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Solitary Cutaneous Mastocytoma Over the Supra-Mammary Region in a Child: An Unusual Presentation with Favorable Response to Intralesional Therapy

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Abstract:

Cutaneous mastocytosis represents a spectrum of disorders characterized by localized or diffuse accumulation of mast cells within the skin. Solitary mastocytoma is the most frequent variant in children and typically presents during infancy. However, occurrence at atypical anatomical sites may lead to diagnostic uncertainty. We report a case of a two-year-old boy who presented with a single, well-demarcated, reddish-brown nodulo-plaque over the left supra-mammary region. The lesion exhibited a characteristic peau d'orange surface and demonstrated a positive Darier's sign. There were no associated systemic complaints such as flushing, gastrointestinal disturbances, or syncopal episodes. Histopathological examination revealed dense dermal infiltration by mast cells, which were confirmed by the presence of metachromatic granules on Giemsa staining. The lesion showed significant regression following intralesional triamcinolone therapy. This case highlights the importance of recognizing classical clinical signs in unusual locations and emphasizes the role of clinicopathological correlation in establishing the diagnosis.

Keywords:
Mastocytoma; Cutaneous mastocytosis; Darier sign; Pediatr1ic dermatology; Giemsa stain

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Introduction

Cutaneous mastocytosis represents a heterogeneous group of disorders characterized by the abnormal proliferation and accumulation of mast cells in the skin. Among its clinical variants, solitary cutaneous mastocytoma is the most common form in children, accounting for 10–15% of all pediatric cutaneous mastocytosis cases [1]. Typically, solitary mastocytoma presents as a solitary indurated, erythematous, yellow-brown to reddish-brown macule, papule, plaque, or nodule measuring 1–5 cm in diameter, most frequently located on the trunk, extremities, or flexural areas [1]. The lesion characteristically exhibits a positive Darier sign (urtication upon stroking or rubbing), which is considered pathognomonic [2]. The supra-mammary region is an unusual location for solitary mastocytoma in children, as most cases occur on the trunk's central areas or extremities.

The majority of pediatric solitary mastocytomas with onset within the first two years of life demonstrate spontaneous resolution before puberty, rendering conservative management with reassurance and trigger avoidance sufficient in most cases [1]. However, symptomatic lesions or those in locations prone to friction may require active intervention [2]. While traditional management includes topical corticosteroids and antihistamines, intralesional therapy with triamcinolone acetonide has been reported as an effective treatment option for

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deep solitary mastocytomas, particularly in distressing locations [1,3].

Case Presentation

A two-year-old boy presented to the dermatology outpatient department with a single, localized, reddish-brown elevated lesion over his left upper chest, present for the past 6 months. The parents reported that the lesion was occasionally pruritic but not associated with blistering. There was no history of systemic symptoms such as flushing, wheezing, abdominal pain, diarrhea, or syncopal episodes. The child's developmental milestones were normal, and his medical history was unremarkable.

On cutaneous examination, a solitary, well-defined, erythematous-brown nodulo-plaque measuring approximately 1.5 × 1.5 cm was present over the left supra-mammary region (**Figures 1 and 2**). The surface of the lesion exhibited a characteristic *peau d'orange* appearance. Gentle stroking of the lesion elicited immediate erythema and an urticarial wheal, confirming a positive Darier's sign. Systemic examination revealed no hepatosplenomegaly or lymphadenopathy. Routine laboratory investigations, including a complete blood count, liver function tests, and renal function tests, were within normal limits.

A punch biopsy of the lesion was performed to confirm the diagnosis. Histopathological examination (H&E staining) revealed a dense, diffuse infiltrate of mononuclear cells in the upper and mid-dermis (**Figure 3**). Under higher magnification, these cells exhibited abundant eosinophilic cytoplasm and round to oval nuclei. Giemsa staining highlighted the presence of abundant metachromatic granules within the cytoplasm, confirming the cells as mast cells. Based on the clinical and histopathological findings, a diagnosis of solitary cutaneous mastocytoma was established.

Following discussion with the parents regarding management options, the lesion was treated with a single session of intralesional triamcinolone acetonide (10 mg/mL). The patient was reviewed after 4 weeks, showing significant flattening of the plaque, marked reduction in erythema, and cessation of pruritus (**Figure 4**).

Discussion

The histopathological findings in our case closely parallel established descriptions. The dense, diffuse infiltrate of mononuclear cells in the upper and mid-dermis with abundant eosinophilic cytoplasm and round to oval nuclei is characteristic. The Giemsa staining revealing metachromatic granules confirming mast cell identity aligns perfectly with standard diagnostic criteria, where mast cells are best visualized using special stains (Giemsa, toluidine blue, Astra blue, or Leder stain). The "fried egg" appearance of mast cells mentioned in literature was consistent with our microscopic finding [1].

