

Case Report

First Record of Human Urogenital Myiasis Caused by *Psychoda albipennis* Larvae (Diptera: Psychodidae) in Miandoab, West Azerbaijan Province, Iran: A Case Report

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(Received 28 Apr 2018; accepted 30 Nov 2020)

Abstract

Background: Myiasis is a disease caused by infections of tissues and organs of human and vertebrates body by the larvae of real flies of Diptera which feeding on living or dead tissues of host for a period of time. This report aims to present a case of urogenital myiasis caused by the larvae of *Psychoda albipennis* (Diptera: Psychodidae) for the first time in Iran.

Methods: In this case report, we present a case of a 9-year-old girl with urogenital myiasis caused by *P. albipennis*. She presented to Sina Hospital with dysuria and claimed that he had observed several black-grayish colored mobile particles in his urine at different times. The patient lived in Miandoab, West Azerbaijan Province, Iran.

Results: In the hospital her urine sample, containing 3 larvae was referred to Entomology lab of the Medical Faculty for identification and characterization. According to morphological factors, the larvae were identified to approximate size of 8–10mm long, white to gray color, thorns and pale scales and a siphon at the posterior end of the body. By comparing the larvae with the reported ones from Turkey, diagnosis was confirmed.

Conclusions: According to our survey, this is the first observation of urogenital myiasis in East Azerbaijan Province, Iran. Our case illustrates urogenital myiasis caused by *P. albipennis* in Iran. Urogenital myiasis has not been previously reported from Iran as a human disease.

Keywords: Myiasis; Urogenital myiasis; *Psychoda albipennis*; Iran

Introduction

Diptera is the most important order of insects in the medical field. This order includes two suborder: Nematocera and Brachycera (1). The term “myiasis” was derived from a Greek word “Myia” which mean fly (2). “Myiasis” was first used by FW Hope in 1840. Nowadays, myiasis is a medical term for a disease caused by fly larvae in human and vertebrates tissues and organs. In other words, myiasis is a disease caused by infections of tissues and organs of human and vertebrates body by the larvae of the suborder Brachycera or real flies

of Diptera which feeding on living or dead tissues of host for a period of time (3, 4). Myiasis could be classified by both entomological and clinical procedures. In entomological method, the classification of myiasis is based on parasitic characteristics of fly larvae in which it is divided into obligatory, facultative and accidental types. In clinical method, myiasis is classified according to the infected area of the body. Myiasis can manifest in various body parts, such as the eye, nose, ear, oral cavity, throat, skin, gastrointestinal system and

urogenital system of hosts. Depending on the location of the dipterous larvae in the eye, ear, intestine, oral cavity, skin of hosts, the parasite can cause a broad range of medical conditions (5). Limited number of urogenital myiasis are reported from Iran and the etiological agents are *Chrysomya bezziana* and *Wohlfahrtia magnifica* (2). Actually, this disease is one of the causes of urogenital disorders in human (6). Studies have shown that urogenital myiasis is associated with urinary tract obstruction, poor hygiene and or the presence of ulcers in the genitourinary system (7). Sometimes urogenital myiasis by infection of the larvae of flies such as *P. albipennis* is dangerous and should be removed as soon as possible with surgical procedures (8). Clinical manifestations of urogenital myiasis could include abdominal pain, diarrhea and dysuria (9). In recent time a peculiar case of urogenital myiasis was reported from Egypt, China, Japan, Argentina, Chile, Saudi Arabia, England, Spain, India and particularly from Turkey in which the causative species were identified from the subfamily Psychodinae called *P. albipennis* (10-19). In our case report, in the first stage we observed larvae in the urine and then Bladder Bag, which was identified as *P. albipennis*, therefore this has been the first reported case in Iran.

Case Description

In this case report, we present a case of a 9-year-old girl with urogenital myiasis caused by *P. albipennis*. She presented to the Sina hospital with dysuria and claimed that he had observed several black-grayishcolored mobile particles in her urine at different times. The patient lived in Miandoab, West Azerbaijan Province, Iran. After observing larvae in urine in her sample, was referred to the health center of that city and due to diagnosis of filariasis, Mebendazole was prescribed. Despite taking the medication, the patient was still suffering from stomach ache and larvae still present in the urine. She was finally referred to

