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Wound Myiasis Caused by *Lucilia sericata* (Meigen) (Diptera, Calliphoridae) in Al-latifya district, Baghdad, Iraq

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Abstract

This study reports nine cases of wound myiasis that were caused by the green bottle fly, *Lucilia sericata* in domestic herbivorous animals (sheep and cattle) during November 2016 in Latifiya District, Baghdad. The cases were recorded by the 14th July Veterinary Dispensary. Specimens of 216 larvae were collected from the wounds and the identification was made by the first author as *Lucilia sericata*. Four of the wound cases were caused by barbed wires, two by dog bites, one by trauma and others through umbilicus of the new born calf. The locations of the wounds were distributed between fatty tail, umbilicus, thighs and eyes. This study reports the first outbreak of this fly causing myiasis in Iraq.

Keywords: Diptera, Calliphoridae, *Lucilia sericata*, wound myiasis, Iraq

1. Introduction

Myiasis is the infestation of tissues or organs of living human and vertebrate animals. It results from dipterous larvae which feed for a certain period of their life on; the dead or living tissues, liquid substances, and digested food of their host [1]. The dipterous larvae causing myiasis belongs to the families: Muscidae, Sarcophagidae, Calliphoridae, and Oestridae [2]. *Lucilia sericata* (Meigen, 1926) (formerly *Phaenicia sericata*), also known as the common green bottle fly [3], is one of the most common species in the family Calliphoridae found on carrion, feces and garbage [3]. This species was originated in Europe [4] and it is a cosmopolitan species that causes myiasis in the temperate and tropical regions of the planet [5-6]. This species is widely distributed in the Palaearctic region including the Middle Eastern countries such as: Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Saudi Arabia, Syria, and Turkey [7]. The larvae of *Lucilia sericata* are well-known as facultative ectoparasite in animals mainly sheep, cattle, horses, cats, dogs, and humans [1, 8-9]. The first report of myiasis caused by *Lucilia sericata* was in 1826 by Meigen when he gathered larvae from the eyes and the mouth of a human patient [6]. This species is also reported as causative agents of primary cutaneous myiasis in sheep particularly in the UK, South Africa, and New Zealand [5]. Thus, it can cause significant losses in animals and production [10].

Lucilia sericata was first recorded in Iraq by Patton in 1920 [11]. Khalaf, 1957 reported this species under the name *Phaenicia sericata* (Meigen, 1826) [12]. Other authors who reported it in Iraq are: Hussain, 1963 [13]; Derwesh, 1965 [14]; Khalaf and Al-Omar, 1974 [15]; Abdul-Rassoul, 1976 [16]; Abul-hab, 1980 [17]. The previous mentioned records did not indicate the medical importance of *Lucilia sericata* as a myiasis agent. However, the first case of the old world screwworm, *Chrysomya bezziana* (Villeneuve, 1914) which was reported in Iraq by (Abdul-Rassoul *et al.*, 1996) [18] and (Al-Ani, 1997) [19] had brought more attention to its importance. Since then, many cases of animal myiasis involving facultative myiasis caused by *Lucilia sericata* have been reported in this country by Aziz *et al.* (1999) [20] and Al-Halfay and Mahdi (1999) [21]. This paper describes the first myiasis outbreak caused by *Lucilia sericata* in Baghdad province during November 2016.

2. Materials and Methods

Nine cases of wound myiasis were collected by the staff of the 14th July veterinary dispensary from different villages in Latifiya district during November, 2016. Latifiya is an Iraqi town located about 50 km. south of Baghdad.

Specimens of 216 larvae were removed by forceps from the wounds, killed by hot water, and were preserved with 70% ethyl alcohol and transferred to the veterinary Entomology unit of the central veterinary laboratories, Directorate General of Veterinary Services, Ministry of Agriculture, Iraq, for identification. The identification was made by the first author depending on the following characters as in both Zumpt, 1965^[1] and Spradbery, 1991^[22]: the shape and size of developed larvae, cephalopharyngeal skeleton, form of anterior spiracles, and the posterior spiracles.

