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# Furuncular myiasis caused by *Dermatobia hominis* in a Slovenian traveler

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**Abstract**

A case of furuncular myiasis caused by the larva of *Dermatobia hominis* is described, involving the ankle region of a 35-year-old woman that had returned from a vacation in Colombia. After removal of the larva from the skin, the lesion healed in 2 weeks. Due to an increasing rate of intercontinental travel, dermatologists in Slovenia may need to consider *Dermatobia myiasis* in the differential diagnosis of furuncular lesions in patients with a relevant travel history.

**Keywords:** tropical diseases, parasitic skin infections, furuncular myiasis, *Dermatobia hominis*, botfly

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## Introduction

Myiasis is a parasitic infestation of animals and humans caused by fly larvae, primarily species of the genera *Dermatobia* and *Cordylobia*. Myiasis caused by the larvae of *D. hominis* is a common disease in Central and South America, affecting domestic and wild animals and occasionally humans. With the increase in international travel, myiasis may be encountered more frequently in areas of the world where the parasite is not native (1–3). Over the last two decades, we have witnessed a small number of reports of myiasis encountered in Slovenian travelers returning from abroad (4–6).

We report a case of furuncular myiasis diagnosed in a patient that returned to Slovenia from Colombia. The parasite removed was identified as *D. hominis* larva.

## Case report

A 35-year-old female patient was referred to the Department of Dermatology at the Ljubljana University Medical Center for evaluation and treatment of a furuncle-like skin lesion manifesting just above the ankle area.

The patient first became aware of the lesion 7 weeks prior to her visit to our department, on the day of her return from Colombia.

Despite topical treatment with corticosteroids, the lesion did not show any regression. The lesion, which reportedly started out as a small papule, measured 1 cm in diameter. A small central punctum discharging a serous exudate could be seen (Fig. 1). Upon manipulation, delicate movement was observed, and the patient complained of local itching and pain.

At the Bartenjev Dermatology Clinic, the lesion was lanced under local anesthesia, and a live parasite was removed by forcefully injecting lidocaine at the base of the lesion. The affected site was disinfected, and the lesion healed without complications over a period of 2 weeks.

The parasite was pear shaped and measured 10 mm in length. The thicker part of the parasite was covered with backward-facing rows of spines, whereas the thinner part was smooth. The front featured two characteristic mouth hooks, and respiratory spiracles could be observed on the caudal part (Fig. 2).

Based on the patient's travel history, the 7-week period since the beginning of lesion formation, the clinical presentation of the furuncle-like lesion, and the morphology of the parasite featuring mouth hooks, backward-facing rows of spines surrounding the thorax, and respiratory spiracles, we concluded that the infection was caused by a larva of the *D. hominis* fly.

Figure 1 | Furuncle-like skin lesion above the ankle.

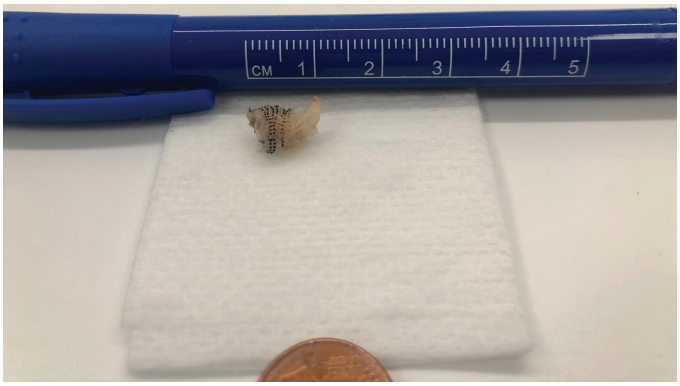


Figure 2 | Third instar larva of the human botfly, *Dermatobia hominis*, lateral view. Note the backward-facing spines that encircle the thorax and mouth hooks.

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## Discussion

Cutaneous myiasis is a skin infestation caused by the larvae of various fly species, which are characterized by distinct life cycles, modes of infection, and geographic distributions. In Central and South America, *D. hominis*, known as the human botfly, is the main culprit (1–3). In contrast, in Africa, the condition is mostly due to the larvae of *Cordylobia anthropophaga* and *C. rhodaini*, also referred to as the tumbu fly and Lund fly, respectively (4). The Northern Hemisphere experiences cases caused by *Hypoderma* spp. larvae between the latitudes of 25° and 60°, affecting North America, Europe, Africa, and Asia (1, 2, 4–11).

