

ATYPICAL LOCALIZATION OF CUTANEOUS LARVA MIGRANS

Nicoleta Negrut^{*}, Sonia Draghici^{*}, Ildiko Lenard^{*}, Zaporojan Iulian^{**}, Csep Andrei^{*},
Mihaela Petric^{*}

^{*}University of Oradea, Faculty of Medicine and Pharmacy, Department of Public Health and Preventive Medicine Infection Diseases, University street, 1 no., Oradea, lnm_n10@yahoo.com

^{**}Infectious Diseases Department of Pneumology Hospital of Oradea, Tribunalului street, 8 no, Oradea

Abstract

Cutaneous larva migrans (CLM) is due by the presence of different types of worm's larvae in the human skin. It affects more frequency the people from tropical and subtropical area, but rare in temperate places (1). The objective of the study is a clinical presentation of the CLM, a rare zoonosis, which can affect humans accidentally. A retrospective study was made using the informations from the news medical manuscripts and the clinical observation paper of the patient. We present a case of 2 years old female patient, who presents in September 2009, in the Infectious Diseases Department of Pneumology Hospital of Oradea, for a serpinginous papulo-erythematous, pruritic skin track localized initially on the posterior thoracic wall. She was from rural area, didn't have any pets at home and did not travel in other foreign countries ever. The mother said that the child usually was playing in neighbor's yard and they have a dog. The patient was primary treated in other department with antihistaminic drugs and antibiotics with no positive results. After that, the affected area grows with the migration of the track on the anterior thorax, then on neck, associated with the apparition of another 2 tracks: one on the right buttock and the other one in the right retroauricular area. The laboratory test revealed leukocytosis with peripheral eosinophilia associated with anemia. Skin biopsy didn't reveal any etiology. Diagnosis was CLM according to the clinical manifestation and history. Two cures of Albendazol (400 mg/d for 3 days, then another 400 mg/d for 5 days) were prescribed. One recurrence appeared after the first cure of treatment, but not after the last one.:

CLM is a rare condition in the temperate area, especial in the autumn period, to a child who hasn't been in an endemic area. Identification of the larvae by skin biopsy was negative. The CLM had an atypical localization. The hookworm anemia is a rare complication of the CLM, and it is present at children or pregnant females. The contamination of the environment in which the child was playing was probably the cause that leded to the appearances of the zoonosis.

Keywords: larva migrans, skin track, Albendazole, zoonosis.

INTRODUCTION

Cutaneous Larva Migrans (CLM) can be caused by the presence of different animal nematodes larvae in the Malpighian layer of the human skin.

The most common worms that can cause this disease are (2):

- *Ancylostoma braziliense* (dog and cat hookworm) found in the United States, Central America, South America, and the Caribbean region,
- *Ancylostoma caninum* (dog) found in Australia,
- *Uncinaria stenocephala* (dog) found in Europe,
- *Bunostomum phlebotomum* (cattle).

According to other authors (1), less common worms implicated in CLM are:

- *Ancylostoma tubaeforme* , *Ancylostoma ceylanicum* (cat)
- *Necator americanus* (humans, very rare cases of CLM)

- *Strongyloides myopotami*, *Strongyloides papillosus* and *Strongyloides westeri* (mammals)
- *Ancylostoma duodenale* (humans, very rare cases of CLM)
- *Gnathostoma* spp. (cat, dog and pig)
- *Capillaria* spp. (rodent, cat, dog and poultry)
- *Strongyloides stercoralis* (humans, very rare cases of CLM)
- *Dirofilaria conjunctivae*, *Dirofilaria repens*
- *Spirometra* spp.
- *Hypoderma* spp.
- *Gastrophilus* spp.

CLM usually affects the persons which come more frequency in close contact with contaminated soil. Clinical presentation of CLM (creeping eruption) is a serpiginous papulo-erythematous, pruritic skin track 2-4 mm wide, as a result of the migration of the larvae (a skin hypersensitivity reaction to the larvae and its products). Vesicular and papular lesions might be observed in conjunction with it. The localization of the eruption is on the feet, buttocks, abdomen, hands and genitals. The rate of the migration ranges between 2 mm to 2-3 cm per day, according to the type of parasite and the location of the larvae is usually 1-2 cm beyond the track.

It can be associated with eosinophilia and with the elevation of the Ig E antibodies. The larvae cannot penetrate the epidermal basement membrane and therefore can't complete the life cycle in humans. CLM resolves untreated by itself after few weeks or months.

The life cycle is partially in human host, animals (specially the cats and dogs) representing the definitive host for this zoonotic infection (3).

The animals eliminate the eggs of the worm in the environment through faeces. If they are releasing the rhabdiform larvae and in favorable conditions (shade, warmth, and moisture – sandy soil) it becomes filariform, after 5-10 days. This type of larvae can infect animals as definitive host (penetrates the skin, then thru blood vessels arrives in the lungs, pulmonary alveoli, ascend in the bronchial tree, and are swallowed in the small intestine, where it becomes adult worms and eliminate eggs, which will be passed with the stool in the environment).

