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Research Article

Wound Myiasis Caused by *Lucilia cuprina* (Diptera: Calliphoridae) in Ardabil Province, Northwest of Iran

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Authors' Contributions
ES-A did species breeding and and labatory diagnosis. BMG did labatory studies. KA diagnosed larve. JM-S collected the samples and HA collected the data.

Keywords
Wounds, Myiasis, *Lucilia cuprina*, Ardabi, Iran

Abstract | Myiasis were occurs in tropical regions and rural areas where animal contact is common. Wound myiasis occurs when fly larvae infect open wounds. We describe an old male with wound myiasis by agent of *Lucilia cuprina*, who had a history of diabetes and also blind that reefed to hospital in 13 September and was admitted to date 18 September 2019.Larvea extracted manually from thumb finger of left foot and sent to Medical Entomology Laboratory of the School of Public Health, Ardabil University of medical Sciences for identification. This case is a first time was reported from Ardabil province, northwest of Iran and the Diabetics, Blindness and Physical inability to protect the wound were the most important factors in wound myiasis in this report.

Novelty Statement | This is one of the rare reports that L.cuprina causes wound my-iasis and it is reported for the first time in the Northwest of Iran.

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Introduction

Myasis is an infection of some parts of the animal and human body by the larvae of flies (maggot) which grows inside or outside the host when fed from tissue and fluid. The flies are most commonly attracted to open wounds (Stevens *et al.*, 2006). There are three type of miyasis that including obligatory, arbitrary and accidently that were occurred in some organism such as wound, nasopharyngeal, ophthalmic, urogenital and intestinal. The important dipterous larvae causing of myiasis in human and vertebrata belongs to the Muscidae, Sarcophagidae, Calliphoridae, and Oestridae families. One of the important species in calliphoridea family is a *Lucilia cuprina* that formerly named *Phaenicia cuprina*, and the commonly name is the Australian sheep blowfly. *L.cuprina* is main cause of myiasis in sheep and rarely seen in humans. Adult flies laid the eggs in open wounds or cavities and after 15-24 hours the eggs were hatched and the larvae come out and they feed on the wounds. The most important factors in wound myiasis include: Poor Public Health, Weak social status, Mental retardation, Diabetes, Blindness and Physical inability to protect the wound (Urech *et al.*, 2009). This is the first report of the myiasis in Ardabil province that was to discuss a clinical case of wound myiasis caused by *L.*

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cuprina in an old male patient.

Case presentation

A 85-year-old male, livening in Ardabil area in northwest of Iran that presented to hospital (Ardabil, Iran) with the infection of thumb finger of left foot. The patient had a history of diabetes for 30 years and also blind that refed to hospital in 13 September 2018 and was admitted to date 18 September 2019. The patient agreed to use his information without his name. When wounding under the nail a number of larvae were shed from the inside of the wound. The larvae were referred to the Medical Entomology Laboratory of the School of Public Health, inside the physiology serum. Two number of larvae were identified by using inverted microscope and larvae identification key and two larvae under laboratory conditions, they became mature fly form after two weak. The larvae belong the calliphoridea family, lucilia genus and *L. cuprina* spices. The average length of larvae was 10-12 mm and width of 1.3-2.0 mm and the adults of *L. cuprina* was green metallic abdomen and reddish eyes and their length was from 9 mm. (Figure1A, B).The other morphological characters was the presence of posterior spiracles that preterm not projecting between outer and middle slits (Figure 2) the maggot had a pair of strong mandibles and a cephaloskeleton below the posterior tip of the ventral cornua (Figure 3).

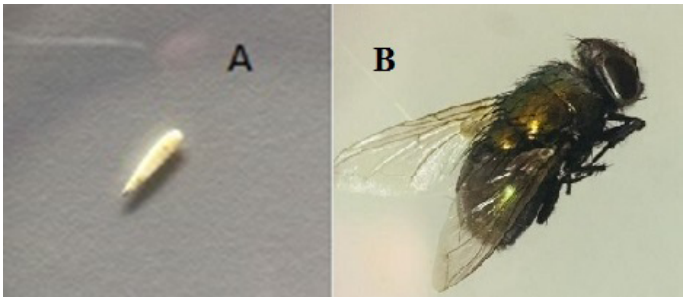

Figure 1: A typical third-stage larva (A) and adult *Lucilia cuprina* (B)

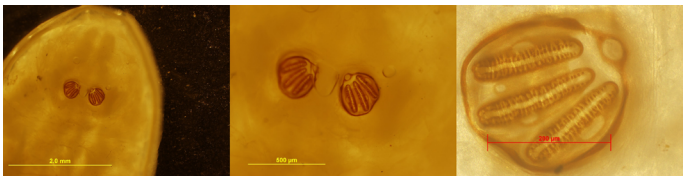

Figure 2: Posterior spiracle of *L. cuprina* Larva.

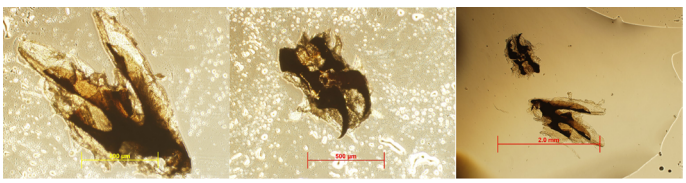

Figure 3. The anterior end of the larva and terminal oral hooks.

Results and Discussion

Human myiasis has been reported from 16 out of 31 provinces of Iran that 62% of all cases are reported from Fars Province**.** The highest form of myiasis that occurred in Iran were oral myiasis (38%) and the lowest was intestinal myiasis (2.5 %). (Alizadeh *et al*., 2014) in According the past studies wound myiasis for *L. cuprina* has not been previously reported in Iran country , and for the first report of human wound myiasis in this study. But some studies have been reported wound myiasis in Egypt, South Africa, Turkey that caused by *L. cuprina* and in Iraq by *L.sericata* and Tehran by *L. sericata*. In this case reports, it belonged to *L. cuprina* (Calliphora family) and this spices classified in facultative group that causes local destruction, invasion to deep tissues and secondary infections (Kingu *et al*., 2012). In this case, deep tissue invasion in the under the nail thumb was observed. However, the patient was blind and unable to take care of their wounds. *L. cuprina* was the cause of primary myiasis producer of sheep in Africa, Australia, New Zealand, Europe and some parts of North America (Francesconi and Lupi, 2012).

Conclusions and Recommendations

The wound myiasis have been reported by causes of *L.sericata* and *Chrysomyia bezziana* from some parts of Iran and this case is a first time was reported from northwest of Iran. It is suggested that more studies be done on fauna of flies and myiasis types in the northwestern region of Iran.

Acknowledgments

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Conflict of interest

The authors have declared no conflict of interest.

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