

**Case Report****Ophthalmomyiasis Caused by Flesh Fly (Diptera: Sarcophagidae) in a Patient with Eye Malignancy in Iran**H Razmjou<sup>1</sup>, \*Gh Mowlavi<sup>2</sup>, M Nateghpour<sup>2</sup>, S Solaymani-Mohamadi<sup>2</sup>, EB Kia<sup>2</sup><sup>1</sup>Department of Ophthalmology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran<sup>2</sup>Department of Medical Parasitology and Mycology, School of Public Health, Medical Sciences/University of Tehran, Tehran, Iran

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**Abstract**

Here we describe a case of ophthalmomyiasis in a male patient with basal cell carcinoma. During the operation several live and motile maggots were removed from the lesion. Preliminary examination on the larvae confirmed their affiliation to the genus *Sarcophaga* (Diptera: Sarcophagidae). This genus is widely distributed throughout the world and species are very difficult to identify. The authors made attempt to approach species identification by rearing larvae to the adult flesh flies, but due to shortage of adult male specimen, reliable diagnosis in the level of species was not obtained. Possible interaction between ocular myiasis and malignancy concerning the case has not been addressed in this paper.

**Keywords:** Ophthalmomyiasis, *Sarcophaga*, Malignancy**Introduction**

Myiasis is defined as infestation of a vertebrate host by fly larvae that feed on living tissue, body fluids, or ingested foods. Although myiasis in man is generally rare, many species of particularly Calliphoridae, Oestridae and Sarcophagidae may produce myiasis (James 1947). Myiasis is usually classified from an entomological or a clinical point of view. Entomologically, flies may be classified into three myiasis-producing groups: obligatory, facultative, and accidental. Clinically, myiasis can be classified according to the part of the body affected. Cutaneous myiasis includes wound myiasis and furuncular myiasis. Although it is most unusual in our country, imported cases can be found because of increased traveling and immigration (Langan et al. 2004). There are more than 150,000 dipteran species. Few, however, cause ocular injuries (Glasgow et al. 1995). Ocular involvement is responsible for

5% of all cases of myiasis and is termed ophthalmomyiasis (Wilhelmus 1986). Keyt was the first to describe a case of ophthalmomyiasis in 1900 (Sivaramasubramanyam et al. 1968). Depending on the site of infestation, ophthalmomyiasis may be categorized as external, internal or orbital. In external ophthalmomyiasis the adult fly deposits its larvae on the conjunctiva or eyelids. When the larvae penetrate the globe, internal ophthalmomyiasis occurs. In orbital myiasis the maggots invade the orbit producing severe orbital damage. Human ophthalmomyiasis is caused by a number of myiasis-producing flies. Host animals include cattle, sheep, horses, deer and rodents. However, human ophthalmomyiasis is commonly caused by the ovine nasal botfly, *Oestrus ovis* (Cameron et al. 1991) and the Russian botfly, *Rhinoestrus purpureus*. Several cases of human ophthalmomyiasis caused by other species such as *Hypoderma tarandi*, *Wohlfhartia magnifica*, and *Cochliomyia hominivorax* have been reported from various

places in the world (Chodosh et al. 1992). Cases of ophthalmomyiasis in hospitalized and elderly individuals as well as in debilitated people and patients with malignancies have been reported on several occasions (Greenberg 1984). Ocular myiasis is usually manifested as conjunctivitis in the beginning. Corneal opacity and marginal ulcer with subsequent poor eyesight would occur if the parasite invaded the eyeball. In some cases, the maggot penetrates the sclera into the anterior chamber or retina, causing blindness (Jiang 2002).

### Case report

A 62- year- old male Afghan refugee residing in Iran for more than 20 years was admitted to the Feyz Eye Specialist Hospital in Isfahan. He was suffering from a non – healing lesion in the left canthal area. Muco-purulent discharge, redness, tearing, and itching of the

left eye were mainly complained by the patient. On examination, visual acuity was 10/10 in both eyes. Early observations showed a progressive malignant tumor completely affecting the orbit and ethmoidal sinus simultaneously. More investigation revealed the invading basal cell carcinoma confirmed histopathologically at the subsequent follow-up. The intensively progressive tumor degenerated the ocular appearance along with extensive necrotic tissues and severe chemosis. Debriding of the lesion while the patient was under general anaesthesia, a number of live and motile maggots were found superficially and deep within the lesion. The vigorously motile larvae were mechanically removed superficially and from the canthal area as well as the ethmoidal sinus (Fig. 1). It seems that the burrowing larvae penetrated the orbital space through a 2-cm deep canal produced in the left canthal area.



**Fig. 1.** A number of third instar larvae removed from the lesion



**Fig. 2.** The anterior part of the larva showing hooklets



**Fig. 3.** The posterior end of the larva showing the characteristic spiracles

## Agent description

The larvae recovered were preliminary identified as *Sarcophaga* sp (Diptera: Sarcophagidae) according to characteristic structures such as spiracle patterns and mouth parts (Fig. 2, 3). The third instar larvae of the flesh flies is characterized by being densely spinulose, and by having a cephaloskeleton with a bifurcated dorsal cornua and an open peritermal ring of the posterior spiracles (Zumpt 1965). In order to obtain adult flies for species identification, some of the larvae were reared on ground beef placed according to Tirgari method with some modifications (Tirgari et al. 2003), and the rest were preserved in 70% ethanol. The full grown larvae crawled into the soil and developed into adult flesh-flies. Based on above mentioned identification key, the adult flies were seen similar, in feature, to the species, *S. haemorrhoidalis*, but due to specimen shortage however, exact specification did not achieved.

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