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Case Series

A retrospective study on atypical presentations of cutaneous larva migrans - Case series

Priya B T[1]*, Sowmiya R[1], Hema Priyadharshini D[1], Anandan Venkatesan[1]

[1]Dept. of Dermatology, Government Kilpauk Medical College, Chennai, Tamil Nadu, India

Abstract

Cutaneous larva migrans (CLM), a prevalent parasitic skin infection in tropical and subtropical regions, typically manifests as pruritic serpiginous tracks. However, the clinical presentation of CLM can exhibit considerable variability, and atypical manifestations may present diagnostic challenges for dermatologists. This retrospective case series examines ten atypical CLM presentations at a tertiary care hospital involving patients of diverse ages and occupations with lesions in uncommon anatomical sites, including the shoulder, back, forearm, foot, groin, thigh, and abdomen. The initial misdiagnoses included bacterial infection, irritant contact dermatitis, paederus dermatitis, pompholyx, cellulitis, and dermatophytosis. However, closer examination revealed characteristic serpiginous tracks, confirming CLM. Treatment modalities included antibiotics for secondary infections, antihistamines for pruritus, and albendazole as anthelmintic therapy. Misdiagnosis and inappropriate treatment with corticosteroids and antifungal agents in some cases exacerbate the condition. This series underscores the necessity of recognizing atypical CLM presentations for accurate diagnosis and treatment, prevention of complications, and improvement in patient outcomes.

Keywords: Cutaneous larva migrans, Pruritic, Serpigenous tracks, Atypical presentations

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1. Introduction

Cutaneous larva migrans [CLM], commonly referred to as "creeping eruption," is a prevalent parasitic skin manifestation observed in tropical and subtropical regions.[1,2] Alternative nomenclature for this condition includes sandworm eruption, plumber's itch, duck hunter's itch, and epidermatitis linearis migrans.[3,4] This dermatological phenomenon is frequently encountered among individuals who ambulate barefoot in warm, sandy, moist environments and come into contact with soil contaminated by animal hookworm larvae.[1] The parasites reside in the skin and cause the characteristic creeping eruptions caused by the moving parasites. The most common hookworms causing CLM are Ancylostoma brasiliense, A. caninum, A. ceylonicum, Uncinaria stenocephala and Bubostomum phlebotomum.[5] In this self-limiting disease diagnosis is made on clinical grounds. However, the clinical presentation of CLM can vary widely, and atypical manifestations can pose diagnostic challenges to dermatologists. These unusual presentations have only been sporadically reported in literature. This retrospective case series examined 10 CLM cases among patients attending this tertiary care hospital to highlight the unusual locations and presentations of the disease.

2. Case Series

2.1. Case 1

A 40-year-old male carpenter presented with pustular boil-like lesions on the shoulder and back for two weeks (**Figure 1**). Despite the initial treatment for suspected bacterial infection, the lesions persisted and were accompanied by severe itching. Upon further examination, multiple furunculosis-like lesions were observed and minute tracks were identified on the shoulder, leading to a diagnosis of cutaneous larva migrans (CLM). Antibiotics were

*Corresponding author: Priya B T
Email: priyachiran@gmail.com

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administered to the patient to address secondary infection, antihistamines to mitigate pruritus, and a 3-day course of Albendazole 400 mg once a day.

Figure 1: Boil like lesions on back; linear tracks on right shoulder

2.2. Case 2

A 60-year-old male farm laborer presented with severely pruritic and painful erythematous areas on his back and shoulders for three weeks (**Figure 2**). Physical examination revealed numerous excoriations, epidermal desquamation and eczematous lesions. Multiple serpiginous tracks were observed in the left scapular region, leading to the clinical diagnosis of cutaneous larva migrans (CLM).

Figure 2: Generalised excoriations with multiple linear serpentine lesions on back

2.3. Case 3

A 38-year-old male electrician presented with blistering and exudative lesions on his left forearm, accompanied by severe pruritus and pain for one week (**Figure 3**). Given his occupation, the initial differential diagnosis included irritant contact dermatitis or paederus dermatitis.

Figure 3: Linear blistering eruption with tracks on inner aspect of forearm

However, a critical finding during physical examination was the presence of linear serpiginous tracks on the volar aspect of the forearm, which are pathognomonic of cutaneous larva migrans (CLM), thus facilitating the correct diagnosis (**Figure 4**).

