

CASE REPORT

Branch-shaped Cutaneous Hypopigmentation and Atrophy after Intralesional Triamcinolone Injection

Woo Sun Jang, M.D., Juhee Park, M.D., Kwang Ho Yoo, M.D., Tae Young Han, M.D., Kapsok Li, M.D., Seong Jun Seo, M.D., Chang Kwun Hong, M.D.

Department of Dermatology, College of Medicine, Chung-Ang University, Seoul, Korea

Cutaneous changes after local corticosteroid administration may include dermal atrophy, hyperpigmentation, alopecia, and hypopigmentation. Linear hypopigmentation and atrophy after intralesional injection of triamcinolone acetonide has been reported in the literature as a very rare side effect. A 30-year-old woman visited our dermatology department for a linear hypopigmented patch with atrophy from her left foot to the lower margin of the knee. The lesion developed after injection of an intralesional corticosteroid. The patient was diagnosed with linear hypopigmentation and atrophy secondary to the triamcinolone injection. (**Ann Dermatol 23(1) 111~114, 2011**)

-Keywords-

Atrophy, Hypopigmentation, Triamcinolone

INTRODUCTION

Intralesional triamcinolone injections have been used to treat several different kinds of conditions including dermatologic (acne, alopecia areata, hypertrophic or keloid scarring), rheumatologic (rheumatoid arthritis, osteoarthritis), neurologic (multiple sclerosis), ophthalmologic (periocular capillary hemangioma, chalazion) and otolaryngologic (allergic rhinitis, nasal polyp) conditions¹. These injections direct a high-concentration of drug to the lesion site, thereby avoiding many of the potential side effects associated with systemic administration, such as

hypothalamus-pituitary-adrenal axis suppression, endocrine changes, growth inhibition, allergic reactions, syncope, and blindness². However, local side effects may occur, such as pain, hemorrhage, ulceration, atrophy, pigmentary changes, calcification, secondary infection, granuloma formation, allergic reactions², and, in very rare cases, the development of linear atrophy and hypopigmentation after intralesional or intraarticular injection of triamcinolone acetonide has been reported in the literature as a side effect³.

Here, we report the case of a 30-year-old woman with unresolved cutaneous linear hypopigmentation and atrophy along the left shin for 13 months that developed after an intralesional corticosteroid injection.

CASE REPORT

A 30-year-old woman visited our dermatology department for a linear hypopigmented patch with atrophy from her left foot to the lower margin of the knee. The patient had received a single injection of 40 mg/ml triamcinolone acetonide for the treatment of a painful nodule on the left foot dorsum 7 months prior. Three months after the injection of triamcinolone acetonide, a hypopigmented patch with atrophy appeared at the site of injection on the dorsum of the left foot (Fig. 1A). Five months after the injection, the lesions proximally extended from the left dorsal foot in multiple linear patches up to the lower margin of the knee. The streak of hypopigmentation and atrophy branched as it spread and was not overlapped by superficial veins (Fig. 1B). A biopsy specimen was taken from the border of the lesion. To compare the lesional side with the normal side, epidermal atrophy and flattening rete ridges were observed on the lesional side (Fig. 2A, C). Fontana-Masson stain revealed hypopigmentation of the basal layer on the lesional side when

Received January 12, 2010, Revised April 28, 2010, Accepted for publication May 14, 2010

Corresponding author: Seong Jun Seo, M.D., Department of Dermatology, Chung-Ang University Hospital, 224-1 Heukseok-dong, Dongjak-gu, Seoul 156-755, Korea. Tel: 82-2-6299-1525, Fax: 82-2-823-1049, E-mail: drseo@hanafos.com

