

# A Case of Breast Myiasis Caused by *Lucilia cuprina*

Ozan Akinci<sup>1</sup>, Serhat Sirekbasan<sup>2\*</sup>, Murat Toksoy<sup>1</sup>, Sefa Ergun<sup>1</sup>

<sup>1</sup>Department of General Surgery, Cerrahpasa Medical Faculty, Istanbul University, Istanbul, Turkey

<sup>2</sup>Department of Medical Microbiology, Cerrahpasa Medical Faculty, Istanbul University, Istanbul, Turkey

\*Corresponding author: [serhatsirekbasan@gmail.com](mailto:serhatsirekbasan@gmail.com)

**Abstract** Myiasis is a parasitic infection that occurs as a result of larvae, settling in living tissues and organs, observed especially in tropical regions and rural areas where animal contact is common. Diagnosis is established by observing larvae of Diptera species in tissues and organs. In treatment planning, determining the type of larvae as well as affected organ and systems is important in terms of treatment and follow up. In this case report, we discussed a female patient with ulcerated mass in the right breast in whom *Lucilia cuprina* larvae caused myiasis after a holiday in the summer in a village.

**Keywords:** Myiasis, *Lucilia cuprina*, Breast

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## 1. Introduction

Myiasis is an infection caused by larvae of insect class Diptera species, settling tissues and organs of vertebrates. In mammals Diptera larvae cause infestation of the host's dead or living tissues, wet body surface or digested nutrients and can lead to results causing extensive inconveniences depending on the location and the situation of the host [1]. It is commonly seen in tropical climates and in rural areas and it is rarer in humans compared to animals. Myiasis cases are observed more frequently in regions where livestock farming is carried out, especially in summer season. Poor hygiene conditions, low socioeconomic status, close contact with animals, old age, mental retardation, location of the wound, diabetes mellitus and vascular diseases are predisposing factors for myiasis in humans. According to the ICD-10 classification, it can be classified as dermal, subdermal, cutaneous, wound location, nasopharyngeal, ophthalmic, auricular, intestinal and urogenital myiasis [2]. However, in terms of pathogen species and caused infestation, it can be divided into groups as obligatory, facultative and accidental [3]. Myiasis that occurs during stay in hospital is called nosocomial myiasis. It is especially observed in intubated patients hospitalized in intensive care, unable to feel fly touch due to impairment of consciousness and hypoesthesia.

The most common myiasis agent is Calypterae species containing Sarcophagidae, Oestridae, Calliphoridae and Muscoidea families [4]. Being the main cause of myiasis cases in sheep *Lucilia cuprina* is rarely seen in humans [5]. The flies lay their eggs or larvae into open tissues or cavities. After about 15-24 hours, larvae hatch and reach feeding larvae form in a few days [6].

In our presentation, we aimed to present the myiasis case of the 83-year old female patient who had ulcerated

mass in her right breast and *L. cuprina* larvae caused myiasis after a holiday in the summer in a village.

## 2. Case Report

A 83-year old female patient, a housewife living in Istanbul as a member of family with high social-economic status, with no additional disease, with unfollowed and undiagnosed mass lesion in her right breast. The patient went on holiday to a village near Istanbul 2 weeks ago, when she returned she applied to emergency service upon seeing larvae moving in her right breast. In the medical history obtained, it was learned that she has had nodular lesions in the upper abdomen in the lower part of the breast for a long time and lesions in the lower part of the breast was tried to be treated for herpes zoster.

In the physical examination of the patient, it was observed that there was exulcerate mass lesion in the right breast and living larvae in the wound, palpation and mass lesion in the left breast. Red, swollen, running and inflamed appearance around the ulcerated mass in the right breast was noticed (Figure 1). 80 living larvae were collected with the aid of forceps and put in a sterile container containing saline solution. Deep tissue penetration finding was observed. Swab sample was taken from the wound. Wound care was performed with 0.9% saline solution and povidone iodine.

During admission, the patient's body temperature: 36.9°C, pulse: 72, blood pressure: 125/75 mm/Hg. White cells: 7.000/mm<sup>3</sup>, Neutrophils: %73.5, Lymphocytes: %17.8, Monocytes: %7.2, Eosinophil: %1.1, CRP: 0.4 (normal < 0.5) mg/L. No proliferation was observed in the wound swab samples. Antibiotic therapy was not recommended by infectious diseases unit. Regular daily wound care and dressing was applied to the patient. In the follow-ups no larvae were observed again. In the control two weeks later,

it was observed that inflammation, redness and discharge in the wound had disappeared. In the examinations conducted on the patient's breasts, bilateral advanced stage invasive ductal carcinoma was observed; the patient was referred to oncology for treatment.

Obtained larvae in saline solution were sent to Cerrahpasa Faculty of Medicine, Department of Medical Microbiology for examination. Live and dead larvae were first examined macroscopically and then under stereo-microscope (Olympus 10X). Size of the larvae was measured between 9-12 mm. Then their larval stage and which fly species they belong to was tried to be determined by examining shapes of spiracles in the front ends of these larvae, and structures of stigmas located in the front and back ends. Some of the live larvae were taken into incubator to complete their larval stages and become mature flies. The adult flies, obtained from the larvae after 12 days in 24°C and partially humid atmosphere were examined and determined characteristics were compared with their characteristics in larval stage.

