

Blaschko-Linear Dermatoses: Lichen Striatus with Blaschkitis

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ABSTRACT

Lichen striatus is a rare dermatological condition predominantly affecting pediatric populations, characterized by an erythematous rash of elevated papules forming linear bands along Blaschko's lines. Its etiology remains unclear, though links to environmental factors and atopy are suggested. Blaschkitis, another uncommon inflammatory condition, presents with pruritic papules and vesicular eruptions along the same lines, thought to result from genetically abnormal keratinocytes triggering a T-cell mediated response. This report details a case of a 13-year-old female presenting with hyperpigmented lesions in the axilla, leading to a differential diagnosis of lichen striatus, blaschkitis, and melanocytic nevi. Histopathological analysis confirmed findings consistent with lichen striatus and features of blaschkitis. While the occurrence of these conditions together is rare, their potential interplay warrants further investigation to enhance understanding of their pathophysiology and inform therapeutic approaches. This case highlights the need for continued research into these enigmatic dermatological disorders, particularly within pediatric populations.

INTRODUCTION-

Lichen striatus is a rare dermatological condition primarily affecting the pediatric population. It is characterized by an erythematous rash composed of elevated papules that coalesce into one or more dull-red, potentially scaly linear bands following Blaschko's lines. Although these lines are typically inconspicuous, conditions such as lichen striatus can make them distinctly visible¹⁻³. The etiology of lichen striatus (LS) is believed to involve both environmental triggers and genetic factors, although the precise cause remains unclear. A prominent hypothesis links LS to atopy, defined as a genetic predisposition to allergic disorders, with 85% of affected individuals having a family history of conditions like atopic dermatitis, asthma, and allergic rhinitis.

Blaschkitis is a rare inflammatory condition marked by pruritic papules and vesicular eruptions along the lines of Blaschko, primarily on the trunk. Its pathogenesis involves abnormal keratinocytes triggering a T-cell mediated response, often associated with various triggers⁴. Given the limited understanding of their etiological factors and the rarity of both conditions, clinical prognosis remains uncertain. The infrequent co-occurrence of lichen striatus and blaschkitis invites curiosity, suggesting a potential interplay that could unveil new insights into their pathophysiology. Exploring this relationship may not only deepen our understanding of these enigmatic conditions but also inspire novel therapeutic approaches, making it a compelling area for future research.

CASE REPORT

A 13-year-old female patient presented to the outpatient department with black-brown patch localized in the right axilla since one year(Figure_1). The lesion had an insidious onset and demonstrated gradual progression, without associated pain, swelling or pruritus. The patient reported no significant comorbidities, had undergone menarche three months prior and was not currently on any medications.

Upon comprehensive clinical assessment, the patient exhibited stable vital signs and was afebrile. Examination of the axillary and mammary regions revealed multiple ill-defined hyperpigmented papules with no evidence of discharge, sinus tracts or venous dilatation. The plaques were non-tender on palpation, had a smooth surface and lacked palpable induration in the surrounding dermal tissue.

In light of these clinical findings, a preliminary differential diagnosis of lichen striatus, blaschkitis and melanocytic nevi was established.

A punch biopsy was performed at the lesion's margin, yielding a 4 mm specimen for histopathological analysis. Examination of H&E-stained sections revealed the presence of epidermis, dermis, and subcutaneous tissue. The epidermis exhibited hyperkeratosis, spongiosis, intracellular edema, and alterations at the interface zone with necrotic keratinocytes. The dermis displayed a band-like infiltrate of lymphocytes and histiocytes extending into the lower epidermis, along with melanophages. These findings are consistent with lichen striatus accompanied by features of blaschkitis.

Patient is now on regular follow-up for the same.

DISCUSSION-

Traditionally, lichen striatus primarily manifests in children, typically appearing as solitary lines on extremities that often undergo spontaneous resolution over a protracted period extending from months to years. However, our patient presented with multiple hyperpigmented lesions, deviating from this conventional pattern. In this condition, characteristic features of lichenoid and periadnexal inflammation, particularly in proximity to eccrine glands, are discernible histologically⁵.

