

Case Report

Human Urogenital Myiasis Caused by *Lucilia sericata* (Diptera: Calliphoridae) and *Wohlfahrtia magnifica* (Diptera: Sarcophagidae) in Markazi Province of Iran

M Salimi¹, D Goodarzi², MH Karimfar³, *H Edalat⁴

¹Department of Parasitology, School of Medicine, Arak University of Medical Sciences, Iran

²Department of Urology, School of Medicine, Arak University of Medical Sciences, Iran

³Department of Anatomy, School of Medicine, Ilam University of Medical Sciences, Iran

⁴Department of Medical Entomology and Vector Control, School of Public Health, Tehran University of Medical Sciences, Iran

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Abstract

We report a case of human urogenital myiasis in an 86-year-old rural man with a penile ulcer and numerous alive and motile larvae from urethra and glans penis. Entomological studies on adult flies showed the larvae were *Lucilia sericata* and *Wohlfahrtia magnifica*. The clinical presentation and treatment strategies are discussed.

Keywords: *Lucilia*, *Wohlfahrtia*, Urogenital, Myiasis, Iran

Introduction

Myiasis can be defined as the invasion of organs and tissues of human being or other vertebrate animals by dipterous larvae, which feed upon the living, necrotic or dead tissues for at least a period of time, or in the case of intestinal myiasis, they feed on the host's ingested food (Service 1986). The various forms of myiasis may be classified from an entomological or a clinical point of view. Entomologically, flies may be classified in three groups: obligatory or specific, facultative or semi-specific and accidental. Clinically, myiasis can be classified according to the part of body that is being invaded. Dermal and subdermal myiasis includes wound or traumatic myiasis. In furuncular myiasis a boil-like condition is produced. Nasopharyngeal myiasis, including aural and ocular myiasis, involves invasion of the head cavities such as nose, eyes, and ears.

Some myiasis involves invasion of the alimentary tract or the urogenital system (Kettle 1990). We report two species, *Lucilia sericata* (Meigen 1826) and *Wohlfahrtia magnifica* (Schiner 1862) that cause urogenital myiasis, which belong to family of Calliphoridae and Sarcophagidae. Adult *L. sericata* has metallic green or copper green color with an 8–10 mm diameter, hairy back, and hairless squama wings (Fig.1), and presents usually around butcher shops and slaughterhouses. It makes noise and bothers the residents. The female lays eggs in meat, fish, and animal corpse, infected wounds of humans or animals and excrement (Service 1986, Daniel et al. 1994). Service 1986 has reported that the developmental stage of *Lucilia* takes 10–23 days. Between 8–12 h, the eggs transform into a conical larva, and complete peritreme of poste-

*Corresponding Author: Dr Hamideh Edalat,
Email: edalat@tums.ac.ir

rior respiratory spiracles. After 4–8 days, larvae develop and drop on to soil and after 6–14 days transform in to adult flies. In humans, the myiasis due to *L. sericata* was reported in 1826 by Meigen, that for the first time separated parasites from mouth, eyes and paranasal sinuses of a hospital patient (Daniel et al. 1994). Since then, many cases of human myiasis have been reported, by *Lucilia*. including myiasis in skin tumor and nosocomial myiasis (Minar et al. 1998), aural myiasis in France (Bahji et al. 2002), wound and auricular myiasis in Iran (Talari et al. 2004, Yaghoobi et al. 2005), tracheostomy wound myiasis (Franza et al. 2006).

Wohlfahrtia magnifica (Sarcophagidae) are grayish and have three distinct black lines on the dorsal surface of the thorax (Fig. 2). The dark markings on the abdomen are usually present as roundish lateral spots and triangular-shaped dark makings along the mid line and sometimes the dark mark are so large as to be more or less confluent making the abdomen appear mainly black (Service 1986). Their females are larviposit at moist body openings and at fresh wounds or scratches. Larvae can even penetrate thin, unbroken skin. The larvae burrow in to the subcutaneous tissue to feed; inducing the formation of a boil-like cyst around groups of larvae with a small pore opening to the outside. A gravid *Wohlfahrtia* female produces 120–170 larvae. In a host, the larvae grow rapidly and can cause considerable tissue destruction, after about 1 week larvae drop to the ground to pupate and can overwinter in this stage in humans (Mullen et al. 2002). *Wohlfahrtia magnifica* has been reported as the cause of otitis (Fawzy 1991), ophthalmomyiasis (Morsy et al. 1991), vulvar myiasis (Delir et al. 1999), wound myiasis (Iori et al. 1999, Lmimouni et al. 2004), gingival myiasis (Dorma et al. 2007, Mohammadzadeh et al 2008), otomyiasis (Uzunl et al. 2004), cutaneous myiasis (Kokcam et al. 2005) and oral myiasis (Droma et al. 2007).

