



## Original Research Article

# Linear lichen striatus- Response to topical tazarotene - A case series and review



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## ABSTRACT

**Introduction:** Lichen striatus is an idiopathic self-limiting inflammatory linear dermatosis, mostly affecting children. There is a definite paucity of studies on the treatment options of lichen striatus in children from India. Routinely prescribed medications like topical steroids, emollients and tacrolimus. But these cases treated uniquely with topical tazarotene.

**Objective:** The aim of this study was to analyze the treatment with topical tazarotene of lichen striatus in children.

**Materials and Methods:** The present observational study was conducted in the Department of Dermatology, Jawaharlal Nehru Medical College and KLE Hospital, Belgavi. All children up to 10 years presenting with lichen striatus in the Dermatology Outpatient Department Jawaharlal Nehru Medical College and KLE Hospital, Belgavi of were taken as study participants. A detailed general, systemic, and cutaneous examination was done. Relevant investigations were carried out whenever necessary and topical tazarotene given for application. The pre-treatment and post treatment findings were recorded in a pro forma for analysis and interpretation of data.

**Results:** The prevalence of lichen striatus in our outpatient pediatric population was 0.48%. male cases outnumbered females with a ratio of 4:2. The mean age of onset was found to be 3.7 years. Upper extremities and lower extremities were the most common sites involved.

**Conclusion:** Long-term studies with increased number of cases will help in better understanding of this rare disease in children and its treatment with topical tazarotene.

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## 1. Introduction

Lichen striatus is an uncommon, idiopathic linear dermatosis, primarily seen in children between ages of 4 months and 15 years with female predilection.<sup>1</sup> Eruption consists of typically sudden onset of flat topped, <sup>1-3</sup> mm, pink, tan or hypopigmented papules arranged linearly often along the lines of Blaschko.<sup>2</sup> Lesions are usually solitary, rarely multiple, seen to be distributed bilaterally. Lesions occur most commonly over limbs but may also occur on trunk, face rarely. This self limited dermatosis resolves within 1-2 years.<sup>3</sup> Retinoids and topical steroids have been proved to be beneficial in treatment.<sup>4</sup> In this study, we provide

a case series of linear LS treated with topical tazarotene. The patients not only achieved complete resolution of their pruritus but also cosmetic appearance. The common side effect of topical tazarotene is localized irritation at treatment sites, but patients in this case series tolerated the treatment well.

## 2. Case 1

A 5 year girl presented with h/o itchy red lesions over right forearm since 1 year. There was gradual progression of lesions to involve right index fingernail in span of 2-3 months. No history of atopy and no symptoms of infection were reported in preceding weeks of eruption. On examination multiple hypopigmented papules extending

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from right mid forearm to index finger were seen. The patient was treated with tazarotene 0.1% cream at night time application for 3 months and intra- matrix triamcinolone injection was given every month for 3 months. At follow up after 3 months, complete resolution of lesions was observed.

### 3. Case 2

A 2 year boy presented with history of asymptomatic white lesions on his left hand since 1 year Figure 3 . History of gradual progression of lesions was present. History of atopy was present. On examination multiple hypopigmented macules to flat topped papules in linear fashion were seen without erythema or scaling. Patient was treated with tazarotene 0.1% cream at night for 3 months. At follow up, patient's mother reported complete resolution of lesions. On examination minimal residual hypo-pigmentation was seen.

### 4. Case 3

A 1½ year old boy presented to our OPD with history of itchy red lesions over his left forearm since 6 months which were gradually progressive Figure 4 . Patient was given topical desonide cream for 15 days following which he developed white lesions. On examination multiple hypopigmented flat topped papules were seen in linear fashion over left forearm without any erythema or scaling. Patient was treated with tazarotene 0.1% cream at night for 3 months. At follow up, patient's mother reported complete resolution of lesions.

### 5. Case 4

A 2 year female baby presented with history of asymptomatic linear white lesions over her right hand since 1 year Figure 1 . History of administration of MMR vaccine 1 year back following which she developed tiny pink raised lesions which eventually subsided over 4 months period, after which the white lesions appeared. On examination hypopigmented macules in linear fashion were present over medial aspect of right arm and forearm with minimal scaling. Patient was given topical tazarotene 0.1% in the night for local application for 3 months. At follow up, patient's mother reported complete resolution of lesions Figure 2 . On examination minimal residual hypo-pigmentation was seen.

### 6. Case 5

A 8 year old boy presented with history of itchy white lesions on left leg since 6 months Figure 5 . He was initially given topical triamcinolone ointment at night for 1 month with which he had minimal improvement. There was appearance of white lesions at same site. On examination multiple hypopigmented flat topped papules were seen in linear fashion over medial aspect of left leg. Patient was

treated with tazarotene 0.1 % cream at night for 3 months Figure 6 . At follow up, complete resolution of lesions was observed with residual hypo-pigmentation.

