



Case Report

Hypopigmentation After Local Corticosteroid Injection for De Quervain Tenosynovitis

Xuejian Wang

Department of Neurosurgery, the Second Hospital Affiliated to Nantong University, Nantong University, Nantong, PR China

Email address:

6841441@163.com

To cite this article:

Xuejian Wang. Hypopigmentation After Local Corticosteroid Injection for De Quervain Tenosynovitis. *International Journal of Biomedical Engineering and Clinical Science*. Vol. 3, No. 5, 2017, pp. 70-72. doi: 10.11648/j.ijbecs.20170305.13

Received: March 20, 2017; **Accepted:** April 13, 2017; **Published:** October 31, 2017

Abstract: The clinical presentation hypopigmentation is a rare complication after intralesional injection of triamcinolone acetonide. A 32-year-old female, yellow race, visited our dermatology department for a hypopigmented patch in right dorsum of her right thumb. The lesion developed after injection of an intralesional corticosteroid. The patient was diagnosed with hypopigmentation secondary to the triamcinolone injection. Three months after injection, her hypopigmentation showed improvement upon physical examination. Hypopigmentation is a very rare side effect of intralesional triamcinolone injection, which may be associated with gender. The mechanism is unknown, need for further study.

Keywords: Hypopigmentation, Complication, Triamcinolone Acetonide

1. Introduction

Corticosteroid injection is frequently used for the control of inflammation of the ganglion, tenosynovitis, De Quervain's disease, joint, tendon, and ligament etc. Compared to systemic corticosteroid injection, the incidence of complications after local corticosteroid injection is extremely low with an estimated risk of less than 1% [1]. Cutaneous changes after local corticosteroid administration may include dermal atrophy, hyperpigmentation, alopecia, and hypopigmentation. [2] Hypopigmentation after intralesional injection of triamcinolone acetonide has been reported in the literature as a very rare side effect. [3] The exact pathogenesis of hypopigmentation is also unknown. [2] In this article, we report a case who met hypopigmentation after local corticosteroid injection.

2. Case Presentation

2.1. Ethics Statement

This research has been approved by the ethics committee of the Second Hospital affiliated to Nantong University.

Informed consent have been obtained and this investigation has been conducted according to the principles expressed in the Declaration of Helsinki.

2.2. Case Report

A 32-year-old female, yellow race, with no significant medical history visited our dermatology department for a hypopigmented patch in right dorsum of her right thumb. The patient had received a single injection of 40 mg/ml triamcinolone acetonide for the treatment of De Quervain tenosynovitis one months prior. The procedure was uneventful. One month after the injection of triamcinolone acetonide, a hypopigmented patch appeared at the site of injection on the dorsum of the right thumb. The lesion measured 3*1.5 cm (figure 1). There was no tenderness or paresthesias at the affect area. The patient did not receive any specific treatment, and three months after injection her hypopigmentation showed improvement upon physical examination.



Figure 1. Hypopigmented patch on the patient's right dorsum of her right thumb with a clear boundary.

2.3. Reviewed

A Medline review of the English language literature from 1970 to 2015 yielded 21 reports of hypopigmentation after corticosteroid injection.

3. Results

Hypopigmentation is a very rare side effect of intralesional triamcinolone injection. The onset of hypopigmentation appeared one-three months after a single 40 mg/ml injection of triamcinolone for treatment of tenosynovitis. It began to resolve without further treatment two-eight months after the discontinuation of the steroid. Hypopigmentation of this case showed improvement upon physical examination.

4. Discussion

Intralesional triamcinolone injections have been used to treat several different kinds of conditions. [4] 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 blindness. [2, 5] Cutaneous changes after local corticosteroid administration may include dermal atrophy, hyperpigmentation, alopecia, and hypopigmentation. [6] Hypopigmentation, after intralesional injection of triamcinolone acetonide has been reported in the literature as

a very rare side effect [3].

A Medline review of the English language literature from 1970 to 2015 yielded 21 reports of hypopigmentation after corticosteroid injection. Although the exact pathogenesis of hypopigmentation is unknown, the corticosteroid may reduce the number or activity of melanocytes. [4] Friedman et al [7] found by special dyeing study that skin melanin cells decreased or reduced activity at the site of hypopigmentation. 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 destruction. [8]

Similar to other case reports, the onset of hypopigmentation appeared one month after a single 40 mg/ml injection of triamcinolone for treatment of tenosynovitis. It began to resolve without further treatment several months after the discontinuation of the steroid. In the preexistent reported, hypopigmentation has been reported after single or multiple injections with a long latency period of several weeks to months; hypopigmentation can regress or sustain. [7] Hypopigmentation generally begins to resolve without further treatment several months after the discontinuation of the steroid in the majority of cases. [2]

