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Case Report

Two clinical cases of cutaneous larva migrans among travelers returning from tropical countries

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Abstract

After febrile conditions and diarrheal syndrome, skin diseases are the third most common medical problem among people returning from regions with the tropical climate. Hookworm-related cutaneous larva migrans is caused when animal filariform larva penetrates the human dermis. The larva is unable to move into deeper tissues and moves "migrates" in the dermis. The condition is also known as "creeping eruption" and most often affects the skin on the feet, buttocks and abdomen. Diagnosis is clinical, based on the typical cutaneous manifestations and recent travel history. Serologic tests or other diagnostic methods for cutaneous larva migrans are not available.

The purpose of this work was to present two cases of a 30-year-old man and a 4-year-old child who were examined at the National Centre of Infectious and Parasitic Diseases in Sofia, Bulgaria, after tourist trip in Brazil and the Goa State of India, respectively. Reason for examination was itchy linear rash in both patients, located on the dorsal surface of the left foot in the man and the left gluteal region in the child. Based on the typical exanthema of the skin and the epidemiological history of visiting an endemic region, diagnosis of "cutaneous larva migrans" was made in both cases. Treatment with albendazole was applied, as directed, after which the clinical manifestations in both patients, resolved completely.

The increasing travel of people across borders may result in an increased incidence of non-endemic or rarely seen in the temperate geographic regions diseases of which the physicians should be informed.

Keywords: *Ancylostoma brasiliensis*, *Ancylostoma caninum*, cutaneous larva migrans

Introduction

Tropical diseases are infectious and parasitic diseases prevalent in areas with the tropical and subtropical climate where ecological and socio-economic conditions favor their distribution. After febrile conditions and diarrheal syndrome, skin diseases are the third most common medical problem among travelers returning from areas with tropical climate [1]. Since Lee RJ first described a "creeping eruption" on the skin of a patient in 1874 [2], for a long time the terms "cutaneous larva migrans" and "creeping eruption" were used as synonyms, the first term describing the syndrome and the second the clinical manifestation [3].

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Cutaneous larva migrans is a "creeping" rash, usually affecting the skin of the feet, buttocks and abdomen. Skin changes are due to a hypersensitivity reaction to the causative agent and its bioproducts. The disease is widespread in countries with the tropical and subtropical climate. In the United States, Central and South America and the Caribbean, the condition usually is caused by *Ancylostoma brasiliensis*, a parasitic nematode of dogs and cats. In rare cases the human disease can also be caused by other animal nematodes - *Ancylostoma tubaeforme*, *Ancylostoma caninum*, *Ancylostoma ceylanicum* and *Uncinaria stenocephala* (dogs); *Bunostomum phlebotomum* (cattle); *Gnathostoma species* (cats, dogs, pigs) and others. Of the nematodes with the human host, cutaneous larva migrans is usually caused by *Strongyloides stercoralis* [4].

The aim of this study was to present two cases of the disease and their management in terms of diagnosis and treatment.

Case 1

A 30-year-old man from Sofia traveled for about a month in Brazil (including in the Amazon Delta) as a tourist. Nearly a week after his return he began to feel a severe itching on the dorsal surface of his left foot where he also noticed the appearance of a linear rash. Linking the symptoms with his recent visit to a tropical country he decided to seek consultation with a parasitologist at the National Centre of Infectious and Parasitic Diseases (NCIPD) in Sofia, Bulgaria. Presence of erythematous linear itchy rash of about 5 cm long was found on the skin near the fingers on the dorsal surface of the left foot (Figure 1A). Regional lymphadenitis or other pathological findings were not established. Laboratory tests, including complete blood count, differential blood count, erythrocyte sedimentation rate, serological examination for microfilariae and parasitological examinations of a fecal sample for intestinal protozoa and helminths, were either normal or with negative results. Based on the typical skin exanthem and the epidemiological history of a visit to an endemic region, a "Larva migrans cutanea" was diagnosed. It was assumed that most likely is caused by infection with *Ancylostoma brasiliensis*. The patient was treated with albendazole for three days as directed, after which the clinical manifestations gradually resolved.



Figure 1A. Linear rash of about 5 cm on the dorsal surface of the left foot of patient 1.

Figure 1B. Linear erythematous skin eruption of about 20 cm in length on the left gluteal area of patient 2.

Case 2

The patient is a girl of 4 years of age, who was with her parents on a 10-day vacation at a seaside resort in the state of Goa, India. During the return flight to Bulgaria, the child complained from severe pruritus and discomfort in the left gluteal area and upon examining the skin her parents found a linear rash. Assuming a connection between the rash and their visit to India the parents decided to consult with a parasitologist at NCIPD. From the history, it was found that while playing the child have been in frequent contact with the sand on the beach. The examination revealed a linear, erythematous skin eruption of about 20 cm in length, in places wounded and crusted by scratching (Figure 1B). The clinical approach was identical to that in Case 1. The laboratory data were without deviations and the parasitological examination of a stool sample was with a negative result. Because of the epidemiological history of a journey in a region endemic for a skin disease caused by *Ancylostoma caninum* and the characteristic skin manifestations, a diagnosis of cutaneous larva migrans was made. A 3-day treatment course with albendazole at a daily dose of 10 mg/kg was prescribed with excellent results, the skin manifestations and itching completely disappeared within a week after the treatment.

Discussion

The diagnosis of this condition is clinical, based on the typical cutaneous manifestations and recent travel history. Serologic tests or other diagnostic methods for cutaneous larva migrans are not available. Similar skin eruptions may also be caused by *Strongyloides stercoralis* larvae, but in these cases, the parasitological examination of a fecal sample will find the presence of nematode larvae in the stools and the skin condition is known as "larva currens" (racing larva) [4]. Cutaneous larva migrans syndrome excludes "creeping eruption" conditions caused by non-larval forms of migrating in the human host nematodes (dracunculiasis, loiasis, onchocerciasis, dirofilariasis), or when it comes to cercarial dermatitis (schistosomiasis) [3,5]. Given that within one clinical syndrome the differential diagnosis includes diseases caused by a large number of parasitic agents with different impact on the human health, we believe it is advisable in the course of diagnosis to carry out targeted parasitological examinations for the discussed in the text pathology.

Conclusion

The disease is rarely recorded in Bulgaria and up to the moment, autochthonous cases have not been registered. The increasing travel of people across borders may result in an increased incidence of non-endemic or rarely seen in the temperate geographic regions diseases of which the physicians should be informed.

Conflict of interest

The authors declare that they have no conflict of interest.

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