Caterpillar hair-induced ophthalmitis causing exudative retinal detachment

Bijnya Panda, Shilpa Viswanath, Sucheta Parija, Bhumija Bhatt

DESCRIPTION

A woman in her 50s presented to our ophthalmology clinic with a history of accidental fall of caterpillar into her left eye 20 days back, while gardening, followed by vigorous rubbing of the eye. She reported diminution of vision in the left eye for past 7 days associated with severe swelling, pain, redness and itching. Visual acuity on presentation was perception of light in left eye with accurate projection of rays in all quadrants, intraocular pressure was 6 mm Hg by non-contact tonometry. Anterior segment examination revealed marked eyelid oedema, conjunctival congestion, multiple foci of subconjunctival abscesses, embedded caterpillar hairs in the tarsal, bulbar conjunctiva and cornea. Anterior chamber evaluation revealed 3+ aqueous cells and 2+ aqueous flare. Posterior synechiae was seen involving five clock hours in the superotemporal quadrant (figure 1A). Subconjunctival abscess in the inferonasal quadrant with embedded caterpillar hair is shown in figure 1B. Fundus examination showed bullous exudative retinal detachment in the inferonasal quadrant corresponding to the subconjunctival abscess. Ultrasound B scan confirmed retinal detachment (figure 2A). Anterior segment and posterior segment examination of the right eye was within normal limits.

Removal of the conjunctival caterpillar setae was attempted under topical anaesthesia; however, the setae which had penetrated into deeper stroma of cornea could not be removed (figure 3A,B). She was advised to use topical loteprednol etabonate 0.5% eye drops every 6 hours, atropine 1% every 8 hours, carboxymethylcellulose 0.5% every 6 hours, chloramphenicol eye-ointment 8 hourly along with oral levocetirizine 10 mg per day for 1 week. Pus from the subconjunctival abscess was sent for microbiological examination, culture and sensitivity. On subsequence follow-up, the pus culture was suggestive of Pseudomonas aeruginosa sensitive to tobramycin and amikacin.

She was started on topical fortified tobramycin (14 mg/mL) and amikacin (40 mg/mL) every 2 hours along with continued use of topical soft steroids and lubricants. Subconjunctival injection of tobramycin (20 mg) in 0.25 mL/site was given daily for 7 days. We administered intravenous piperacillin/tazobactam (4 g/0.5 g) every 8 hours for 5 days. Oral prednisolone (50 mg) was initiated after noting decrease in size of the subconjunctival abscess. Once the inflammation was subsiding, caterpillar hairs embedded in the conjunctiva were removed serially. Within 10 days of initiating treatment, the scleral abscess resolved, with reduction in anterior chamber reaction but the exudative retinal detachment took 1 month for complete resolution as seen on USG B-scan and OCT (figure 2B, figure 4). Oral steroid was slowly tapered over 6 weeks.

Caterpillar hair-induced ophthalmitis is an inflammatory response of ocular tissue to caterpillar hair, or other insect hair that come in contact with the eye.1 The term ophthalmia nodosa was first used in 1904 to describe the granulomatous nodules formed on the conjunctiva and iris in response to caterpillar setae.2 The ocular reactions to caterpillar hairs are diverse in nature and location, ranging from a toxic reaction to the external foreign bodies, keratoconjunctivitis or the formation of conjunctival nodules, to intense iritis, vitritis or papillitis and a useful classification has been developed by Cadera et al.3 It is known that caterpillar hair entering the cornea or conjunctiva gets surrounded by granulation nodule...
rubbing by the patient, leading to scleral abscess formation and subsequent exudative retinal detachment.¹

Tan MKH et al have described ocular complications of caterpillar setae in four patients during an outbreak of the exotic oak processionary caterpillar in Netherlands and have set guidelines for treatment according to the severity of involvement.² Our patient had a severe anterior chamber reaction along with multiple infective foci, which was treated in a tailored approach similar to the above expert opinion-based guidelines. There are numerous published series of caterpillar hair-induced uveitis with varied involvement of anterior and posterior segments.³–⁵ Many modalities of treatment have been described according to the site of involvement, superficial hairs buried in conjunctiva cornea or sclera can be removed with a help of forceps. Argon/Nd:YAG laser burns can be applied for hairs buried deeper in corneal stroma hairs.³ For intralenticular hair, pars plana removal of hair with fine-grasping forceps can be tried followed by pars plana lenscetomy and vitrectomy. The iatrogenic retinal breaks could be further managed with laser barrage and silicone oil tamponade.⁶ Our case was unique in terms of involvement of retina without associated vitritis, which could be managed conservatively and ultimately led to the resolution of inflammation.

Figure 3  (A) Clinical photograph (2 weeks follow-up) showing multiple cilia embedded in corneal stroma. (B) Clinical photograph (2 month follow-up) showing few remaining cilia penetrated deep into corneal stroma with clear cornea and quiet eye.

Figure 4  1 month follow-up optical coherence tomography image showing resolution of the exudative retinal detachment on treatment.

Learning points

- Caterpillar hair(setae) can get deeply buried into the ocular tissues due to intraocular migration. Combination of a mechanical phenomenon (penetration of the hair) and a chemical phenomenon (discharge of a toxic substance) accounts for the pathological symptomatology induced by the caterpillar.
- Delayed treatment can lead to scleral abscess and exudative retinal detachment and carry guarded visual prognosis.
- Early and aggressive treatment with removal of caterpillar hair setae out of the tissue; subconjunctival antibiotics, systemic antibiotics and corticosteroids will fasten the resolution of symptoms.

Contributors  All the authors contributed to the manuscript. BP contributed to the concept, design of the work, acquired data and reviewed the manuscript. SV interpreted the data of the work, drafted the manuscript and revised the manuscript. SP and BB contributed in acquiring data and analysis of the same.

Funding  The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests  None declared.

Patient consent for publication  Consent obtained directly from patient(s)

Provenance and peer review  Not commissioned; externally peer reviewed.

Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

ORCID ID
Shilpa Viswanath http://orcid.org/0000-0002-7496-8124

REFERENCES


