

A Rare Case of Oral Myiasis Caused by *Phormia regina* (Meigen) (Diptera: Calliphoridae) in an Intubated Patient

Entübe Hastada Phormia regina (Meigen) (Diptera: Calliphoridae) Nedenli Nadir Bir Oral Miyazis Olgusu

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ABSTRACT

Myiasis is the infestation of tissues with living larvae. Oral myiasis is an extremely rare form of the disease, with open mouth, unconsciousness, and poor oral hygiene being the predisposing factors. It is generally observed in the tropics or subtropics, as well as rural places with low socio-economic income. Mechanical removal and ivermectin are frequently used as treatments. Herein, we present a case of oral myiasis in a 69-year-old male intubated patient with myocardial infarction. Multiple larvae were observed in the mouth and mechanically removed. With the microscopic investigation, the larvae were identified as *Phormia regina* (Meigen) (Diptera: Calliphoridae), which is extremely rare globally. For preventing oral myiasis, good patient care, good sanitary practice for oral health, efficient treatment of dental diseases, and fly population control, usage of masks for the risk groups are recommended.

Keywords: Myiasis, oral, *Phormia regina*, intubation, larvae

ÖZ

Miyazis, canlı larvaların doku infestasyonuna verilen isimdir. Oral miyazis hastalığın oldukça nadir görülen formudur. Predispozan faktörler açık ağız, bilinç kaybı ve kötü ağız hijyenidir. Genellikle tropik ve subtropik bölgelerde ve düşük sosyo-ekonomik seviyeli kırsal kesimlerde görülmektedir. Tedavi için mekanik temizleme ve ivermektin kullanımı tercih edilmektedir. Burada, 69 yaşında entübe bir miyokard infarktüsü hastasında oral miyazis olgusu sunulacaktır. Hastanın ağızda çok sayıda larva tespit edilmiş ve mekanik olarak temizlenmiştir. Mikroskopik inceleme sonucu larvalar oldukça nadir bir tür olan *Phormia regina* (Meigen) (Diptera: Calliphoridae) olarak tespit edilmiştir. Oral miyazisin önlenmesinde, hasta bakımı, ağız sağlığı bakımı, diş hastalıklarının etkin tedavisi, sinek popülasyon kontrolü ve riskli gruplarda maske kullanımı önerilmektedir.

Anahtar Kelimeler: Miyazis, oral, *Phormia regina*, entübasyon, larva

INTRODUCTION

Myiasis is the infestation of tissues by living dipterous insect larvae meaning fly (muia) and disease (iasis). It is oftenly seen in tropical and subtropical areas, since larvae causing myiasis favor the warm and humid conditions. It generally invades vertebrates but human infestations are rare but reported, since humans are the accidental hosts (1). Myiasis is a destructive disease, which requires early diagnosis and intervention.

Oral myiasis is a rare manifestation of the disease since the oral cavity is not an appropriate body part for egg-laying. The predisposing factors can be local or systemic; local factors include incompetent lips, poor oral hygiene, halitosis, dental diseases, nocturnal mouth breathing, facial trauma, ulcer like lesions and oral carcinoma (2). Systemic factors can be summarized as cognitive difficulties, dementia, cerebral palsy, diabetes, alcohol consumption and poor hygiene (3).



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Phormia regina species are the less common causes of human myiasis among the blowflies (*Calliphoridae*). These species are known to be attracted to malodorous suppurating wounds and especially used in forensic medicine to indicate the postmortem interval (4). Here we report an oral myiasis case in a 69-year-old, male, intubated patient with myocardial infarction and cognitive impairment.

CASE REPORT

A 69-year-old male patient who had granulomatosis with polyangiitis since 2012 was admitted to the hospital with complaints of coughing, fatigue and swelling of the feet. The patient was from low socio-economic background and residing in a rural area of Turkey. He had nodular lesions in both lungs and chronic renal failure (Stage V). There was no evidence of an upper respiratory tract involvement though he had poor oral hygiene. During his follow-up, the patient developed dyspnea and chest pain. The arterial blood gas analysis at room air was as follows: pH: 6.9, pO_2 : 80 mmHg, pCO_2 : 26 mmHg, HCO_3^- : 4.1 mEq/L and lactate: 12.2 mEq/L. The patient was then intubated and mechanical ventilation was started. Further investigations revealed highly elevated cardiac markers and thus, he was diagnosed with non-ST elevation myocardial infarction. Ten days after hospitalization and one day after intubation, multiple larvae were seen crawling in patient's oral cavity. The larvae were initially mechanically removed and then the oral cavity was flushed with 3% saline. Some of the larvae were delivered to the parasitology laboratory for classification.

Two larvae were sent to Ankara University Veterinary Faculty, Parasitology Laboratory. The size was investigated with stereo-microscope Zeiss (Stemi 2000-C). It was dissected under stereo-microscope and a slide is prepared with canada balsam. With the microscopic investigation of cephalopharyngeal skeleton and posterior peritreme under stereo-microscope Leica (S8AP0), it was identified as *Phormia regina* (Meigen) (Diptera: *Calliphoridae*) Phase 2 and 3 (5-8) (Figure 1, 2). Since it was brought within saline solution, adult forms could not be obtained.

