

RESEARCH PAPER

Diverse clinical presentations of cutaneous larva migrans: more than a serpiginous rash

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ABSTRACT

Background: Cutaneous larva migrans (CLM) is a parasitic skin infestation caused by the migration of animal hookworm larvae within the epidermis, usually acquired through contact with contaminated soil or sand. The classical presentation is an intensely pruritic serpiginous track, most commonly involving the feet or buttocks. However, atypical anatomical sites and unusual morphological variants may lead to diagnostic confusion with other dermatoses.

Objectives: To describe the diverse clinical presentations of cutaneous larva migrans and highlight the importance of recognising atypical anatomical sites, morphological variants, and occupational risk factors in endemic settings.

Methods and materials: A case series of ten patients presenting with clinically diagnosed cutaneous larva migrans was evaluated. Patients ranged in age from 10 to 52 years and had varied occupational and environmental exposures. Clinical assessment included lesion morphology, anatomical distribution, exposure history, differential diagnoses considered, and response to treatment.

Results: Among the ten cases, most patients were young adult males with outdoor occupations, including farming, construction work, and street vending. Unusual anatomical sites included the elbow, forearm, finger, waistline, lateral thigh, abdomen, and thigh. Morphological variants observed included papular, nodular, ulcerative, pigmented, tinea-like, and multifocal serpiginous lesions. One patient presented with a generalized papular eruption suggestive of an id (hypersensitivity) reaction, while another showed simultaneous involvement of two anatomical sites (abdomen and thigh). Treatment varied based on lesion extent and included cryotherapy in two patients, topical therapy in three patients (10% thiabendazole cream, topical ivermectin 1% cream, and compounded topical thiabendazole), oral ivermectin in three patients, and oral albendazole in two patients.

Conclusion: Cutaneous larva migrans can present with a broad spectrum of clinical manifestations beyond the classical serpiginous track. Atypical anatomical sites, unusual morphological variants, and multifocal involvement may mimic other dermatoses and delay diagnosis. Awareness of exposure history, careful morphological examination, and timely treatment are essential for early recognition and effective management in endemic regions.

Keywords: Cutaneous larva migrans, Atypical clinical presentation, Serpiginous skin eruption

Introduction

Cutaneous larva migrans (CLM) is a common parasitic dermatosis seen in tropical and subtropical regions, caused predominantly by the larvae of *Ancylostoma braziliense* and *Ancylostoma caninum*, the hookworms of dogs and cats. Humans acquire the infection through direct contact with soil or sand contaminated with infective larvae.

Classically, CLM presents as an intensely pruritic, erythematous, serpiginous track over exposed areas of the body, most commonly the feet or buttocks. However, in clinical practice, several atypical presentations are encountered which may lead to diagnostic confusion. These may include unusual anatomical sites, altered morphology such as nodular, pigmented, ulcerative, papular, or tinea-like lesions, and hypersensitivity reactions such as generalized papular eruptions.

Due to these varied manifestations, CLM may often be misdiagnosed as dermatophytosis, eczema, insect bite reactions, or scabies. Recognizing these atypical presentations is important for early diagnosis and appropriate treatment.

The primary objective of this study was to document the diverse clinical presentations of cutaneous larva migrans. The secondary objective was to analyze the occupational and environmental risk factors associated with these atypical manifestations and to evaluate the therapeutic response to different treatment modalities.

Methodology

A descriptive case series study was conducted involving ten patients clinically diagnosed with cutaneous larva migrans. Patients belonging to different age groups and occupations presenting with pruritic serpiginous or atypical creeping lesions were included.

A detailed clinical history including duration of symptoms, occupational exposure, and history of contact with soil or sand was obtained. A thorough dermatological examination was performed to document the morphology, number, and anatomical distribution of lesions.

Clinical photographs were taken for documentation. Diagnosis was primarily clinical, based on the characteristic morphology of the lesion along with relevant exposure history. Differential diagnoses such as dermatophytosis, eczema, scabies, and insect bite reactions were considered where appropriate.

Treatment was individualized depending on the extent of lesions and patient factors. Various therapeutic modalities were used, including cryotherapy, topical antihelminthic therapy, and systemic antihelminthic drugs such as ivermectin and albendazole. Patients were followed up to assess clinical response and resolution of lesions.

Results

A total of 10 patients with cutaneous larva migrans were included in this case series. The age of the patients ranged from 10 to 52 years. The majority of the patients were young adult males and belonged to occupations involving outdoor exposure such as farming, construction work, vending, agricultural labor, and gardening.

