

## Myiasis

A 73-year-old male with past medical history of atrial fibrillation, hypertension, hyperlipidemia, and squamous cell carcinoma of the face (for which he is currently receiving radiation therapy) presents to the ED out of concern for a persistent wound involving the left cheek which he first noticed 2 months ago. At that time, the patient was seen by his primary care physician who prescribed a course of oral amoxicillin-clavulanic acid provided wound care instructions. The wound dressing was last changed just prior to arrival and the patient's wife became concerned after noticing larvae in the wound. The patient describes pain radiating to the top of the head and difficulty with mastication. On examination, there is purulent drainage at the base of a large ulceration of the left cheek where 12 maggots are seen crawling. A fetid odor is present. Which of the following is the most appropriate initial treatment for this patient?

- A. Oral antibiotics with removal of larvae by forceps
- B. IV antibiotics with removal of larvae by suction
- C. Immediate irrigation and surgical debridement with new dressing
- D. Irrigation followed by wound closure via sutures
- E. IV antibiotics only



Figure 1. Protrusion of larva from an erythematous nodule of the skin.  
*Courtesy of VisualDx.*

### Clinical Pearl

Larvae can be surrounded by nodules, open wounds, or a simple entry-point insect bite.

The correct answer is B. The patient has failed treatment with outpatient antibiotics so IV antibiotics must be considered. The larvae may be removed by Yankauer suction. Suction must remain on after removing the larvae to ensure they do not escape from the canister.

Myiasis is the infestation of tissue of living organisms by the larva or maggot stage of flies. It occurs when female flies lay eggs either as a vector or directly on tissues. Once hatched, the larvae penetrate and tunnel within the host's subcutaneous tissue.

## Discussion

Myiasis typically affects individuals who are traveling to areas such as Central America, South America, Africa, the Mediterranean, and Asia. Myiasis occurring from vectors in Central and South America typically yield furuncular myiasis. This case presents an example of **facultative myiasis**, where flies deposit their eggs directly or indirectly because of a necrotic environment in which the larvae can flourish.

Patients often complain of pain and pruritus associated with larval movement. Invasion of superficial tissue can result in subcutaneous nodules. The most concerning complication of this condition is superimposed bacterial infection which can lead to sepsis.

Risk factors for facultative myiasis include male sex, older age, homelessness, alcoholism, peripheral vascular disease, and neglect.

Rarely, maggots may also play a role in medical treatment. They can be utilized for chronic wound debridement, chronic venous ulcers, diabetic ulcers, and pressure ulcers - especially in patient populations where surgical debridement is unavailable or contraindicated. Maggots exert their beneficial effects through secretion of proteolytic enzymes that digest necrotic tissue.

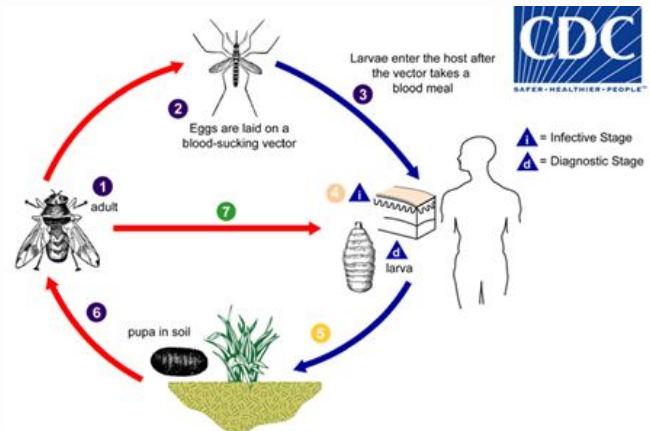


Figure 2. Pathogenesis of Myiasis (Source: CDC)

## Treatment

Irrigation or surgical debridement may be utilized to remove maggots. Witnessed extraction of larvae can be done as well when the larvae burrow towards the surface. However, with these methods, well-attached larvae can result in larval fragmentation which can cause further inflammation, bacterial infection, or granuloma formation.

An alternative mode of treatment involves killing the larvae through suffocation. This can be accomplished through petroleum jelly, wound submersion, or occlusive dressings such as a perimeter dressing placed beneath a cover chiffon dressing.

Special attention must be paid to the identification and treatment of underlying bacterial infections, especially in patients who may be immunocompromised. Broad spectrum antibiotics should be administered prophylactically. Analgesic medications are also frequently necessary.

Taxonomy	Clinical picture
Diptera: Psychodidae	Urogenital myiasis
Diptera: Psychodidae	Intestinal myiasis
Diptera: Stratiomyidae	Intestinal myiasis
Diptera: Stratiomyidae	Furuncular myiasis
Diptera: Scenopinidae	Urogenital myiasis
Diptera: Syrphidae	Urogenital myiasis Intestinal myiasis
Diptera: Phoridae	Intestinal myiasis Urogenital myiasis Nosocomial myiasis Wound Myiasis
Diptera: Drosophilidae	Nasal myiasis Ocular myiasis
Diptera: Piophilidae	Urogenital myiasis

Figure 3. Fly species known to be involved in myiasis. (Source: *Clinical Microbiology Reviews*)



### About the Author

This case was written by Jibrán Baig. Jibrán is a 4th year medical student from NSU-COM who completed his Emergency Medicine rotation at Broward Health North in June 2022. Jibrán plans on pursuing a career in Emergency Medicine after graduation.

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## Take Home Points

- Myiasis is the infection of living tissue by the larvae of flies. The larvae are deposited either directly or through a hematogenous vector such as a mosquito.
- Chronic or non healing wounds can serve as an attractant for flies to lay eggs.
- Treatment for myiasis involves removal or extermination of larvae. This can be accomplished through a variety of methods including irrigation, debridement, suctioning, and occlusive dressings.