

Cutaneous larva migrans – case report and literature review

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A – Study Design, B – Data Collection, C – Statistical Analysis, D – Data Interpretation, E – Manuscript Preparation, F – Literature Search, G – Funds Collection

Summary Cutaneous larva migrans (CLM) is a parasite dermatosis caused by skin penetration and the migration of larvae of the nematodes. The etiological factors are *Ancylostoma braziliense* and *Ancylostoma caninum*. The infection most often appears in tropical and subtropical countries. The main symptoms are *creeping eruption*, which is slightly elevated, migrating, erythematous and serpiginous track and severe pruritus. The areas that are the most occupied are the feet and buttocks. The diagnosis is based on characteristic clinical presentation and a history of tropical travel. The most frequently implemented treatment is ivermectin and albendazole. Ivermectin is used orally, 200 mcg/kg once daily for 1–2 days. Oral albendazole 400 mg once daily orally for 3 days is also a satisfying therapeutic option. There have also been reports of topical treatment with 10% thiabendazole cream or 1% ivermectin cream. Antihistamines can be helpful for the management of pruritus. Prevention of CLM includes wearing footwear at the beach and plays an extremely important role.

Key words: larva migrans, ivermectin, albendazole, treatment.

Ryguła A, Kowalski M, Hryncewicz-Gwóźdź A, Maj J, Jankowska-Konsur A. Cutaneous larva migrans – case report and literature review. *Fam Med Prim Care Rev* 2023; 25(3): 367–370, doi: <https://doi.org/10.5114/fmpr.2023.130099>.

Background

Cutaneous larva migrans (CLM) is a zoonotic infection, most common in tropical and subtropical regions.

In the last few decades, an increase in travel to the tropics has been observed, which was only slowed down temporarily by the COVID pandemic. With more frequent trips, the number of infections that patients bring from the tropics has also been on the rise. Moreover, due to global warming, areas where infections with larva migrans are observed are expanding [1]. Therefore, the ability to recognise and treat tropical diseases begins to play an important role in the practice of family doctors, paediatricians and dermatologists [1–3].

Herein, we present a case of a cutaneous larva migrans in a 9-year-old boy who travelled to a tropical country, along with a literature review.

Case report

A 9-year-old boy was referred to the Department of Dermatology due to intense pruritus and a skin lesion located on his left foot. It is known that the patient recently stayed in South Africa. Additionally, the patient did not wear shoes while on the beach. Other family members did not report similar symptoms. The examination revealed a tortuous, linear red-brown lesion, slightly raised above the skin surface. There was a crust in the medial part of the lesion. Based on the characteristic clinical picture, which was a creeping eruption on the foot and a history of a holiday in a tropical country, CLM infection was diagnosed. The patient was treated with albendazole 400 mg daily for 3 consecutive days. The skin lesions resolved within 7 days.

Discussion

CLM is a parasite dermatosis caused by skin penetration and the migration of larvae of the nematodes. The most common infection occurs through contact with soil contaminated with animal faeces, mainly on the beach. The infection most often appears in tropical and subtropical countries, affecting natives who walk barefoot. However, due to global warming, the areas where infection can occur are widening [1–3].

The etiological factors of CLM are the larvae of the nematodes: *Ancylostoma braziliense*, *Ancylostoma caninum*, *Ascaris suum*, *Uncinaria stenocephala* and *Bunostomum phlebotomum* [1, 2]. A differential diagnosis includes strongyloidiasis, gnathostomiasis and dracunculiasis. The parasites cause similar symptoms on the skin; however, they also invade internal organs; therefore, they are not considered in a CLM diagnosis. In addition, they can cause eosinophilia and Loeffler syndrome, which are not observed in CLM. Skin symptoms similar to CLM may also occur in zoonotic filariasis [2, 3].

The life cycle of the parasite begins with excretion into the soil of nematode eggs in the faeces of animals (most often dogs or cats). The larvae develop and exuviate in the soil, and humans are the random hosts of the nematodes. The larvae enter the body either by penetrating intact skin or through cracks in the skin. To pass through the layers of the skin, the larva secretes enzymes such as hyaluronidases and proteases. Since the parasites do not produce collagenase, they are not able to get into the vessels and reach other internal organs, so the infection only affects the skin [4–6]. After breaching the stratum corneum, the larvae shed their shell and penetrate the skin within a few days. The mean incubation time of CLM is 5–15 days; however, some authors report the appearance of the first symptoms even 3 to 5 months after infestation [7, 8].



