

Unusual presentations of cutaneous larva migrans

Rzadkie prezentacje skórnej postaci larwy wędrującej

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Słowa kluczowe: larwa wędrująca, *Ancylostoma*, albendazol, iwermektyna, choroba skóry.

Abstract

Cutaneous larva migrans (also known as creeping eruption, sand worm eruption, plumbers itch, duck hunters itch) is caused by penetration of skin by third-stage larvae of animal hookworms; first reported by Lee in 1874. Adult hookworms infest the intestines of cats and dogs and their ova in excreta hatch under favorable conditions into infective larvae that penetrate the host skin. Cutaneous larva migrans is a common endemic disease in tropical and subtropical countries but it may also occur in other regions of the world. We report three cases of cutaneous larva migrans acquired during sunbathing at the sea and lying on the ground.

Streszczenie

Larwa skórna wędrująca (znana również jako pełzająca erupcja, erupcja piaskowego robaka, świąd hydraulików, świąd łowców kaczek) jest spowodowana penetracją skóry przez larwy trzeciego stadium tęgoryjców. Po raz pierwszy została opisana w 1874 roku przez Lee. Dorosłe tęgoryjce zakażają jelita psów i kotów, a ich jaja w odchodach dojrzewają do zakaźnej postaci larwy, która przenika przez skórę gospodarza. Larwa skórna wędrująca jest częstą chorobą endemiczną w krajach tropikalnych i subtropikalnych, ale może również wystąpić w innych regionach świata. Przedstawiamy trzy przypadki skórnych larw wędrujących nabytych podczas opalania nad morzem i leżenia na ziemi.

Introduction

Cutaneous larva migrans (CLM) (also known as creeping eruption, sand worm eruption, plumbers itch, duck hunters itch) is caused by penetration of skin by third-stage larvae of animal hookworms; first reported by Lee in 1874. Adult hookworms infest the intestines of cats and dogs and their ova in excreta hatch under favorable conditions into infective larvae that penetrate the host skin.

Cutaneous larva migrans is a common endemic disease in tropical and subtropical countries but it may also occur in other regions of the world.

We report three cases of CLM acquired during sunbathing at the sea and lying on the ground.

Case reports

Case 1

A 53-year-old farmer was referred to us for severe pruritus on the right thigh and a plaque of eczema with secondary impetiginization observed 3 weeks before the medical examination. At closer inspection excoriation signs due to pruritus were noted along with serpiginous (snakelike), slightly elevated, erythematous tunnels occurring in a circular/concentric area (Figure 1).

Previous diagnoses were bullous impetigo and eczema of unknown cause but with no improvement under oral and topical antibiotics and antihistamines.



Figure 1. Case 1: Cutaneous larva migrans on the right thigh – admission

The plaque continued to enlarge and the itch became unbearable.

Laboratory investigations did not show any abnormalities. The patient was in a good health condition, with no history of allergic diseases, no drug intake and no other complaints.

A punch-biopsy was decided and accepted by the patient from the edge of the lesion: periodic acid-Schiff was negative and hematoxylin-eosinophil stain revealed evidence of discrete spongiosis, and an epidermal and upper dermal chronic inflammatory infiltrate with many eosinophils.

Another appointment with the patient was asked and a meticulous discussion with the patient was initiated. The patient described us his way of working in the field in a farm and he admitted that during the last month he had spent several hours lying on the ground, wearing only a few clothes.



Figure 2. Case 2: Cutaneous larva migrans on penile shaft

A presumptive diagnosis of cutaneous larva migrans was kept in mind and a therapeutic challenge was started: two weeks of albendazole 400 mg/day orally and 2% topically. After 1 week of treatment the pruritus almost disappeared, at 2 weeks the lesion faded and the medication was stopped after 1 month of therapy with a slight residual hyperpigmentation.

The diagnosis of larva migrans was the conclusion.

Case 2

A 23-year-old young man very anxious about a serpiginous lesion on the penile shaft appeared 3 days after nude sunbathing in a private beach was seen and diagnosed with larva migrans (Figure 2). The evolution was quite rapid with only 5 days of therapy with systemic albendazole 400 mg/day with full recovery.

