Managing multiple caterpillar hair in the eye

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Ophthalmia nodosa with vitreoretinal involvement is rare and may cause permanent loss of eye due to persistent inflammation of the eye. A young female patient having multiple caterpillar hair in the eye including cornea, anterior chamber, sclera, and pars plana presented with recurrent vitritis and pars planitis. Ultrasound biomicroscopy played a vital role and helped in localizing the hair embedded in the pars plana region which were managed by pars plana vitrectomy leading to complete recovery.

Key words: Ophthalmia nodosa, pars planitis, ultrasound biomicroscopy

Ophthalmia nodosa may result in loss of the eye because of persistent severe vitritis. We report a case of a young female who had multiple caterpillar hair in the cornea, anterior chamber, and pars plana causing recurrent vitritis. The role of ultrasound biomicroscopy (UBM) in detecting the hair in the pars plana is highlighted. She was managed by lens capsule sparing lensectomy and pars plana vitrectomy (PPV) followed by secondary intraocular lens (IOL) implantation. We discuss the other options of managing such cases.

Case Report

A 23-year-old female presented with diminution of vision, pain, and redness in the left eye for the past 2 months following a visit to a hill station when she wiped her face with a towel which stimulated her eye. On examination, the best-corrected visual acuity (BCVA) in the right eye was 20/20, N6 and in the left eye was 20/40, N6. Applanation tonometry recorded an intraocular pressure of 16 mmHg in the right eye, and it was deferred in the left eye.

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Slit-lamp examination of the right eye was within normal limits, and in the left, there was mild conjunctival congestion with multiple subepithelial corneal opacities and linear hair-like foreign bodies embedded within the corneal stroma [Fig. 1]. Anterior chamber of the left eye showed anterior chamber cells 3+ and flare +1 with multiple linear hair-like foreign bodies [Fig. 2]. Fundus examination was within normal limits in both the eyes. She was treated with topical prednisolone acetate - 1% eye drops, atropine sulfate eye drops - 1%, and lubricating eye drops. She subsequently underwent anterior chamber wash during which the hair-like foreign bodies were removed and sent for microscopic examination.

Follow up on the next day showed no evidence of any foreign body in the anterior chamber of the left eye, and the topical medications were tapered and stopped. Microscopic examination confirmed the presence of caterpillar hair shafts.

She presented 2 months later with blurring of vision in the left eye. On examination, the BCVA in the left eye was 20/60, N12. Slit-lamp examination showed subepithelial corneal opacities in the left eye. Fundus examination showed vitreous haze with vitreous cells 3+ with exudates in the pars plana and traction over the peripheral retina with subretinal gliotic bands. She was started on oral corticosteroids 1 mg/kg weight, topical prednisolone acetate eye drops - 1%, and atropine sulfate - 1% eye drops. After 1 month, the BCVA in the left eye was 20/40, N6; however, there was diminution of vision with recurrence of vitritis whenever the oral corticosteroids were stopped. UBM was done of the left eye which showed three hyperreflective linear echoes suggestive of caterpillar hair in the pars plana and within the sclera along with the thickening of the pars plana in the 7 o’clock position [Fig. 3].

A 360° laser barrage to the peripheral retina in the left eye was done, and a pars plana lensectomy (PPL) and PPV were planned after the laser chorioretinal atrophy had developed. Anterior capsule sparing PPL was planned because it was not possible to remove embedded pars plana cataract hair without a lens touch. A (23-gauge) PPL and PPV surgery were done removing five caterpillar hair from the pars plana using fine end gripping forceps followed by laser barrage to the iatrogenic retinal breaks and silicone oil tamponade.

On 6-month follow-up, the left eye showed aphakia with no evidence of active inflammation. Fundus examination showed a well-attached retina. She underwent silicone oil removal with secondary IOL implantation in the left eye under local anesthesia and aseptic precautions. The last follow-up was at 2 years, and the left eye had the BCVA of 20/40, N6 with...
Discussion

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.\(^1\) The clinical effects of the ophthalmia nodosa vary greatly, and a useful classification has been developed by Cadera et al.\(^2\) The vitreoretinal involvement is rare and seen in 10%–20% cases in which the hair migrate to the posterior segment through the anterior chamber or sclera.\(^3\) The migration of these hair may take months to years and cause vitritis to frank endophthalmitis. In our patient, after the removal of the hair from the anterior chamber, the eye was quiet for 2 months following which it showed diminution of vision with pars plana exudates and recurrent vitritis on stopping oral corticosteroids. The delayed inflammatory response to these setae is said to be due to two reasons – gradual migration of setae posteriorly and due to toxicity. The spines on the setae show only forward movement which move due to movements of the globe with versions, respirations and iris movements propelling them forward into the posterior segment of the eye. The toxin-thaumetopoein is released from the venom glands connected to the hair shaft causing the inflammation.

The setae get deeply embedded within the exudates of the pars plana and are difficult to identify clinically, and UBM plays a vital role in localizing the setae in the pars plana.\(^4\) However, the number of hair localized by UBM maybe less in comparison to the actual found during surgery as more hair may migrate inside the eye till the surgery is planned. As in our case, we detected three hair on UBM, but we actually removed five hair during PPV.

The inflammatory response is managed by oral corticosteroids; however, if there is recurrent inflammation on stopping then a surgical intervention is warranted.\(^5\) The major dilemma in our case was that she was a young patient with a clear lens and there was risk of having a lens touch during surgery; therefore, a lensectomy was done preserving the lens capsule for secondary IOL implantation. However, the other options for managing such cases are combining phacoemulsification with PPV or performing the surgery sitting on the temporal side of the eye for an easy access to the inferior quadrant or using a bent vitrectomy cutter which increases the distance of the cutter from the posterior lens capsule by 2.5 mm in comparison to a straight vitrectomy cutter.\(^6\)

Our case highlights the importance of regular follow-up of these cases even after removal of anterior segment hair as they have a risk of delayed onset of inflammation due to migration of the setae. An early diagnosis of the posterior segment setae using UBM followed by timely and meticulous removal of the setae from the pars plana plays a vital role in preventing the loss of the eye secondary to extensive recurrent inflammation caused by the toxicity of caterpillar hair.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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