Table 1: Demographic Characteristics of Patients

Characteristic	Number of Patients (n=10)	Percentage (%)
Age Group		
<20 years	2	20
21–40 years	4	40
41–60 years	4	40
Sex		
Male	7	70
Female	3	30

The lesions were located at both classical and atypical anatomical sites. Unusual sites observed included the elbow, forearm, finger, waistline, lateral thigh, abdomen, and thigh. The most frequently involved regions were the upper limbs, trunk, and lower limbs.

Table 2: Occupational Distribution of Patients

Occupation	Number of Patients	Percentage (%)
Farmer / Agricultural worker	2	20
Construction worker / Laborer	2	20
Street vendor / Daily wage worker	1	10
Fisherman	1	10
Student	2	20
Homemaker	2	20
Total	10	100

Several morphological variants were observed. These included classical serpiginous creeping lesions, annular scaly plaques mimicking dermatophytosis, nodular lesions suggestive of larval entry points, ulcerative lesions likely due to scratching or secondary infection, pigmented serpiginous tracks, papular lesions, and multifocal serpiginous lesions.

Table 3: Anatomical Distribution of Lesions

Anatomical Site	Number of Patients	Percentage (%)
Foot (dorsum)	2	20
Thigh	2	20
Abdomen / Waistline	2	20
Upper limb (elbow, forearm, finger)	3	30
Multifocal (abdomen + thigh)	1	10
Total	10	100

One patient developed a generalized papular eruption over the neck and upper trunk, suggestive of a hypersensitivity (id) reaction secondary to a localized CLM lesion. Another patient showed simultaneous involvement of two anatomical sites (abdomen and thigh) indicating multifocal disease. Multiple serpiginous tracts were observed in one patient, suggesting heavy larval exposure.

Table 4: Morphological Variants Observed in CLM

Morphological Variant	Number of Patients	Percentage (%)
Classical serpiginous creeping lesion	2	20
Tinea-like annular scaly lesion	2	20
Papular variant	1	10
Pigmented serpiginous track	1	10
Ulcerative lesion	1	10
Multiple serpiginous tracts	1	10
Nodular entry lesion	1	10
Multifocal serpiginous lesions	1	10
Total	10	100

Most patients reported direct contact with soil or sand, commonly through activities such as farming, construction work, gardening, outdoor play, or walking barefoot.

Different treatment modalities were used in the patients. Cryotherapy was performed in two patients with localized lesions. Topical therapy was used in three patients, including 10% thiabendazole cream, topical ivermectin 1% cream, and compounded topical thiabendazole prepared from crushed tablets mixed with petrolatum. Three patients received oral ivermectin, while two patients were treated with oral albendazole. All patients showed good clinical response to treatment, with complete resolution of lesions within one to two weeks. Some patients developed residual post-inflammatory hyperpigmentation at the site of healed lesions, but no significant adverse effects were observed



Figure 1: Creeping eruption over the extensor aspect of left elbow showing a serpiginous erythematous tract consistent with cutaneous larva migrans at an unusual site



Figure 2: Well-defined serpiginous track over the volar aspect of left forearm in a child with intense pruritus, representing atypical upper limb involvement of cutaneous larva migrans.



Figure 3: Annular scaly plaque with serpiginous advancing margin and nodular entry point over the waistline, mimicking dermatophytosis in cutaneous larva migrans.



Figure 4: Serpiginous lesion on the index finger associated with generalized papular eruption over the trunk, suggestive of cutaneous larva migrans with hypersensitivity



Figure 5: Annular scaly lesion with subtle serpiginous border over the lateral thigh, clinically resembling tinea corporis but consistent with atypical cutaneous larva migrans.



Figure 6: Ulcerative lesions with faint serpiginous margins over the dorsum of the foot representing an ulcerative variant of cutaneous larva migrans.

Discussion

Cutaneous larva migrans (CLM), commonly referred to as creeping eruption, represents the most frequent dermatological manifestation of zoonotic hookworm infection in humans. It is most commonly caused by the larvae of *Ancylostoma braziliense* and *Ancylostoma caninum*, parasites of dogs and cats that thrive in warm, moist soil or sand contaminated with animal feces. Humans become accidental hosts when infective filariform larvae penetrate intact skin following contact with contaminated ground.^{1 2}

The classical clinical presentation of CLM consists of an intensely pruritic, erythematous, serpiginous or linear track that progresses slowly over the skin at a rate of a few millimeters to centimeters per day. The most frequently affected sites include the feet, buttocks, and other exposed body areas that come in direct contact with contaminated soil or sand.¹ However, atypical presentations are increasingly recognized depending on the site of larval penetration, host immune response, and duration of infestation.

