

Furuncular Myiasis

Gregory D. Sloop, MD and Fred A. Lopez, MD, FACP, Series Editor

A case of furuncular myiasis is reported. The life cycle of the parasite, differential diagnosis, host response, and therapy are briefly discussed.

A 48-year-old man experienced a two week history of localized inflammation that was located to the right of his umbilicus. Three to four episodes of "pin-prick" sensations were noted at the site, but no pain was appreciated. A clear brown fluid was noted to ooze from the site. The patient initially thought that the lesion was a pimple or boil. He had visited Ambergris Caye, San Pedro, Belize on vacation five weeks earlier. Earlier on the day of presentation, he applied lateral pressure to the sides of the lesion and expressed some white tissue and ultimately extracted a foreign body (Figure 1). When he noted movement of the object, he experienced substantial anxiety, put the organism in a zip-lock bag, and presented to his physician. He was subsequently referred to a surgeon who performed a minor incision and drainage.

The foreign body measured 2.0 x 0.7 cm. and was identified as larva of the species *Dermatobia hominis* (i.e., the human botfly). Diagnostic features included the presence of spines in rows, the incubation period,¹ and his-

tory of travel to Ambergris Caye.² Microscopic examination revealed a sinus tract partially lined by stratified squamous epithelium. Surrounding tissue showed acute and chronic inflammation, fibrosis, and microscopic foreign material associated with a giant-cell reaction.

DISCUSSION

Furuncular myiasis is the term given to infestation of living subcutaneous tissue by fly larva¹. Primary infection occurs when larvae penetrate intact skin and is referred to as furuncular because the appearance of the resultant lesion mimics a staphylococcal-associated boil. Adult *D. hominis* lives only 9 to 12 days, and does not feed.³ Its mouthparts are vestigial, and have evolved into a sensory apparatus.⁴ The female attaches her eggs to a second, biting insect, often a mosquito or other fly. When this vector bites exposed mammalian skin, body heat causes the eggs to hatch, and then the larvae burrow into the host. The larva then feeds and grows for four to twelve

CME INFORMATION

TARGET AUDIENCE

The January/ February Clinical Case of the Month is intended for family physicians, general internists, medicine subspecialists, general practitioners, obstetricians-gynecologists, emergency medicine physicians, pediatricians, dermatologists, radiologists, and psychiatrists.

EDUCATIONAL OBJECTIVES

The Clinical Case of the Month is a regular educational feature presented by the Louisiana State University Department of Medicine in New Orleans. Medical students, residents, postdoctoral fellows, and faculty collaborate in the preparation of these discussions. After reading this article, physicians should be able to better identify and understand the pathophysiology, microbiology, clinical presentation, diagnosis, treatment, and prevention of furuncular myiasis.

CREDIT

The LSMS Educational and Research Foundation designates this educational activity for a maximum of .5 category 1 credit toward the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

DISCLOSURE

Dr. Sloop has nothing to disclose.
Dr. Lopez discloses that he is a member of the *Journal of the LSMS* Board of Trustees and the *Journal* Editorial Board.

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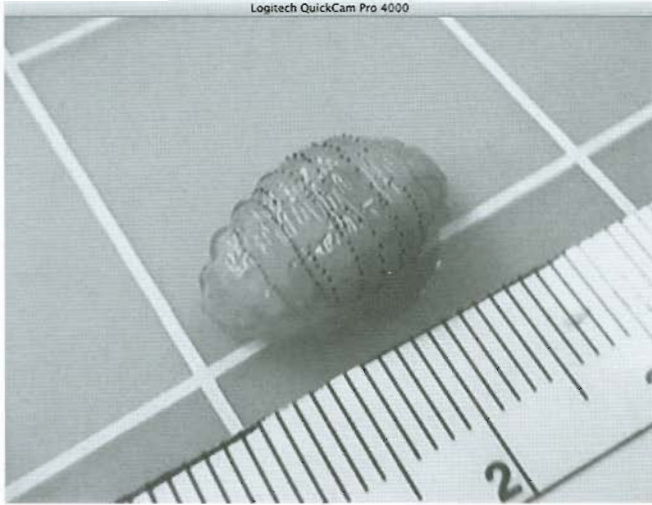


Figure 1. Foreign body extracted by the patient, subsequently identified as larva of *Dermatobia hominis*. Scale in centimeters.

weeks, breathing through a "punctum" or hole in the skin. When mature, the parasite exits the hole, drops to the ground, undergoes metamorphosis, and emerges as a short-lived adult.

D. hominis is endemic from Mexico to South America. Treatment involves extraction of the larva, usually by some means of occluding the punctum (i.e., application of petroleum jelly) or applying lateral pressure to the larval cavity, essentially forcing it through the punctum. In endemic areas, each village typically has one or two inhabitants who are expert in squeezing the parasites out.² If conservative management fails, the parasite can be removed using a venom extractor⁵ or surgery.⁶ Although myiasis is still an exotic disease, it is the fourth most common travel-associated skin disease,³ and accounts for 5-10% of skin lesions in a Tropical Disease Unit.⁵

This case of myiasis is atypical because the skin lesion was not painful. Typically these infestations cause severe pain sometimes described as a "screw drilled into flesh."^{2,3} Pain is intermittent and presumably due to larval feeding or movement. The clinical differential diagnosis is usually a sebaceous cyst⁷ or pyoderma.⁵ In 20% of cases, more than one larva is present.⁸

In the experience of the author and others,^{2,7} infestation by parasites visible to the unaided eye, such as maggots or pinworms, causes emotional impact far in excess of the medical consequences. Only a single case of fatal myiasis has been reported, when an infant developed a ventriculocutaneous fistula as a complication of a larval cavity which overlaid a fontanel.⁹

Based on the observation that dead larvae are "immediately and violently rejected by the host," it is thought that bot fly larvae actively evade the host immune system.¹⁰ In an animal model, immunization resulted in stronger humoral and cell-mediated immunity than in-

festation.¹¹ Pertinently, neutrophils do not adhere to the larval cuticle until it is molted.¹² A clear space can be seen around larvae in photomicrographs, suggesting the presence of a capsule, while neutrophils are in intimate contact with the molted cuticle or exuvia.

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Dr. Sloop was Associate Professor of Pathology at Louisiana State University School of Medicine in New Orleans at the time that the manuscript was accepted.


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CME QUESTIONS

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For each question, choose the one answer that is most correct.


1. True or false: Infestation by *Dermatobia hominis* is usually associated with severe pain.
2. True or false: Infestation with *Dermatobia hominis* has a fatality rate of 10-30%.
3. The differential diagnosis of *Dermatobia hominis* infestation includes:
 - a) basal cell carcinoma
 - b) sebaceous cyst
 - c) cutaneous T-cell lymphoma
 - d) malignant melanoma
4. The typical case of infestation by *Dermatobia hominis* involves:
 - a) Multiple organisms
 - b) A discharge from the punctum
 - c) Travel history to the Gulf Coast
 - d) Continuous pain



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