

# Ophthalmomyiasis Following Long Standing Squamous Cell Carcinoma of Right Eye - A Case Report from North India

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**Abstract:** *Fly larvae (maggots) infesting the ocular structures is known as ophthalmomyiasis. The most frequent cause of ophthalmomyiasis externa is oestrus ovis, and consequently, the most frequent type of ocular myiasis is external disease. Although this is typically seen in rural areas, a case from an urban area is presented here. We describe a case of 90 yr old male with ocular infestation of maggots in right eye already afflicted by poorly differentiated basaloid squamous cell carcinoma.*

**Keywords:** Ophthalmomyiasis; Squamous Cell Carcinoma

## 1. Introduction

Frederik William Hope first described ophthalmomyiasis (OM) in 1840 as a zoonosis characterised by the infestation of the ocular apparatus with Diptera larvae, primarily from the families Oestridae, Calliphoridae, and Sarcophagidae<sup>1</sup>. Three types of ophthalmomyiasis exist: the larvae may be external, depositing on the ocular surface, internal, penetrating the globe and visible in the vitreous cavity or subretinal space, or orbital, the most harmful type, where the larvae reach the orbital structures and cause significant harm.<sup>2</sup> At first, it imitates regularly occurring inflammatory responses of the ocular adnexa. To prevent a false diagnosis and to expedite definitive treatment, a thorough clinical examination and laboratory confirmation are necessary.<sup>3</sup> *O. ovis*, larval form of the sheep nasal bot fly, is the main agent causing external ocular myiasis. It is an obligatory parasite of sheep and goats in their nasal and paranasal cavities. Humans are accidental hosts in its life cycle<sup>4</sup>. Not only are rural areas with farmers or animal husbandry reported to have the condition, but also people from all over the world who have unintentionally come into contact with it in urban areas without having direct or close contact with animals<sup>5</sup>.

## 2. Case Report

A 90 - year - old male came to us with a complaint of bleeding in right eye associated with a crawling sensation over the eye for 1 day following an episode of spontaneous rupture of the right eye which had been swollen up since last two years.

The patient did not have any significant history of any systemic illnesses. He was not using any topical or systemic medication.

Before this episode the swollen eye had no associated pain, discharge or any visible maggots. For the past 2 years

patient was not able to see through the right eye and he never sought any medical advice for it.

On examination - Ocular structures and its anatomy were not clearly demarcated. There was erosion of bony orbit with necrosed tissue having ulceroproliferative rolled out margins. Bloody purulent discharge was oozing from the necrosed tissue. Maggots filled the crevices and their dark heads were visible through the crevices (Figure 1).

The maggots were removed following local application of turpentine oil for 5 min with the help of plain forceps after application of LA, following this lesion was cleaned and around 90 maggots were removed on the first day of admission (Figure 2).

Consecutively 20 maggots were removed on day 2 and 5 on day three. The patient was started on ceftriaxone, metronidazole, diclofenac and eye drops moxifloxacin for the other eye. He was investigated for any systemic illness or secondaries.

A pus culture was sent on day 2 and showed MSSA and *Morganella* species. A punch biopsy was sent from inferior nasal margin which confirmed the lesion as poorly differentiated basaloid squamous cell carcinoma (Figure 3). MRI orbit showed infiltration into globe, orbital fat, insertion sites of EOM and S/C plane along zygomatic arch and nose.

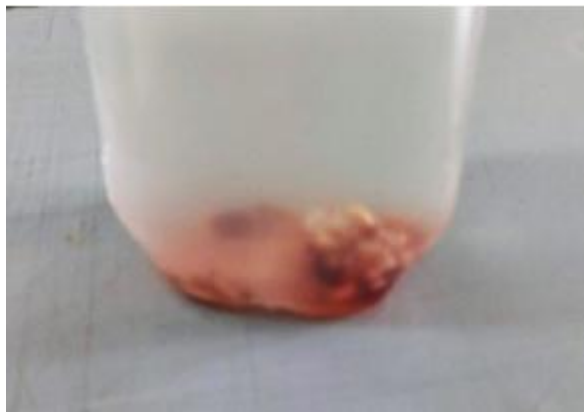
The patient received first dose SFRT [at] 800cGy on 10<sup>th</sup> day. After 2 weeks the lesion started showing healthy granulation tissue (Figure 4). The patient was discharged and kept on follow up and 4 weekly radiotherapies. At 6 weeks mark there was significant healing of lesion along with minute discharge (Figure 5)



**Figure 1:** Translucent worms 1 - 2mm in size with dark head seen in orbital tissue



**Figure 5:** Healed lesion with minute discharge at 6 weeks mark



**Figure 2:** Ninety maggots removed and put in normal saline



**Figure 7:** 8th week follow up of the patient with a small friable lesion superonasally



**Figure 3:** Third post admission day with the punch biopsy lesion on inferior nasal margin



**Figure 4:** Healthy granulation tissue following first dose of SFRT

### 3. Discussion

Myiasis is the infestation of tissues or organs by dipterous fly larvae in living vertebrates. The skin is the site of infestation most frequently, but other potential sites include the eyes, nose, paranasal sinuses, throat, and urogenital tract<sup>4</sup>. It is uncommon for eye larvae to infest the ocular structures, especially outside of tropical or mild - climate regions<sup>6</sup>.

The adult fly deposits first instar larvae, which are typically limited to the conjunctiva and cornea (resulting in corneal abrasions) but very sporadically penetrate the eye. Additionally, a frontal headache and isolated rare reports of human nasal and pharyngeal cavity larvae have been made<sup>7, 8</sup>.

Ophthalmomyiasis may be caused by a pre - existing ocular lesion that attracts flies, such as basal cell carcinoma of the periocular tissue. Fly larvae have the potential to destroy orbital tissue and can result in secondary bacterial infections and significant inflammation in patients with poor personal hygiene and care. There is a chance that some fly larvae will pass through the conjunctiva and sclera and infect the parasitic dipterous larvae internally, leading to ophthalmomyiasis. In such a situation, a single larva typically enters the eye. In these circumstances, severe vision loss may happen<sup>9</sup>.

The most straightforward and widely used management strategy involves surgical removal under local anaesthesia,

as well as steroid and antibiotic prophylaxis. In our case, the patient reacted favourably to maggots removal following local application of turpentine with the help of plain forceps after application of LA. Other treatment options mentioned in the literature include mechanical removal and topical tobacco extract, followed by surgery under local anaesthesia, systemic ivermectin, and liquid paraffin.<sup>10</sup> Because of their propensity to invade deeper tissue, they require quick identification and complete mechanical removal<sup>11</sup>.

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