Lichen striatus with onychodystrophy in an infant

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ABSTRACT

Lichen striatus with nail involvement is rare and is often unnoticed. Nail changes are often nonspecific but they are usually localized to one portion of the nail. Also single nail involvement and presence of skin lesions near the nail are often noticed. We report the case of an infant with lichen striatus and nail involvement.

Key words: Infant, lichen striatus, onychodystrophy

INTRODUCTION

Lichen striatus (LS) is linear papular dermatoses that primarily occurs in children between four months and 15 years of age and is relatively rare in adults.[1,2] Nail involvement in lichen striatus is uncommon with only 30 cases reported in the literature since 1972 [Table 1], the youngest being a 10 month old infant.[1,3] We herein report the case of a 9-month-old infant with LS and onychodystrophy.

CASE REPORT

A 9-month-old female infant was referred for evaluation of asymptomatic linear eruption over the right lower limb and acquired nail dystrophy of the corresponding big toe. The skin eruption had started a month earlier and the nail changes developed two weeks later. Dermatologic examination revealed erythematous flat topped papules with fine scaling present below the right knee, which coalesced into a linear band and extending down the extensor aspect of the leg, reaching the dorsum of the foot and the great toe. The lateral side of right great toe nail showed thinning of the nail plate, splitting, longitudinal ridging, and nail bed hyperkeratosis [Figure 1]. Other body sites were not involved and all investigational analysis provided normal parameters. A 3 mm punch biopsy from one of the skin lesions revealed hyperkeratosis, focal parakeratosis, and a few necrotic keratinocytes in the epidermis. Lymphocytic infiltrate was seen in the entire dermis and mainly around the capillaries and appendages [Figure 2]. A diagnosis of LS was made on clinicopathological grounds and the patient was started on mid-potency topical steroids and emollients. No treatment was given for the nail dystrophy. Over a nine month follow-up period, hypopigmentation of skin lesions was noted, but nail lesions persisted.

Figure 1: Longitudinal ridging, splitting, and nail bed hyperkeratosis seen in the infant with nail lichen striatus.

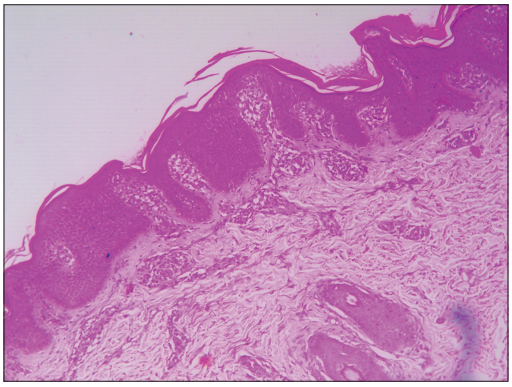

Figure 2: Biopsy (hematoxylin and eosin staining -10X) showing mild hyperkeratosis with a few necrotic keratinocytes in the epidermis. Lymphocytic infiltrate is seen in the entire dermis, mainly around the blood vessels and appendages

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Table 1: Review of cases of lichen striatus with nail involvement in literature

Author/year	Study	Clinical features	No
Owens/1972	Lichen striatus with onychodystrophy	4-Year-old male	1
		Right index finger nail	
		Longitudinal striation with fraying and splitting	
Baran/1979	Lichen striatus with nail involvement: Report of 4 cases and review of 4 cases in the literature	Nail changes included fraying of nail plate, longitudinal ridging, longitudinal splitting, shredding, and onycholysis	8
Feng	Lichen striatus with onychodystrophy	16-Year-old male	1
		Longitudinal ridging and splitting of left thumb nail	
Karp/1993	Onychodystrophy in lichen striatus	12-Year-old girl	1
		Longitudinal ridging and splitting of left 3rd and 4th fingernails	
Tosti/1997	Nail lichen striatus: Clinical features and long-term follow up of 5 patients	Out of 5, 3 cases showed isolated nail involvement	5
		Longitudinal ridging, splitting, and thinning	
		Involvement of fingernails in 4 patients and toenails in 1	
		2 were children and 3 adults	
Lee/1998	3 Cases of lichen striatus with onychodystrophy	-	3
Hauber/2000	Lichen striatus: Clinical features and follow up in 12 patients	Longitudinal ridging	2
Inamdar/2001	Lichen striatus with nail involvement	13 years old male	1
		Right thumb nail involvement with nail thinning, longitudinal ridging, and splitting restricted to the lateral portion	
Oanta	Lichen striatus with nail involvement	5 years old male	1
		Left thumb involved with longitudinal ridging	
Kavak/2002	Nail involvement in lichen striatus	9-year-old girl	1
		Right thumb nail involvement	
		Longitudinal ridging and splitting	
Markouch/2009	Lichen striatus with nail dystrophy in an infant	10 months old	1
		Involvement of right 3rd and 4th fingernails	
AL-Niaimi/2009	Unilateral lichen striatus with bilateral onychodystrophy	9 year old girl	1
Kim/2009	Lichen striatus with nail abnormality successfully treated with tacrolimus	3 years old	1
		Onychodystrophy of left 3rd fingernail, lateral splitting of left 4th fingernail	
Vozza/2010	Lichen striatus with nail involvement in an 8-year-old child	Right little fingernail	1
		Longitudinal ridging and splitting	
Palleschi/2012	Lichen striatus and nail involvement: Truly rare or question of time?	27-year-old female	1
		Right great toenail involved with longitudinal ridging and splitting	
Ahmer/2014	Bilateral onychodystrophy in a boy with history of isolated lichen striatus	5 years old boy	1
		Left middle and ring fingernail, left great toenail	
		Bluish discoloration, thinning of nails, longitudinal ridging, pitting	

