in their pathogenesis. As reviewed in the literature, psoriasis may independently be associated with other autoimmune conditions like vitiligo, alopecia areata, LP, and discoid lupus erythematosus. A rare co-occurrence of these two or three autoimmune diseases has been reported. Here, we report a case of a 10-year-old boy who presented with persistent nonpruritic multiple hyperpigmented scaly papules and plaques over the body since 6 months of age. Histopathology revealed features suggestive of both LP and psoriasis in the same section. A diagnosis of psoriasis–LP overlap was made, and the patient was managed with tab acitretin 25 mg daily and narrowband ultraviolet B (NBUVB) phototherapy with which he showed satisfactory clearance of the lesions.

Keywords: *Autoimmunity, Koebner phenomenon, lichen planus, psoriasis*

Introduction

Individually, psoriasis and lichen planus (LP) are relatively common skin conditions where immunological mechanisms with altered cytokines, T-cell-mediated autoimmunity, and Koebner phenomenon play a role in pathogenesis. However, differences exist between these two conditions in distribution, etiology, histopathology, immunological factors, and human leukocyte antigen (HLA) associations. Rare association between psoriasis and LP in adults has been reported occasionally with only two reports in children.[1-4] We report a case of generalized LP–psoriasis overlap in a 10-year-old male with skin lesions since 6 months of age and histopathology showing simultaneous findings of psoriasis and LP in the same section.

Case History

A 10-year-old boy presented with multiple dark, raised, scaly, and nonitchy lesions over the body since 6 months of age, which first appeared over the right side of the abdomen and gradually increased in number to involve nearly the whole body by the time he turned a year old. Since then, historically these lesions had been more or less persistent, maintaining similar morphology with no aggravating factors, such as cold season, infection, stress, or drugs. Parents denied any history of collodion membrane at birth or any skin condition till six months of age, delayed milestones, drug intake, or any similar family history. He was managed prior using emollients with minimal relief.

Systemic examination was normal. Dermatological examination revealed involvement of face, ears, neck, trunk, gluteal region, and extremities in the form of lichenification and multiple discrete hyperpigmented papules and plaques with loosely adherent silvery white scales over most of the papules and plaques. These papules were linearly arranged in a reticulate fashion, probably a manifestation of Koebner phenomenon [Figure 1a-c]. Grattage test and Auspitz's sign were positive. His scalp had diffuse scaling, but his palms, soles, nails, teeth, and mucosa were spared.

Histopathology from a representative site revealed orthokeratosis and focal

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parakeratosis with focal loss of granular layer. Multiple neutrophilic abscesses were seen in stratum corneum and spinous layer. There were areas of basal layer vacuolar degeneration with band-like inflammatory infiltrate at the dermo-epidermal junction consisting of lymphocytes and histiocytes. Melanin incontinence with dermal melanophages was seen [Figures 2 and 3a, b]. These features were suggestive of LP and psoriasis in the same section. All other relevant investigations, including viral markers, venereal disease research laboratory test (VDRL), and thyroid function test were normal.

Based on history, clinical findings, and histopathology, a diagnosis of psoriasis–LP overlap was made, and the patient was managed with oral acitretin 25 mg daily and narrowband ultraviolet B (NBUVB) phototherapy as per standard protocol. Good response in the form of near total clearance of lesions was observed.

Discussion

Independently, psoriasis and LP are relatively common skin conditions affecting around 2–3% and 1% of the population, respectively. However, only a handful of literature report this coexistence.

Psoriasis is chronic inflammatory skin disease of unknown etiology characterized by hyperproliferation of keratinocytes. In children, 25–45% cases present before 16 years of age, 10% by 10 years, and only 2% before 2 years of age.[4] HLA-Cw*0602 is the susceptible allele in this locus. Psoriasis patients who are homozygous for HLA-Cw*0602 allele have 2.5-fold increased risk of developing psoriasis compared with Cw6 heterozygotes.[5] Th17/interleukin (IL)-23 and IL-22 have been implicated in pathogenesis with the predominance of CD8+ lymphocytes.

