Case report

Ocular myiasis in a glioma: a case report

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Abstract

Background: Ocular myiasis though rare, is usually found in association with basal cell carcinoma. It is rarer still in tumors other than basal cell carcinoma. We report a case of ocular myiasis in a glioma which is hitherto unreported to the best of our knowledge. **Case:** A 50 year old male presented with bleeding and maggots emanating from a tumourous outgrowth which had replaced his right eye. He complained of swelling and pain in his right eye for the last 2 years. Manual removal of maggots was carried out following which he underwent total excision of the mass and local debridement. Biopsy of the mass was consistent with astrocytoma. **Conclusion:** Myiasis though rare should be suspected in long standing neglected lesions with suggestive history. Infection, ischemic necrosis and malignancy coupled with overcrowding, poor living conditions, presence of excessive arthropods in the locality and low levels of hygiene drastically increase the risk of myiasis.

Keywords: myiasis, glioma, ophthalmomyiasis, tumor

Introduction

Infestation of any part of the body by the larvae of flies (maggots) is termed myiasis. Ophthalmomyiasis is termed ophthalmomyiasis externa if only the eyelid or conjunctiva is involved, and ophthalmomyiasis interna if there is intraocular entry of the larvae. (Ziemianski et al, 1980) Orbital myiasis is the most severe form resulting in infestation of the orbital cavity and has been reported in the past especially in association with basal cell carcinoma in developing countries. (Caça et al, 2003; Radmanesh et al, 2000; Raina et al, 2009; Rocha et al, 1999) Ocular myiasis in tumors other than basal cell carcinoma is still rarer. To the best of our knowledge, this is the first report of ocular myiasis in a glioma.

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Case Report

A 50 year old male presented with 'worms' coming out of his right eye associated with bleeding for two days following an accidental injury with a stick. His right eye was reportedly small in size with no functional vision from childhood. He also complained of swelling and minimal discomfort of the eye for the last two years. There was no history of loss of weight or appetite. He did not have any other systemic complaints at the time of presentation.

On examination, the right eye had no perception of light and was replaced by a tumour like outgrowth with surface ulceration with associated areas of keratinisation (Figure

1). The tumourous outgrowth was friable and bled easily, with live maggots visible over the surface. The best corrected visual acuity in the left eye was 20/60 and the examination was within normal limits except for an immature cataract which accounted for the vision. There was no significant regional enlargement of lymph nodes.

The maggots were removed manually using forceps under topical anaesthesia (Proparacaine 0.5%) under the microscope. Manual removal of the maggots was continued over the next 5 days and over 100 maggots were removed. All the maggots could not be removed in a single sitting as they kept burrowing deep into the ocular tissues. Solvent ether (Hydroquinone 0.002% weight/volume) was used to force the maggots to come to the surface. Concurrently, he was started on systemic antibiotics to treat secondary infection of the orbital tissues.

Computed Tomography of the orbit showed a heterogenous lesion replacing the eyeball completely with few calcific foci within, causing proptosis of the right eye (Figure 2). A small nodular part of the lesion was seen invading the optic nerve. The optic nerve appeared thin when compared to the other side. The lesion was seen to abut the proximal part of the recti. There was no intracranial extension. Cavernous sinus and superior ophthalmic vein were normal. There was no bony erosion.

Subsequently, he underwent total excision of the tumourous outgrowth with local debridement. A 360 degree peritomy was done, recti muscles were identified, tagged and cut. Optic nerve was cut at the possible posterior extent to ensure complete removal of the retrobulbar nodular extension of the tumour.

The gross pathological examination showed a haemorrhagic tumour involving the entire globe, extending from the retina to the anterior chamber. Histopathological examination showed sheets and lobules of Glial Fibrillary Acidic Protein (GFAP) positive neoplastic astrocytes displaying mild nuclear pleomorphism. The tumour cells ranged from spindle shaped to polygonal and the latter had abundant glassy cytoplasm. The tumour was richly vascular with foci of tumour cells forming pseudorosettes around vascular channels. There were large areas of haemorrhage and perivascular hyalinization. Cornea showed extensive ulceration with microbial colonization. Focal discrete granulomas composed of multinucleate giant cells, histiocytes, lymphocytes, plasma cells and eosinophils. Immuno-histochemical staining of the tumour cells showed immunopositivity for S-100 and Vimentin. A diagnosis of a low grade glial neoplasm consistent with Astrocytoma (WHO Grade 2) was made.

Post-operatively, he was given regular socket care with dressings and was discharged with protective glasses and education on personal hygiene. The patient was kept on periodic follow up for the last 3 years and has not had any recurrences or repeat infestations till the last follow up.

Figure 1: The right eye of the patient was blind with no perception of light, with a tumour like outgrowth with surface ulceration with associated areas of keratinisation.

Figure 2: Computed Tomography of the orbit showing a heterogenous lesion replacing the eyeball completely with few calcific foci within (black arrows), causing proptosis of the right eye. Also seen is a thinner optic nerve (when compared to the other side) with a nodular extension of the lesion (white arrows)

Discussion

Myiasis is a frequent occurrence in the tropics but only upto 14% are associated with infestation of ocular tissues. (Puthran et al, 2012; Ziemianski et al, 1980) It is caused by flies which lay eggs in dead or decaying tissue and open wounds, most commonly in animals. Man is considered an accidental host. (Puthran et al, 2012) Diptera flies are considered responsible for ophthalmomyiasis. The species of the larva in this case was not established but a good majority of ophthalmomyiasis cases are caused by *Oestrus ovis* (sheep nose botfly), *Dermatobia hominis* (human botfly), *Cochliomyia hominivorax* (screw worm), *Hypoderma bovis* (ox warble fly) and *Lucilia sericata (*greenbottle fly). (Denion et al, 2004; Thakur et al, 2009).

Mechanical removal of maggots is an important step in the management of patients with myiasis. The use of ether to narcotize the larvae is the most common reported manoeuvre. Manual removal of maggots can also be aided by the use of turpentine, ethanol, topical chloroform, petroleum jelly or hydrogen peroxide. 4% xylocaine has also been tried to immobilize the larvae.(Sardesai et al, 2014) Antibiotics and Ivermectin as a 0.2mg/kg oral single dose have also been advocated. (Costa et al, 2005) Hot water is used to kill the larvae. This preserves the shape of the body of the larvae as the posterior spiracles are important for species identification. (Mathur & Makhija, 1967)

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. Trauma, as in this case, is thought to be an important risk factor leading to maggot infestation. (Puthran et al, 2012) Flies are attracted to the wounds to the foul smell of the focal necrosis secondary to the ulcer, which then lay eggs directly at the affected site. The eggs may also be transferred by the patient as a result of scratching. (Maurya et al, 2012) Though our patient did not have any predisposing debilitating systemic disease, he had a long standing tumour, the focal necrosis of which could have acted as an attractant for flies. The trauma he sustained could have been an additional insult leading to further tissue necrosis.

Ocular myiasis can assume clinical presentations of varying severity which can range from isolated infestation to a rapid and total destruction of the orbital tissues with a cavern filled with crawling maggots. Infection, ischemic necrosis and malignancy coupled with overcrowding, poor living conditions, presence of excessive arthropods in the locality and low levels of hygiene drastically increase the risk of myiasis. (Costa et al, 2005) Patients who have neglected long standing lesions should be informed of the rare possibility of myiasis, especially if wound care is inadequate.

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