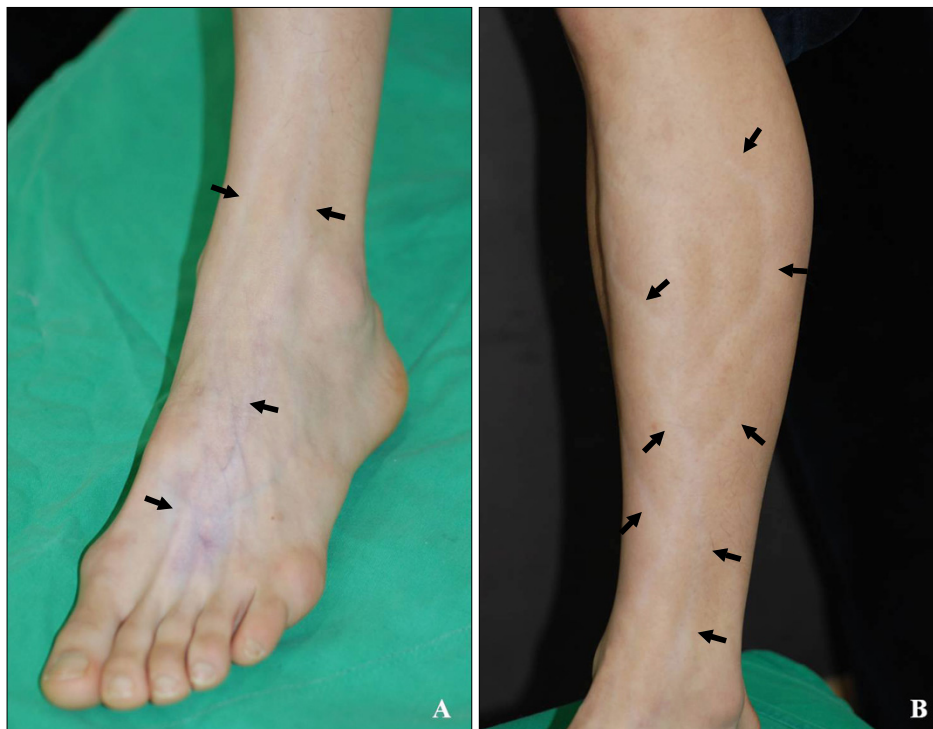


Fig. 1. (A) Hypopigmented patch with atrophy on the patient's left foot. (B) Linear hypopigmentation and atrophy along the left dorsal foot up to the lower margin of the knee.

compared to the normal side (Fig. 2B, D). The patient did not receive any specific treatment, and 13 months after injection her hypopigmentation and atrophy showed little improvement upon physical examination.

DISCUSSION

Cutaneous changes after local corticosteroid administration may include dermal atrophy, hyperpigmentation, alopecia, and hypopigmentation⁴. However, the development of linear atrophy and hypopigmentation after intralesional or intraarticular injections of corticosteroids has only rarely been reported in the literature³. A Medline review of the English language literature from 1981 to 2009 yielded 12 cases of linear pattern hypopigmentation after corticosteroid injection. Skin atrophy develops due to the direct antiproliferative effects of corticosteroids on fibroblasts and keratinocytes, the disturbed metabolism of extracellular matrix proteins, and the perturbed synthesis of skin lipids⁵. Corticosteroid-induced vasoconstriction may also play a role. This enhanced vasoconstriction may facilitate local thrombosis or embolization and capillary closure with resultant local tissue hypoxia. These effects then produce local tissue atrophy, or, in extreme cases, necrosis². Although the exact pathogenesis of hypopigmentation is unknown, the corticosteroid may reduce the number or activity of melanocytes¹. Corticosteroids might also alter melanocyte function by inhibiting prostaglandin

or cytokine production in various epidermal cells, and may suppress secretory metabolic products from melanocytes without causing their destruction⁶. The exact pathogenesis of linear hypopigmentation or atrophy is also unknown. The most widely accepted mechanism is the lymphatic spread of the corticosteroid suspension and resulting linear hypopigmentation or atrophy of skin tissues¹. After injecting Evans Blue Dye or Alphasurine 2 G (Patent Blue) into atrophic lesions, Kikuchi and Horikawa⁷ concluded that the lesions were related to lymphatic vessels.

Linear hypopigmentation has been reported after single or multiple injections with a long latency period of several weeks to months⁸. There is a considerably increased risk of dermal atrophy when 40 mg/ml of triamcinolone is injected instead of 10 mg/ml¹. In this case, linear atrophy and hypopigmentation appeared 3 months after a single 40 mg/ml injection of triamcinolone, and the lesions extended more broadly than in any other reported case. Hypopigmentation and atrophy generally begin to resolve without further treatment several months after the discontinuation of the steroid in the majority of cases, although a single reported case involved an area of unresolved hypopigmentation 1 year after injection⁹. In the present case, hypopigmentation and atrophy were not resolved 13 months after injection.

Linear pattern hypopigmentation and atrophy is a very rare side effect of intralesional triamcinolone injection.