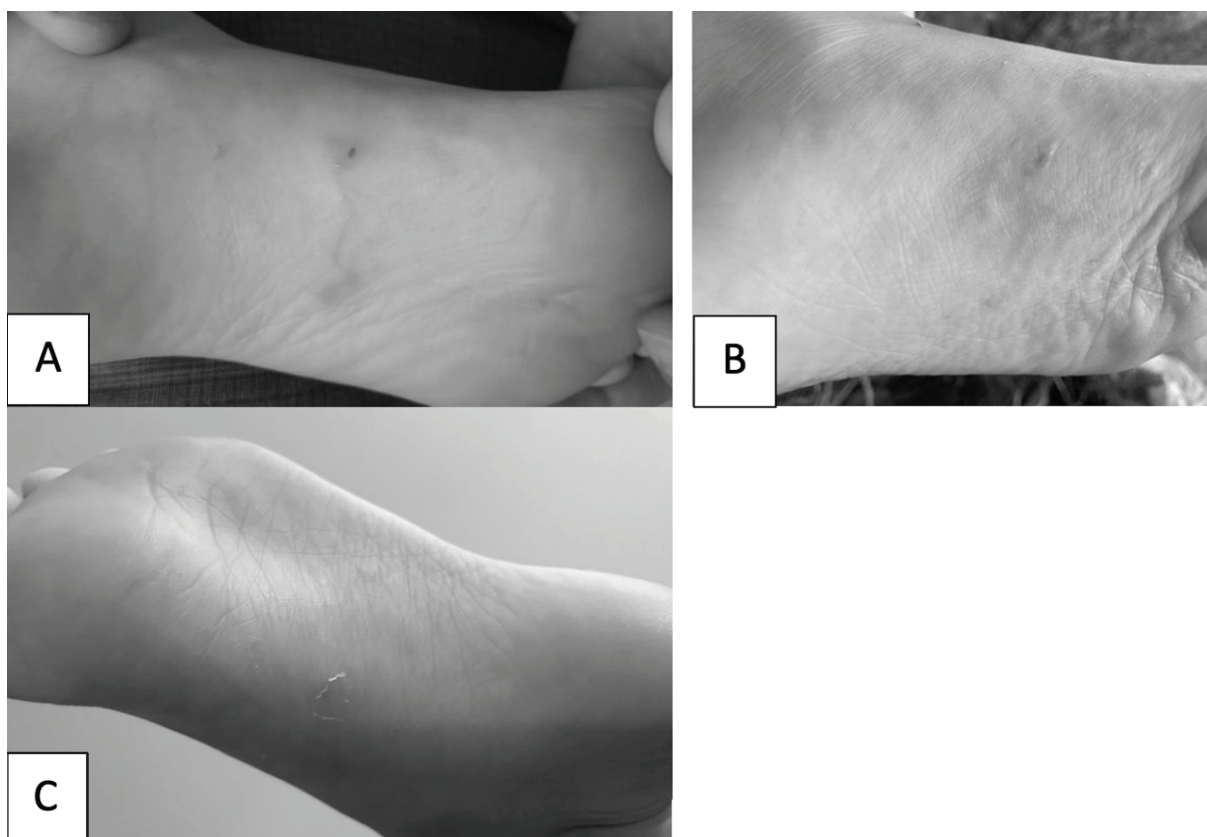


Figure 1. A – creeping eruption located on foot before treatment, B – skin lesion during treatment, C – resolution of the skin lesion after treatment

At the site of penetration, a pruritic erythematous papule can be seen. The larvae migrate a few millimetres a day, leaving behind a characteristic creeping eruption which is a slightly elevated, migrating, erythematous and serpiginous track [1–3]. The areas that are the most occupied are the feet and buttocks, both with the same frequency, but any part of the body may be involved [3, 9]. Even though the clinical presentation is typical, there are some case reports presenting an unusual manifestation of the disease. CLM can be found in atypical locations, including the glans penis and perianal area [10–13]. The skin lesion in this location is characteristically raised and tortuous [11]. Another rare site of infection described in literature is the scalp [14, 15]. Meotti et al. reported an 11-year-old boy who presented with hair rarefaction and a serpiginous, erythematous lesion in its centre on the scalp, accompanied by intensive pruritus on the head, as well on the legs and elbows. He also had a history of activities on the beach [14].

In the course of CLM, different morphological pictures of skin lesions were also described, i.e. bullous CLM [5]. Veraldi et al. reported 6 patients with itchy tracks on the skin in the course of CLM, accompanied by oval in shape blisters with a clear serous fluid [5].

