

# CLINICAL IMAGES

## A Growing Irritation: Careful History Makes the Diagnosis

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A generally healthy 57-year-old male noted an enlarging skin lesion on the lateral mid-calf area of his right leg, present for the past 7-10 days. The patient intermittently experienced fleeting lancinating pain in the area, which was followed by several minutes of intense pruritus. There was no associated fever, chills, other skin manifestations or any other systemic symptoms.

The patient worked in a hospital radiology department and denied any history of drug or alcohol use. He regularly worked out in a local gym. There was no history of trauma. He and his wife had vacationed in Costa Rica one month prior and returned healthy.

On physical examination the patient appeared well and vital signs were all stable. The skin appeared clear except for a prominent 3 cm by 4 cm shiny erythematous mass protruding from the lateral mid calf area. (Figure 1) The area was slightly indurated but not fluctuant and it was mildly tender. A small

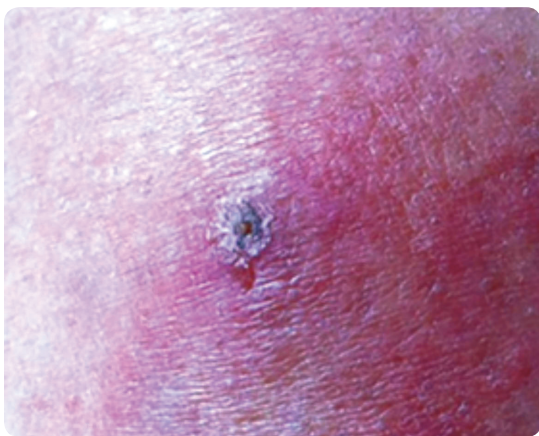


Figure 1: Skin lesion at presentation

scab was eccentrically placed in the lesion. The patient was empirically placed on trimethoprim-sulfamethoxazole for 10 days.

At the follow up evaluation, the lesion was slightly larger and a punctate opening could be seen where the scab had partially healed. (Figure 2) The patient reported he had tried to drain the lesion at home without success. He did note there was frequently serosanguinous drainage on a bandage. A culture was taken which grew a moderate colony count and based on the sensitivities, he was started on ciprofloxacin.



Figure 2: Skin lesion 10 days later

**Question: Given this history and physical examination, which of the following is the most likely diagnosis?**

- Bacterial abscess with MRSA
- Erythema nodosum
- Parasitic infection
- Foreign body reaction

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## DISCUSSION

**The answer is C: Parasitic infection.** The patient had furuncular myiasis, an infestation with *Dermatobia hominis*, the human botfly. In this case, the diagnosis was made by the patient himself. He had become impatient with the lack of resolution following his second course of antibiotics and drained the area by forceful pressure. The live larvae was extruded and with the assistance of a quick internet search, the identification was made. (Figure 3) The adult female botfly typically captures a daytime-active mosquito as the vector for transmission of eggs that burrow subcutaneously and mature in 6–12 weeks. Undisturbed, the mature larva emerges painlessly, pupates in warm, humid soil, and undergoes metamorphosis. The adult fly mates, lays eggs on its blood-sucking vector and completes its life cycle within a week. It is endemic to South and Central America.<sup>1,4</sup>



Figure 3: Larvae, 12 mm

The patient will usually report pruritus, an intermittent lancinating pain, and occasionally a sense of movement. Symptoms tend to be worse at night.

The central punctum serves as an air vent for the larvae, which can aid in both diagnosis and treatment. Occlusion will asphyxiate the larvae and cause it to move toward the punctum where it can be removed or extruded. Many different substances have been reported for this purpose including surgical glue, tape, wax, bubble gum, petroleum jelly, mineral oil, paraffin oil, and even bacon.<sup>1,4</sup> Vacuum extraction is also reported.<sup>2</sup>

The differential diagnosis should include an abscess, including that associated with methicillin-resistant staphylococcus aureus (MRSA), a retained foreign body, and in some cases, consideration of erythema nodosum.

