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## Statement of Purpose

To present a case of bullous cutaneous larva migrans in the foot with successful treatment with oral anthelmintic agents.

## Literature Review

Cutaneous larva migrans is one of the most common zoonotic dermatoses in tropical or subtropical regions (1). The skin infection is caused by hookworm larvae and transmitted via when encountering infected dog or cat feces. They hookworms live in the animal's intestines and the eggs are passed in the feces of their infected hosts. In the optimal climate, the eggs hatch into rhabditiform larvae which mature into filariform larvae within a week of hatching. These filariform larvae produces a lytic enzyme which can breach the epidermis of humans whom encounter them (2). Humans typically become exposed to the hookworm larvae when walking barefoot on contaminated soil or sand in these more tropical regions. The larvae penetrate the epidermis, travel between the stratum granulosum and stratum corneum and cause the often striking erythematous, serpiginous tracks reflecting the path of the larvae (2,3). Because the parasites lack the ability to produce collagenases, they limited to the skin and unable to affect internal organs, vessels, etc (4). The patient may report associated pruritis or pain, however, some may note no associated symptoms (2). There have been reported atypical presentations of this eruption as seen in our case. Bullous cutaneous larva migrans has a much lower incidence rate, accounting for approximately 3% of cases (5). The pathogenesis of the bullae is not entirely known, but several proposed theories have been published including a hypersensitivity reaction to a larval antigen or release of larval enzymes (3,5). Differential diagnosis of this eruption includes scabies infection, larva currens, epidermal dermatophyte infection among others (1). While the eruptions can occur anywhere on the body and even be diffuse, the most common locations are the distal extremities and buttocks (4). Diagnosis of cutaneous larva migrans is primarily based on clinical history and physical exam as seen in our case (5). Laboratory results may be significant for a transient peripheral eosinophilia on a complete blood count or increased IgE levels on a total serum immunoglobulin. The area can be biopsied and is usually recommended to biopsy one to two centimeters ahead of the leading edge of the serpiginous tract as this is where the larvae are usually located. This is often difficult due to the rapid movement of the larvae (6). Because humans are considered "dead-end hosts", the disease course is usually self-limiting but can take weeks or even months. Oral anthelmintic medications such as ivermectin or albendazole are considered first line treatment and can reduce the duration of the disease course and provide relief from associated symptoms. Adjunctive treatments for symptomatic relief include antihistamines or topical corticosteroids (3, 5).

## Case Study

A 25-year-old male patient with no significant past medical history presented to the clinic after recent travel to the Caribbean with a worsening, pruritic bullous eruption to the dorsum of the foot. Reporting his symptoms had been ongoing and worsening over several weeks. Was admitted to a local hospital and there was initial concern for possible water borne infection given recent travel. The bullae was aspirated and cultures were negative. Despite antibiotic treatment, his eruption continued to worsen. Was evaluated and clinic and diagnosed with cutaneous larva migrans based on presentation and clinical history. The patient was ultimately treated with a two day course of ivermectin with resolution of eruption and associated symptoms at final follow up.

## Clinical Progression



Fig A-D: Initial presentation to hospital (A); Progression of bullae formation and serpiginous tracks along the dorsolateral foot (B-C); Resolution of infection after completion of ivermectin course

## Analysis and Discussion

Cutaneous larva migrans is a skin infection caused by hookworm larvae which are typically found in dog and cat feces. Typically, infection is transmitted when walking barefoot on contaminated sand or soil in tropical regions (2,3). Bullous cutaneous larva migrans is an atypical presentation of this condition, only accounting for 3% of cases (5). Pathogenesis of the bullae is not entirely known but is thought to be a hypersensitivity reaction to a larval antigen or due to enzymes produced by the larvae themselves (3,5). Diagnosis of this condition is reliant on epidemiological history and clinical examination. Clinically, the rash is often characterized as erythematous serpiginous migratory tracks which can be pruritic and painful. Because humans are "dead-end hosts", this disease usually self resolves over a period of weeks to months. Anthelmintics such as ivermectin in this case can be utilized to decrease the course of symptoms (3). Our case represents an atypical presentation of this skin infection and highlights the importance of a thorough history when evaluating patients.

## References

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