3. Results

Nine cases of wound myiasis as shown in (Table 1) were submitted to the veterinary dispensary in Latifya district southern Baghdad. The causative agent had been determined as *Lucilia sericata*. Four of which were in the anal-perineum area (breech) fatty tail of sheep. In these cases, four out of

nine wounds were caused by barbed wires, two by dog bites, one by trauma, and the others through umbilicus of the new born calf.

The collected maggots were in the third-instar larvae, they appear white pale in color with an average length of 9-11 mm. and width of 1.5-2.0 mm. Body of the larva was tapering anteriorly and a truncated posteriorly, and composed of 12 segments. Anterior spiracles were located at the anterolateral part of the body and are fan-shaped with 6-8 lobes (Fig.1). Posterior spiracles located at the posterior end.

The *L. sericata* larvae are similar to those of *Calliphora* spp. and *Lucilia cuprina* but differ from the *Calliphora* spp. lacking the accessory oral sclerite between mouth hooks (Fig.2). Also, they differ from *Lucilia cuprina* by having the posterior spiracles pear-shaped (length greater than width), peritreme thinner and narrower, slits longer and thinner (Fig.3).

Table 1: Wound myiasis Caused by *Lucilia sericata*

Case No.	Town	Date of collection	Animal	Total		Clinical symptoms	Wound area
				herd	affected		
1	Al-latifyah/Shishar	25/3/2017	Ewe/2y	25	1	Bleeding wound	Fatty tail
2	Al-latifyah/canal2	26/3/2017	Lamb/37d	8	1	Bleeding wound	umbilicus
3	Al-latifyah/ canal 2	26/3/2017	Calf/8d	5	1	Bleeding wound, fever	umbilicus
4	Al-latifyah/km31	26/3/2017	Ram/2y	14	1	Bleeding wound, fever	Fatty tail
5	Al-latifyah/al-Haq	23/3/2017	Lamb/7m	42	1	Bleeding wound, fever	Thigh
6	Al-latifyah/km25	23/3/2017	Calf/1y	40	1	Bleeding wound	Eye
7	Al-latifyah/canal 4	26/3/2017	Sheep/9m	35	1	Bleeding wound	Fatty tail
8	Al-latifyah/km31	26/3/2017	Lamb/2m	22	1	Bleeding wound	Fatty tail
9	Al-latifyah/bzaiz	27/3/2017	Calf/1y	10	1	Bleeding wound	Thigh
Total				201	9		



Fig 1: Anterior spiracle of third instar larva of *Lucilia sericata*



Fig 2: Cephalopharyngeal skeleton of third instar larva of *Lucilia sericata*



Fig 3: Posterior spiracles of third instar larva of *Lucilia sericata*

4. Discussion

Attraction to wounds of living host is a characteristic of many Calliphoridae which is a habit evident in many areas in which *Lucilia sericata* occurs^[23]. As a follow up of myiasis cases caused by *Chrysomya bezziana* in veterinary practice in Iraq through a large project, veterinarian in the field must send a sample of larvae from the surface and deep of the wounds to identify the causative agent. Therefore, these nine cases mentioned above have been sent to the laboratory. These cases were initially suspected to be as *Chrysomya bezziana*, however, the identification by the specialist showed that they were *Lucilia sericata*. So, the acute identification is important

to differentiate the causative agent.

Four of the cases occurred in the anal-perineum and two other cases were on the thigh near the fat-tail of the sheep. In our finding, those six cases were the same as those observed by Wall and Lovatt^[24] which were caused by *Lucilia sericata* causing sheep strike myiasis usually observed near the rear of the sheep where it is contaminated with feces and urine.

We asked the veterinary staff in this area to educate the farmers to get rid of barbed wires in order to decrease the exposure of these animals, especially sheep, from getting wounded. Also, we advised the farmers to protect their animals from getting bitten by feral dogs.

