Intralesional corticosteroid-induced hypopigmentation and atrophy

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Abstract

Intralesional corticosteroids are associated with various, uncommon, local adverse events [1]. Atrophy and hypopigmentation most commonly remain localized to sites of injection. However, outward radiation in a linear, streaky pattern has been reported and is termed "perilesional/ perilymphatic hypopigmentation or atrophy [2]." We report a case of this rare adverse event.

Keywords: intralesional steroids, atrophy, hypopigmentation

Introduction

Intralesional corticosteroids are an effective treatment for various dermatological and non-dermatological disorders owing to their ability to achieve high local concentrations and prolonged depot effects with minimal systemic absorption [1]. Despite their efficacy, they are associated with various, uncommon, local adverse events including; hypopigmentation, hyperpigmentation, dermal or subcutaneous atrophy, alopecia, infection, ulceration, and localized dystrophic calcification [1]. Atrophy and hypopigmentation most commonly remain localized to sites of injection. However, outward radiation in a linear, streaky pattern has been reported and is termed "perilesional/perilymphatic hypopigmentation or atrophy [2]." We report a case of this rare adverse event.

Case Synopsis

A 77-year-old man with hypothyroidism presented to dermatology clinic with an expanding, leukodermic patch overlying the right elbow. Eight months prior to presentation, the patient had undergone a single injection of triamcinolone acetonide (40mg/ml) for the treatment of lateral epicondylitis. Two months after the injection, he noticed a slowly expansile, white patch near the injection site. Examination revealed a hypopigmented patch with peripheral linear streaking and underlying atrophy of the right extensor elbow. There was no evidence of perifollicular repigmentation. Wood lamp examination revealed enhancement with central hypopigmentation and a peripheral pigmentary gradient (**Figure 1**). A biopsy was not performed. The patient was treated with tacrolimus ointment to attempt to halt progression.

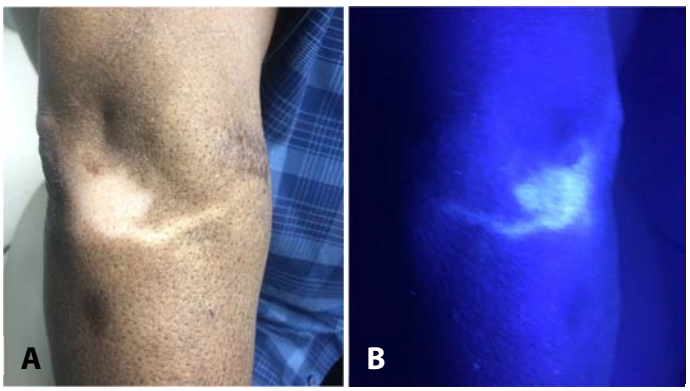

Figure 1. ***A)*** *Hypopigmented patch with peripheral linear streaking and underlying atrophy of the right extensor elbow.* ***B)*** *Wood lamp examination revealed enhancement with central hypopigmentation with a peripheral pigmentary gradient.*

Case Discussion

The pathogenesis of corticosteroid-induced hypopigmentation is not well understood, but previous studies suggest inhibition of melanocyte function without loss of melanocytes may contribute [2]. Corticosteroids may prevent prostaglandin or cytokine production in various epidermal cells and may suppress release of secretory metabolic products from melanocytes without causing their destruction [1]. The mechanism of linear hypopigmentation and atrophy is also unknown [2]. Prior studies theorize the spread of corticosteroid crystals along cutaneous lymphatic vessels as the underlying cause after alphazurine 2 G (Patent Blue) was injected into an atrophic lesion and subsequently tracked along the associated lymphatic vessel [3]. Extension of hypopigmentation perilesionally has been reported up to two feet from site of injection, possibly related to additive or synergistic effects of hyaluronidase in breaking connective tissue barriers and facilitating absorption into lymphatic vessels [4]. Evaluation of more patients with this complication is needed before any definitive conclusions are made. Treatment of corticosteroid-induced perilymphatic hypopigmentation and atrophy is limited. Reports of spontaneous resolution range from months-to-years, yet some cases persist despite cessation of steroid treatment [2]. There is one case report of successful treatment with a 308nm excimer light that showed near complete repigmentation after 6 treatments [5]. Another study reported significant repigmentation after a single treatment with 10,600nm wavelength fractional carbon dioxide laser followed by immediate, intentional, solar exposure intended to up-regulate melanocytic activity [6]. Evaluation of more patients with this rare event are needed to further determine effective treatment options.

Conclusion

Perilesional/perilymphatic hypopigmentation or atrophy is a rare adverse event to intralesional corticosteroids. Although the pathogenesis is not entirely known, it may involve the spread of corticosteroid crystals along cutaneous lymphatic vessels [3]. The duration of the hypopigmentation and/or atrophy is variable with limited data on available treatment options.

Potential conflicts of interest

The authors declare no conflicts of interests.

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