However, the mechanism by which hypopigmentation occurs is not known. [9] The most widely accepted mechanism is the lymphatic spread of the corticosteroid suspension and resulting hypopigmentation or other complications of skin tissues. [4] Some people think that hypopigmentation is in accordance with subcutaneous lymphatics direction, and it may be because corticosteroid spread along the lymph-vessel from the injection site, which affects its epidermis especially the function of the melanocyte. [7] Venkatesan and Fangman demonstrated that melanocytes are intact in steroid-induced hypopigmentation, which indicates that steroids may in fact impair the functions of melanocytes. [10] After injecting Evans Blue Dye or Alphazurine 2G (Patent Blue) into atrophic lesions, Kikuchi and Horikawa [11] concluded that the lesions were related to lymphatic vessels. But there are others who think hypopigmentation is in accordance with subcutaneous vein direction. [12] Clinicians should avoid using triamcinolone when injecting lesions that are close to the skin surface, especially in hyperpigmented patients. [13]

Hypopigmentation is a very rare side effect of intralesional triamcinolone injection. In the preexistent majority reported, hypopigmentation after intralesional triamcinolone injection occurs around the majority of patients for women, this article also for female patients. Whether gender for its etiology is worth further study in the future. Hypopigmentation seems to be more likely with triamcinolone compared with other steroids secondary to its intrinsic properties: larger size, higher tendency to aggregate, and higher density. [14] The cause, clinical manifestation, pathological changes and outcome of hypopigmentation after intralesional triamcinolone injection is different from leukoderma. Such diseases demand of long-term follow-up, and further study on its mechanism.

5. Conclusion

Hypopigmentation is a very rare side effect of intralesional triamcinolone injection, which may be associated with gender. Using steroids with smaller particles and less tendency to aggregate will result in lower incidence of hypopigmentation. The mechanism is unknown, need for further study.

Ethics Approval and Consent to Participate

This research has been approved by the ethics committee of the Second Hospital affiliated to Nantong University. Informed consent have been obtained and this investigation has been conducted according to the principles expressed in the Declaration of Helsinki. And the authors have obtained written informed consent of all the tissues

Acknowledgements

This research supported by: (1) Young Medical Project of Nantong City Health Bureau (WQ2014016); (2) Traditional Chinese medicine science and technology project in Jiangsu province (No. YB2015113); (3) the science and technology program of Nantong city (no.: MS12015016).

References

- [1] Papadopoulos PJ, Edison JD: The Clinical Picture-Soft tissue atrophy after corticosteroid injection. *Cleve Clin J Med* 2009 Jun; 76 (6): 373-4.
- [2] Jang WS, Park J, Yoo KH, Han TY, Li K, Seo SJ, Hong CK: ranch-shaped Cutaneous Hypopigmentation and Atrophy after Intralesional Triamcinolone Injection. *Ann Dermatol* 2011 Feb; 23 (1): 111-4.
- [3] Nanda V, Parwaz MA, Handa S: Linear hypopigmentation after triamcinolone injection: a rare complication of a common procedure. *Aesthetic Plast Surg* 2006 Jan-Feb; 30 (1): 118-9.
- [4] Firooz A, Tehrani-Nia Z, Ahmed AR: enefits and risks of intralesional corticosteroid injection in the treatment of dermatological diseases. *Clin Exp Dermatol* 1995 Sep; 20 (5): 363-70.
- [5] Cantürk F, Cantürk T, Aydın F, Karagöz F, Sentürk N, Turanlı AY: Cutaneous linear atrophy following intralesional corticosteroid injection in the treatment oftendonitis. *Cutis* 2004 Mar; 73 (3): 197-8.
- [6] George WM: Linear lymphatic hypopigmentation after intralesional corticosteroid injection: report of two cases. *Cutis* 1999 Jul; 64 (1): 61-4.
- [7] 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 Sep; 19 (3): 537-41.
- [8] Gupta AK, Gover MD, Nouri K, Taylor S: The treatment of melasma: a review of clinical trials. *J Am Acad Dermatol* 2006 Dec; 55 (6): 1048-65. Epub 2006 Sep 28.
- [9] Kaur S, Thami GP: Intralesional corticosteroid induced perilesional and perilymphatic hypopigmentation. *Indian J Dermatol Venereol Leprol* 2002 Nov-Dec; 68 (6): 356-7.
- [10] Venkatesan P, Fangman WL: Linear hypopigmentation and cutaneous atrophy following intra-articular steroid injections for de Quervain's tendonitis. *J Drugs Dermatol* 2009 May; 8 (5): 492-3.
- [11] Kikuchi I, Horikawa S: Letter: Perilymphatic atrophy of the skin. *Arch Dermatol* 1975 Jun; 111 (6): 795-6.
- [12] Kumar P, Adolph S: Hypopigmentation along subcutaneous veins following intrakeloid triamcinolone injection: a case report and review of literature. *Burns* 1998 Aug; 24 (5): 487-8.
- [13] Liang J, McElroy K: Hypopigmentation after triamcinolone injection for de Quervain tenosynovitis. *Am J Phys Med Rehabil* 2013 Jul; 92 (7): 639.
- [14] Derby R, Lee SH, Date ES, Lee JH, Lee CH: Size and aggregation of corticosteroids used for epidural injections. *Pain Med* 2008 Mar; 9 (2): 227-34.