### 7. Case 6

A one-year male baby presented with history of white lesions over left leg for 2 months, which started as a small patch and was extending in size in a linear fashion. On examination tiny hypopigmented papules coalescing to form a plaque in a linear fashion with no scaling was present over left thigh. Patient was given topical tazarotene for 2 months. At follow up there was more than 50% improvement in lesions.

## 8. Materials and Methods

The present observational study was conducted in the Department of Dermatology, Jawaharlal Nehru Medical College and KLE Hospital, Belgavi. All children up to 10 years presenting with lichen striatus in the Dermatology Outpatient Department of, Jawaharlal Nehru Medical College and KLE Hospital, Belgavi, for the period of 1 year were taken as study participants. A detailed general, systemic, and cutaneous examination was done. Relevant investigations were carried out whenever necessary. And topical tazarotene were given. The pretreatment and post treatment findings were recorded in a pro forma for analysis and interpretation of data.

## 9. Results

During the study, 990 pediatric patients attended our dermatology outpatient department. Of these, 6 had lichen striatus. Thus, the prevalence of lichen striatus in our outpatient pediatric population was 0.48%. male cases (4; 70.00%) outnumbered females (2; 30.00%) with a ratio of 4:2. The maximum number of cases was seen in patients from 0 to 5years of age (5; 90.00%). The age and sex distribution of lichen striatus in children Table 1 . The mean age of onset was found to be 3.7 years. The youngest patient was 1 year old. Upper extremities (4; 80.00%) and lower extremities (2; 20.00%) were the most common sites involved in lichen. All the cases had unilateral presentation. Involvement of right side (2; 20.00%) was more than the left side (4; 80.00%). Family history was absent in all the cases. Nail involvement was noted only in one case in our study.

**Table 1:** The age and sex distribution of lichen striatus in children

Age group (years)	Male n(%)	Female n(%)	Total n(%)
0-5	3(60%)	2(30%)	5(90%)
5-10	1(10%)	0	1(10%)
total	4(70%)	2(30%)	6(100%)



**Fig. 1:** A 2 year female showing asymptomatic linear white papules over her right hand since 1 year



**Fig. 2:** Resolution of lesions after treatment



**Fig. 3:** A 2 year boy showing white linear papules on his left hand since 1 year

**Table 2:** Site involvement

face	nil
trunk	nil
Upper limb	4
Lower limb	2



**Fig. 4:** A 1 ½ year old boy showing red lesions over his left forearm since 6 months



**Fig. 5:** A 8 year old boy showing white papules on left leg since 6 months



**Fig. 6:** Treated with tazarotene 0.1 % cream at night for 3 months

## 10. Discussion

Lichen striatus is one of the dermatoses that follow Blaschko's lines. Somatic mutation secondary to an acquired event such as viral infection leading to an abnormal clone of cells to express a new antigen, resulting in the phenotypic skin changes.<sup>5</sup> It is an uncommon condition for which no effective treatment has been established. Observation is a common approach specially for asymptomatic lesions. Patients seek for the treatment for pruritic lesions and located on cosmetically sensitive areas. For inflamed lesions topical steroids are most commonly used. There were conflicting results regarding use of topical steroids and shortening of duration of lesions.<sup>6</sup> There have been several studies of use of topical calcineurin inhibitors and calcipotriol in addition to topical steroids and intra-lesional steroids. Topical tacrolimus was successfully used by AncaChiriac et.al in their case report.<sup>7</sup> Topical pimecrolimus was used successfully by Campanati A .et al.<sup>8</sup> Aloï F.et al have shown improvement with just topical emollients in their study.<sup>9</sup> Mopper C .et al have shown in their study, that LS completely resolves without any treatment within 3-12 months.<sup>10</sup>

In this case series we observed complete resolution of LS with topical tazarotene. The patients not only achieved complete resolution of lesions and relief from pruritus but also better cosmetic appearance. Topical tazarotene may cause local irritation. The tolerability of treatment in our patients was good.

## 11. Conclusion

We describe 6 cases, with classical features of lichen striatus occurred on different anatomic sites, in different ages of patients, with good response to treatment or self-limiting course. This case series has demonstrated the efficacy and tolerability of topical tazarotene treatment in pediatric population. To our knowledge, there are very few reports showing successful treatment with this therapy. Symptoms, duration and severity of disease improved markedly. The common side effect of topical tazarotene is localized irritation at treatment sites, but patients in this case series tolerated the treatment well.

## 12. Source of Funding

None.

## 13. Conflicts of interest

None.

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