Tabriz Sina Hospital. In the hospital, her urine sample containing 3 larvae was submitted to the Entomology lab of Tabriz Medical Faculty for characterization. Valid larval identification keys were used to identify larvae collected based on morphological characterizations such as size, color, setae and scales of the abdominal segments and siphon (20-22), and the larvae were identified to be *P. albipennis* (Figs. 1–3). Comparing the reported causative agents of myiasis from Turkey (12), our present was proven to be *P. albipennis*. The morphological characteristics of the larvae were completely consistent with the reported cases in Turkey. The larvae were grayish-white, with approximate 8–10mm size. They have quite cylindrical body with pale hairs and scales on their surfaces. Also, there were teeth-like serrations on the periphery of the body. The body has 8 segments with the last segment containing a quite distinct respiratory siphon. Two larvae of *P. albipennis* were mounted in Puri's medium and one of them was preserved in alcohol in the laboratory.



Fig. 1. The Larva of *Psychoda albipennis* (Original, Hazratian 2018)

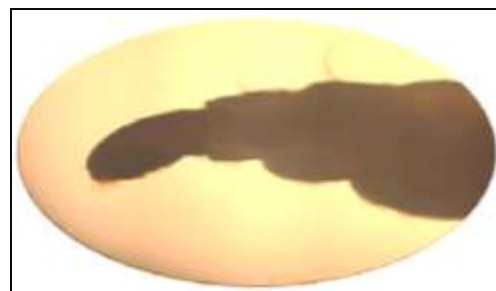


Fig. 2. The head of *Psychoda albipennis* (Original, Hazratian 2018)



Fig. 3. The siphon of *Psychoda albipennis* (Original, Hazratian 2018)

Discussion

The family Psychodidae consists of six sub-families, of which only two are medically importance. Phlebotomines (sand flies) are blood feeding larvae which live in places rich in organic materials, such as animal burrows, termite hills and tree holes (23-25). These flies are known as leishmaniasis vectors. The sub-family Psychodinae (Moth flies), includes small mosquitoes (2–5mm) as Phlebotomines with stretched legs and hairy body. But mouth segments are shorter and are not compromised for blood feeding. These insects reproduce in moist conditions and they are mostly found around sewage pipes. Thus, they are called "Sewage flies" or "Fitter flies" and lay their eggs within a jelly-like mass. Sometimes their population grows so high that they enter the eyes, ears and noses and bother the hosts. In spite of living in dirty environment, they are not considered disease vectors. But some bacteria are spread from them. In addition, their hair and scales are allergic (26). Adult *P. albipennis* is approximately 2mm long, covered with intense hairs, and primarily reside in houses, particularly in moist areas such as, toilets and bathrooms. The adult female flies lay their eggs in groups of 30–40 in moist, damp places, on hard objects and stones. The fly larvae are found in dirty, moist places, spoiled vegetables and fruits, sewage, irrigated plants and rubbish dumps (27). In the fourth stage of growth, the larvae are commonly gray-

ish- white. Typically, their bodies consist of 7 or 8 segments and have a siphon at the end of the last ring. They possess short pale hairs and scales on the surface. The edges of larvae are bordered with tooth-like projections (28). By the end of 2017, about 80 cases of human myiasis were reported in Iran where most of them (52%) were oral myiasis. about 65% of the reported cases were caused by *Oestrus ovis* larvae. In terms of age, two categories were considered, one infected individuals from 21–40 years old and the other from individual over 65 years old (4). A questionnaire-based study revealed that more than 88% of cases occurred among individuals involve in sheep and boat rearing (29). Reported cases of myiasis from different areas in Iran, often involve submission of sample to the entomological lab of Medical Faculties for characterization. Thus, it is suggested that consultation should be made with medical entomologist to detect the various types of myiasis diagnosed in Iran. Particularly, in this recent case report involving urogenital myiasis caused by *P. albipennis*. It is worthy to consider this fly larva as the causal agent of urogenital myiasis, because of high population of this fly in the breeding places, the occurrence of ear, ocular and nasal myiasis are possible.

Conclusion

To the best of our knowledge, this is the first report ever urogenital myiasis caused by *P. albipennis* in Iran. This type of myiasis has not been previously reported from Iran as a human disease.

The authors declare that there is no conflict of interest.

Acknowledgements

We would like to appreciate the staff of Sina Hospital Med Laboratory for the sample provision and special thanks to the contributive effort of Dr Kamran Akbarzadeh, the De-

partment of Medical Entomology and Vector Control, Health School, Tehran University of Medical sciences. The authors declare that there is no conflict of interest.

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