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Caterpillar Setae in the Deep Cornea and Anterior Chamber

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PURPOSE: To report a case of caterpillar setae embedded in the deep cornea and anterior chamber.

METHODS: A 26-year-old man was struck in his right eye by a caterpillar (*Dendrolimus punctatus* walker). Severe conjunctival injection, chemosis, and erosion of the cornea developed immediately. Numerous setae fragments were found to be embedded into the palpebral conjunctiva and deep cornea, extending into the anterior chamber near the anterior iris surface.

RESULTS: After partial removal of the setae under a microscope, the inflammation subsided and visual acuity improved to RE: 20/20.

CONCLUSION: Caterpillar setae are sharp enough to penetrate the cornea and extend into the anterior chamber. (*Am J Ophthalmol* 2000;129:384-385. © 2000 by Elsevier Science Inc. All rights reserved.)

A 26-YEAR-OLD MAN EXPERIENCED SEVERE PAIN AND tearing when a caterpillar (*Dendrolimus punctatus* walker) fell into his right eye. Even though treated by a

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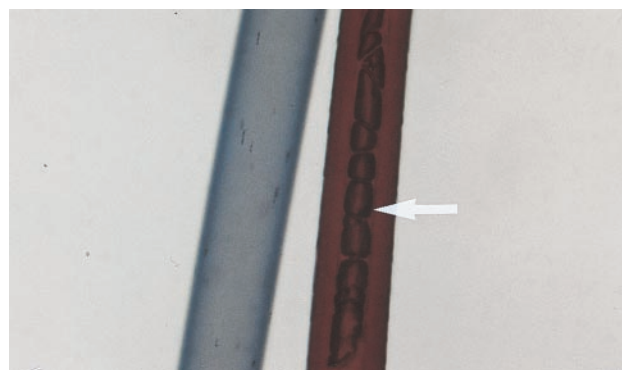


FIGURE 2. Seta (right) compared with a 10-O surgical nylon suture (left). The substance in the lumen of the seta (arrow) was suspected to be toxic fluid ($\times 600$ before 82% reduction).

local ophthalmologist, a foreign body sensation and poor vision still persisted. He visited our clinic, and a series of examinations was performed. His visual acuity had dropped to 20/100, and slit-lamp biomicroscopy revealed severe injection of the conjunctiva and diffuse erosion over the central cornea. Numerous setae were found in the palpebral conjunctiva and deep cornea, extending into the anterior chamber (Figure 1). Several cells were present, but no flare occurred in the anterior chamber. The setae over the upper tarsal conjunctiva and superficial cornea stroma (Figure 2) were removed carefully under a microscope. One week later, the epithelial defect of the cornea had healed completely. After a 4-month follow-up period, five setae near the endothelium of the cornea, anterior chamber, and anterior iris surface were left in place because they were out of the visual axis and without any apparent toxic sign. His visual acuity returned to the preinjury level of 20/20.

Ophthalmia nodosa is a well-documented condition describing the granulomatous nodules formed on the conjunctiva and iris in response to caterpillar setae. The

