

Case Report

Cutaneous Larva Migrans on the Hand

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Abstract— Cutaneous larva migrans results from infection by zoonotic nematode larvae, usually by animal hookworm larvae, and is a condition that is not uncommon in rural communities. The usual site of this lesion is on the feet, where larval penetration from soil takes place. Unusual sites such as the upper extremity and groin are very rare. We report a case of cutaneous larva migrans on the hand (unusual site) from Kelantan, Malaysia.

Keywords— Cutaneous larva migrans, hand, hookworm

I. BACKGROUND

Cutaneous larva migrans (CLM), also known as creeping eruption, is common zoonotic dermatosis in rural tropics. Humans are infected through contact with contaminated soil. An erythematous serpiginous lesion is caused by animal hookworm larvae's accidental penetration and migration through the epidermis. Unlike human hookworm species like *Necator americanus* and *Ancylostoma duodenale*, which complete their lifecycle in the human intestine, animal hookworms are limited to the skin. They do not complete their lifecycle in humans due to host specificity immunogenicity. The hookworm larva burrows through intact skin but remains confined to the upper dermis since humans are incidental hosts. Animal hookworm species usually implicated in CLM are *Ancylostoma braziliense*, while less common species include *Ancylostoma caninum*, *Uncinaria stenocephala* and *Bunostomum phlebotomum*. These hookworms generally live in the intestines of domestic pets such as dogs and cats and shed their eggs via faeces to the soil.

CLM dermatological presentation is described as erythematous, serpiginous, pruritic, cutaneous raised lesion caused by percutaneous penetration and subsequent migration of zoonotic larval hookworm through the skin. The most frequent location in the human body is on the distal lower extremities due to proximity and exposure to filariform hookworm larvae on the ground [1]. CLM usually heals spontaneously within weeks or months. In a study involving 25 patients treated with a placebo, 12% healed by the end of the first week and 36% by the end of the fourth week. The longest period required for spontaneous healing was 11.2 weeks in this series [2], but the larvae have been known to migrate for up to 1 year [3].

Complications include impetigo (secondary bacterial infection) and local or general allergic reactions. Other rare complications include oedema, vesiculobullous reactions and hyper-eosinophilia (defined as an eosinophil proportion >7%

of the total leukocyte count) [4]. Even though CLM lesion is marked and distressing due to severe itchiness, misdiagnosis is common due to inadequate exposure of physicians and relevant familiarity with dermatological conditions.

CLM is diagnosed clinically and rarely needs a biopsy for diagnostic confirmation. If ever taken, a biopsy needs to be 1-2 cm ahead of the lesion to catch the mobile larvae. CLM has been mistaken for fungal and bacterial infections, eczema and even gout [2]. Treatment for CLM can be either topical or oral. Topical options include cryotherapy and topical application de-worming agent. Cryotherapy with either liquid nitrogen, ethylene chloride spray or solid carbon dioxide is less effective and painful with complications like blistering and ulceration [5]. Topical application of a 10%–15% thiabendazole solution/ointment to the affected area is efficacious [6]. The main advantage of topical treatments is the absence of systemic side effects (Oral anthelmintic is contraindicated in pregnant patients due to possible teratogenicity). Their main disadvantages are that they have limited value for multiple lesions and that they require multiple daily applications for several days. For oral treatment, thiabendazole is a drug that has been the most utilised in the oral treatment of cutaneous larva migrans [6]. Thiabendazole is poorly effective when given as a single dose. The cure rate improved to 77% after two consecutive days, 87% after 3–4 consecutive days, and 89% after four weekly doses. Thiabendazole is less well tolerated in terms of adverse reactions than either Albendazole or ivermectin due to various adverse effects being reported, including giddiness, nausea, vomiting, and headache. Albendazole has been used for decades to treat intestinal helminthiasis, such as ascariasis, enterobiasis, ancylostomiasis, trichuriasis, and strongyloidiasis. Trials of Albendazole in the treatment of CLM have yielded conflicting results concerning the optimal dosage. Cure rates of 100% have been observed after treatment with a single dose of 400 mg and with the same dose given for 3 and 5 consecutive days. Albendazole has also been used with success at higher daily doses like 800 mg. Albendazole is relatively well tolerated in CLM patients in terms of adverse reaction unless given in extended duration. Ivermectin, an avermectin B derivative, is active against *Onchocerca volvulus* and other nematodes, including gastrointestinal helminths. Its mechanism of action is poorly understood. Single doses of ivermectin resulted in 100% cure rates among patients with CLM [7]. We report here the case of a 50-year-old farmer with CLM on an unusual site (hand) from Kelantan, Malaysia.

