

What's Eating You? Human Botfly (*Dermatobia hominis*)

Maryann Mikhail, MD; Barry L. Smith, MD

Case Report

A 12-year-old boy presented to dermatology with boils that had not responded to antibiotic therapy. The boy had been vacationing in Belize with his family and upon return noted 2 boils on his back. His pediatrician prescribed a 1-week course of cephalexin 250 mg 4 times daily. One lesion resolved while the second grew larger and was associated with stinging pain. The patient then went to the emergency department and was given a 1-week course of dicloxacillin 250 mg 4 times daily. Nevertheless, the lesion persisted, prompting the patient to return to the emergency department, at which time the dermatology service was consulted. On physical examination, there was a round, nontender, 1.0-cm, erythematous nodule with an overlying 0.5-cm, yellow-red, gelatinous cap with a central pore (Figure 1). The patient was afebrile and had no detectable lymphadenopathy. Management consisted of injection of lidocaine with epinephrine around and into the base of the lesion for anesthesia, followed by insertion of a 4-mm tissue punch and gentle withdrawal of a botfly (*Dermatobia hominis*) larva with forceps through the defect it created (Figure 2). The area was then irrigated and bandaged without suturing and the larva was sent for histopathologic evaluation (Figure 3). The patient was mildly distressed but healed well without complication.

Comment

Cutaneous myiasis is an infestation of the skin by developing larvae (ie, maggots, botflies) of the order Diptera and can be divided clinically into wound and



Figure 1. Clinical presentation of a round, nontender, 1.0-cm, erythematous furuncular lesion with an overlying 0.5-cm, yellow-red, gelatinous cap with a central pore.



Figure 2. *Dermatobia hominis* larva extracted from a 4-mm tissue punch biopsy of a furuncular lesion.

From the Department of Dermatology, St. Luke's-Roosevelt Hospital Center, and Beth Israel Medical Center, both in New York, New York. The authors report no conflict of interest.

Correspondence: Barry L. Smith, MD, Department of Dermatology, Beth Israel Medical Center, 10 Union Sq E, Ste 3C, New York, NY 10003 (smith1194@aol.com).

furuncular subtypes. Wound myiasis occurs when fly larvae infest open wounds, mucous membranes, or body cavity openings in living hosts to feed. Worldwide, the most commonly encountered flies are *Cochliomyia hominivorax*, *Chrysomya bezziana*, and

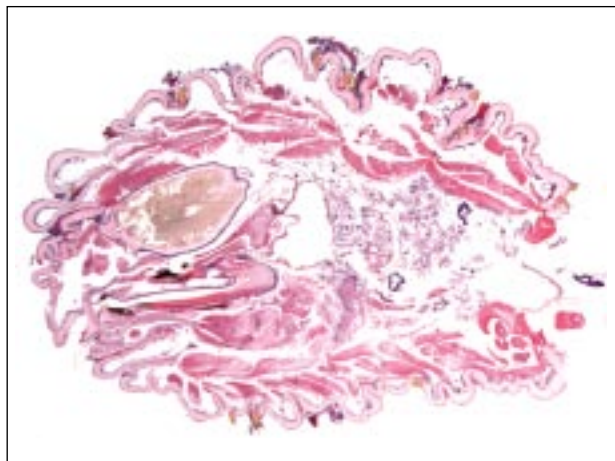


Figure 3. *Dermatobia hominis* larva on histopathology (H&E, original magnification $\times 10$).

Wohlfahrtia magnifica. In the United States, *Lucilia sericata* and *Phormia regina* have been implicated in the majority of cases.¹ Predisposing factors for wound myiasis include poor social conditions, poor hygiene, advanced age, mental retardation, substance abuse, diabetes mellitus, and psychiatric illness.^{1,4} Clinical presentation varies based on the extent and location of the infestation and ranges from localized pain and bleeding to massive tissue destruction; loss of eyes and ears; systemic illness with fever, chills, and leukocytosis; and secondary infection.⁵

Furuncular myiasis, as demonstrated by our case report, presents with boil-like lesions on exposed body surface areas that occur within 24 hours of botfly penetration. The lesion may be pruritic or tender and may become purulent and crusted.⁶ Some patients report feeling a sensation of movement. The larvae most commonly responsible for furuncular infestations are *D hominis* (the human botfly, torsalo), *Cordylobia anthropophaga*, *Cuterebra* species, *Wohlfahrtia vigil*, and *Wohlfahrtia opaca*. Of these organisms, *D hominis* has been implicated in the majority of cases of cutaneous myiasis diagnosed among travelers returning to the United States.⁷ *Cordylobia anthropophaga*, better known as the tumbu fly, causes furuncular myiasis year-round and without regard for standard of living in sub-Saharan Africa.^{8,9} It is uncommonly diagnosed outside of this endemic area, though a case was reported in Portugal in 2006.¹⁰ *Cuterebra* species flies frequently infest rodents and are among the most frequent causes of furuncular myiasis contracted within the United States.⁷ *Wohlfahrtia vigil* and *W opaca* tend to infest small mammals and young children.¹¹ *Wohlfahrtia vigil* is encountered in parts of the United States, Europe,

Russia, and Pakistan,¹² while *W opaca* is found only in western and southwestern North America.

The life cycle of *D hominis* begins when the gravid adult female seizes a bloodsucking insect, typically a mosquito, on which she deposits 10 to 50 eggs.¹³ When the carrier insect (also known as phoretic insect) feeds on a mammalian host, the larvae hatch in response to elevated temperatures and rapidly invade the skin. For the next 5 to 10 weeks, the parasite feeds on the surrounding soft tissue and undergoes transformations as it migrates to deeper layers of the host's skin,¹⁴ forming a dome-shaped cavity with a central ventilation hole open to external air for respiration.⁶ It then leaves the cavity and falls to the ground to pupate in the soil. The adult botfly emerges 4 to 11 weeks later.¹³

There are various treatment options for furuncular myiasis. Surgical debridement under local anesthesia is curative and most rapid.¹³ A second option is to kill the aerobic parasite through suffocation by applying petrolatum, beeswax, or paraffin to the central pore.¹⁵ The dead botfly must then be carefully extracted to ensure its complete removal, as remaining larval parts may incite a foreign body reaction.¹³ Another approach, though unlikely to be favorable among patients, is to coax the larva to emerge over the course of several hours by placing lard or strips of bacon over the site.¹⁶ Alternatively, oral ivermectin at a single dose of 200 $\mu\text{g}/\text{kg}$ ¹⁷ will result in the larva naturally sloughing from the skin over the ensuing 2 weeks.¹⁸

Furuncular myiasis is a parasitic infestation due to cutaneous invasion by the human botfly (usually *D hominis*). Clinicians should have a high index of suspicion if their patients develop boils after a trip to the beaches of Central America and South America.

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