

## Case report

# First Report of Human Nasal Myiasis Caused by *Eristalis tenax* in Iran (Diptera: Syrphidae)

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## Abstract

We report a case of human nasal myiasis caused by flower fly larva in a 14-year-old rural girl in Central Province of Iran. Entomological studies on larva showed the larva as *Eristalis tenax* which is a rarely cause of nasal myiasis. This is the first reported case of *E. tenax* larva causing human nasal myiasis in Iran.

**Keywords:** *Eristalis tenax*, Nasal Myiasis, Iran

## Introduction

Myiasis is a pathogenic condition found in live humans and animals caused by various species of dipteran larvae (Zumpt 1965). Myiasis is usually classified from an entomological or a clinical point of view. Entomologically, flies may be classified in to three myiasis-producing groups: obligatory, facultative, and accidental. Clinically, myiasis can be classified according to the part of the body affected (Langan et al. 2004).

In Iran, many cases of human myiasis have been reported. The first case was reported by Minar when he recovered *Oestrus ovis* larva from the eye of an Iranian woman in Tehran (Minar 1976). Myiasis is repeated several times as ophthal myiasis (Janbakhsh et al. 1977), urogenital myiasis (Jdalayer et al. 1978), orbit myiasis (Khataminia and El-yasi 1996), pharyngeal myiasis (Karimi and Vahidi 1999), ear myiasis (Talari et al. 2002), oral mucosa myiasis (Hakimi and Yazdi 2002), wound myiasis (Talari et al. 2004) and auricu-

lar myiasis (Tirgarie et al. 1977, Yaghoobi et al. 2005).

Recently, ophthalmomyiasis in a 62-yr old male Afghan from Isfahan Iran by *Sarcophaga* (Razmjou et al. 2007), gingival myiasis by *Wohlfahrtia magnifica* in a 4 yr old boy from Bushehr, Iran (Mohammadzadeh et al. 2008) and human extensive head skin myiasis by *Chrysomya bezziana* in 5 yr old boy in Iran (Soleimani et al. 2009). The present case is of nasal myiasis caused by larva of *E. tenax* for the first time in Iran.

## Case report

The patient was a 14 yr old rural girl. She was suffering from myiasis since 5 months ago, who developed coryza, nasal grip, mild dyspnea and coughing. She had taken antibiotic, antihistamine, and topical corticosteroid, but none of them had sufficient effects. Radiographs have showed only minimal septal

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deviation and minimal opacity in left frontal and maxillary sinuses. Finally during several sneezing pulpy mass of the left nasal, released and she referred to infectious specialist, the larva was preserved in 70% Methanol by physician and sent to the parasitological laboratory, Faculty of Medicine, University of Arak, for identification. Our precise identification indicated that the larva is the rat-tailed maggot (*Eristalis tenax*) according to the following morphological characters of larva: referring to the long telescopic, three-segmented respiratory tube at their posterior end. (Mullen et al. 2002). Fig. 1 is a picture of the larva of the relevant specimen.



**Fig. 1.** Larva of *Eristalis tenax* isolated from the nose of the patient (original photo)

## Discussion

Nasal myiasis is an infection of nasal cavities by larvae of Diptera. It is a common disease in tropical and developing countries (Aydin et al. 2006). Parasites are quite mobile and their clinical signs vary. Symptoms always appear abruptly. The main symptoms are a foreign body sensation and itching in the throat, being followed by cough and then other various respiratory and nasal manifestations such as nasal discharge, sneezing, laryngospasm, dyspnea and stridor (Wolfelschneider and Wiedemann 1996, Massodi and Hosseini 2004).

Many cases of nasal myiasis have been reported world wide, caused by several differ-

ent species including *Oestrus ovis* in Algeria (Favier 1958), and France (Delhaes et al. 2001), *Phaenicia sericata* in 2 comatose patients in Arizona (Beckendorf et al. 2002), *Chrysomya bezziana* in a 80 yr old woman in Malaysia (Lee et al. 2005), *Cochliomyia hominivorax* in French Guiana (Coppie et al. 2005), *Drosophila melanogaster* in a 33 yr old in Turkey (Aydin et al. 2006), *Sarcophaga* in a 16 yr old girl in Turkey (Meral TÜRK et al. 2006), in a 70 yr old female patient presenting malignant nasal neoplasia and myiasis (Manfrim et al. 2007) and in a 70 yr old female in Korea, caused by *Lucilia sericata* (Tae-soo Kim et al. 2009).

The terms flower flies refer to their common habit of visiting flower for nectar and pollen and larvae of *E. tenax* called rat-tailed maggot referring to the long, telescopic, three-segmented respiratory tube at their posterior and by which they breathe at the water surface (Mullen et al. 2002). The larva of *E. tenax* develops in sewage, liquid, excrements and organic materials in decomposition, including carcasses, and occasionally, they can be found in relatively clean water (James 1947).