Total number of cases = 30

DISCUSSION

LS, first identified as a distinct clinical entity by Senear and Caro in 1941, is an acquired, self-limiting linear dermatitis of unknown etiology but various genetic, infectious and environmental factors are thought to be involved.[4] LS presents as unilateral, asymptomatic, flesh-colored to red-brown flat topped papules. Although various hypotheses such as the course of blood vessels, lymphatics, peripheral nerves, Blaschko lines, and direction of body hairs were given for the linear distribution in LS, none could explain the various clinical morphology of the lesions.[5] Lesions are more commonly seen over the arms, legs, trunk, and less commonly over the face in decreasing order of frequency. Pruritus is rare and hypopigmentation is a frequent sequelae.[1]

Nail involvement is uncommon in LS. Some characteristics of nail involvement in LS have been shown in Table 2. Pathogenesis of nail changes in LS is mainly because of inflammation involving the nail matrix leading to abnormal keratin synthesis.[7] Nail changes may occur before,[8] simultaneously,[6] or after[7] the cutaneous eruption. Nail involvement in our case occurred after

Table 2: Characteristics of nail lichen striatus

Features	Comments
Age	Any age group, adults rare and the youngest age group being 9 months (our case)
Gender	Slight female preponderance
Onset	Before, after, or simultaneously with skin eruption[a]
Limb involvement	Upper limbs > lower limbs. Thumb nail is more frequently involved
Nail changes	Longitudinal ridging, longitudinal splitting, onycholysis, nail plate overcurvature, nail plate thinning, nail pitting, punctate or striate leukonychia, nail bed hyperkeratosis, and shredding
% of LS with nail involvement	No studies reported
Criteria for diagnosis[2]	Longitudinal ridging or splitting localized to medial or lateral portion of nail
	Single nail involvement[b]
	Presence of skin lesions near the nail
Prognosis	Self-limiting. LS with onychodystrophy tends to go a prolonged course as opposed to LS without nail involvement[c]

LS: Lichen striatus, [a]Isolated nail LS do occur.[6], [b]Involvement of >1 nail have been reported, [c]Six months to 5 years in LS with onychodystrophy as opposed to 6 months to 2 years in LS without nail involvement. Source: Modified from Ref[5]

the skin eruption. Isolated nail LS without skin eruptions do occur and may have been underreported because LS is usually diagnosed based on skin eruptions.[6] Considering the history and clinical and histopathological examination, LS can be differentiated from linear lichen planus, linear psoriasis, linear epidermal nevus, linear verruca plana, linear porokeratosis, and other linear dermatitic eruptions.[8]

Histopathology of nail LS, although similar to skin LS, has a few differences. Compact orthokeratosis and hypergranulosis owing to interference with nail matrix keratinization is a feature of nail LS.[6] A nail matrix biopsy is required only when a nail matrix tumor is suspected.[6] Although LS is a self-limiting disorder, nail involvement in LS tends to go a prolonged course of six months to five years as opposed to six months to two years in isolated skin LS.[8]

No treatment is generally necessary due to its spontaneous resolution. This case has been reported due to the rarity of association between nail dystrophy and LS as well as the age of its occurrence - nine months being the youngest age of onset to be reported in the literature.

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