Furuncular myiasis, a specific type of cutaneous myasis, is primarily attributed to *D. hominis* and *C. anthropophaga* (12). The *D. hominis* fly, known for causing subcutaneous myiasis in both domestic and wild animals as well as humans, has a distinctive life cycle and physical characteristics. Adult females, identifiable by their blue bodies and brown wings and measuring about 15 mm in length, are prevalent from Central Mexico to Argentina. To reproduce, these flies attach their eggs to bloodsucking insects, such as mosquitoes or ticks, using a fast-drying adhesive. These eggs then incubate for 7 to 10 days before hatching. Upon contact with the skin of warm-blooded hosts, including humans, the larvae emerge and use their mandibular hooks to penetrate the skin within about 30 minutes, often at the site of an insect bite. As the larva grows, it causes the development of a boil-like lesion that opens to the skin's surface through a small pore used by the larva to breathe. After 5 to 10 weeks, the fully grown larva exits the skin to pupate in the soil, completing its life cycle from egg to adult in 3 to 4 months (1, 4, 12–14). This process is a significant cause of myiasis in travelers to tropical America and should be considered in the differential diagnosis of furuncular skin lesions. The botfly larva's reliance on mosquitoes for egg transportation explains why lesions typically occur on exposed skin areas (3, 4, 12).

Five cases of cutaneous myiasis have been described in the last 25 years in Slovenia (4–6). They were all cases of travelers that returned to Slovenia after trips to various parts of the world (northern India, Ghana, and Peru). In 2001, Logar et al. reported the only case of cutaneous myasis in Slovenia caused by the larvae of *D. hominis*. The patient had returned to Slovenia from a trip in Peru and presented with four tumor-like subcutaneous swellings in the ankle region. These were lanced under general anesthesia, and four live parasites were removed from the lesions, which healed uneventfully after disinfection in a short period of time (4).

Patients often do not notice when *D. hominis* larvae initially penetrate their skin. Within the first week, a small, red, and itchy papule appears, similar to a mosquito bite, which then evolves into a furuncle-like lesion due to the growing larva. These lesions predominantly occur on body parts exposed to the environment, such as the arms, legs, face, scalp, and neck (4, 14, 15). Typically, each lesion harbors a single larva. This type of myiasis can be mistaken for other conditions, including furunculosis, adenopathy, cellulitis, skin abscesses, insect bites, pyoderma, subcutaneous cysts, or leishmaniasis (4, 7, 12, 16). Lesions are often accompanied by distinctive nocturnal pain or episodes of sudden, sharp pain due to larval movements. The discomfort is sometimes described as a sensation of crawling (12, 17). In children, the infestation can lead to itching, distress, and sleep disturbances (18).

The most common complication of these furuncular lesions is secondary bacterial infection—for example, with *Staphylococcus aureus* and Group B *Streptococcus*—with signs including enlarged local lymph nodes and general systemic symptoms accompanying the infection (8, 19, 20).

Furuncular myiasis is primarily diagnosed through its clinical features and patient history, particularly in endemic areas, where knowledge of recent travel or exposure risks can guide diagnosis. Dermoscopy can reveal the maggot's posterior segments, identifiable by a central opening, yellowish structures, and black spines (21). Sonography, especially using high-frequency probes and color Doppler, can effectively confirm myiasis by identifying characteristic larval features and movements, and it can help in confirming complete removal of the larvae (22–24).

Laboratory tests are typically normal except in chronic or multiple infestations, in which signs of systemic inflammation or elevated eosinophil and immunoglobulin E levels might be observed (25). Although not essential for diagnosis, histopathological examination often shows ulcerated epidermis with or without hyperkeratosis and an intense inflammatory response within the dermis with a mix of eosinophils, lymphocytes, and macrophages and the larva within a fibrous cystic sinus tract (3, 26).

Various techniques can be employed to remove larvae in a patient with furuncular myiasis. Some traditional methods include applying substances such as mineral oil, petroleum jelly, or even raw bacon on the lesion to cut off the larva's air supply, encouraging it to exit prematurely (27, 28). However, this method carries the risk of the larva dying without emerging, potentially leading to inflammation and granuloma formation. A more direct and effective approach involves numbing the area with local anesthetic and making a small incision to extract the larva with forceps, a method that simultaneously anesthetizes the skin and the parasite (29, 30). Topical 1% ivermectin is an option for *D. hominis*–induced lesions, though it risks trapping a dead larva inside the skin (31).

Surgical intervention is rarely necessary, but when needed a careful incision allows for the larva's removal without leaving fragments. Debridement may be required to remove necrotic tissue (13). Oral treatments such as ivermectin are generally not recommended due to the risk of inflammatory reactions (24), and antibiotics are reserved only for cases with bacterial infections.

## Conclusions

Because travel to tropical and subtropical regions is becoming more common, healthcare professionals in Slovenia must include *D. hominis* myiasis in the differential diagnosis for persistent, painful furuncular skin lesions accompanied by sensations of crawling, especially among patients that have returned from recent visits to Central or South America.

As this case demonstrates, lancing the lesion and forcefully injecting local anesthetic such as lidocaine at the base can result in complete parasite removal without the need for medication or incision.

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