An abscess due to methicillin-resistant *Staphylococcus aureus* is a commonly identified soft-tissue infection in ambulatory

patients. Staph infections typically start as small red bumps or pus-filled bumps, which can rapidly turn into deep, painful sores; culture and sensitivity would confirm the diagnosis. In fact this lesion grew *Staphylococcus lugdunensis*, which is a commensal skin bacterial but can cause invasive disease.

A foreign body granuloma is a reaction to exogenous material, characterized by the formation of foreign body giant cells. These localized lesions may occur at any age and present as papules, plaques or nodules. There often, but not invariably, is a known history of trauma. The foreign body may or may not be palpable. If the lesion is clinically significant and removal is deemed necessary imaging studies may be helpful.<sup>5</sup> A retained foreign body may present with evidence of infection or with relapsing infection despite local wound care treatment with antibiotic.

Erythema nodosum a form of septal panniculitis, is an inflammatory/immunologically mediated reaction within subcutaneous fat. It is characterized by tender erythematous nodules occurring most commonly bilaterally on the pretibial surface. A prodrome with polyarthralgia, fever and malaise is common. A variety of etiologies have been sited including chronic inflammatory states, particularly sarcoidosis and various enteropathies, infections (especially streptococcal), reactions to medications, and, rarely, malignancies. It is more common in women and although it may occur at any age, is more likely to present in the age range 15-40.

## CONCLUSION

A careful travel history coupled with the patient's articulate description of the intensely pruritic enlarging lesion with occasional lancinating pain would suggest parasitic infestation to the astute clinician. The appearance of the lesion with the central punctum adds support. Once the correct diagnosis is suspected, a simple procedure to occlude the central air vent will usually bring the larvae to the skin surface and facilitate direct removal. This is generally all that is needed for complete cure without need for antibiotic treatment if the patient is able to maintain adequate hygiene.<sup>6</sup>

Although prompt diagnosis and efficient extraction is the most simple first line treatment, other options are available. Infiltration of the area with lidocaine causing a pressure to push the larvae out has been reported, as well as digital manipulation by squeezing (as in this case). A variety of vacuum extractors have been used and reported.<sup>2,6</sup> Techniques involving surgical excision are occasionally needed in some cases of myiasis.<sup>6</sup> Additionally, larvacides, most specifically ivermectin a broad-spectrum antiparasitic, have also been used in the treatment of human myiasis, both orally and topically.<sup>6</sup>

Chart 1:

Condition	Characteristics
Furuncular myiasis—botfly larvae infestation	Enlarging mass w/central punctum; pruritic; travel history Central/South America
Bacterial abscess with MRSA	Tender, fluctuant mass; health care workers & significant public skin exposure increased risk
Foreign body	Nonhealing irritation with or without known history of trauma; long term sequelae may include abscess, septic arthritis, and osteomyelitis
Erythema nodosum	Indurated erythematous nodules most commonly on pretibial surface, prodrome common; peak incidence is age 20-30 but it may occur any age; there is a female predomiance
Skin conditions to consider in the returning traveler <sup>3</sup>	<ul style="list-style-type: none"> <li>• Cutaneous larva migrans</li> <li>• Pyoderma</li> <li>• Arthropod-reactive dermatitis</li> <li>• Myiasis</li> <li>• Tungiasis</li> <li>• Urticaria</li> <li>• Fever and rash</li> <li>• Cutaneous leishmaniasis</li> </ul>

In this age of extensive international travel, the prudent primary care provider must take care to include careful travel history when formulating a differential diagnosis. Frequent travelers may fail to mention their journeys since such activity may be commonplace, and it is critical that the correct questions be asked to aid in accurate and expedient diagnosis. In the case of skin lesions presenting in the returning traveler, a careful history and physical examination can often secure the diagnosis. And, as in often the case, prevention is the best course of action and appropriate sensible precautions including vaccination when indicated, hygiene, drinking water safety, sun exposure and steps to prevent insect bites should be recommended.

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