Case Report

By: *I J. Banda1,2, K I. M. Muma1,3
1Department of Ophthalmology, School of Medicine and Clinical Sciences, Levy Mwanawasa Medical University, Lusaka, Zambia.
2Mpongwe Mission Hospital, Mpongwe, Zambia
3University Teaching Hospitals – Eye Hospital, Lusaka, Zambia

*EMAIL ADDRESS: Isaac J. Banda: bandaij2@gmail.com

MULTIPLE DEEP CORNEAL FOREIGN BODIES

ABSTRACT

Setae refer to stiff structures resembling a hair or a bristle, especially in an invertebrate. The caterpillar hairs are also referred to as caterpillar setae. These can have devastating effects on the eyes especially if they embedded themselves in the deep cornea tissues.

At Kitwe Teaching Hospital Eye Annex, a very rare case of caterpillar setae embedded in deep corneal layers was encountered. An 8-year-old female patient presented with painful/pricky sensation, lacrimation, red eye, photophobia and failure to open the right eye. Poor vision was noted in the Right Eye (RE). Slit Lamp examination revealed RE chemosis, hazy cornea and a lot of corneal foreign bodies (FB). Multistaged surgical FB removal was performed and medical management was instituted afterwards. Patient recovered well after treatment.

INTRODUCTION

Multiple Deep Corneal FBs refer to more than 8 FBs on or in the cornea. Among the rare corneal FBs that can injure the cornea, are caterpillar hairs (setae) which can get embedded deep in the corneal layers [1]. The caterpillar setae can cause severe ocular tissue reactions that can lead to significant visual disturbance if intervention is delayed [2]. The major treatment approach is surgical FB removal [3]. The prevalence of FB corneal injury due to caterpillar setae in Zambia is not known for there is nothing documented. Few cases have been reported on from African countries, but literature shows that there are many cases in the Eastern Mediterranean region where there are farms that breed caterpillars [4]. Corneal FB due to caterpillar setae was known to be an occupational disease for being common among caterpillar farm workers, but currently it can occur in even non-caterpillar farming communities and in any age group. The caterpillars in the Eastern Mediterranean region are found on red pine trees on which they feed. These caterpillars are put in farms in order to limit their infestation in the red pine trees and to be destroyed by a trained bug that eats them (the so called Calasoma sycopanta). Literature revealed that workers lacked protective wear as they were exposed to caterpillar setae in caterpillar breeding farms resulting in setae ocular trauma. The only well-known risk factor for intraocular penetration was found to be intraocular caterpillar setae.

The first report of reactions caused by caterpillar setae was published by Schon in 1861 [5]. In 1904, Saemisch was the first to describe the granulomatous nodules found on the iris and conjunctiva caused by vegetation or insect hairs as ophthalmia nodosa [6]. Caterpillar setae ocular toxicity resulted from setae presence in the eye tissues which retain toxins [7,8]. The development of classification of ophthalmia nodosa was initiated by Cadera et al., (1984) [9]. There are five classifications which include:

Type 1. An acute toxin reaction to hair (chemosis and inflammation)

Type 2. Chronic mechanical keratoconjunctivitis caused by hair found in the bulbar or palpebral conjunctiva with foreign body sensation and corneal abrasions

Type 3. Formation of conjunctival granulomas due to subconjunctival or intracorneal setae

Type 4. Iritis secondary to hair penetration of the anterior segment

Type 5. Early or late vitreoretinal involvement due to penetration of the hair through the cornea, iris and lens or via transscleral route, vitritis, cystoid macular oedema, papillitis or endophthalmitis may occur.

The progression of such complications could be prevented by using protective wear to people exposed to such caterpillars. Avoidance of rubbing the affected eye could be considered to prevent further penetration. Then seeking early medical attention to be considered immediately eyes were exposed.

CASE SUMMARY

An 8-year-old female from the outskirts of Mpongwe District on the Copperbelt Province of Zambia came to Kitwe Teaching Hospital Eye Annex (KTHEA) with complaints of reduced vision, painful, pricky sensation, redness, photophobia and lacrimation in the RE for a day. The patient further complained of having developed eye problem while sleeping the night before she came to KTHEA. She was referred to KTHEA as a case of Conjunctivitis of unknown cause.

On examination, general condition of the patient was satisfactory apart from reduced vision in the RE of 6/36, while LE vision was 6/6. The RE was tearing, photophobic, had conjunctival injection, chemosis, caterpillar setae and corneal clouding noted during examination. Other findings were corneal abrasions, caterpillar setae on the tarsal conjunctiva and in the deep cornea. The LE was normal.

A diagnosis of deep corneal caterpillar setae was made, and patient was admitted for corneal FB removal under general anaesthesia through a multistaged surgical corneal FBs removal process. All the setae were successfully removed, and patient was commenced on topical steroid and antibiotic treatment.

DISCUSSION

Classically, patients with caterpillar setae corneal FB present with failure to open the eye, painful, red eye, pricky sensation, lacrimation, photophobia and FB sensation. The severity of these ocular manifestations is mainly based on the number of caterpillar setae embedded in the cornea worsen due to rubbing the affected eye.
This action facilitates intraocular penetration and the eye happened to be increasingly traumatised [1]. Caterpillar setae on the cornea is a rare case but can occur anywhere in the world and in any age group. The complications that arose from caterpillar setae in this case were inflammation, chemosis, mechanical conjunctivitis as it has been reported in literature [9]. It is important that a careful history is taken from patients presenting with such signs to avoid misdiagnosis.

Health personnel should be aware of such manifestations of caterpillar setae trauma as there is no typical way of clinical presentation. Intracorneal caterpillar setae are very difficult to remove and a good number of them can remain unremoved [10]. Though caterpillar setae are difficult to remove, in this case the surgical removal was successful in two sittings and all the caterpillar setae were removed.

**CONCLUSION**
Caterpillar setae ocular trauma can occur in Zambia. It is possible to remove all the caterpillar setae through a thorough and well-planned surgical approach.

**LIST OF REFERENCES**

1. Fraser SG, Dowd TC, Bosanquet RC. Intraocular caterpillar hair (state): clinical course and management. Eye 1994;8:596-598.