

Scalp Ulcer due to Intralesional Corticosteroid: A Case Report

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Abstract

Intralesional Corticosteroids (ICS) administration is a procedure by which the corticosteroid is directly injected into the skin by a syringe in order to treat local skin diseases with a maximum benefit and minimal systemic effect. It has been a good therapeutic option for dermatologists. Triamcinolone acetonide is the most common steroid administered intralesional. ICS treatment is usually safe. It may be associated with local side effects like dyspigmentation, telangiectasia, and epidermal or dermal atrophy. It is rarely associated with ulceration. Here we present an unusual case of a young female with scalp ulceration after an intralesional injection of triamcinolone acetonide. We also tried to highlight the risk factors and mechanism of skin ulceration following intralesional corticosteroid.

Keywords: Intralesional steroids • Scalp • Ulcer • Triamcinolone acetonide

Introduction

Intralesional Corticosteroid (ICS) injection has been used to treat a variety of dermatological and non-dermatological diseases [1]. The purpose of the injection is to attain a high local concentration of the steroid at the diseased site without significant systemic absorption thus avoiding the numerous systemic side-effects. However, it might cause local side effects that include atrophy (epidermal and/or dermal), dyspigmentation, telangiectasia, and on rare occasions abscess formation and ulceration [2].

Case Presentation

An 8-year old girl had a single raised itchy lesion over the anterior scalp for two months that was not associated with fever, pain, and swelling over the neck and back of the scalp. She denied a history of a similar lesion in her family. For this problem, she visited local pharmacy where she was given two doses of 1 ml intralesional triamcinolone acetonide (40 mg/ml) one week apart. After a week of the second dose of the injection, she noticed a blister at the site of injection that gradually increased in size and eventually ruptured after 2 days forming an ulcer that was associated with mild pain but not associated with fever for which she visited our center.

On examination, there was a single punched out ulcer of size 3 × 2 cm² on the frontal region with yellowish slough on the floor (Figure 1). There was a rim of erythema surrounding the ulcer with telangiectasia at few places. This zone of erythematous skin was surrounded by areas of hypopigmentation with a linear extension to the forehead at the inferior

border of the ulcer. The base of the ulcer was non-indurated and non-tender. Cervical and occipital lymph nodes were not palpable.



Figure 1. (a) Showing well defined punched out ulcer on the scalp with yellowish slough in the floor and, (b) Surrounding areas of erythema and hypopigmentation.

Her complete blood count and ESR were within the normal range. Histopathological examination showed focally denuded epidermis with exocytosis of lymphocytes and neutrophils. There were dense inflammatory infiltrates in the upper dermis comprising of lymphocytes and neutrophils. Special stains for fungal element, mycobacterium, and Leishman Donovan (LD) body were negative. Hence, a diagnosis of acute ulcer probably due to intralesional corticosteroid was made and the patient was treated with oral and topical antibiotics along with the daily dressing.

Results and Discussion

The causes of acute scalp ulcer in a child include inflammatory disorders like pyoderma gangrenosum and vasculitis, infectious conditions like mycobacterium tuberculosis, atypical mycobacterium, kerion type tinea capitis, and leishmaniasis, and exogenous causes like trauma and drug [3]. The clinical presentation and histological findings were against pyoderma gangrenosum and vasculitis in our case. Negative special stains ruled out the chance of infective cause. Hence, the most probable cause of the acute scalp ulcer in our case is due to intralesional steroid. The areas of erythema, telangiectasia, hypopigmentation, and atrophy surrounding the ulcer further support our diagnosis.

ICS results in various local and systemic adverse effects. Local adverse effects include pain, bleeding, atrophy, dyspigmentation, ulceration, perilesional linear atrophy or hypopigmentation, calcification, secondary infection, granuloma formation, allergic reaction, and panniculitis. Systemic adverse effects include suppression of hypothalamus-pituitary-adrenal axis, cushingoid appearance, growth inhibition, syncope and rarely blindness [1,4-8]. The adverse effects of ICS are less common. However, there are no articles describing the frequency of each of these adverse effects.

The local complications resulting from ICS depend on the method of injection (syringe-needle, or dermojet), anatomical site of injection, depth of injection (high dermal, low dermal or subcutaneous), age (pediatrics or adults), race, medication, and the concentration of the medication [2,9].

There are few case reports of ulceration following the use of topical corticosteroid. Aksoy reported 3 cases of ulceration of breast's skin due to Topical Corticosteroid (TCS) abuse [10]. Similarly, Klingman mentioned 3 cases of painful penile fissures from prolonged use of TCS [11]. Adam and Sheth reported a case of perianal ulcer following prolonged use of

topical corticosteroid [12]. However, there is no case report of skin ulcer following ICS published so far.

The mechanism of skin ulcer following ICS may be different from TCS use. The main mechanism of ulcer following TCS use is due to atrophy. However, in the case of ICS use, atrophy of the skin may be a contributing factor to other mechanisms. The prime cause of skin atrophy following ICS is local vascular obstruction. It is dependent on the depth of injection, method of injection, site of injection, age of the patient, the medication and the concentration of the medication. High intradermal administration of corticosteroid is associated with local vesiculation, ulceration and scarring. Low intradermal administration is associated with atrophy, pigmentary change and telangiectasia [13]. The skin on face, scalp, and intertriginous areas is more prone to develop the complication. The risk of ulceration is more in children compared to adults. The risk definitely increases with the concentration of medication used for injection. Dermojet modality is associated with more risk of ulceration in comparison to syringe-needle administration. The molecule used for the administration also is a risk factor for ulceration. The corticosteroid injected may crystalize and cause obstruction of local vascular resulting in ulceration. The risk increases with the increase in the molecular size of corticosteroid used for injection [1,10-13]. In our case, the high concentration of corticosteroid in the scalp of the child and probably injected in high dermis might have contributed to the development of ulcer.

Conclusion

To conclude, this case report highlights the potential side effect of skin ulcer formation following injectable steroids and the risk factors for it. Besides that, the misuse of ICS by local pharmacists without the appropriate diagnosis of the case that is quite common in our part of the world may cause significant problems that warrant the proper legal actions by the concerned authorities.

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