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Orbital myiasis complicating squamous cell carcinoma of eyelid

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Myiasis is infestation of the body by fly maggots. Immobile patients with skin wounds in exposed areas are at high risk of developing myiasis. We report a case of orbital myiasis from the species *Chrysomya bezziana* complicating squamous cell carcinoma of the eyelid. Magnetic resonance imaging of the orbit is useful for delineating the extent of the infestation and identifying residual maggots. In extensive orbital myiasis, exenteration is needed to prevent intracranial extension of tissue destruction.

Introduction

'Myia' is a Greek word meaning 'fly'. 'Myiasis' is a condition caused by infestation of the body by fly maggots. We report a case of orbital myiasis complicating squamous cell carcinoma of the eyelid. Infestation by *Chrysomya bezziana* in elderly people in Hong Kong institutions has been reported.¹ Nursing home staff, medical and paramedical personnel should be aware of the occurrence of this condition, especially in immobile patients with open wounds or skin malignancies.

Case report

A 90-year-old woman with multiple medical illnesses including chronic obstructive airways disease, old tuberculosis, a history of aspergillosis, and dementia resided in a local nursing home. She had been bed-bound for many years. She was being followed up in the Eye Clinic for a corneal scar formed after perforation of the cornea from an unknown cause. She was also noted to have ulceration on her right upper and lower eyelids since 2001. Squamous cell carcinoma of the eyelid was suspected but she refused surgical excision of the lesion. In September 2003, the patient was brought to the Accident and Emergency Department for management of a blood-stained discharge coming from her right eye for a few days and 'worms' seen in the same eye. On examination, there were numerous live, active 'worms' in her right orbit (Fig 1a). She had very little tissue in her right upper and lower eyelids. The eyeball and the ocular tissue could not be seen. There was active oozing of blood from the affected site. Massive orbital myiasis was diagnosed. Emergency magnetic resonance imaging (MRI) was arranged to delineate the extent of the myiasis (Fig 2), which showed that the brain and paranasal sinuses were not involved and the myiasis was confined to the right orbit and the periorbital soft tissue. An emergency exenteration of the right orbit and debridement of the necrotic tissue was performed under general anaesthesia. The remaining eyelid tissues were sutured together to prevent the maggots from escaping. All the maggots were then removed successfully 'en-bloc' (Fig 1b, 1c). A postoperative MRI showed no residual maggots and normal brain images, but the patient died from an exacerbation of her chronic obstructive airways disease and a myocardial infarction, 2 weeks after surgery. Pathological examination of the exenterated specimens and the remaining lid tissues confirmed squamous cell carcinoma. No malignant cells were found in the excised mass seen on MRI. The maggots were identified as *C bezziana*.

Key words

Myiasis; Orbital diseases

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Discussion

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Ophthalmomyiasis is a rare form of eye disease and massive orbital or ocular myiasis is even rarer.²⁻⁵ It has been reported to develop as well as in developing countries. Ophthalmomyiasis is classified into external, internal, or orbital, according to the site of the larval infestation. External ophthalmomyiasis refers to a limited infestation of the superficial peri-ocular tissues and can be sub-classified into palpebral and conjunctival myiasis. Internal ophthalmomyiasis occurs when the parasitic dipterous larvae penetrate the conjunctiva and sclera and migrate into the subretinal space. Orbital myiasis occurs when large numbers of dipterous larvae invade and destroy the orbital contents. Ophthalmomyiasis may result in complications ranging from minor ocular irritation to complete blindness, disfigurement, and even death.⁶ Common ophthalmomyiasis-inducing

眶蠅蛆病併發眼皮鱗狀細胞癌

蠅蛆病是人體受蠅蛆侵入所致。行動不便的病人如果皮膚上的傷口外露，會很容易有蠅蛆病。本文報告因蛆症金蠅引致眶蠅蛆病併發眼皮鱗狀細胞癌的一個病例。磁力共振成像有助分析蛆蟲在眼眶的寄生情況及確定患處是否還有蛆蟲。如果眶蠅蛆病嚴重，有需要進行眼眶剝出術以避免顱內的組織進一步受破壞。

flies include *Cochliomyia hominivorax*, *Hypoderma bovis*, *Calliphora vomitoria*, *Wohlfartia magnifica*, and *C bezziana*. The maggots identified in our patient belonged to *C bezziana*. Diagnosis is based on microscopic examination of the sliced caudal ends of the larvae (preserved in 70% alcohol or formalin). A dichotomous key is used to identify the number of anterior spiracle openings and the shape of the body part.⁷ *Chrysomya bezziana* is an obligatory parasite capable of deep tissue penetration, even in normal healthy tissues. Soft tissue destruction can be very rapid; complete globe destruction by *C bezziana* within days has been reported.³ Nonetheless, bony erosion is rare, even in massive orbital myiasis.

The main predisposing factor for the infestation in our patient was probably the large bed of necrotic tissue offered by the squamous cell carcinoma on her eyelids. Other possible factors were her poor general health status, lack of self-care and communication, and an overcrowded living environment in the nursing home with poor hygiene. The gravid female flies might have deposited their eggs directly onto the patient's eyelid wound. Alternatively their eggs may have been transferred to the site by the patient's own fingers when she scratched her ulcerated eyelids to relieve discomfort. Medical and nursing staff, whether providing outreach services or practising in clinics and hospitals, should be alert to the possibility of myiasis in debilitated elderly patients, especially those with ulcerated skin lesions. Elderly people who live in homes for the aged may be at a higher risk. Any skin ulceration like diabetic, neurotrophic, and malignant ulcers in exposed areas in these patients should be treated and complete healing should be achieved before the patient is discharged.

In orbital myiasis, the extent of orbital involvement needs to be delineated and intracranial spread must be excluded using computed tomographic scanning or MRI. Where there is less extensive and more local tissue involvement, the maggots can be removed alive or after being killed with turpentine with or without chloroform.⁸ In cases where there is extensive involvement, exenteration and surgical debridement of the necrotic tissue is needed to prevent intracranial extension of the tissue destruction.



FIG 1. (a) Massive maggot invasion into the right ocular tissue. (b) Appearance of the orbit after exenteration and 'en-bloc' removal of the maggots. (c) Appearance of the maggot



FIG 2. Preoperative magnetic resonance imaging showing an ill-defined soft tissue mass with air compressing a deformed right eyeball and shifting the eyeball posteriorly (white arrow) and fusiform soft tissue masses compatible with maggots (black arrow)

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