

Caterpillar Hair Induced Ophthalmic Lesions

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Abstract

Aim: The purpose of the study is to report the ocular lesions Following the entry of caterpillar setae into the eye.

Materials and Methods: Report of fifty-two patients with caterpillar hair induced ophthalmic lesions were retrospectively reviewed for clinical characteristics, anatomical location of lodgement of caterpillar hair, demographic risk factors, treatment methods and outcomes. These include catarrhal conjunctivitis, keratoconjunctivitis, conjunctival nodules, keratitis, iridocyclitis, iris nodules, vitritis, papillitis, or chorioretinopathy. This can occur due to the mechanical effect of the setae and their penetration or a direct toxic effect. Ocular injury is graded according to CADERA classification.

Results: Visible hairs were removed from all patients. Majority of patients were found to be with type 1 and 2 involvements.

Conclusion: Association of demographic risk factors and ophthalmic injury.

Keywords: Caterpillar Hair, Ophthalmic Injury, Anatomical Location, Demographic Risk Factors

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Background

We reported intraocular penetration of caterpillar hair in fifty-two patients in our institute from octo-2016 to march1-2022. Report of total fifty-two patients with caterpillar hair induced ophthalmic injury were retrospectively reviewed for clinical characteristics, anatomical location of lodgement of caterpillar hair, treatment

methods and outcomes. The removal of caterpillar hairs was possible in forty five out of fifty-two patients. All were counseled regarding risk of intraocular penetration and followed up for at least 1month

Definition

Caterpillar hair induced ophthalmitis is an inflammatory response of ocular tissue to caterpillar hair or other insect hair that came in contact with the eye [1,2]. It is usually an innocuous condition and responds to conservative management. Some patients experience intraocular penetration of hair with serious complications [3,4].

The spectrum of ocular pathology caused by caterpillar setae was classified by Cadera as follows:

- TYPE1- an acute anaphylactoid reaction to the hair start immediately lasting a few days causing chemosis and inflammation.
- TYPE2- chronic mechanical keratoconjunctivitis and linear corneal abrasions caused by hair lodged in the bulbar or palpebral conjunctiva.
- TYPE3- formation of grayish yellow granulomatous nodules in the conjunctiva. hair may be subconjunctival or intra corneal may be asymptomatic.
- TYPE4- iritis secondary to hair penetration into anterior segment.

- TYPE5- vitreoretinal involvement after hair penetration into posterior segment [5,6].

Material and Methods

Medical records of fifty-two patients of caterpillar hair induced ophthalmic lesions diagnosed from Octo-2016 to March1-2022 were done from computerized data base. 15 out of 52 patients were pediatric patient. In adults it was commonly seen in field workers and people of low socio economical class. All patients underwent slit lamp examination, indirect ophthalmoscopy to determine the anatomical location of caterpillar hair as well as numbers. Pediatric patients were evaluated under general anesthesia.

Anatomical location of caterpillar hair

25 cases have setae lodged in upper tarsal conjunctiva,

12 cases in lower tarsal conjunctiva,

5 cases in bulbar conjunctiva

5 cases in cornea

5 cases in anterior chamber.

Table 1: Clinical features of ocular lesions caused by caterpillar hairs in anterior chamber in 5 patients

Age/s ex	Occupation	History	VA	Lid involved	Conjunctival signs	Corneal signs	Treatment	f/u	VA at f/u (After 1mnt h)
M/5y rs	student	redness	6/36	edema	congestion	spk	Hair removal 4times, topical antibiotics and steroid	Every 3dys for 1month	6/6
M/8y rs	student	photophobia	6/60	edema	Papillae, congestion	Five caterpillar hairs, diffuse	Superficial hairs removed. Topical	Every 3days for	6/9

						SPKs, Hair protrudi ng into anterior chamber AC reaction	steroids, antibioti c, cyclople gic	1mo nth	
F/25y rs	House wife	Dust entry	FC- 2mt rs	edem a	congestio n	Corneal setae Peripher al infiltrate Caterpil lar hairs in anterior chamber . Flare and cells+.	Topical steroid Cyclople gics	Ever y 3day s for 1mo nth then week ly for 1mnt h	6/24
M/30 yrs	Field worker	Insect fall	Not abl e to ope n eye	Sever e edem a	papillae	Hairs in stroma Superfici al three setae Iridocyc litis	Superfici al hairs removed Steroids, lubricant s, Cyclople gic	Ever y 3day s for 1mo nth then week ly for 1mnt h	6/12
M/48 yrs	Field worker	Insect fall	6/6 0	edem a	congestio n	Linear SPKs	Hairs removed topical steroid antibioti c Hairs removed seven times	Ever y 3day s for 1mo nth then week ly for 1mnt h	6/6

Table 2: Demographic risk factors

Demographic characteristics	No. of patients
Sex- Male	33
Female	19
Age group- 0-9	5
10-19	15
20-29	17
30-39	12
40-49	2
>49 yrs	1
Occupation- Child/ student	20
Farmer	12
Worker	15
Professional	5
Socioeconomic status- High	15
Lower	37
Housing type- Kachha makan	30
Pakka makan	22

Treatment

First step done was removal of all superficial hair.

-Medical therapy- lubrication, antibiotic eye ointment, bandage

-Topical steroid when required (when type 3). Systemic steroids were given when posterior segment involvement was seen

Result

Among the total fifty-two patients with a history of ocular trauma resulting from caterpillar hair, thirty-five patients had Type 1 reaction. Most of the patients were from low socio economical class. The time interval between injury and presentation ranged from 24 hrs to 3 weeks. Thirty patients presented within 24 hours of trauma. Twenty patients sought treatment in the acute stage, i.e., within 3 weeks of injury and 2 patients in chronic stage. Visible hairs were removed from all the patients. Majority of the patients presented with type 1 and 2 involvements. Topical antibiotic, NSAID, cycloplegic, and lubricants were given to patients with type 1 and type 2 involvement. Topical steroids

were given only when required. One month follow up was done for every patient.

Discussion

Caterpillar hair induced ophthalmitis (CHIO) is an inflammatory response of ocular tissue to caterpillar hair or other insect hair (tarantula hair) that come in contact with the eye. It is usually an innocuous condition and responds readily to conservative management. Caterpillars are the larval form of a member of the insect order Lepidoptera, which includes butterflies and moths. Ophthalmitis commonly seen in patients with low socio economical class and also in pediatric patients. It is sight threatening if left untreated. The prevalence of CHIO is high in this part of the world as evidenced by our large sample over a relatively short period of time [7,8]. To the best of our knowledge, this is the study evaluating the risk factors for intraocular penetration of caterpillar hair.

We found the pediatrics patient and farmers are more prone to injury. Successful removal of all intracorneal hair

led to a significant reduction in the risk of intraocular penetration. However, it is very difficult to remove the hair in all instances due to their extreme friability, accompanying corneal edema, surrounding infiltration, and deep lying hair. Most patients have more than one hair, all of which may not be amenable for removal at the first sitting. Thus, patients with retained intracorneal hair must be followed up closely as vision-threatening complications may develop late in the course of the disease.

The pathological damage caused by a caterpillar hair is a function of its direct toxicity and locomotion. The force with which the hair strikes the eye may determine the risk of intraocular penetration. However, the quantum of hair present on the ocular surface and direct contact with a caterpillar do not influence the risk of penetration as seen from our analysis. Frank endophthalmitis is very rare [9,10,11].

Conclusion

Association of demographic risk factors and ophthalmic injury.

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