Our patient's favorable response to intralesional triamcinolone acetonide (10 mg/mL) mirrors the case reported by Kang and Kim (2002) [3], where a 2-month-old Korean infant with deep solitary mastocytoma on the medial malleolus was treated with intralesional triamcinolone acetonide. After three injections, that patient's lesion flattened with marked decrease in erythema and subjective symptoms, maintaining good clinical response for 9 months. Similarly, our patient showed significant flattening, reduced erythema, and cessation of pruritus after just one session at 4-week follow-up [2,3].

Standard management for solitary cutaneous mastocytoma is conservative: reassurance and avoidance of triggering factors suffice in most cases, as approximately 90% of lesions resolve spontaneously by age 7 years [1]. Oral H_1 antihistamines (e.g., loratadine, cetirizine) are the cornerstone for pruritus and flushing, with H_2 antihistamines added in severe cases. Topical corticosteroids are occasionally used, but intralesional therapy is not first-line and is generally reserved for deep, symptomatic lesions in friction-prone areas [2].

Conclusion

This case emphasizes that solitary mastocytoma can occur at atypical sites such as the supra-mammary region. Recognition of characteristic clinical features, particularly Darier's sign,

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along with histopathological confirmation, is essential for accurate diagnosis. The condition has an excellent prognosis, and intralesional corticosteroids may provide rapid symptomatic and morphological improvement in carefully selected cases.

Conflicts of Interest: The authors declare no conflicts of interest.

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Patient Consent: Written informed consent was obtained from the patient's parents/guardians for the publication of clinical details and images.

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Figure Legends

Figure 1. Solitary erythematous-brown nodulo-plaque over the left supra-mammary region with a *peau d'orange* surface.

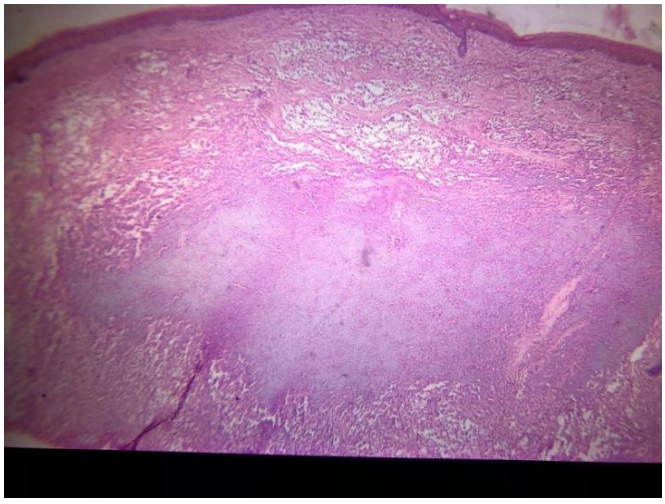

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Figure 2. Close-up clinical view showing well-defined margins and a shiny surface.

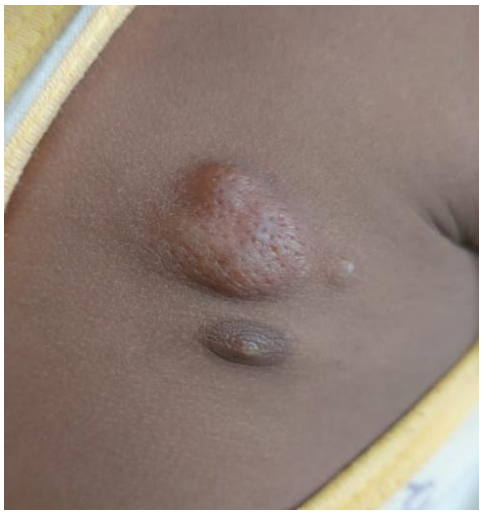

Figure 3. Histopathology demonstrating dense dermal infiltration by mast cells (H&E stain, low power).

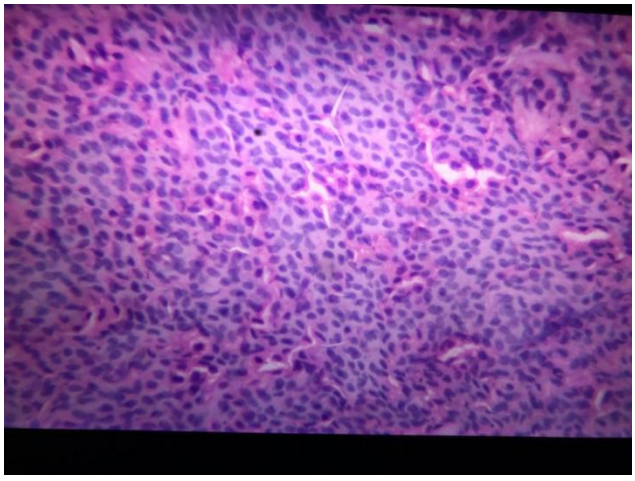

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Figure 4. Post-treatment clinical image showing flattening and reduction in erythema after intralesional corticosteroid therapy.