Etiology of LP is unknown; however, cases associated with external factors like hepatitis-C, *Helicobacter pylori* (H. pylori) infection, dental fillings, drugs like lithium/beta-blockers, metastatic carcinoma, stress, and anxiety have been reported. Genetic studies have linked familial LP with HLA-A3 and HLA-B7. Altered cytokine milieu of tumor necrosis factor alpha (TNF-α), interferon alpha (IFN-α), IL-1, IL-6, IL-22, IL-23, and IL-31 have been implicated in its pathogenesis.

Co-occurrence of psoriasis and LP has been rarely reported. Nevertheless, this association is not uncommon in adults. Naldi *et al*. reported 12 adult psoriasis cases among 711 LP patients.[1] Poljacki *et al*. found five LP cases among 1743 psoriasis patients.[2] Few reports have highlighted the association of oral, linear, or bullous LP with psoriasis in adults.[6-8] A literature review revealed only two case reports with this association in children.[3,4] Both children had concurrent vitiligo over which subsequently psoriasis and LP developed. Interestingly, our patient had persistent lesions of both LP and psoriasis since 6 months of age in an overlapping generalized reticulate pattern.

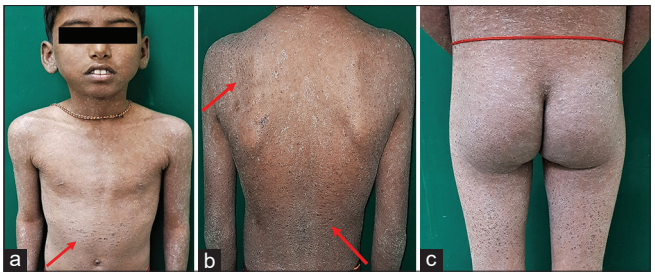

Figure 1: (a and b) Face, trunk, and upper limbs show lichenification and multiple discrete hyperpigmented scaly papules and plaques arranged linearly in a reticulate fashion (Red arrow) (c) Involvement of gluteal region and thighs with multiple discrete hyperpigmented scaly papules arranged linearly in a reticulate fashion

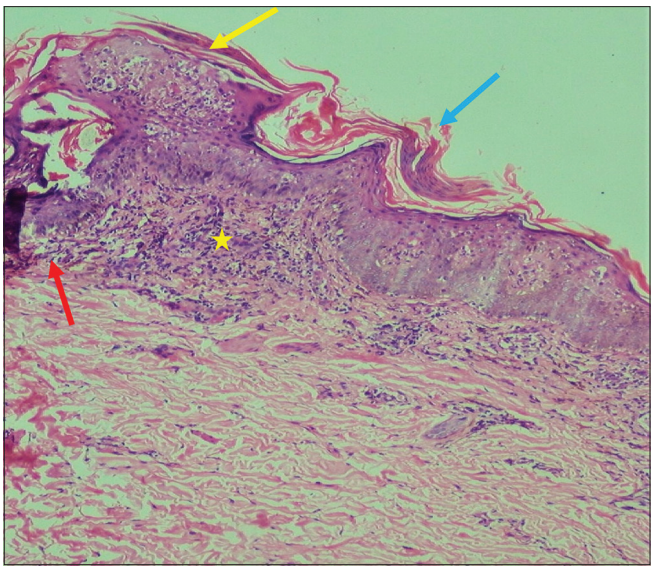

Figure 2: Orthokeratotic and focal parakeratotic hyperkeratosis with focal loss of the granular layer (Blue arrow). Multiple neutrophilic abscesses were seen in the stratum corneum and the spinous layer (Yellow arrow). Areas of basal layer vacuolar degeneration (Red arrow) with band-like inflammatory infiltrate at the dermo-epidermal junction consisting of lymphocytes and histiocytes (Yellow star) (H and E, 100x)