In our case series of ten patients, several atypical clinical patterns were observed. Lesions were noted at unusual anatomical locations such as the elbow, forearm, finger, waistline, lateral thigh, abdomen, and thigh. These sites are relatively uncommon compared to the classical sites described in the literature and may lead to diagnostic confusion when the characteristic serpiginous track is subtle or absent. Similar atypical locations have been reported in individuals with occupational exposure to soil or sand, particularly among farmers, construction workers, and individuals involved in outdoor activities.^{2 3}

Various morphological variants were observed in our patients. These included tinea-like annular lesions with serpiginous margins, pigmented serpiginous tracks, papular variants, nodular entry lesions, ulcerative lesions due to scratching or secondary infection, multiple serpiginous tracts, and multifocal lesions involving more than one anatomical site. Such atypical morphologies may mimic dermatophytosis, eczema, insect bite reactions, or scabies, resulting in delayed recognition and treatment.^{3 4}

One patient in our series developed a generalized papular eruption over the neck and trunk suggestive of an id (hypersensitivity) reaction secondary to localized CLM. Hypersensitivity reactions associated with CLM have been described in the literature and may manifest as urticarial, papular, or eczematous eruptions distant from the primary lesion.⁴ Rarely, systemic manifestations such as Löffler's syndrome, characterized by transient pulmonary infiltrates and peripheral eosinophilia, may occur due to hypersensitivity to larval antigens.⁵

Occupational and environmental exposure played a significant role in our cases. Most patients reported direct contact with soil through activities such as farming, construction work, gardening, fishing, and outdoor play. Walking barefoot, sitting on bare ground, and handling soil-contaminated materials were common risk factors. These findings emphasize the role of environmental exposure in the epidemiology of CLM, particularly in tropical and subtropical regions where warm and humid climates facilitate larval survival and transmission.^{1 2}

The diagnosis of CLM is primarily clinical, based on the characteristic creeping eruption and relevant exposure history. Laboratory investigations are rarely required. Dermoscopy may occasionally demonstrate translucent brown or reddish structureless areas corresponding to the larval tract, although it was not performed in our cases.³

Various treatment modalities were used in our patients depending on the extent and number of lesions. Cryotherapy was performed in two patients with localized lesions, targeting the advancing end of the tract. Topical therapy was used in three patients, including 10% thiabendazole cream, topical ivermectin 1% cream, and compounded topical thiabendazole prepared from crushed tablets mixed with petrolatum. Three patients were treated with oral ivermectin, while two patients received oral albendazole.

Systemic antihelminthic agents such as ivermectin and albendazole remain the mainstay of treatment due to their high efficacy and convenience. Ivermectin administered at 200 µg/kg as a single dose has reported cure rates ranging from 77–100%, while albendazole 400 mg daily for 3–5 days has shown cure rates exceeding 90% in several studies.^{2 4} Topical therapies such as thiabendazole may be useful in patients with localized disease, whereas cryotherapy may be considered when systemic therapy is contraindicated or unavailable.⁶

All patients in our series showed complete clinical resolution within one to two weeks of treatment, with some developing residual post-inflammatory hyperpigmentation at the site of healed lesions. No significant adverse effects were observed. This case series highlights the wide clinical spectrum of cutaneous larva migrans, emphasizing that atypical anatomical sites, varied morphological presentations, and hypersensitivity reactions may complicate diagnosis. Awareness of these variations is essential to avoid misdiagnosis and ensure prompt treatment.

Conclusion

Cutaneous larva migrans can present with a wide range of clinical manifestations beyond the classical serpiginous creeping eruption. Unusual anatomical sites, altered morphological patterns, multifocal involvement, and hypersensitivity reactions may mimic other dermatological conditions and pose diagnostic challenges. Recognition of these atypical presentations, along with careful assessment of occupational and environmental exposure, is essential for early diagnosis. Timely treatment with topical or systemic antihelminthic therapy results in rapid resolution of lesions and prevention of complications. Dermatologists practicing in tropical and endemic regions should maintain a high index of suspicion for CLM when evaluating pruritic creeping or serpiginous lesions in individuals with a history of soil exposure.

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