Hookworm-related cutaneous larva migrans acquired in the UK

Katy Baple, James Clayton

SUMMARY
Hookworm-related cutaneous larva migrans (HrCLM) is a skin disease caused by infection with the larvae of animal hookworms. With conditions for infection more favourable in tropical climates, HrCLM in the UK is classically diagnosed in the returning traveller. We present two cases of clinically diagnosed UK-acquired HrCLM from a district general hospital in the south of England. A 68-year-old woman presented with a pruritic serpiginous tract on the right hand. She was a keen gardener and had been handling compost. A 50-year-old man, a long distance runner, presented with a similar lesion on the dorsum of his foot. Both patients were treated with a single dose of albendazole. These cases may represent an emerging infection in the UK. In the absence of a suggestive travel history, early recognition followed by efficient access to therapy is vital for treating HrCLM transmitted in the UK.

BACKGROUND
Hookworm-related cutaneous larva migrans (HrCLM) is a skin disease caused by infection with the larvae of animal hookworms, particularly those that infect cats and dogs. Species include Ancylostoma braziliense and Ancylostoma caninum. With conditions for infection more favourable in tropical or subtropical climates, HrCLM in the UK is classically diagnosed in the returning traveller. However, cases acquired within the UK are reported. The clinical history and examination findings of a classic serpiginous erythematous lesion known as a 'creeping eruption' resulting from the migrating larvae are fundamental to forming the diagnosis.

We report two cases of clinically diagnosed UK-acquired HrCLM presenting to a district general hospital in the south of England in the summer of 2014.

CASE PRESENTATION
Case 1
A 68-year-old woman presented with an 11-day history of a gradually extending pruritic serpiginous tract on her right hand in June 2014. She expressed being a keen gardener and described noticing a 'bite' underneath her ring on her right little finger after handling compost in her garden in Surrey. When gardening, she generally used gloves of a thin material. Over the following days, a rash developed, tracking from the initial 'bite site' with a sensation of 'something crawling' under the skin. The patient later attempted to self-extract this with a sterile needle after which she noticed the lesion extending at an increased rate. The lesion was described as intensely itchy and was associated with significant sleep disturbance. There was previous travel of a 1-month trip to South Africa 4 months prior to presentation. There was no significant animal contact (including with cats or dogs); however, she mentioned her garden was surrounded by woodland and was regularly visited by deer, foxes and rabbits. Examination revealed an erythematous papule between the fourth and fifth web space, with a red/brown elevated serpiginous tract tracking along the medial palmar aspect of the right hand (figure 1).

Case 2
A 50-year-old man presented, in August 2014, with a 4-week history of a small erythematous lesion on the dorsum of his foot, which gradually extended daily by a few millimetres (figure 2). The area was intensely pruritic and caused severe sleep disturbance. Antibacterials were prescribed by his general practitioner (GP), but with little effect. He

Figure 1 Serpiginous tract tracking from a small erythematous papule—the initial point of entry. A lesion is visible where the patient had attempted self-extraction of the larvae.
returning traveller; however, cases acquired within the UK in

reason, HrCLM commonly presents in tropical or subtropical

red foxes; 2 in a study to quantify the prevalence of

HrCLM was made by a London GP.

2 Baple K, Clayton J.

hookworms

HrCLM is commonly caused by infection with the larvae of the

DISCUSSION

3 months of follow-up.

achieved in our patients with no relapse reported within

With this treatment regimen, early resolution of the lesion was

OUTCOME AND FOLLOW-UP

Both patients were systemically well and were given a single

dose of albendazole (400 mg) with resolution of the dermatitis

after 1 week.

lariform larvae.1 The natural hosts of these hookworms are dogs and cats. Interestingly, both

U. stenocephala and A. caninum have also been isolated from

red foxes; in a study to quantify the prevalence of zoonotic-important parasites in the red fox (Vulpes vulpes) in

Great Britain, U. stenocephala was isolated from the small intesti-
tine of 41.3% of the 588 carcasses collected.1 The risk of

HrCLM in humans that is contributed by red foxes is yet to be

ascertained. It is feasible that the cases described were due to

skin contact with soil contaminated with infected dog/cat

faeces; however, wild animals should not be discounted in the

transmission of HrCLM.

Humans are incidentally infected when there is skin contact

with contaminated soil or sand containing filariform larvae.