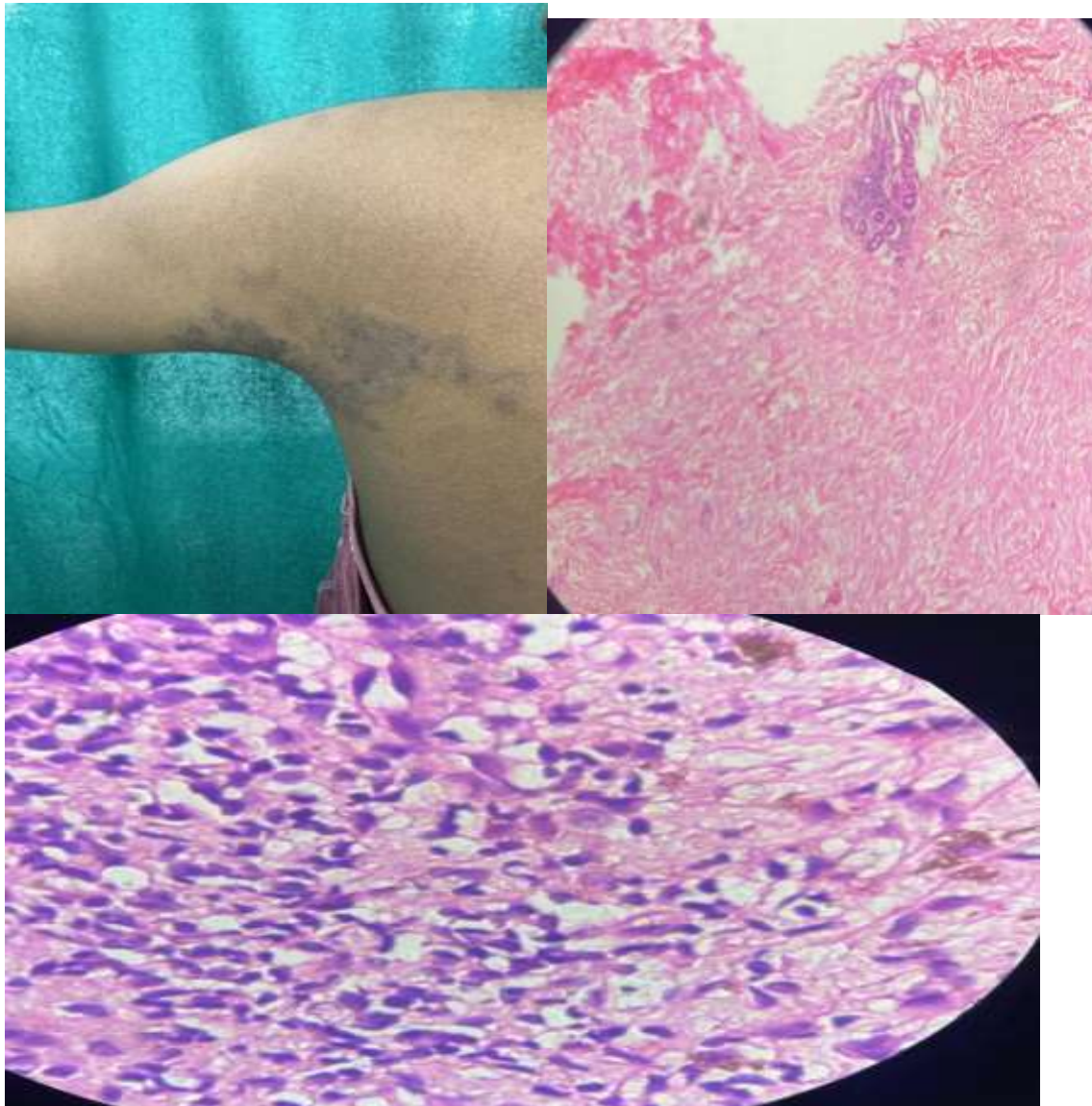
Blaschko's theoretical framework interprets blaschkitis as an expression of mosaicism, characterized by the presence of genetically aberrant keratinocytes that trigger a T-cell-mediated inflammatory cascade. This dermatological phenomenon typically manifests subsequent to various triggering stimuli, encompassing viral infections, vaccinations, pharmacological agents, or psychosocial stressors⁴.

Keegan et al. (2007) documented recurrent pruritic papulovesicular eruptions in two infantile subjects, arranged in multiple bands along the Blaschko lines, spanning the cervico-truncal and limbic regions, in a seminal study. Notably, such occurrences, although predominantly reported in adults' dermatological discourse, transcend age demographics. In our academic exploration, similar to the clinical observations detailed by Keegan et al.⁵. We encounter a scenario in the adolescent cohort where the intricate lesions of lichen striatus Blaschkitis emerge within the purview of pediatric dermatology. After the case reports mentioned above, which include this study, there are still not many documented cases in pediatric populations. This shows how rare this condition is and how important it is to do in-depth studies to find out what causes it.

Drawing comparisons between our case and the commonly seen lesions supports the idea that lichen striatus and Blaschkitis are indeed related but separate conditions. This paper broadens the understanding of lichen striatus associated with blaschkitis in pediatric populations. However, without further investigation, the genetic substrates and precise immunological mechanisms contributing to these reactive patterns along Blaschko lines remain elusive.

CONCLUSION-

Plaques are the predominant manifestation of lichen striatus with blaschitis upon recurrence in adult males, whereas such cases in children are exceedingly rare. To deepen our understanding of its pathogenesis, further research is essential. Investigative efforts focused on elucidating the mechanisms underlying the onset and recurrence of lichen striatus with blaschitis will significantly enhance our comprehension of this complex dermatological condition.



Figure_1: Lichen striatus associated with blaschkitis on clinical presentation.

Figure_2: Epidermis showing hyperkeratosis, spongiosis, intracellular edema, and necrotic keratinocyte alterations at the interface zone.

Figure_3: Dermis with band-like lymphocytic and histiocytic infiltrate, extending into the lower epidermis, and melanophages.

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