Case 3

A 29-year-old man sought medical advice, after one week of self medication with antihistamines and topical steroids for a small, arcuate erythematous lesion on the left thorax accompanied by pruritus (Figure 3). The patient described the feeling of something walking under the skin. He remembered sunbathing at the sea 10 days prior to the first observation of the skin lesion.

There were no systemic complaints, standard laboratory findings were within the normal range, no eosinophilia was observed, and the cutaneous larva migrans disappeared within 1 week of oral albendazole 400 mg/day.

Discussion

Cutaneous larva migrans (creeping eruption, sand worm eruption, plumbers itch, duck hunters itch) is caused by penetration of skin by third-stage larvae of animal hookworms [1]:



Figure 3. Case 3: Larva migrans on the left thorax

- *Ancylostoma braziliense* (the most common form in humans),
- *Ancylostoma caninum*,
- *Ancylostoma ceylonicum*,
- *Uncinaria stenocephala*, *Bunostomum phlebotomum*, *Gnathostoma* spp., *Diriofilaria conjunctivae*, *Capillaria* spp., *Anatrichosoma cutaneum*, *Strongyloides stercoralis*, *Diriofilaria repens*, *Spirometra* spp., *Gastrophilus* spp., *Hypoderma* spp. [2].

Warm and humid fields are favored for the infestation and therefore most accidentally an infection occurs. Only the larva penetrates intact skin or minimally disrupted tegument. Infestation can be present in healthy persons as well as in immunosuppressed patients.

The first clinical signs appear 1–6 days after the infection and the lesions advance 2 mm to 3 cm per day [3, 4].

The clinical picture is relatively broad, ranging from the classic aspect of erythematous serpiginous or linear lesion to bullous, folliculitis-like, with eczematization and secondary infection caused by scratching induced by intense pruritus.

The main sites of infestation are the buttocks, feet, and trunk, but any part of the body can be affected (abdominal wall, penile shaft, breast, oral cavity) or multiple lesions can coexist [5].

The natural hosts are cats, bovines and dogs. Eggs are excreted in the animal feces, and humans are usually infected with the larvae when walking barefoot or coming into direct contact with soil (sleeping on the ground, lying in the sun). Then the larvae migrate in tortuous tunnels causing intense pruritus and serpiginous or linear lesions.

Cutaneous larva migrans is a superficial infestations in humans because larvae do not possess collagenase for penetrating the basement membrane and going down to the dermis. It is a limited skin disease.

Diagnosis is mostly clinical; skin biopsy is of little help because larvae are rarely seen under the microscope and eosinophilic infiltrate is not specific, but only contributes to the final diagnosis.

Larvae can be visualized by epiluminescence microscopy or by optical coherence tomography, but both methods are very expensive and not justified in daily practice.

Historical treatments occupy a long intriguing list: ethyl chloride spray, liquid nitrogen, phenol, carbon dioxide snow, piperazine citrate, electrocautery, radiation, chloroquine, antimony, diethylcarbamazine. They proved unsuccessful by missing the offending agent.

- Thiabendazole is the first choice topical for localized lesions and orally for widespread cutaneous infestations [6]. It is a third-generation antihelmintic that inhibits fumarate reductase with inhibition of microtubule formation. It can be administered as 10% topical thiabendazole suspension 4 times a day for at

least 2 days after the last sign of burrowing activity or orally [7].

- Albendazole is a broad-spectrum benzimidazole carbamate antihelmintic that acts by interfering with glucose uptake and disrupting microtubule aggregation [8]. Standard dosage is 400 mg daily by oral administration [9].
- Mebendazole is also a broad-spectrum antihelmintic that inhibits microtubule assembly and irreversibly blocks glucose uptake.
- Ivermectin is a semisynthetic macrocyclic lactone antiparasitic agent with broad-spectrum action against nematodes by producing flaccid paralysis through binding of glutamate-gated chloride ion channels [10]; a single dose of 200 µg/kg body weight is considered enough.

Most important is to keep in mind that larva migrans is a self-limiting disease; larvae die within 4–8 weeks, rarely 1 year. This is the reason for underestimating the disease.

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