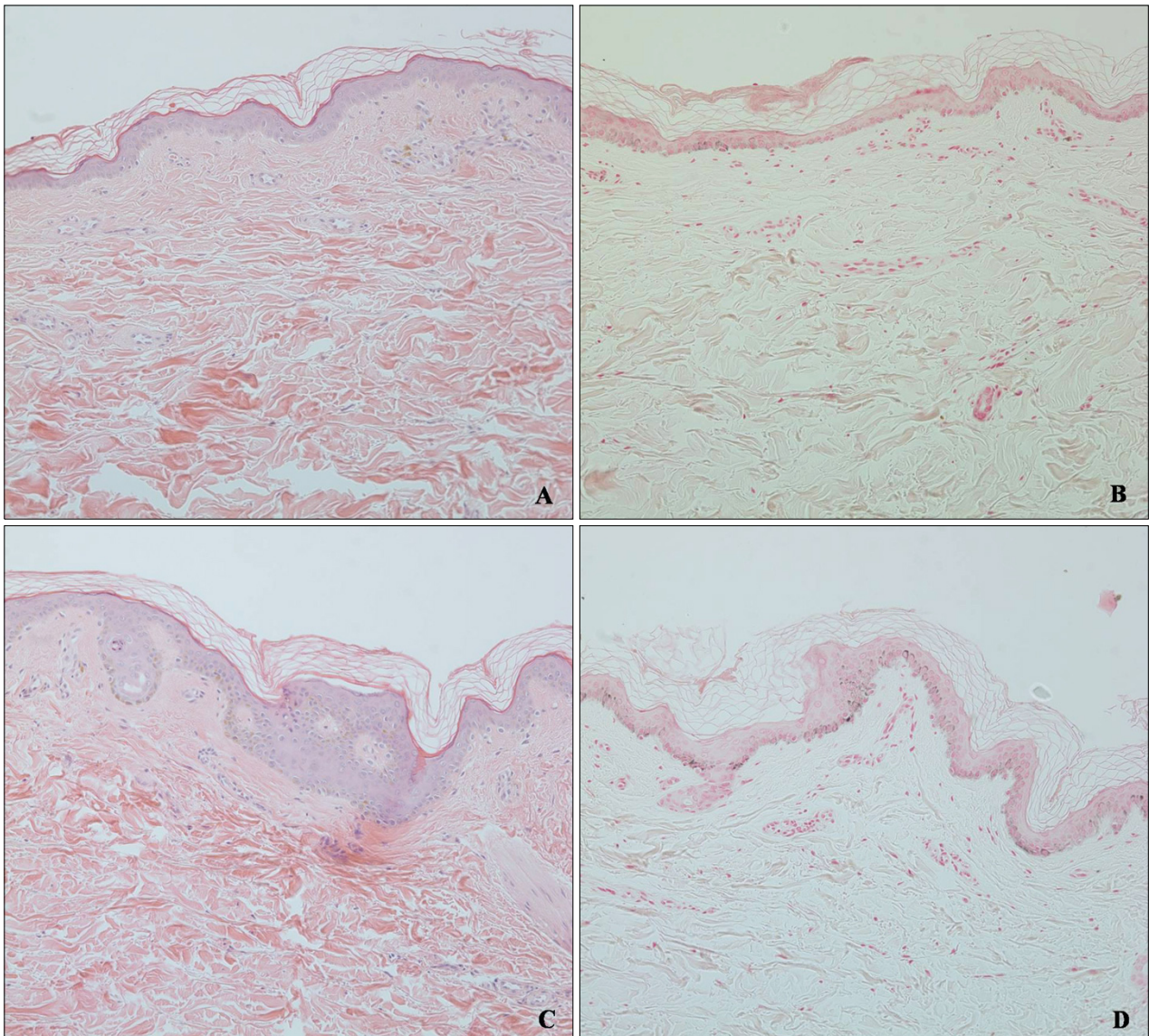


Fig. 2. (A) The lesional side shows epidermal atrophy and flattening rete ridges (H&E, $\times 200$). (B) The lesional side shows hypopigmentation of the basal layer (Fontana-Masson, $\times 200$). (C) The normal side shows non-specific change (H&E, $\times 200$). (D) In the normal side, pigmentation of the basal layer is not decreased (Fontana-Masson, $\times 200$).

The present case is the first reported in Korea. Permanent hypopigmentation and atrophy are important cosmetic issues, and in this case, just a single injection caused broad branch-shaped hypopigmentation and atrophy around the injection site, with the lesions persisting for more than one year. Clinicians should be aware of this rare side effect and in particular, must be careful when injecting high concentrations of corticosteroids into patients.

REFERENCES

1. Firooz A, Tehranchi-Nia Z, Ahmed AR. Benefits and risks of intralesional corticosteroid injection in the treatment of dermatological diseases. *Clin Exp Dermatol* 1995;20:363-370.
2. Cantürk F, Cantürk T, Aydın F, Karagöz F, Sentürk N, Turanlı AY. Cutaneous linear atrophy following intralesional corticosteroid injection in the treatment of tendonitis. *Cutis* 2004;73:197-198.
3. Nanda V, Parwaz MA, Handa S. Linear hypopigmentation after triamcinolone injection: a rare complication of a common procedure. *Aesthetic Plast Surg* 2006;30:118-119.
4. George WM. Linear lymphatic hypopigmentation after intralesional corticosteroid injection: report of two cases. *Cutis* 1999;64:61-64.
5. Schoepe S, Schäcke H, May E, Asadullah K. Glucocorticoid therapy-induced skin atrophy. *Exp Dermatol* 2006;15:406-

420.

6. Gupta AK, Gover MD, Nouri K, Taylor S. The treatment of melasma: a review of clinical trials. *J Am Acad Dermatol* 2006;55:1048-1065.
 7. Kikuchi I, Horikawa S. Perilymphatic atrophy of the skin. *Arch Dermatol* 1975;111:795-796.
 8. Friedman SJ, Butler DF, Pittelkow MR. Perilesional linear atrophy and hypopigmentation after intralesional corticosteroid therapy. Report of two cases and review of the literature. *J Am Acad Dermatol* 1988;19:537-541.
 9. Okere K, Jones MC. A case of skin hypopigmentation secondary to a corticosteroid injection. *South Med J* 2006; 99:1393-1394.
-