Psoriasis: An Unusual Autoimmune Manifestation in a Boy with Common Variable Immunodeficiency

Sir,

Common variable immunodeficiency (CVID) is the most common clinically significant primary immune deficiency and predisposes an individual to recurrent infections, inflammatory and autoimmune complications. We report psoriasis as an associated autoimmune disorder in an adolescent boy with CVID and also emphasize the role of immunoglobulin replacement therapy in its management.

A 13-year-old boy was symptomatic since the age of 2 years. He had had recurrent episodes of pneumonia and otitis media. He presented to us at the age of 10 years with an episode of community-acquired pneumonia. After ruling out human immunodeficiency virus (HIV) infection, he was evaluated for an underlying primary immunodeficiency. Results of his investigations are given in Table 1. His overall clinical and immunologic profile was suggestive of CVID. CD81, CD19, B cell activating factor receptor (BAFF-R) protein expression on B cells, and inducible co-stimulator (ICOS) expression on T cells were normal. No mutation was detected in the transmembrane activator and calcium-modulator and cyclophilin ligand interactor (TACI). He was initiated on cotrimoxazole prophylaxis and parents were counselled for immunoglobulin replacement therapy.

At the age of 13 years, he presented with erythematous, painless, and nonitchy skin lesions, noticed for last 6 months. On examination, there were well-defined erythematous plaques with fine silvery scales on the surface distributed all over the body [Figures 1a and b]. The morphology of lesions was consistent with psoriasis vulgaris. Histopathology showed hyperkeratosis, parakeratosis, and acanthotic epidermis with focal loss of...
and thrombocytopenia being the most common manifestations.[1] There is no well-known mechanism for the development of autoimmunity in CVID; however, the role of genetic factors and various cellular mechanisms have been proposed.[2] Vitiligo, lichen planus, alopecia, and psoriasis are the most common autoimmune skin diseases in CVID.[1,2] Psoriasis is an autoimmune skin disorder characterized by keratinocytes proliferation and abnormal differentiation. Among the various subtypes, plaque psoriasis (psoriasis vulgaris) is most frequent.[3] Psoriasis is not a common autoimmune manifestation in CVID and has been reported to be seen in less than 1% of patients.[2,4] This association has not been reported previously from India. In general, therapy for psoriasis depends on its type, extent of disease, and site of involvement and involves both topical as well as systemic therapy.[4] Recently, biological agents and high dose immunoglobulins have also been demonstrated to be helpful in refractory psoriasis cases.[3,5] The mechanism by which IVIG improves autoimmunity in CVID has been found to be due to the modulation of function of regulatory T cells, B cells, dendritic cells, and NK cells.[6,7] Index child was initiated on IVIG replacement therapy and has shown marked improvement in psoriasis. We emphasize that IVIG replacement therapy has a significant role in the management of psoriasis in CVID patients.

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Conflicts of interest
There are no conflicts of interest.

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**Table 1: Details of laboratory investigations with normal reference range**

| Investigation               | Result | Normal reference range |
|----------------------------|--------|------------------------|
| Hemoglobin (gm/L)          | 96     | 120-140                |
| White blood cell counts (×10⁹ cells/L) | 7.6   | 4-11                   |
| Differential counts        | N₅₋₉, L₆₋₉, M₁₋₉, E₆₋₉ |
| Platelet counts (×10⁹/L)   | 190    | 150-400                |
| IgG (mg/dl)                | <206   | 540-1610               |
| IgM (mg/dl)                | <25    | 50-190                 |
| IgA (mg/dl)                | 40     | 80-280                 |
| CD 19^+ B cells            | 17.6%  | 5-19%                  |
| CD3^+ T cells              | 74.9%  | 50-80%                 |
| Class switched B cells (CD19^+ IgD IgM^-) | 0.7%  | 8-31%                  |
| Naive B cells (CD19^-CD27^- IgD^-) | 98.8% | 42-82%                 |
| Class-switched memory B cells | 0.1%  | 8-31%                  |
| (CD19^-CD27^-IgD^+IgM^-)   |        |                        |
| Transitional B cells (CD21^-int IgM^+^-CD38^-) | 2.6%  | 0.6-3%                 |
| CD21^- cells (IgM^-CD38^-CD21^-) | 0.4%  | 0.9-7%                 |
| Anti-diphtheria antibody titres | 0.003 IU/ml (very low) |
| Anti-pneumococcal antibody titres | <3.3 mg/L |
Letters to the Editor

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