Figure 4: After 1 week of treatment of CLM

2.4. Case 4

A 37-year-old software professional presented with severe pruritic eruptions on his left toes and feet that persisted for two weeks (**Figure 5**). Despite a history of wheezing and urticaria, which initially led to a misdiagnosis of pompholyx and treatment with oral and topical corticosteroids, the lesions failed to improve and pruritus intensified. Upon closer examination, deep-seated bullous lesions with serpentine morphology involving the toes were observed. The patient also reported a history of walking through stagnant water due to waterlogging in the post-monsoon area. This history, combined with distinctive serpentine tracks, led to a diagnosis of cutaneous larva migrans (CLM). The patient was treated with albendazole and topical antibiotics. The lesion greatly subsided, with a reduction in itching and drying of the track by 10 days (**Figure 6**).

Figure 5: Deep seated pompholyx like lesion over toes

A 37-year-old software professional presented with severe pruritic eruptions on his left toes and feet that persisted for two weeks (**Figure 6**). Despite a history of wheezing and urticaria, which initially led to a misdiagnosis of pompholyx and treatment with oral and topical corticosteroids, the lesions failed to improve and pruritus intensified. Upon closer examination, deep-seated bullous lesions with serpentine morphology involving the toes were observed. The patient also reported a history of walking through stagnant water due to waterlogging in the post-monsoon area. This history, combined with distinctive serpentine tracks, led to a diagnosis of cutaneous larva migrans (CLM). The patient

was treated with albendazole and topical antibiotics. The lesion greatly subsided, with a reduction in itching and drying of the track by 10 days (**Figure 6**).

Figure 6: After 10 days of treatment for CLM

2.5. Case 5

A 67-year-old female housemaid, initially treated for irritant contact dermatitis to soap based on her occupation, presented with persistent itching and blistering lesions on her right foot for two weeks (**Figure 7**). She reported prolonged immersion in soapy water due to her work as a housemaid. On examination, wavy track-like lesions resembling deep blisters, consistent with a pompholyx, were noted on both sides of the right foot. However, given the characteristic track-like appearance, a diagnosis of cutaneous larva migrans (CLM) was diagnosed and treated accordingly.

Figure 7: Pompholyx like lesions over right foot inner and outer aspect

2.6. Case 6

A 60-year-old diabetic female housemaid presented with a painful, swollen right foot and fever for three weeks (**Figure 8**). She had been previously treated with antibiotics for a presumed diagnosis of cellulitis. Upon examination, ulceration over the toes with pus oozing out between the toes was noted along a linear serpentine track on the dorsum of the foot, extending toward the toes. This finding led to the diagnosis of cutaneous larva migrans (CLM) complicated by cellulitis, likely due to her uncontrolled diabetic status. She was treated with broad-spectrum antibiotics such as albendazole and insulin for blood sugar management. The swelling and pus discharge subsided after five days, and the lesion healed after ten days (**Figure 9**).

Figure 8: Linear serpentine track on dorsum of foot, with pus and swelling of toes

Figure 9: Post treatment after 10 days

2.7. Case 7

A 59-year-old homemaker presented with complaints of severe pruritus in the right inguinal region for the past two weeks (**Figure 10**). The patient had previously been self-administered topical corticosteroids and antifungal preparations obtained from a local pharmacy. However, the lesions continued to exacerbate and were accompanied by intractable pruritus, which necessitated a hospital visit. Upon physical examination, two distinct serpiginous tracks characteristic of cutaneous larva migrans (CLM) were identified in the right inguinal fold and thigh regions. Inappropriate antifungal treatment for presumed dermatophytosis failed to address the underlying parasitic infection, and the patient was subsequently treated for CLM.

Figure 10: Multiple linear tracts on inner aspect of right groin area

2.8. Case 8

A 27-year-old female culinary professional presented with pruritic lesions on her right thigh for six days (**Figure 11**). Upon clinical examination, serpiginous tracks characteristic of cutaneous larva migrans (CLM) were observed in the middle of the medial thigh region. A diagnosis of CLM was established, appropriate therapeutic intervention was initiated, and the patient exhibited clinical improvement.

Figure 11: Long linear serpentine track with blister on mid-thigh area

2.9. Case 9

A 71-year-old female manual laborer presented to the outpatient department with complaints of persistent pruritus in the abdominal region for a duration of four weeks (**Figure 12**). The patient's sibling was diagnosed with a dermatophyte infection, and the patient had self-administered a combination of corticosteroids and antifungal cream, which exacerbated the condition. Physical examination revealed denuded ulcerated cutaneous areas in the lower abdominal region accompanied by multiple linear serpentine lesions extending to the umbilicus. Certain areas exhibited excoriation owing to pruritus-induced trauma. The clinical presentation was consistent with cutaneous larva migrans (CLM).