Follicular CLM is another unusual presentation [16, 17]. Lander et al. described a 28-year-old woman who returned from Thailand presenting follicular papules with serpiginous tracts with an itchy rash on the anterior abdominal wall and buttocks [17].

CLM can be associated with other skin complications, such as secondary eczema at the site of the infection. Comparin et al. reported a patient who had a serpiginous itchy lesion due to CLM accompanied by an eczematous reaction on the back. The patient had a history of lying on their back on the lawn [18].

Frequent complications may include bacterial superinfections, which may sometimes have a severe course (i.e. cellulitis) [2].

The diagnosis is based on characteristic clinical presentation and history of tropical travel and typically does not require ad-

ditional tests. In some cases, a biopsy can be helpful to confirm the diagnosis and identify the ethological factor, which is most often *Ancylostoma caninum* [19, 20].

In histology, inflammatory infiltration composed of eosinophils and lymphocytes is detected in the upper dermis [21–23]. In addition, a nematode larva can be revealed in a scratched lesion specimen [21]. In one study, a multiple-dot ELISA using *A. caninum* antigens was performed in the patient's serum [19]. Laboratory tests are usually within normal ranges; however, peripheral eosinophilia and leucocytosis can be detected in some cases [9, 16, 24–26].

The available literature describes various therapeutic options; however, treatment with ivermectin, recently available in Poland, 200 mcg/kg once daily for 1–2 days seems to be the most effective therapy, with a cure rate of 90–100%. Sow et al. presented a case series where 43 cases were analysed. A one-day treatment with ivermectin resulted in the resolution of skin lesions in 40 (93%) patients [27].

Alternatively, oral albendazole 400 mg once daily for 3 days seems to be an effective treatment option. In a case series including 44 patients presented by Blackwell et al. [9], 31 patients were treated with oral albendazole 400 mg daily for 3–5 days, and 24 of them (77%) were cured [9]. Kincaid et al. published a description of 25 patients infected with CLM. Most of the patients became infected in the Caribbean [28]. All patients were treated with oral albendazole for 3 days. 23 of them (92%) responded appropriately, and 2 needed a second course of albendazole [28]. Puente et al. reported a group of 34 patients with CLM [29]. Of them, 26 patients received oral albendazole at doses of 400 mg every 12 hours for 3 days, and therapy was effective in 22 (84.6%) cases [29]. On the contrary, oral thiabendazole 1.5 g daily for 3 consecutive days was not effective in 4 patients, who required further treatment [9].

There have also been reports of topical treatment. 10% thiabendazole cream was used topically with therapeutic suc-

cess in 4 out of 5 patients [9]. In some cases, topical ivermectin was applied with varying degrees of effectiveness. Giudice et al. presented a case of a 22-month-old girl who was treated with 1% ivermectin cream once a day. The treatment choice was due to her young age to avoid adverse effects. The lesion resolved within 10 days, even though the infection relapsed 2 months later, possibly because of the survival of the larvae in the skin [10]. On the other hand, some studies show the effectiveness of topical ivermectin treatment [30–33].

In some patients, cryotherapy was used in addition to anti-parasitic therapy. Cryotherapy was repeated for 3–4 consecutive days, and the lesions disappeared after a few days to 2 weeks [4, 34]. On the contrary, Caumes assessed the use of cryotherapy as ineffective and additionally causing side effects such as blistering or ulceration [35].

Antihistamines can be helpful for the management of pruritus [3]. Some authors describe the use of topical steroids as useful in the management of pruritus and eczematous reaction

[36]. Bacterial superinfections in CLM may require antibiotic therapy [37].

Prevention of CLM infection plays an extremely important role. Tourists should wear footwear and protective clothing on coastal beaches and use a mattress rather than a towel while sitting on the ground. Cats and dogs should also be forbidden from entering public areas such as beaches [38].

Conclusions

Tropical travel has become more and more popular; therefore, knowledge about tropical diseases, including cutaneous larva migrans, plays an important role in daily practice. The ability to recognise CLM and implement the correct treatment is becoming increasingly important for general practitioners, paediatricians and specialists in the field of dermatology and infectious diseases.

Source of funding: This work was funded from the authors' own resources.

Conflicts of interest: the authors declare no conflicts of interest.

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Tables: 0

Figures: 1

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Received: 02.03.2023

Reviewed: 11.03.2023

Accepted: 20.04.2023

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