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Ocular Myaisis– A Case Report

ChattopadhyaySaswati[1], Mukherjee Raja [2,] NandiAnita[3,] BhattacharyaNemai[4].
[1]*Demonstrator/RMO, Department of Microbiology, Institute of Post Graduate Medical Education and Research, Kolkata.*
[2]*M.O.SwasthyaBhavan, Kolkata.*
[3]*Demonstrator/RMO, Department of Microbiology, Medical College, Kolkata.*
[4]*Professor, Virology Unit, Department of Microbiology, School of Tropical Medicine, Kolkata*

Abstract: *A case of destructive ocular myiasis in the right eye of an healthy and non-compromised host having poor personal hygiene. Mechanical removal and good local hygiene helped to heal the wound. The larvae isolated were found to be that of Chrysomyia bezziana (screwworm fly). Infestation of human eyes with larvae of flies (myiasis) has been reported. Serious consequences of destructive myiasis are seen in emaciated and diseased patients. Only one report of total destruction of the globe by maggots of Chrysomyia bezziana exists in the literature. Mechanical removal of maggots is an important step in the management of patients with myiasis.*
Key words*: Myiasis; Orbit; Chrysomyia bezziana*

I. Introduction

Ocular Myiasis is the infestation of the human ocular tissue by the immature larval stage of flies called maggots feeding on the host tissue-dead or living[1] causing variety of complications ranging from allergic conjunctivitis with watering to corneal ulcer with photophobia. Maggots in the eye are rare in the developed countries. Even in the undeveloped countries, it is rare because of increased health awareness and availability of easy access to ophthalmic facilities.

Case report

A 45 year old Hindu male crematorium worker attended the eye OPD of a tertiary are hospital on 8th August 20012 with chief complaints of foreign body sensation, redness and excessive watering of the right eye together with a small blackish ulcerating painful growth on the right lower eyelid. The growth had developed 6 months back and was painless at first. But 15 days back, ithad burst and hadbecomeexcruciatingly painful. The patient had very poor personal hygiene and was in close contact with different flies and insects.
On examination, there was no significant medical or surgical significant family history.

Local examination revealed that the conjunctiva was moderately congested and chemosed with profuse lacrimation. The visual acuity was 6/6 in both the eyes. The pupils, extra ocular movements were all found to be normal. The lacrimal sac was found to be clinically patent and digital ocular tension revealed that it was normal in both the eyes. The cornea was found to be clear .There was an ulcer with sloughed off margins and a number of maggots were found to be burrowing through a perforation in the lower palpebral conjunctiva and the lower fornix. The patient was taken to the O.T. Under local anaesthesia, the wound was cleared and maggots were removed. An ulcer of 1inchx1.5inch with irregular margins was noted. The walls and floor of the ulcer were packed with innumerable number of maggots. More than 50 maggots were removed. The wound was dressedlocally and systemic antibiotics were administered.

The other eye was normal. No ear and CNS involvement was found.. Systemic examination conducted did not reveal any abnormality. The patient was fully conscious and well oriented in time, space and person. The hemogram, urine and sugar profiles were all found to be within normal limits. Skiagrams of skull, orbit and paranasal sinuses did not show any area of bone destruction.CT scan was found to be normal. The maggots were received at the School of Tropical Medicine, Kolkata in 80% ethanol for microscopic examination and species identification. The maggot was found to be that of *Chrysomyia bezziana*. On examination the type of posterior spiracle openings, number of anterior spiracle openings and the shape of the body parts proved the larva to be of *Chrysomyia bezziana*. The skin from the lower lid was sent for biopsy. It was found to be a benign adenexial tumour of follicular origin. The wound was dressed regularly.It healed by secondary intention. The patient was discharged after 10 days.


Fig.1Patient with the ulcer Fig.2 Cavity following removal

II. Discussion

There are 3 different forms of Ophthalmomyiasis depending on the portion of the eye involved: a) Ophthalmomyiasis externa—infestation of the conjunctiva which if not treated properly leads to b) Ophthalmomyiasis interna—larva penetrating the globe and lying in the sub-retinal space and vitreous cavity; c)Orbital Ophthalmomyiasis—the least common type, occurring due to invasion of the orbit[2,3,4].