The first case of myiasis by *E. tenax* was reported by Hall (Hall 1918). Since then, many more cases of human myiasis have been reported by *E. tenax*, which include intestinal myiasis (Lakshminarayana et al. 1975), rectal myiasis (Hira 1977), gastrointestinal myiasis (Kun et al. 1998), intestinal myiasis (Aguilera et al. 1999, Whish- Wilson 2000, Dubois et al. 2004), human pseudomyiasis in Brazil (Garcia- Zapata et al. 2005), urinary myiasis in a 58 yr old woman in Turkey (Mumcuoglu et al. 2005) human myiasis by *E. tenax* in Brazil (Fernandes et al. 2009), and accidental genital myiasis by *E. tenax* in a 27 yr old woman in Chile (Gonzalez 2009).

This current study, illustrates several interesting points. It shows that, our case lived in rural area, in a poor hygienic condition and lack of awareness was considered the predisposing factors for larval infestation in this pa-

tient. It is also noteworthy that nasal myiasis caused by larva of *E. tenax* is uncommon in human. Myiasis of this type has not been reported previously from Iran and this case is the first report of human nasal myiasis caused by *E. tenax* in Iran.

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### References

- Aguilera A, Cid A, Regueiro B, Prieto JM, Noya M (1999) Intestinal myiasis caused by *Eristalis tenax*. J Clin Microbiol. 37 (9): 3082.
- Aydin E, Uysal S, Akkuzu B, Can F (2006) Nasal myiasis by Fruit fly larvae: a case report. Eur Arch Otorhinolaryngol. 263 (12): 1142–1143.
- Beckendorf R, Klotz A, Hinkle N, Barthelomew W (2002) Nasal myiasis in an intensive care unit Linked to hospital-wide mouse infestation. Arch Intern Med. 162(6): 638–640.
- Couppie P, Roussel M, Rabarison P, Sockeel Mj, Sainte Marie D, Marty C, Carme B(2005) Nosocomial myiasis to *Cochliomyia hominivorax*: a case in French uiana. Int J Dermatol. 44(4): 302–303.
- Delhaes L, Bourel B, Pinatel F, Cailiez JC, Gosset D, Camus D, Dei- Cas E (2001) Human nasal myiasis due to *Oestrus ovis*. Parasite. 8(4): 289–296.
- Dubois E, Durieux M, Franchimont MM, Hermant P (2004) An unusual case in Belgium of intestinal myiasis due to *Eristalis tenax*. Acta Clin Belg. 59(3): 168–170.
- Favier G (1958) A case of oculo-nasal myiasis caused by *Oestrus ovis* and seen at saoura (southern Oran). Arch Inst Pasteur Alger. 36 (2): 182–183.
- Fernades LF, Pimenta FC, Fernandes FF (2009) First report of human myiasis in Goias state, Brazil: frequency of different types of myiasis, their Various etiological agents, and associated factors. J Parasitol. 5(1): 32–38.
- Garcia- Zapata Mt, Desouza Junior ES, Fernandes FF, Santos SF(2005) Human Pseudomyiasis caused by *Eristalis tenax* (Linnaeus) (Diptera: Syrphidae) in Goias. Revista Da Sociedade Brasileira De Medicina Tropical. 38(2):187–188.
- Hakimi R, Yazdi I (2002) Oral mucosa myiasis caused by *Oestrus ovis*. Arch Iranian Med. 5(3): 194–196.
- Hall. M C (1918) A note regarding myiasis especially that due to Syrphid larvae. Arch Internal Med. 21(3): 309–312.
- Hira PR (1977) Rectal myiasis: first report on a case due to the rat-tailed Larva of *Eristalis tenax* in africa. East Afr Med J APR. 54 (4): 224–226.
- James MT (1947) The flies that cause myiasis in man.US Department of Agriculture, Miscellaneous publication no 631 Washington, pp.148–150
- Janbakhsh B, Pirous Ms, Tirgari S, Aghamohammadi A (1977) A case of ophthalmomyiasis in man by *Oestrus ovis* Linnaeus in Tehran (Insecta: Diptera, Oestridae). Acta Medica Iranica.20: 19–26
- Jdalayer T, Maleki M, Moghtader M (1978) Human urogenital myiasis cause by *Chrysomya Bezziana*. Iranian J Public Health. 7(3): 116–118.
- Karimi Gh, Vahidi Mr (1999) A case report of pharyngeal myiasis. Journal of Shahid Sadoughi University of Medical Science and Health Services.1(7): 91–94.
- Khataminia Gh, Elyasi P (1999) Advanced orbital myiasis: A case report in Sina Hospital, Ahwaz. Scientific Journal of the Eye Bank of I.R. Iran. 1(5): 59–61.
- Kun M, Keriter A, Semenas L (1998) Gastro-