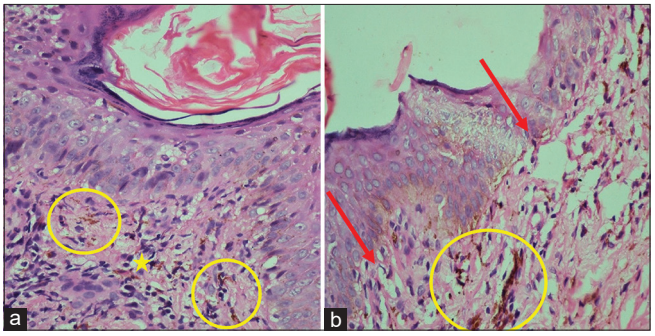

Figure 3: (a and b) Areas of basal layer vacuolar degeneration (Red arrow) with band-like inflammatory infiltrate at the dermo-epidermal junction consisting of lymphocytes and histiocytes (Yellow star). Melanin incontinence with dermal melanophages seen in the dermis (Yellow circle) (H and E, 400x)

The eruption of psoriasiform lesions and LP-like lesions are known to occur after anti-TNF- α drugs and TNF-α has been shown to downregulate production of IFN-α.[9,10] Though

our patient had no trigger factor, overproduction of IFN-α may have been triggered by some unidentifiable antigenic stimulus resulting in these two conditions. Till now, altered cytokines, autoimmunity, and Koebner phenomenon have been implicated as pathogenetic factors connecting these two entities. Concurrent activation of both CD4+ and CD8+ has been hypothesized in such co-occurrence in addition to upregulation of proinflammatory molecules, such as TNF-α, INF-α, IL-1, IL-6, IL-22, IL-23, and nuclear factor kappa-light-chain-enhancer of activated B-cells (NF-kβ).[6]

Management options in children with concurrent psoriasis–LP are topical corticosteroids, calcineurin inhibitors, vitamin-D analogues, and topical retinoids along with emollients in localized lesions. However, in generalized involvement and symptomatic patients, a systemic agent in form of acitretin, methotrexate, or cyclosporine is usually required. Risk of premature closure of epiphysis has to be kept in mind in long-term use of acitretin in children. In addition, NBUVB is a good option in generalized disease.

In conclusion, we report a rare presentation of concurrent onset and coexistence of LP and psoriasis in a male child with possible etiological factors of autoimmunity and Koebner phenomenon.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published, and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Naldi L, Sena P, Cainelli T. About the association of lichen planus and psoriasis. Dermatology 1990;181:79-80.
2. Poljacki M, Begenesić M, Duran V, Matović L, Matić M, Jovanović M, *et al*. Psoriasis and autoimmune skin disorders. Med Pregl 2002;55:325-8.
3. Samanta AB, Shome K, Sarkar P, Seth J, Das I : Coexistence of vitiligo, psoriasis and lichen planus in a single patient. J Pakistan A Dermatol 2012;22:274-8.
4. Neelagiri S, Janardhan B, Reddy KS, Sreedhar V. Co-occurrence of psoriasis, vitiligo, and lichen planus in a single patient. Indian J Paediatr Dermatol 2018;19:157.
5. Gudjonsson JE, Karason A, Antonsdottir A, Runarsdottir EH, Hauksson VB, Upmanyu R, *et al*. Psoriasis patients who are homozygous for the HLA-Cw*0602 allele have a 2· 5-fold increased risk of developing psoriasis compared with Cw6 heterozygotes. Br J Dermatol 2003;148:233-5.
6. Ohshima N, Shirai A, Asahina A. Coexistence of linear lichen planus and psoriasis in a single patient. J Dermatol 2011;38:1182-4.
7. İnalöz HS, Patel G, Holt PJA. Bullous lichen planus arising in the skin graft donor site of a psoriatic patient. J Dermatol 2001;28:43-6.
8. Kiluk P, Flisiak I. The coexistence of oral lichen planus and psoriasis vulgaris-a case report. Dermatology Rev 2016;2:119-23.
9. Seneschal J, Milpied B, Vergier B, Lepreux S, Schaeverbeke T, Taïeb A. Cytokine imbalance with increased production of interferon-α in psoriasiform eruptions associated with antitumour necrosis factor-α treatments. Br J Dermatol 2009;161:1081-8.
10. Asarch A, Gottlieb AB, Lee J, Masterpol KS, Scheinman PL, Stadecker MJ, *et al*. Lichen planus–like eruptions: An emerging side effect of tumor necrosis factor-α antagonists. J Am Acad Dermatol 2009;61:104-11.