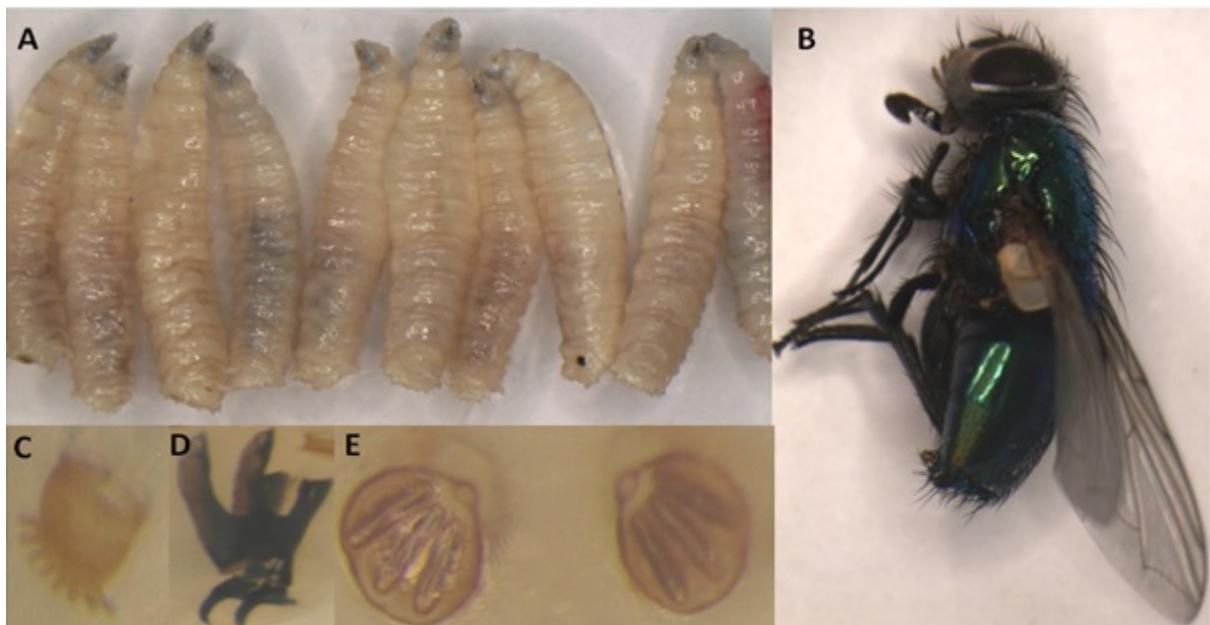
The examined larvae and matured flies were determined to be *Lucilia cuprina* (Figure 2).

### 3. Discussion

Myiasis is an ectoparasite infection specific to tropical and subtropical climates, and it presents with a clinical table where its incidence increases in people living in rural areas, with close contact with animals, low social-economic status, living in poor hygienic conditions, who have open wounds, diabetes, advanced age, mental retardation and vascular diseases. Adult flies causing myiasis often lay their eggs in the summer into living tissue, organ and cavities. In patients with myiasis, pain, fever, redness, itching and secondary bacterial infections, leukocytosis and hypereosinophilia can be observed [1,4,7]. In myiasis cases, tissue destruction is known to exist. Mechanical effects of larvae as well as collagenases they secrete play a major role in this destruction [8].



**Figure 1.** Ulcerate lesion in the right breast and larvae in the wound



**Figure 2.** *Lucilia cuprina* A-Larvae, B- Adult, C- Anterior spiracles, D- Head skeleton E- Posterior spiracle

Since some Diptera types causing myiasis are specified as carrier agents for viruses, such as poliovirus, bacteria such as *Shigella*, protozoa and helminthes; they pose a risk for public health [9].

Wound occurs as myiasis larvae settles in open wound of the mammalian host; such infestations can be caused by facultative or obligate parasites. In our case, it belonged to *L. cuprina* Calliphora family and in facultative group; and this group causes local destruction, invasion to deep tissues and secondary infections more frequently [1]. In our patient, deep tissue invasion in the breast was observed.

Wound mostly begins as flies lay eggs into necrotic, bleeding and abscess lesions; it was reported that proliferation is more in wounds with alkaline content discharges (pH: 7.1-7.5) [10]. Dermatological conditions such as neuropathic ulcers, psoriasis, seborrheic keratosis, onychomycosis, skin lymphoma, basal cell carcinoma, herpes zoster viral involvement, leprosy and impetigo might establish convenient infrastructure for myiasis [1].

Basic treatment for myiasis is cleaning of all infected tissues from larvae, debridement of necrotic tissue, irrigation with antiseptic solutions and daily dressing changes. It was reported that antibiotics and antiparasitic drugs can be used against complications [11].

Myiasis causes great anxiety in patient and healthcare personnel, so it should be paid attention for prevention to hygiene rules, washing foods carefully before consuming them, in epidemic places avoiding sleeping on the floor naked, wearing long clothes and covering open wounds.

In treatment of some necrotic wounds, debridement, disinfection and maggot treatment to improve wound healing are used. The most commonly used larvae for this purpose are *Lucilia sericata* and *L. cuprina* [1,12]. Larvae consume necrotic tissue in the wound, and accelerate wound healing by secreting antibiotic substances that kill pathogenic bacteria. Larvae must certainly remain sterile before treatment [13].

Individuals who live in tropical regions and rural areas, has open wounds and predisposing diseases are at risk for myiasis. So, people who have open wounds in their body and require wound care should have it done in a health center and pay attention to general hygiene rules. Especially in the summer, one should be careful about patient and wound care in terms of myiasis.

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