

## SKINimages

**When the Skin Remembers: A Delayed Reaction to Corticosteroid Injection**

Ekaterina Korytnikova, MD<sup>1</sup>, Vanessa Barber, PA, Charles L. Halasz, MD<sup>1,2</sup>

<sup>1</sup> Department of Medicine, Norwalk Hospital, Norwalk, CT, USA

<sup>2</sup> Department of Dermatology, Columbia University Irving Medical Center, New York, NY, USA



**Figure 1.** A well-demarcated, hypopigmented patch was observed on the left lateral wrist, involving the thenar eminence and extending linearly up the left forearm, with a few adjacent hypopigmented macules.

**INTRODUCTION**

Chemical leukoderma is an acquired vitiligo-like hypopigmentation that is caused by certain chemical compounds, appearing weeks to months after the exposure.<sup>1-3</sup> In rare instances, it can manifest in a linear

distribution, possibly due to lymphatic dissemination.<sup>1,4,5</sup> The case we present highlights a linear chemical leukoderma in a patient with a skin of color, underscoring the importance of recognizing this iatrogenic adverse effect for effective patient counseling.

## CASE REPORT

A 56-year-old African American woman presented with a non-tender, non-pruritic white streak on her left forearm, first noticed two days earlier. The lesion originated on the thenar aspect of the left hand and rapidly extended proximally into the forearm. She denied pain, itching, trauma, or prior similar episodes. There was no recent chemical exposure, and she routinely wore gloves during household chores. She denied any personal or family history of autoimmune disease, including vitiligo.

Her medical history included a corticosteroid (CS) injection into the left thumb approximately 5–6 months earlier for presumed tenosynovitis.

On examination, a well-demarcated, hypopigmented patch was observed on the left lateral wrist, involving the thenar eminence and extending linearly up the left forearm, with a few adjacent hypopigmented macules (**Figure 1**). The area was non-scaly, with no atrophy, induration, or erythema.

## DISCUSSION

Chemical leukoderma is a clinical diagnosis since it is histologically indistinguishable from vitiligo.<sup>1–3</sup> In our case, the diagnosis was based on the history of vitiligo-like depigmented lesions, a prior CS injection at the left thumb, and subsequent hypopigmentation localized to the site of exposure. Additional supporting findings included several confetti-like macules along the linear distribution.<sup>1,2</sup>

Chemical-induced depigmentation has been recognized for over 85 years and is associated with exposure to various chemical

compounds, including phenols, catechols, and CS, among others.<sup>2,3</sup> It has been reported in 1.3%–6% of patients undergoing corticosteroid injections. The proposed pathophysiology involves the acceleration of pre-existing cellular stress pathways within melanocytes, ultimately exceeding the threshold of melanocyte resilience, particularly in genetically predisposed individuals.<sup>1,4,5</sup> This leads to melanocytes dysfunction and destruction.

Chemical leukoderma most commonly presents as sharply demarcated, nonscaly, white confetti-sized macules or larger patches;<sup>2</sup> in rare instances, it may present in a linear distribution. The distinctive linear spread of lesions is thought to be due to lymphatic dissemination.<sup>1,4,5</sup> It has been hypothesized that corticosteroids bind to plasma proteins; however, when the concentration exceeds the binding capacity, unbound corticosteroids may diffuse into surrounding tissues and subsequently drain through the lymphatic system, creating a linear pattern of spread.<sup>4</sup>

Repigmentation may occur spontaneously within months to years, though in some cases, the hypopigmentation may be permanent.<sup>1,2,4,5</sup> Therapeutic options aimed at accelerating repigmentation include topical calcineurin inhibitors such as tacrolimus, narrowband UVB phototherapy, and fractional CO<sub>2</sub> laser therapy.<sup>1,5</sup> Additionally, it has been suggested that compression of the injection site for a few minutes following CS administration may reduce lymphatic spread.<sup>5</sup>

## CONCLUSION

In conclusion, dermatologists should be aware that chemical leukoderma, though uncommon, can present in a rare linear

distribution. Recognizing this pattern is important for accurate diagnosis and patient counseling, especially regarding delayed hypopigmentation and the risks of repeated corticosteroid use.

**Conflict of Interest Disclosures:** None

**Funding:** None

**Corresponding Author:**

Charles L. Halasz,  
149 East Ave, Suite 20,  
Norwalk, CT 06851,  
Phone: 203-853-1874  
Email: [clh1@cumc.columbia.edu](mailto:clh1@cumc.columbia.edu)

**References:**

1. Lee K, Li Y, Ojeaga A, Heinecke G. Linear Hypopigmentation on the Right Arm. *Cutis*. 2022;110(3):121-131. doi:10.12788/cutis.0610
2. Ghosh S. Chemical leukoderma: what's new on etiopathological and clinical aspects? *Indian J Dermatol*. 2010;55(3):255-258. doi:10.4103/0019-5154.70680
3. Harris JE. Chemical-Induced Vitiligo. *Dermatol Clin*. 2017;35(2):151-161. doi:10.1016/j.det.2016.11.006
4. Tominna R, Aleshaki J, Harrington A, Hatlovic MA, Gallego H. Linear Hypopigmentation Following Subcutaneous Steroid Injection. *Cureus*. 2016;8(7):e63847. doi:10.7759/cureus.63847
5. Mendiratta V, Kumar MA, Sinha H. A case of iatrogenic linear streaky hypopigmentation... : Pigment International. Accessed May 22, 2025. [https://journals.lww.com/pigi/fulltext/2024/11020/a\\_case\\_of\\_iatrogenic\\_linear\\_streaky.8.aspx](https://journals.lww.com/pigi/fulltext/2024/11020/a_case_of_iatrogenic_linear_streaky.8.aspx)