References

- Zumpt F. Myiasis in man and animals in the old world. Butterworths and Co. Ltd. London. 1965, 267.
- Stevens JR, Wallman JF. The evolution of myiasis in humans and other animals in the Old and New Worlds (part I): phylogenetic analyses. Trends in Parasitology. 2006; 22:129-136.
- Whitworth T. Keys to the genera and species of blow flies (Diptera: Calliphoridae) of America North of Mexico. Proceeding of Entomological Society of Washington. 2006; 108(3):689-725.
- Williams KA, Richards CS, Villet MH. Predicting the geographic distribution of *Lucilia sericata* and *Lucilia cuprina* (Diptera: Calliphoridae) in South Africa. African Invertebrates. 2014; 55(1):157-170.
- James MT. The flies that cause myiasis in man. Washington DC, USA, US Government Printing Office, 1947, 175.
- Daniel M, Sramova H, Zalabska E. *Lucilia sericata* (Diptera: Calliphoridae) causing hospital-acquired myiasis of a traumatic wound. Journal of Hospital Infection. 1994; 28:149-52.
- Akbarzadeh K, Wallman JF, Sulakova H, Szpila K. Species identification of Middle Eastern blowflies (Diptera: Calliphoridae) of forensic importance. Parasitology Research. 2015; 114(4):1436-1472.
- Anderson GS, Huitson NR. Myiasis in pet animals in British Columbia: The potential of forensic entomology for determining duration of possible neglect. The Canadian Veterinary Journal. 2004; 45:993-998.
- Pezzi M, Whitmore D, Chicca M, Lanfredi M, Leis M. Traumatic myiasis caused by an association of *Sarcophaga tibialis* (Diptera: Sarcophagidae) and *Lucilia sericata* (Diptera: Calliphoridae) in a domestic cat in Italy. Korean Journal of Parasitology. 2015; 53:471-47.
- Strikewise Blow fly strike <http://strikewise.com.blowfly.html>. 2007.
- Patton WS. Some notes on the Arthropods of medical and veterinary importance in Mesopotamia, and on their relation to disease. Part II. Mesopotamian house flies and their allies. Indian Journal of Medical Research. 1920; 7:751-777.
- Khalaf KT. Diptera from Iraq. Iraq Natural History Museum, Publication. 1957; 13:13-15.
- Hussain AA. Provisional list of Insect pests and Bibliography of Insect fauna of Iraq. Bulletin of the College of Science, Baghdad. 1963; 7:43-83.
- Derwesh AI. Preliminary list of identified Insects and some Arachnids of Iraq. Directorate General of Agriculture Research and Projects, Baghdad, Bulletin. 1965, 121.
- Khalaf AN, Al- Omar MA. A second list fauna of Iraq. Biological Research Centre, Publication. 1974; 2:41.
- Abdul-Rassoul MS. Checklist of Iraq Natural History Museum Insects collection. Natural History Research Centre (Iraq), Publication. 1976; 30:41.
- Abul-hab J. A list of Arthropoda of Medical and Veterinary Importance Recorded from Iraq Bulletin of the Biological Research Center. 1980; 12(1):39.
- Abdul-Rassoul MS, Ali HA, Jassim FA. Notes on *Chrysomya bezziana* Vill. (Diptera, Calliphoridae). First record from Iraq. Bulletin of the Iraq Natural History Museum. 1996; 8(4):113-115.
- Al-Ani MO. Screw-worm fly *Chrysomya bezziana* in Iraq, Epidemiology and risk to the animal wealth in the middle east. Agriculture and Development Magazine (AOAD). 1997; 1:24-29.
- Aziz, MM, Hassan KS, Mahdi NK. Insects causes myiasis in animals. II -*Lucilia cuprina* and *Calliphora* spp. (Diptera, Calliphoridae). The Veterinarian. 1999; 9(2):11-15.
- Al-Halfay MAM, Mahdi NK. A Case of Cutaneous Myiasis in a Gaoat Caused by *Lucilia sericata*. Basrah Journal of Science, B. 1999; 17(1):79-80.
- Spradbery JP. A Manual for the Diagnosis of Screw-Worm Fly. CSIRO Division of Entomology. 1991, 62.
- Spradbery JP. Screw worm fly: a Tale of Two Species. Agricultural Zoology Reviews. 1994; 6:1-42.
- Wall R, Lovatt F. Blowfly strike: biology, epidemiology and control. In Practice. 2015; 37:181-188.