- intestinal Human myiasis caused by *Eristalis tenax*. Rev Saude Publica. 32(4): 367–369.
- Lakshminarayana CS, Kanchana MV, Janaka Valli R, Mallika M (1975) Intestinal myiasis due to *Eristalis tenax*. J Indian Med Assoc. 65 (8): 234–235.
- Langan SM, Dervan P, Loughlins O (2004) A moving scalp nodule in a returning traveler. Br J Dermatol. 151(6): 1270.
- Lee HL, Krishnasamy M, Jeffery J (2005) A case of Human nasopharyngeal myiasis caused by *Chrysomya bezziana* Villeneuve, 1914 (Diptera: Calliphoridae) in Malaysia. Tropical Bio Medicine. 22(1): 87–88.
- Masoodi M, Hosseini K (2004) External ophthalmomyiasis caused by sheep botfly (*Oestrososis*) Larva: a report of 8 cases, Arch Iranian Med. 7 (2): 136–139.
- Meral Türk, İlhan AFSAR, Yufuf OZBEL, Asli Gamze SENER, Ahmet ÜNER, Metin TÜRKER (2006) A case of naso myiasis whose agent was *Sarcophaga* SP. Turkey Parazitoloji Dergisi. 30 (4): 330–332.
- Minar J (1976) A case of eye myiasis in man caused by first instar larvae of *Oestrus ovis* L. (Diptera Oestridae) in Iran. Folia Parasitol. (23): 283.
- Mohammadzadeh T, Hadadzadeh R, Esfandiari F, Sadjjadi SM (2008) A cause of gingival myiasis caused by *Wohlfahrtia magnifica*. Iranian J Arthropod Borne Dis. 2(1): 53–56.
- Mullen Gary, Durden Lance (2002) Medical and Veterinary Entomology, Elsevier Science, UK.
- Mumcuoglu I, Akarsu GA, Balaban N, Keles L (2005) *Eristalis tenax* as a caused of urinary myiasis. Scand J Infect Dis. 37 (11–12): 942–943.
- Razmjou H, Mowlavi GH, Nateghpour M, Solaymani-Mohammadi S, Kia EB (2007) Ophthalmomyiasis caused by Flesh fly (Diptera: Sarcophagidae) in a patient with eye malignancy in Iran. Iranian J Arthropod Borne Dis. 1 (2): 53–56.
- Soleimani Ahmadi M, Nasirian H, Nazemi Ghesmi Am, Yaghoobi Ershadi MR (2009) Human extensive head Skin myiasis. Iranian J Publ Health. 38: 134–138.
- Tae-Soo Kim, Pil-Wanseo, Jong-Wan Kim, Hai-Hyang GO, SOO-Cheol Jang, Hye-Jung lee, Min Seo (2009) A Nasal myiasis in a 70 yr old female in Korea. Korean J Parasitol. 47(4): 405–407.
- Talari SA., Yeganeh Moghadam A, Dehghani R (2002) *Chrysomya bezziana* infestation. Arch Irn Med. 5 (1): 56–58.
- Talari SA, Sadr F, Doroodgar A, Talari MR, Gharabagh AS (2004) Wound myiasis caused by *Lucilia sericata*. Arch Iranian Med. 7 (2): 128–129.
- Tirgari S, Khalkhali K, Aghamohammadi A (1977) First case of auricular myiasis due to *Sarcophaga*. (Bercaea) haemorrhoidalis (Fallen) (Dipt. Sarcophagidae). Ent Mon Mag. 112: 255–256.
- Tirgari S, Nateghpour M, Jahanian AH, Akbarzadeh K (2003) First record of Human myiasis caused by *Chrysomya bezzinana* (Villeneuve in Iran (Diptera, Calliphoridae). Iranian J Publ Health. 32 (3): 68–70.
- Whish-Wilson PB (2000) A possible case of intestinal myiasis due to *Eristalis tenax*. Med J Aust. 173 (11–12): 652.
- Wolfelschneider P, Wiedemann P (1996) External Ophthalmic myiasis caused by *Oestrus ovis* (sheep and goat bot fly) [in German]. Klin Monatsbl Augen Heilkd. 209 (4): 256–258.
- Yaghoobi R, Tirgari S, Sina N (2005) Human auricular myiasis caused by *Lucilia Sericata*: Clinical and Parasitological. Considerations Acta Med Iran. 43(2):155–157.
- Zumpt F (1965) Myiasis in Man and Animals in the Old World: A textbook for Physicians, Veterinarians and Zoologists. Butterworths Publishing Company, London.