

Two cases of probable endogenous extensive cutaneous larva migrans in Serbia

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S U M M A R Y

Cutaneous larva migrans (CLM) is a skin infestation clinically characterized by erythematous serpiginous lesions caused by nematode larvae, usually of animal hookworms. It is most commonly seen in tropical and subtropical geographic areas. It is occasionally seen in Europe and other temperate climates, most often in patients that have previously traveled to tropical areas. We present two male patients that did not travel abroad with clinical features of extensive CLM located on the trunk acquired in an unusual way. CLM is not characteristic of Serbia, which is located in southeast Europe. Unusually hot and sunny weather with heavy rainfall and high humidity during the summers of 2005 and 2006 were favorable conditions for the development of parasites in the soil and infestation with large numbers of larvae. To the best of our knowledge, this is the first report of extensive CLM in Serbia.

Introduction

Cutaneous larva migrans (CLM) is a skin infestation clinically characterized by erythematous, serpiginous lesions caused by the accidental percutaneous penetration and migration of nematode larvae, usually of animal hookworms, especially cat and dog hookworms, through the epidermis (1). The most common cause in North and South America is *Ancylostoma braziliense*, and in Europe *Ancylostoma caninum* and *Uncinaria stenocephala*, but other species have been reported (1, 2). The nematode larvae develop from the eggs of these parasites released into the soil with the feces of contaminated animals. Sand in a warm, humid environment is the optimum location for larvae to mature. Once

mature, the filariform larvae use their proteases to penetrate intact skin and migrate up to several centimeters a day, usually between the stratum granulosum and stratum corneum.

Larvae are believed to lack the collagenase enzymes required to penetrate the human basement membrane to invade the dermis, and therefore lesions remain limited to the epidermis (1, 2). Because humans are not their natural hosts, they cannot support further larval development, and hence serve as incidental, dead-end hosts.

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K E Y W O R D S

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Figure 1. Multiple serpiginous elevated erythematous tracks with vesicles on the anterior and right side of the trunk. Patient 1.

rope and other temperate climates, most often in patients that have previously traveled to tropical areas.

Case reports

Case 1. A 63-year-old man from near the town of Kraljevo, Serbia, came to our institute in January 2006 because of a persistent, extremely pruritic rash on the anterior aspect of his trunk. The rash appeared in August 2005 during construction work at his house. His chest and abdomen were probably exposed to larvae through his T-shirt, which was contaminated by sand (which had fallen onto it). He had not traveled to tropical or subtropical regions.

Physical examination revealed multiple serpiginous, slightly elevated erythematous tracks, associated with small vesicles on the anterior and right side of his trunk (Fig. 1). The tracks migrated approximately a few millimeters to one centimeter a day (Fig. 2). Routine blood tests were within normal limits. Histology revealed spongiosis of the epidermis with a mixed inflammatory infiltrate composed of lymphocytes, histiocytes, and numerous eosinophils in the dermis. Bacteriological culture of skin swabs was negative. The patient was treated successfully with oral albendazole, 400 mg daily for 3 days.

Case 2. A 70-year-old male from the Belgrade suburbs with a 5-month history of pruritic rash on his back was admitted to our institute in October 2006. He also had no history of traveling abroad. The lesions started in June 2006 after having repaired his car while lying beneath it on the ground on his bare back for many hours. Physical examination revealed multiple



Figure 2. Migration of larvae. Patient 1.

serpiginous, slightly elevated erythematous tracks on his back (Figure 2). Routine laboratory tests revealed no abnormality. Histology was not specific. The patient was treated with a single oral dose of ivermectin (200 mg/kg). In a few days, the lesions resolved.



Figure 3. Multiple serpiginous erythematous tracks with residual pigmentation on the back. Patient 2.

Discussion

CLM is most commonly seen in warm climates. In Europe, case reports (3) and prospective studies with several patients (4, 5) refer mainly to travelers that have returned from tropical countries. Freedman and Weld (4) found that, after insect bites, CLM is the most frequent cause of dermatological problems in travelers to tropical and subtropical areas. In the same study the Caribbean was shown to be the region with the highest number of affected travelers. There are only a few published cases of CLM in Europe in patients that have not traveled to endemic areas (6–9). They usually described single patients with one or a small number of lesions on typical sites such as the extremities or the gluteal region. Exposure of large areas of the skin surface to contaminated soil for a prolonged period of time increased the chances of infestation with a large number of larvae. There are only a few published reports of patients with extensive clinical presentation (3, 10).

Diagnosis in both of our patients was made clinically, based on characteristic morphology of the eruption. Biopsy is of little help because parasites are seldom found. Our mostly nonspecific histological findings are consistent with literature descriptions. The differential diagnosis includes other nematode infestation, primarily strongyloidosis (*larva currens*). The lack of

pulmonary and gastrointestinal problems in our patients, lack of purpura, and relatively slow movement of parasites are facts speaking against the diagnosis of strongyloidosis (11).

First-line treatment of CLM is ivermectin as a 200 mg/kg or 12 mg single oral dose (1, 2). This blocks chemical transmission across nerve synapses that use glutamate-gated anion channels or α -aminobutyric acid-gated chloride channels, causing paralysis of invertebrates (12). A broad spectrum benzimidazole carbamate antihelmintic, albendazole, 400 mg, administered orally for 3 days, is also an effective therapy for CLM. It acts by interfering with glucose uptake and disrupts microtubule aggregates (1, 2). Oral thiabendazole is less effective and more toxic. Topical thiabendazole solution or ointment can be applied for localized disease, but has limited value for multiple lesions (1).

In conclusion, in Serbia (which is located in south-east Europe and has a temperate climate), CLM cases have usually been observed in patients after they travel to tropical and subtropical regions. Unusually hot and sunny weather with heavy rainfall resulting in humid summers in 2005 and 2006 in Serbia were obviously favorable conditions for the development of parasites in soil and infestation with a large number of larvae. To the best of our knowledge, these are the first cases of extensive CLM in Serbia in patients that had never traveled abroad; the most unusual aspect of these patients' cases was the extensive presentation of CLM.

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