

Wound Myiasis in a Sixty-Two-Year-Old Man

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Introduction: Wound myiasis is one of the common types of myiasis that demonstrates obligatory parasitic behavior.

Case Presentation: A 62-year-old homeless man presented with an abnormally growing and ruptured neck mass containing worms. He had wound myiasis caused by the larva of *Lucilia sericata* in his previously punctured neck.

Discussion: *Lucilia sericata* can cause both facultative and obligatory myiasis. Immunocompromised patients with diabetes, malignancies, and patients without any kind of nursery are at risk of wound myiasis. In addition, aggressive treatment is needed to prevent the secondary infections in case of obligatory infestation.

Keywords: Myiasis; Ectoparasitic Infestations; Wound; *Lucilia sericata*

1. Introduction

Myiasis is defined as infestation of mucosal and skin tissues by *Dipterus* larvae. Myiasis is classified based on numerous factors; with regard to anatomical region, it is classified by three distinct classification methods (Table 1) (1, 2). Myiasis is considered a rare disorder; however, many cases from different countries have been reported. The reported cases in Iran are summarized in Table 2 (3). In most of the cases, myiasis can cause embarrassment to both patient and health care providers. Wound myiasis is an open wound infestation with fly larvae, which are obligatory or facultative parasites (4). Presence of open wound beside poor hygiene, low socioeconomic status, inadequate nursery care for the elderly, and being alcoholic or homeless are known risk factor for open wound myiasis (5, 6). We present a case of neck wound myiasis in a homeless patient.

2. Case Presentation

A 62-year-old homeless man with a long history of intravenous drug use and crack cocaine consumption, presented with a mass in his left side of neck that was developed after self-wounded maculopapular rash four months ago and ruptured two hours before admission. On physical examination, the patient normal vital signs

and physical appearance were normal except for a necrotic and open mass in the left side of his neck with the dimension of 7 × 4 cm, 3 cm depth, and noticeable larvae. By close examination, there were about eight to ten white-colored larvae wriggling out the puncture site, and had a diameter of about 5 × 2 mm. The patient received 0.5 mg dose of diphtheria and tetanus toxoids (dT) vaccine and 500 mg of Tetabulin intramuscularly. Three larvae were separated and sent for further investigation. Ultrasound examination of the cervical soft tissue revealed a heterogeneous hypoechoic lesion with cystic-necrotic centric area, with the dimensions of 92 × 67 mm, a pressure effect, movement of middle elements to right, and excavated area to outside. Neck computed tomography angiography was performed and revealed intact vessels. The results of blood tests as well as blood and wound cultures were normal. The patient underwent antibiotic therapy for seven days with vancomycin (1 g, bid) and meropenem (1 g, TDS). The mass debridement was performed in operating room by totally removing sternocleidomastoid muscle and some parts of trapezius muscle with chest skin graft. The parasitology report revealed that cutaneous myiasis was due to *L. sericata* larvae infestation (Figures 1, 2 and 3)

Implication for health policy/practice/research/medical education:

This study helps to identify wound myiasis as a severe and embarrassing parasitic problem and to reveal those who are at high risk for wound myiasis, the factors that are attractive to dipteran agents, causative agents, their living behavior in human body as facultative and obligatory infestation, and proper treatment for wound myiasis.

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Table 1. Anatomical Classification of Myiasis

Classification by Zumpt	Classification by Bishopp	Classification by James
Sanguinivorous	Bloodsucking	Bloodsucking
Dermal/Subdermal	Tissue-Destroying, Subdermal Migratory	Furuncular, Creeping, Traumatic Wound, Anal/Vaginal
Nasopharyngeal	Infestation of the Head Passages	Nose, Mouth, Sinuses, Aural, Ocular
Intestinal	Intestinal/Urogenital	Enteric, Anal/Vaginal
Urogenital	Intestinal/Urogenital	Bladder, Urinary Passages, Anal/Vaginal

Table 2. Reports of Human Myiasis Cases and Dipteran Species From Iran

Types of Myiasis	Causative Agent
Auricular	<i>Chrysomya bezziana</i> , <i>Sarcophaga haemorrhoidalis</i>
Gingival	<i>Wohlfahrtia magnifica</i>
Head skin	<i>Chrysomya bezziana</i>
Nasal	<i>Eristalis tenax</i>
Ocular	<i>Oestrus ovis</i>
Oral mucosa	<i>Oestrus ovis</i> , <i>Lucilia sericata</i>
Urogenital	<i>Chrysomya bezziana</i>
Pharyngeal	not specified



Figure 1. Ruptured Neck Mass at Admission Time



Figure 2. After Debridement and Muscle Removal



Figure 3. Posterior Spiracles of *Lucilia sericata*

3. Discussion

Wound myiasis is caused by invading a wounded skin by dipterous larvae (6). The infestation can occur in obligatory

or facultative bases. *Cochliomyia hominivorax*, *Chrysomya bezziana*, and *Wohlfahrtia magnifica* are known as the most common causes of the obligatory myiasis, mean-

while *Muscidae* spp, *Calliphoridae* spp, and *sacrophagidae* spp are considered the most common causes of the facultative ones (4). Usually, the larvae infestation starts when the *Dipterous* female puts the eggs in a necrotic, purulent, or hemorrhagic tissue. Some reports demonstrated that alkaline discharges with pH 7.1 to 7.5 attract the flies (7). The presence of a necrotic tissue also is considered as an important factor. In addition, skin diseases such as psoriasis (8, 9), Seborrheic keratosis (10), basal cell carcinoma (11), and cutaneous B-cell lymphoma (12) have been reported to be a risk factor for wound myiasis.

Facultative parasites can be helpful agents for the patient in most case, by inducing granulation, production of bactericidal agents, or cleaning the necrotic tissue. Meanwhile, the complications of the obligatory agents consist of destruction of local tissues, deep invasion, and secondary bacterial infection (5, 10). *Cochliomyia hominivorax* and *Chrysomya bezziana* are cause dangerous myiasis due to their painful infestation and deep invasion (4). *Wohlfahrtia magnifica* (13), *Dermatobia hominis* (14), *Lucilia cuprina* (4) and *L. sericata* (15) are known to be causative agent for wound myiasis. Therefore, *L. sericata* and *L. cuprina* should be distinguished from each other as the presence of the three bristles on the dorsal mesothorax is considered the most common characteristic of *L. sericata*. Two features are used to differentiate these two species. The first one is the color of the first pair of legs; *L. cuprina* has metallic green pair, but *L. sericata* has blue-black one. The second characteristic is the occipital setae, which is six to eight bristles on each side and only one in *L. sericata* and *L. cuprina*, respectively (16).

The treatment of wound myiasis consists of removing all the visible larvae and debridement of the necrotic tissue; irrigation can be helpful in lesions with cavity bases (10). When wound myiasis seems to be more dangerous, the mechanical removal should be performed; the wound bed should be debrided surgically and daily dress changing must be performed (17).

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Authors' Contributions

Design of the study, scientific collection of information, drafting the paper, reviewing, and approving the final manuscript: Mohammad Yasin, Masoud Mardani, Nina Gozali Asl, and Amirhossein Moghhtader Mojhdehi. Parasitological analysis: Kamran Akbarzadeh.

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