Human Ophthalmomyiasis is a rare disease but it is an emerging and increasing condition. Ophthalmomyiasis caused by *C. bezziana* is particularly damaging. It afflicts humans especially those with poor hygienic lifestyle or those working in contaminated areas especially during the warm seasons. Infestation leads to pruritus, pain, redness, inflammation, eosinophilia, secondary bacterial infections and rarely death of the patient [5]

Chrysomyia bezziana is more commonly known as the screw-worm fly of the Old World belonging to the family Calliphoridae and suborder Cyclorhapha. It is blue or green-blue in color and is 8-10mm in size. The anterior spiracle is dark brown and/or dark orange in color [8]. The female lays approximately 150–200 eggs at a time which hatches after 24 hours. The first stage of larva is white in color and 1.5 mm in length. The second and third stages larvae are 4 to 9 and 18 mm, respectively. The larva is eleven segmented with the anterior spiracle on the second and posterior spiracle located on the last segment. After 3–4 days, the third stage larvae wriggle out of the tissues in search of a suitable substrate and pupate. While feeding, only the posterior spiracle is visible. Larvae invade the conjunctiva and ocular bulb, leading to conjunctivitis, corneal ulcer and destruction of the ocular bulb, eyelids and orbit, since it feeds on the surrounding tissues. The males become sexually mature after 24 hours while females take about 6–7 days to become fully sexually mature. The entire life cycle is temperature dependent and last for about 24 days- 2–3 months [5]

These parasites can infest all warm-blooded animals and, rarely, birds. Female flies lay their eggs at the edges of wounds or on mucous membranes. When they hatch, the larvae enter the body, grow and feed, progressively enlarging the wound. Eventually, they drop to the ground to pupate. The pupal stage is temperature dependent with warm weather favoring growth. The pupal stage last from 1 week to 2 months to develop into adults. The males become sexually mature after 24 hours while females take about 6–7 days to become fully sexually mature. The entire life cycle is temperature dependent and last for about 24 days- 2–3 months [6].

Screwworms can infest a wide variety of wounds, from tick bites to cuts wounds. Infestations are very common in the navels of newborns, and the vulval and perineal regions. If the eggs are deposited on mucous membranes, the larvae may enter any orifice including the nostrils, sinuses, mouth, orbits of the eye, ears or genitalia [5].

In the first day or two, screwworm infestations are difficult to detect. Often, all that can be seen is slight motion inside the wound. As the larvae feed, the wound gradually enlarges and deepens. Infested wounds often have a serosanguineous discharge and sometimes a distinctive odor. By the third day, the larvae may be easily found; as many as 200 parasites can be packed deep inside the wound. Screwworm larvae do not generally crawl on the surface, and tend to burrow deeper. Secondary bacterial contamination is also common [5].

Mechanical removal of maggots is an important step in the management of patients with myiasis. The use of ether to narcotize the larvae has also been reported earlier [7]. Turpentine oil has also been used in order to suffocate the maggots [8].They can also be removed from the affected site by irrigation, manipulation or surgery [8].Following removal the larvae are killed in hot water to retain theoverall shape of the body as the posterior spiracles are veryimportant for species identification. Identificationof the maggot can be crucial in determining the pathogenesis and as well as controlling of the disease. Third stage larva is ideal for species identification [7].Left untreated, infestations can be fatal and the animals may die in 7 to 14 days from toxicity or secondary infections.

In the rural Indian population, defecating in open air is a common practice. The fly is attracted to feces and lays eggs on them. After landing on feces it lands commonly on human foods and on very rare occasion on open human wounds or on the ocular mucosa [9] leading to Ocular Myiasis.

III. Conclusion

Destructive ocular myiasis is almost exclusively found in debilitated and emaciated patients. A rural background, crowded conditions and poor personal hygiene are other predisposing factors. There is a single report of Ophthalmomyiasis with Chrysomyia bezziana where there was total destruction of the globe in a 65 year old male suffering from cardiovascular and neurological complications [10]. In contrast, our patient did not have any predisposing debilitating systemic or ocular disease. The only predisposing feature our patient had was very poor personal hygiene.

Ocular myiasis thus a condition which can assume clinical conditions of varying severity. At one end of the spectrum, an accidental solitary infestation may give rise to signs of irritation only while at the other end the total destruction of the orbit and the complete conversion of it into a stinking suppurating cavern filled with crawling maggots [11].

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