Then the patient was consulted to the department of otorhinolaryngology for further management. Fiber optic and detailed physical investigations were performed but no more

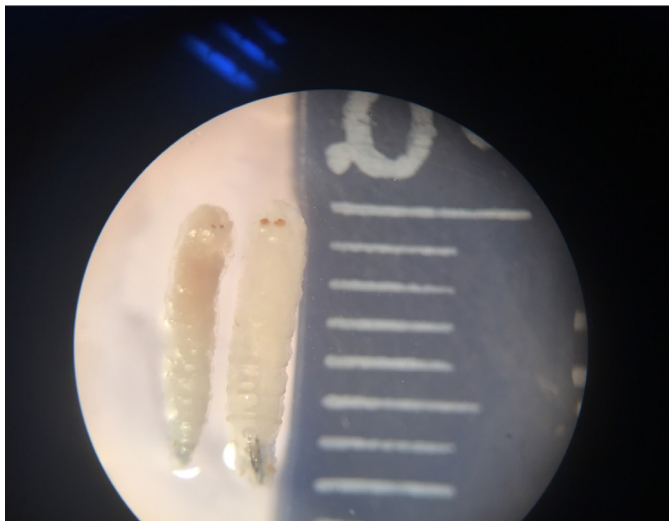


Figure 1. The size of the larvae

larvae were detected in the oral cavity, nose or ear. Larvae did not appear again in the follow-up.

DISCUSSION

Oral myiasis an uncommon manifestation of the disease and generally requires certain predisposing factors as poor oral hygiene and factors causing an open mouth, and neurological deficits. In our case the patient is intubated and unconscious. He was coming from a rural area of Turkey with a warm and humid weather where many farms are located which can attract various endemic insects and parasites. In addition, social vulnerability and poor sanitary conditions are common in rural areas of Turkey. A number of oral myiasis cases were reported in Turkey. A nine-year-old boy who is intubated because of pneumoniae, and who has poor oral hygiene was infested by *Lucilia sericata* (9). Two cases of *Sarcophaga* spp. were reported; an 82-year-old woman with oral squamous cell carcinoma (10) and a 15-year-old male patient with tuberculosis meningitis (11). Two children one healthy and one with chronic periodontitis were infested by *Wohlfahrtia magnifica* (12,13). Two reports of Diptera: *Calliphoridae* family defined an intubated unconscious patient and a farmer with poor oral hygiene (14,15). Arslan et al. (16) also reported a gingival myiasis of a 2-year-old boy with dental caries and poor oral hygiene. *Hypoderma bovis* larvae were removed in a child's oral cavity with poor oral hygiene (17).

Phormia regina species are uncommon cause of myiasis, which is known to cause a facultative disease especially infestations on necrotic dermal lesions (18). Two cases of oral myiasis in hospitalized patients were reported from Iran (19). The first report was made in 1975 from Quebec in a patient with traumatic dermal myiasis (20). Others were wound myiasis (21-24), ulcers of chronic psoriasis (25), and necrotic scalp myiasis (26).

Myiasis is treated by mechanical evacuation with clinical forceps or surgical debridement; ivermectin which results in the palsy and death of the parasites (27), phenol, turpentine oil, chloroform or nitrofurazone spray (27,28). Prevention is based on applying fly population control strategies, practicing good sanitary care. The

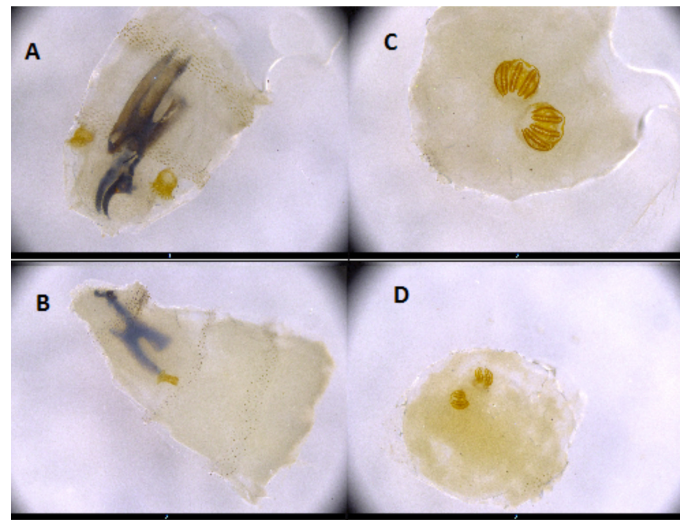


Figure 2. A) Cephalopharyngeal skeleton of 2nd instar larvae. B) Cephalopharyngeal skeleton and anterior peritreme of 3rd instar larvae. C, D) Posterior peritreme of 2nd and 3rd instar larvae

avoidance of oral myiasis includes good oral hygiene, efficient treatment of dental diseases and usage of masks in patients with lip incompetence (28).

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*Ethics

Informed Consent: The informed consent was obtained from the patient.

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* Authorship Contributions

Surgical and Medical Practices: S.Ç., Data Collection or Processing: T.Ü.A., N.K., S.N., Y.A., S.E., Analysis or Interpretation: T.Ü.A., N.K., S.N., Y.A., S.E., Literature Search: T.Ü.A., Y.A., S.E., Writing: T.Ü.A., N.K., S.Ç., S.N., Y.A., S.E.

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