II. CASE

A 50-years old Malay man was presented to Klinik Dr. Tiew in Tanah Merah, Kelantan, after experiencing a one-month history of itchy red serpiginous lesions over his right hand. The patient initially sought treatment from physicians at government and private clinics, all of whom arrived at different diagnoses and treated him accordingly. Among the different diagnoses were fungal infection, shingles and even gout. He was prescribed many types of topical creams, which included steroids and antifungal treatment as well as an oral antihistamine for pruritus. None of these treatments improved his condition and reduced his symptoms, neither the lesion nor the pruritus. Physical examination revealed multiple erythematous raised serpiginous lesions with occasional dark bullous nodes over the

dorsal and palmar aspect of the right hand. No similar lesion was found on the other hand or the lower limbs. The patient was then diagnosed with cutaneous larva migrans and was prescribed a single 400 mg oral dose of Albendazole. One week after the anthelmintic treatment, the follow-up examination revealed marked improvement of his symptoms with marked amelioration of both the lesion and pruritus.



Fig. 1 Erythematous serpiginous lesions with occasional dark bullous nodules on the dorsal aspect of the right hand over the metacarpophalangeal joint and palmar aspect.

III. DISCUSSION

CLM is a parasitic dermatosis resulting from the penetration of the human epidermis by larval canine or feline hookworms. It is prevalent in rural areas of the tropics but has also been reported amongst western tourists returning from endemic areas [8]. CLM is characterized by an erythematous, serpiginous, pruritic, cutaneous raised lesion caused by percutaneous penetration and subsequent migration of zoonotic larval hookworm through the skin. Each larva produces one tract and migrates at a 1-2 cm/day rate, continuously extending the tract for periods that can last for a month or even longer.

In this case, the patient developed CLM on his right hand on both the dorsal and palmar aspects, an unusual site. The most frequent location of CLM is the distal lower extremities [1]. Other unusual sites of involvement may include upper limbs [10], penis [11] and the perianal region [11]. In the current case, dark bluish nodes were also seen along with the serpiginous lesions, which are rare but have been reported previously [12]. The larvae rarely progress beyond the skin, and systemic manifestations such as Loeffler's syndrome are rarely seen [13].

Due to the intense pruritus and scratching, superimposed bacterial infections may complicate the clinical picture [14]. The most common cause of CLM is *Ancylostoma braziliense* and less common species, including *Ancylostoma caninum*, *Uncinaria stenocephala* and *Bunostomum phlebotomum* [1]. CLM is usually a benign and self-limiting disease, where the prognosis is excellent. In this case, the patient was misdiagnosed three times by three different physicians. The diagnoses included fungal infection, shingles and even gout. Misdiagnosis of CLM is common and a cause for concern [2]. In this case, the patient improved significantly after just a single 400 mg oral dose of Albendazole, which is the preferred treatment for uncomplicated and typical CLM cases [16].

Topical use of thiabendazole is suitable for early, localized lesions. In contrast, the systemic use of thiabendazole is preferred for treating widespread lesions but is limited due to

a high incidence of adverse effects. Alternative successful treatments include the use of ivermectin [7].

IV. CONCLUSION

This case report highlights the atypical presentation and the unusual site of a case of cutaneous larva migrans. Physicians should be exposed to such presentations to familiarize themselves with the condition and avoid misdiagnosis.

CONSENT TO PARTICIPATE

The patient in this report has given oral consent regarding the publication of the case. Sufficient anonymity have been ensured all throughout the manuscript where no face image, names, or actual dates were depicted anywhere.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

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