According to our survey, this is the first observation of urogenital myiasis in Markazi Province of Iran.

Case Report

The patient was an 86 yr old rural man, who was well and healthy till 3 days before coming to the hospital and had developed penile ulcer, Arak Valeye Asr larvae discharged from urethra and glans penis. Physical examination revealed one painful black necrotic ulcer with numerous alive and motile larvae in the ventral of glans penis and distal of urinary meatus with erythematous and edematous border. Contact dermatitis was seen in the same area but urinary meatus was not seen. Skin and subcutaneous tissues destroyed the copora cavernosa. The patient was hospitalized for removal of the larvae, debridement of the necrotic tissue in the penile ulcer with surgical scalpel. Some larvae was removed from the ulcer and sent to the lab of hospital for identification, then ulcer was cleaned using normal saline and povidone-iodine and the patient has taken antibiotic therapy with ampicillin and gentamycin for 7 days. The ulcer was cleaned with normal saline and povidone-iodine for two days after debridement, his skin repaired, and the patient discharged by urethral catheter and antibiotic therapy with cotrimoxazole. After one week, he was re-examined and the complaints of the patient disappeared after antibiotic and antiseptic treatment of the infested area. Most of the larvae that were sent to the lab of Valeye Asr Hospital were dead, only two larvae developed to adult flies, These adult specimens were sent to the Department of Parasitology and Entomology, School of Medicine of Arak. The adults were identified as *L. sericata* and *W. magnifica* by the available keys (James 1947, Khoobdel et al. 2008). The adults were deposited in the museum of insects, Department of Entomology, School of Medicine, Arak University of Medical Sciences.



Fig. 1. Adult of *Lucilia sericata* emerged from the larva isolated from a patient in Arak 2009 (original)



Fig. 2. Adult of *Wohlfahrtia magnifica* emerged from the larva isolated from a patient in Arak, 2009 (original)

Discussion

Urogenital myiasis is due to deposition of fly larvae in the human genitourinary system. Various species of flies are able to provoke urogenital myiasis, including *Fannia scalaris*, *Chryzomya bezziana* and *Sarcophaga* spp. (Werner 1975, Ramalingam et al. 1980,

Cilla et al. 1992). More scattered cases have been reported in the world including the United States of America by *Dermatobia hominis* (Massey et al. 2002), in Turkey by *Psychoda albipennis* (Taylan 2004), in India by *Chryzomya bezziana* (Wadhwa 2006), and also from Spain by *Eristalis tenax* (Gonzalez et al. 2009). In Iran only one case of hu-

man urogenital myiasis by *Chryzomya bez-ziana* was reported (Jdalayer 1978). Myiasis should be considered as occupational disease among farmers and shepherd. In this present case, our patient was an elderly shepherd lived in a rural area. He stayed outdoor near sheep flock, where a considerable quantity of flies are usually present, possibly when he was urinating outdoor in the field, the female of *Wohlfahrtia* deposits larvae at moist body opening (penis), then larvae burrow in to the penis to feed, inducing skin and subcutaneous tissue destroyed the copora cavernosa and then penis intestates with larvae of *Lucilia* and *Wohlfahrtia* caused penil ulcer. Ulcer cleaned after debridement and the patient had taken ampicillin, gentamycin and cotrimoxazole. Urogenital myiasis in this patient was due to poor hygienic condition that might have played a role in attracting the female flies of *Lucilia* and *Wohlfahrtia*.

Our case illustrates the importance of hygiene and sanitation in rural area with high fly population. It is also noteworthy that urogenital myiasis caused by larvae of blowfly (*L. sericata*) and Flesh fly (*W. magnifica*) is uncommon in human, and this is the second report of human urogenital myiasis in Iran.

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