Figure 12: Erosive ulceration with tracks of CLM - Abdominal area

2.10. Case 10

A 40-year-old homemaker presented with severe pruritus over the abdomen in the waist area that persisted for 10 days (**Figure 13**). She had been receiving treatment for a fungal infection (tinea corporis) from a private clinic; however, the pruritus had not subsided. Upon examination, annular lesions consistent with tinea corporis were observed along the saree folds. Additionally, a linear wavy tract characteristic of cutaneous larva migrans (CLM) was observed precisely along the depression of the waist, which was initially overlooked. This case was noteworthy, as the patient presented with both a fungal infection and CLM, and she was receiving treatment for the fungal infection, which is more prevalent. Following appropriate treatment, the patient experienced a significant improvement in both tinea and CLM symptoms.

Figure 13: Annular lesions of tinea with serpigenous lesions of CLM- waist area

3. Discussion

Creeping eruptions of the skin are characterized by pruritic, migratory, and tortuous tracks resulting from the penetration of human skin by non-human nematode larvae.[1] The most common of causing CLM is Ancylostoma braziliensis, a hookworm of dogs and cats. The eggs were passed through stools onto warm sandy soil.[5] At a temperature of 23-30°C, the eggs hatched into filariform larvae that penetrated the exposed skin of the human host. Thus, environmental and behavioural factors play a significant role in the occurrence of diseases.[2,6] Heavy rain and post-monsoon waterlogging are fertile grounds for the sudden increase in the number of cases reported at our centre. In India, the disease commonly occurs in the coastal areas of the country where the suitable condition exists.[1,2]

Under favourable conditions of humidity and temperature, the ova hatch into infective larvae, which penetrate human skin. Larvae, which enter through exposed sites such as the feet, buttocks, and hands, cause a characteristic itchy, raised, erythematous serpentine eruption. The secretion of larvae with hyaluronidase activity aids in this process.[7] An intense lytic inflammatory reaction results in bullous lesions. The classic clinical picture of wandering, advancing, serpentine, and itchy lesions is easily recognizable.

Chronic scratching and secondary infections modify classical presentation. When CLM presents at atypical sites with more atypical presentations, the clinical picture becomes more confusing and challenging. Generalized lesions and pompholyx-like presentations, as in our case series, are unique. A high degree of suspicion, occupational or contact history, and careful clinical examination to look for tracks will help clinicians make the diagnosis. As the characteristic clinical picture of CLM is so distinctive, skin biopsy and laboratory investigation are not generally required for diagnosis.[8]

All patients in our case series were treated with T. Albendazole (400 mg) once daily for 3 days, along with antihistamines. The patients with bacterial superinfections were treated with antibiotics. Patients who presented with irritant dermatitis and eczematous pictures were administered a topical steroid ointment. All patients showed a complete reduction in itching and considerable healing of the lesions after antihelminthic treatment.

Similar to our case series, two case series consisting of six patients each have been published, one from North India and one from South India in studies by Kaur et al and Shyamini et al respectively.[9,10] Several case reports of CLM with rare presentations such as extensive truncal involvement,[11] unusual sites, bullous CLM involving the palm,[12] and bullous and pustular variants[13,14] have been published in the literature. A rare case of hookworm folliculitis is published by a study by Miller AC et al.[15] Our study is unique with 10 cases of CLM, each having unique presentations like cellulitis, pompholyx-like, irritant contact dermatitis-like presentations and coinfection with tinea all leading to possible misdiagnosis.

Comprehensive case series focusing on this aspect of the disease are limited. Hence, we wanted to document and disseminate information about these unusual presentations of CLM. Because CLM was not suspected in most of our patients, they were treated with steroids, antifungals, antibiotics, and antihistamines, which did not resolve their symptoms. Early recognition, and accurate and timely diagnosis of these uncommon presentations are crucial to ensure appropriate management.

4. Conclusion

Rare presentations of cutaneous larva migrans pose diagnostic dilemmas for clinicians because of their atypical morphology and localization. Vigilant clinical examination and consideration of epidemiological factors are essential for an accurate diagnosis and timely management. Thus, the purpose of this case series was to familiarize us with the varied clinical presentations of CLM to ensure optimal treatment and favourable patient outcomes.

5. Patient Consent

In this study patient written and informed consent has been taken.

6. Ethical Approval

This study was approved by Institutional ethical approval committee with DHR Registration Number: EC/NEW/INST/2022/TN/0102.

7. Conflict of Interest

None.

8. Source of Funding

None.

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