



# Lichen striatus occurring after a tetanus vaccine: A case report

*Erişkin bir hastada tetanoz aşısı sonrası ortaya çıkan liken striatus: Olgu sunumu*

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## Abstract

Lichen striatus (LS) is an uncommon, acquired, self-limiting, linear inflammatory dermatosis. The eruption typically presents as pink or tan papules along Blaschko's lines. It usually occurs in children, rarely affects adults. The rashes usually suddenly emerge in a single extremity and may regress within a few months or years. The incidence is slightly higher among women. The etiology of LS is not exactly known, however, it is thought to be a T cell-mediated autoimmune reaction. Trauma, infection, pregnancy, drugs, vaccination, and atopy have been reported as triggering factors. In the literature, four cases of LS developing after vaccination (3 children and 1 adult) have been reported. It was the only reported adult case of LS developing after hepatitis B virus vaccination. Herein, we present a 36-year-old woman with LS which was thought to be triggered by a tetanus vaccine.

**Keywords:** Vaccine, adult, lichen striatus

## Öz

Liken striatus (LS); edinsel, kendi kendini sınırlayan, nadir görülen lineer enflamatuvar bir dermatozdur. Genellikle Blaschko çizgilerini takip eden, pembe-ten rengine papüllerden oluşur. Sıklıkla çocuk yaş grubunda izlenir, erişkinlerde nadir görülür. Çoğunlukla tek ekstremitede aniden ortaya çıkan döküntüler, birkaç ay veya yıl içinde kendiliğinden gerileyebilmektedir. İnsidansı kadınlarda biraz daha fazladır. Enflamatuvar bir hastalık olan LS'nin etiyolojisi tam olarak bilinmemekle birlikte T hücre aracılı otoimmün bir reaksiyon olduğu düşünülmektedir. Hastalığın ortaya çıkışında travma, enfeksiyonlar, gebelik, ilaçlar, aşılar ve atopi gibi çeşitli nedenler bildirilmiştir. Literatürde bugüne kadar, aşı sonrası LS gelişen dört olgu raporlanmıştır. Olguların üç tanesi çocuk hastadır. Erişkin yaşta aşılar sonrası görülen tek olgu ise hepatit B virüs aşılmasını takiben gelişmiştir. Burada otuz altı yaşında kadın hastada ortaya çıkan ve tetanoz aşısı tarafından tetiklendiği düşünülen LS olgusunun sunulması amaçlanmıştır.

**Anahtar Kelimeler:** Aşı, erişkin, liken striatus

## Introduction

Lichen striatus (LS) is a linear inflammatory dermatosis that commonly observed in children, but rare in adults. The etiology of this rare disease has not yet been fully understood, and it generally has a self-limiting benign course<sup>1-9</sup>. In this report, we present a case of LS developed following a tetanus vaccine in an adult, which has not been previously reported.

## Case Report

A 36-year-old female patient attended our clinic for an asymptomatic rash that developed on her left arm two weeks previously. On her dermatological examination, pink-skin-colored papular lesions 2-3 mm in diameter, and showing linear distribution were observed on the left forearm extensor surface (Figures 1a, 1b). Examination

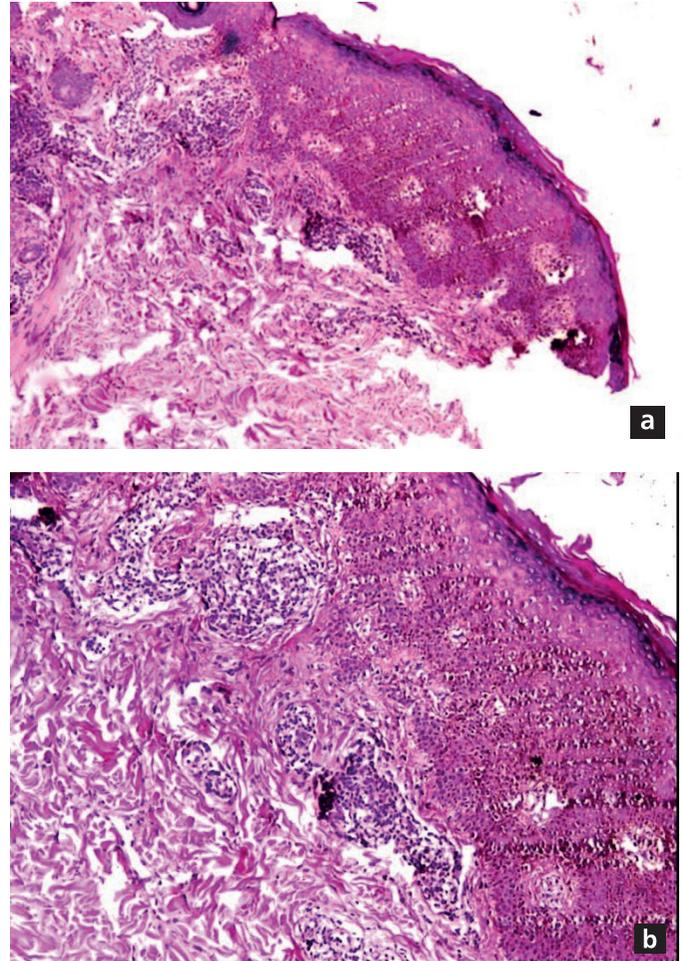
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of the other cutaneous areas, mucosa, hair, and nails were normal. A punch biopsy was performed. Histopathological examination revealed hyperkeratosis, hypergranulosis, spongiosis, exocytosis, and a mild-moderate perivascular and some periadnexal infiltration of mononuclear cells in the dermis (Figures 2a, 2b). Based on these clinical and histopathological findings, the patient was diagnosed with