Humans can be accidentally infected with filariform larvae; it can penetrate the pilous follicles, the orifices of the sebaceous glands (6), the broken and even the intact skin (1). The incubation period is vaguely established, between 1 day to 2 weeks (frequently 1 - 6 days).

After the skin penetration, the larvae cannot cross the epidermal basement membrane and migrates aimlessly in Malpighian layer. It is more active at night (6). The larvae die after some months in that location and cannot finish the life cycle.

The diagnosis is based on the clinical aspect of the eruption and history. Lab test can reveal eosinophilia and the elevation of the Ig E antibodies. Usually, skin biopsy is not helpful because the larvae are located 1-2 cm beyond the end of the tract. Optical coherence tomography, can identify and locate the larvae in the epidermis, allowing direct removal.

The CLM is a self-limiting disease, but treated because of the risk of bacterial super infections (*Staphylococcus aureus* or *Streptococcus pyogenes*) of the skin and intense pruritus. The anthelmintics are the drugs of choice for cutaneous larva migrans: albendazole (400 mg/d for 3 days) or ivermectin (200 µg/kg, single dose) or thiabendazole (25 to 50 mg/d for 2 to 5 days).

They can be associated with antihistamines or topical corticosteroids for pruritus and oral antibiotics for the secondary infections.

MATERIAL AND METHODS

A retrospective study was made using the information from the news medical manuscripts and the clinical observation paper of the patient, a case of 2 years old female patient who presents in September 2009, in the Infectious Diseases Department of Pneumology Hospital of Oradea.

RESULTS

We present a case of a patient who presents for a serpinginous papulo-erythematous, pruritic skin track, localized initially on the posterior thoracic wall.

She was from rural area, didn't have any pets at home and did not travel in foreign countries ever. The mother said that child usually was playing in neighbor's yards and they have a dog.

The patient was primary treated in other department with antihistaminic drugs and antibiotics with no positive results. After that, the affected area grows with the migration of the track (3 cm per day), on the anterior thorax (Figure 1), then on neck (Figure 2), with disappearance from the posterior areas.

Figure 1



Figure 2



Another track was present on the right buttock (Figure 3).

Figure 3



The laboratory test revealed: leukocytosis (White Blood Cells – WBC = 13400 elements /mm³), peripheral eosinophilia (26 %), microcytic hypochromic anemia (hemoglobin = 9,2 g %, hematocrite = 31 %, corpuscular volume - MCV = 50 fL, corpuscular Hb - MCH = 14,7 pg, corpuscular Hb concentration - MCHC = 29,6 %).

The patient was sent for skin biopsy. There were no positive results. Serology test could not be performed. Stool examination for parasites was also negative.

Diagnosis was CLM with microcytic hypochromic anemia according to the clinical manifestation, history and laboratory tests.

Treatment with Albendazol (400 mg/d for 3 days), associated with antihistaminic drugs, was initiated.

After 3 days of treatment the migrations stopped. A second cure of Albendazole was indicated after 14 days, and the patient was left at home. In the 10th day, a third track appears in the right retroauricular area (Figure 4).

Figure 4



The second cure of Albendazole was 400mg/d 5 days. The new migratory track has stopped. The patient was left at home under clinical observation.

DISCUSSION

CLM usually affects the residents or travelers in endemic areas (United States, Central America, South America, and Caribbean) (1), persons having skin contact with contaminated soil. The case presented is resident in a Romanian village; she never traveled in endemic areas, and didn't have any pets at home. Her mother mentioned that the child usually was playing in neighbor's yards and they have a dog. It's a rare condition in the temperate area, especial in the autumn period, to a child who was not in an endemic area. But in September 2009, the conditions for the larvae to develop (high temperature) were good.

One recurrence appeared after first cure of Albendazole, possible due to a reinfection (for 10 days the patient was left in the same environment at home) and it's known that the incubation period of CLM is common between 1 to 6 days. So the environment plays an important role in infestation in this condition. The contact of the child with the soil from the neighbor's yard was probable the cause of infection. Unfortunately, dog's examination was not made.

This case has an atypical presentation on the thorax, neck and retroauricular area, because little children are usually playing with soil and do not respect the rules of hygiene.

Identification of the larvae by skin biopsy was negative. It's mentioned in the medical literature, that skin biopsy, usually, is not positive because of the movement of the larvae (7).

The hookworm anemia is a rare complication of the CLM, and it is present at children or pregnant females, as in our case.

Future measures of prevention such as: cleaning the environment, avoiding the contamination of the soil with animal's faces, avoiding playing and lying on the dry soil, especially sandy, and de-worming animals regularly must be done (8).

CONCLUSIONS

1. CLM is a rare condition in the temperate area.
2. The contamination of the environment in which the child was playing was probably implicated in the appearances of the zoonosis.
3. The CLM had an atypical localization in this case, on the thorax, neck and retroauricular area.
4. The hookworm anemia is a rare complication of the CLM.
5. Future measures of prevention must be taken to stop the reinfestation.

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