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Inflammatory Linear Verrucous Epidermal Nevus Responsive to 308-nm Excimer Laser Treatment

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Case Presentation:

Inflammatory linear verrucous epidermal nevus (ILVEN) was first described by Altman and Mehregan in 1971 as a rare linear and pruritic psoriasiform plaque that most commonly presents during childhood. Epidermal nevus may derive from keratinocytic, follicular, sebaceous, apocrine, or eccrine origin. ILVEN is classified under the keratinocytic type and represents approximately 6% of all epidermal nevi. ILVEN can be a single lesion or multiple unilateral, erythematous, and verrucous plaques along the lines of Blaschko. There is a predilection for the lower extremities with girls being four times more commonly affected than boys. Cases are predominately sporadic, although rare familial cases have been reported.

The pathogenesis is largely unknown, however it is believed to represent a clonal dysregulation of keratinocytes exhibiting genetic mosaicism. Compared to lesions of psoriasis, ILVEN exhibits less Ki-67 positive keratinocyte nuclei and more cytokeratin 10 (CK10) positive cells. CK10 is a proliferative marker and CK10 is an epidermal differentiation marker. ILVEN demonstrates less CD4+, CD8+, CD45RO+, CD2+, CD25+, CD94+, and CD161+ cells within the dermis and epidermis than psoriasis.

The histopathology of ILVEN reveals epidermal rete elongation, similar to psoriasis, with columns of alternating orthokeratosis and pruritic psoriasiform plaque that most commonly presents during childhood. Epidermal nevi may derive from keratinocytic, calcipotriol, retinoids, and 5-fluorouracil. Other treatments include intralesional corticosteroids, cryotherapy, electrodessication and curettage, and surgical excision. Several cases report promising results with pulsed dye laser (585 nm) and ablative CO2 laser (10,600 nm, fractional and super pulsed), however these were unsuccessful in our case.

Excimer laser has not been published in the literature for treatment of ILVEN, though many studies have demonstrated the usefulness of excimer in psoriasis. We propose that secondary to the shared histopathology between ILVEN and psoriasis, the 308 nm excimer laser penetrates the epidermal cells and fibroblasts inducing T-cell apoptosis making it an effective treatment modality for inflammatory conditions. Currently, our patient has undergone ten sessions of UVB excimer laser treatment with significant improvement in lesions. Treatment has been well tolerated with no reported side effects.

Discussion:

Inflammatory linear verrucous epidermal nevus (ILVEN) was first described by Altman and Mehregan in 1971 as a rare linear and pruritic psoriasiform plaque that most commonly presents during childhood. Epidermal nevus may derive from keratinocytic, follicular, sebaceous, apocrine, or eccrine origin. ILVEN is classified under the keratinocytic type and represents approximately 6% of all epidermal nevi. ILVEN can be a single lesion or multiple unilateral, erythematous, and verrucous plaques along the lines of Blaschko. There is a predilection for the lower extremities with girls being four times more commonly affected than boys. Cases are predominately sporadic, although rare familial cases have been reported.

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Excimer laser has not been published in the literature for treatment of ILVEN, though many studies have demonstrated the usefulness of excimer in psoriasis. We propose that secondary to the shared histopathology between ILVEN and psoriasis, excimer laser would be successful in the treatment of ILVEN lesions. The 308 nm excimer laser penetrates the epidermal cells and fibroblasts inducing T-cell apoptosis making it an effective treatment modality for inflammatory conditions. Currently, our patient has undergone ten sessions of UVB excimer laser treatment with significant improvement in lesions. Treatment has been well tolerated with no reported side effects.

References:

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