**Figure 1.** a) Linear pink-tan colored papular lesions on the left forearm, b) Close view of the papules that follows Blaschko's lines

LS. There were no pathological findings in her laboratory investigations, and her history was reevaluated. It was learnt that a tetanus vaccine had been applied on the lateral side of her upper left arm about two weeks



**Figure 2.** a) Hyperkeratosis, hypergranulosis, spongiosis, exocytosis and perivascular-periadnexal mononuclear cells infiltration in focal areas (hematoxylin&eosin, x40), b) Close view of the lesion (hematoxylin&eosin, x100)

**Table 1. The clinical characteristics of cases with lichen striatus following vaccination**

Cases	Vaccine	Age	Gender	Localization	The time between vaccination and disease occurrence	Treatment	Follow
Hwang et al. <sup>4</sup>	BCG	70 days	F	Left forearm-shoulder	2 weeks	Topical steroid	After 6 months-residual hypopigmentation
Karakaş et al. <sup>5</sup>	HBV	36 years	M	Abdomen right side	2 months	Unspecified	Unspecified
Dragos et al. <sup>6</sup>	MMR	15 months	F	Right upper leg-body right side	1 week	Emollients	After 4 months- trunk complete remission, After 6 months- leg residual hypopigmentation
Zaki et al. <sup>7</sup>	BCG	7 months	F	Left upper limb lateral	2 weeks	Emollients	After 2 months-persistent
Our case	Tetanus	36 years	F	Left forearm extensor	2 weeks	Topical steroid	After 1 month-persistent

M: Male, F: Female, LS: Lichen striatus, BCG: Bacille Calmette-Guerin, HBV: Hepatitis B virus, MMR: Measles-mumps-rubella

prior to the presence of the cutaneous lesions, the papules appeared on the left forearm extensor area two weeks after the vaccination, and the lesions had gradually progressed upwards. The patient was prescribed mometasone furoate, however, the lesions were still present one month after treatment.

## Discussion

LS is a rare, self-limiting, and asymptomatic linear inflammatory dermatosis occurring along Blaschko's lines<sup>1,9</sup>. The etiology of LS has not been fully understood yet. However, it is thought to develop as a T cell-mediated autoimmune reaction against the Malpighian cells that show genetic mosaicism and are distributed all over the body, along Blaschko's lines<sup>9</sup>. Until recently, various triggering factors, such as trauma, infections, pregnancy, medication, vaccination, bee sting, and atopy have been reported as causing the disease<sup>1-8</sup>. LS generally occurs during childhood (5-15 years), although adult cases have also been reported. Its incidence is slightly higher in females (2/1)<sup>2</sup>.

Rashes in LS are pink- or skin-colored papules 1-4 mm in diameter, and with smooth or squamous surfaces, that are distributed as interrupted or continuous bands. It is commonly a unilateral lesion that exists in a single extremity, along Blaschko's lines. The rashes frequently appear suddenly and regress within a several months or even years. Particularly in dark-skinned patients, a transient hypopigmentation may sometimes be observed during the healing period. Nail involvement (longitudinal lines, onycholysis, total nail loss) may rarely occur in the affected extremity<sup>1,2</sup>.

The histopathological investigations vary depending on the age of the lesion and the localization of the biopsy. The main histopathological pattern generally presents as lichenoid spongiotic dermatitis. Specimens of biopsy include appearance of a normal or mild acanthotic epidermis, focal parakeratosis, spongiosis, lymphocytic exocytosis, keratinocyte necrosis, and superficial and deep perivascular and periadnexal infiltrations of the lymphohistiocytic cells<sup>2</sup>.

Differential diagnosis of LS includes other acquired diseases, such as adult blaschkitis, linear lichen planus, inflammatory linear verrucous epidermal nevus, psoriasis, lichenoid drug reaction, and atopic dermatitis, which may also occur along the lines of Blaschko. It has not yet been clarified if adult blaschkitis is a unique disease or a variant of LS. However, adult blaschkitis usually exists in the trunk unilaterally or bilaterally, as pruritic papules and vesicles. It generally regresses within days or weeks, and its histopathologic investigation reveals spongiotic dermatitis<sup>2</sup>.

LS is commonly a self-limiting disease, and patients may thus be followed up without any treatment. However, it can be successfully treated with topical corticosteroids and topical inhibitors of calcineurin<sup>1,9</sup>. Treatment

with low-dose systemic corticosteroid has been reported in one case in the literature<sup>10</sup>.

Our 36-year-old female patient had LS on her left forearm extensor two weeks after vaccination for tetanus. Four cases of LS, which occurred following vaccination for hepatitis B virus (HBV)<sup>5</sup>, Bacille Calmette-Guerin<sup>4,7</sup>, and measles-mumps-rubella have been reported in the literature<sup>6</sup>. Of these cases, 3 were children. The only case of an adult with LS following vaccination was a 36-year-old male, whose rash developed on the right side of the abdomen two months after an HBV vaccine. Table 1 shows the clinical characteristics of patients with LS following vaccination.

In conclusion, we presented the case of an adult with LS, and therefore a rare case, thought to have been triggered by a tetanus vaccine, and one that has not previously been reported in the literature.

## Ethics

**Informed Consent:** Consent form was filled out by all participants.

**Peer-review:** Externally and internally peer-reviewed.

## Authorship Contributions

Surgical and Medical Practices: A.Y.İ., K.B., Concept: A.Y.İ., Design: A.Y.İ., A.K., Data Collection or Processing: A.Y.İ., Analysis or Interpretation: A.Y.İ., A.K., Literature Search: A.Y.İ., Writing: A.Y.İ.

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