These develop 5–10 days after the rhabditiform larvae have

hatched from eggs passed in the faeces of their infected defini-
tive host.4 Hatching and survival of the larvae are optimised in

specific soil conditions: moisture, warmth and shade. For this

reason, HrCLM commonly presents in tropical or subtropical

climates. HrCLM in the UK is classically diagnosed in the

returning traveller; however, cases acquired within the UK in

addition to other temperate climates have been reported. Cases

within the UK have been attributed to prolonged contact of

clothing with infected dog or cat faeces,3 and from skin ex-

posure to sand on a Cornish beach2 and grass on the west coast of

Scotland.1 A further case in the UK has been reported following

skin contact with faeces from puppies that had not received

hookworm infection prophylaxis.5 Six cases in Italy occurred

likely after contact with dog or cat faeces that had contaminated

floral arranging material.9 Several cases that have presented in

Germany, which has a similar climate to the UK, were deemed

to be secondary to unusual weather conditions that is, a warm

and humid summer, and contact with riverbanks and lakeside

soil/sand.10–13 The UK, in 2014, had higher than average tem-

peratures and rainfall over spring and summer.14 15 Our patients

presented in June and August of that year. This, in addition to

the contact with dark and moist areas of soil, likely increased

the chance of transmission in our patients.

In our first case, there was a history of travel to South Africa

4 months prior to presentation. Prolonged incubation periods

exceeding this time have been reported, however, an incubation
time of a few days to a month is more common.16 17 A study in

Brazil reported that track length was significantly associated

with the duration of the infection, with an average increase in

length of 2.7 mm per day,18 thus time and place of exposure

can be estimated. The length of the track in our first case was

approximately 70 mm, suggesting an incubation period of less

than a month and hence the presumed location of acquisition to

be the UK.

The diagnosis of HrCLM in the two cases we present is based

on characteristic clinical findings. Diagnosis is largely clinical

through the presence of a pruritic erythematous linear to ser-
piginous lesion extending from a red itchy papule—the site of

larval penetration.1 The lesion is caused by an inflammatory

reaction secondary to the migration of the larva through the epi-
dermis.1 Lesions are mainly found on the most exposed areas of

the body, that is, the upper and lower extremities and other

areas that may come into contact with infected soil/sand, includ-
ing the buttocks. Biopsy of the lesion followed by histological

investigations rarely is of use, as the larva is located further than

the visible lesions.6

Learning points

▸ While hookworm-related cutaneous larva migrans (HrCLM) is

most likely to be seen in people returning from abroad, this

may represent an emerging infection in the UK.

▸ The cases that we describe may be due to skin contact with

soil contaminated with infected dog/cat faeces; however, wild

animals should not be discounted in the transmission of

HrCLM.

▸ The warm temperatures and higher rainfall experienced in

2014 may have had a positive effect on survival of the

larvae and thus transmission in the two cases we have

reported.

▸ Resolution of the lesion with no reported relapse within

3 months can be achieved with a single dose of oral

albendazole.

▸ In the absence of a suggestive travel history, recognition

by front-line physicians and, where appropriate, further

communication with specialists, followed by efficient

access to therapy, is essential in treating HrCLM transmitted

in the UK.
Although the eruption largely resolves after 2–8 weeks without therapy, for the relief of symptoms and reduction in the risk of recurrence and secondary bacterial infection, treatment with antihelminthic agents is recommended.\textsuperscript{17} However, the optimal treatment regimen remains controversial, with varying treatment durations of albendazole (1, 3, 5 and 7 days), a single dose of oral ivermectin or topical therapy with thiabendazole or albendazole being recommended in the literature.\textsuperscript{19–21} When comparing single dose regimens; higher cure rates with ivermectin (81–100\%) in comparison to albendazole (46–100\%) are reported.\textsuperscript{20, 22} In more extensive or multiple lesions, a 7-day course of albendazole (100\% cure rate) has been advised.\textsuperscript{23} The optimum treatment regimen advised appears to be dependent on the extent of the clinical presentation. In our patients who presented with a single lesion uncomplicated by secondary bacterial infection, early resolution of the lesions was achieved with a single 400 mg dose of albendazole, with no relapse within 3 months.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES


Copyright 2015 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit http://group.bmj.com/group/rights-licensing/permissions. BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

▸ Submit as many cases as you like

▸ Enjoy fast sympathetic peer review and rapid publication of accepted articles

▸ Access all the published articles

▸ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow


Reminder of important clinical lesson