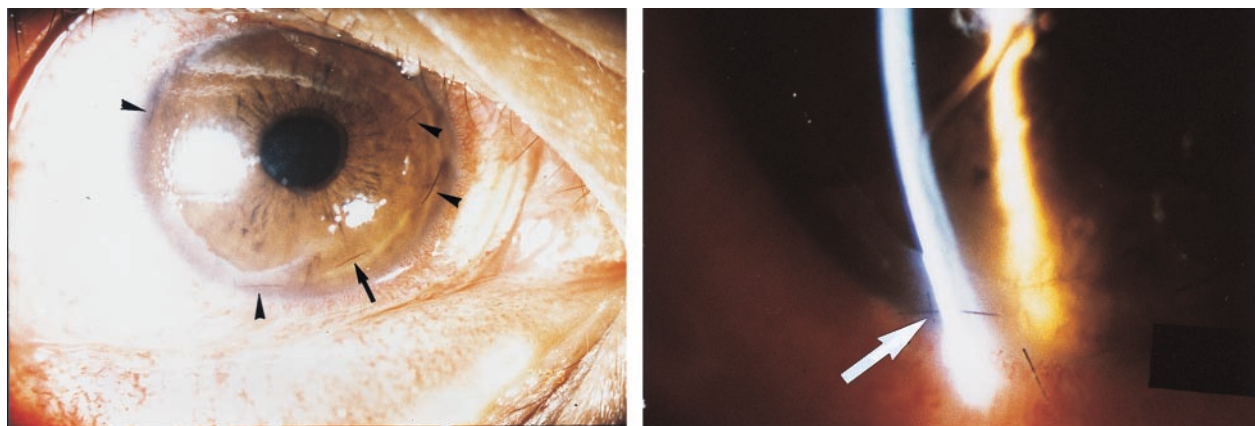


FIGURE 1. Intraocular setae retention. (Left) Some setae of the caterpillar were in the deep cornea (arrowheads) and anterior chamber (arrow). (Right) One seta (arrow) was totally embedded in the deep cornea.

clinical features of ophthalmia nodosa vary greatly, and a useful classification has been developed by Cadera and associates.¹ *D punctatus walker*, the larva of lepidoptera, is very common in Taiwan. Its urticating hair is composed of sharp setae associated with poison glands under the setal base. When a seta is ruptured by trauma, the poison will be released. Skin is the most commonly involved site, and an allergic reaction develops while in contact with the caterpillar. The nature of the toxic substances has yet to be thoroughly studied. The urticating protein of the pine processionary caterpillar has been identified as thaumetopoein, and a similar protein may exist in other caterpillars.²

In principle, it is necessary to remove the insect foreign body adequately and identify any insect parts that may be present. Because of the fragility of the setae, five setae were left within the deep cornea stroma and anterior chamber of our patient. We postulate that the setae venom was released at the time of initial injury. Even though insect-induced ocular complications, such as iritis, conjunctival, or iris granulomas, vitreitis,³ and endophthalmitis,^{4,5} have been reported, our patient showed an excellent clinical course without complication during the ensuing months.

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A New Surgical Technique for Management of Conjunctivochalasis

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PURPOSE: To present a new surgical technique for severe, symptomatic conjunctivochalasis and our hypothesis of the pathogenesis of this condition.

METHODS: Six eyes of three patients with conjunctivochalasis (average age \pm SD, 70.0 \pm 9.6 years; range, 56–78

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years) were treated with a conjunctival fixation to sclera with three 6-0 Vicryl (Johnson & Johnson, New Brunswick, New Jersey) stitches.

RESULTS: With a mean follow-up period of 209.5 days (range, 181–219 days), we achieved successful treatment in all eyes, with no recurrence of conjunctival folds.

CONCLUSION: We successfully treated conjunctivochalasis with conjunctival fixation to sclera, which strongly suggests that conjunctival folds are caused by the folding and the elevating of loosely adherent bulbar conjunctiva of the lower eyelid. (*Am J Ophthalmol* 2000;129:385–387. © 2000 by Elsevier Science Inc. All rights reserved.)

THE TERM CONJUNCTIVOCALASIS WAS COINED BY Hughes in 1942,¹ and it was recently reviewed by Meller and Tseng.² This condition is usually seen as conjunctival folds, which are typically located superior to the margin of the lower eyelid, and conjunctivochalasis is more prevalent in the older population.^{1,3} It is usually asymptomatic, but may cause irritation or pain,¹ subconjunctival hemorrhage,¹ or epiphora.³ Crescent-shaped resection of redundant conjunctiva has been reported as a treatment for this condition,^{1–3} but here we describe a surgical technique to treat it without conjunctival resection and present our hypothesis of the pathogenesis of this condition. We are unaware of previous reports of this surgical technique and could find no reference to it in a computer search using MEDLINE.

We performed surgery on six eyes of three patients with conjunctivochalasis (average age \pm SD, 70.0 \pm 9.6 years; range, 56–78 years). The surgery is straightforward. The lower bulbar conjunctiva is attached to the sclera of the eye with three 6-0 Vicryl stitches. The stitches are inserted 8 mm posterior from the limbus.

With a mean follow-up period of 209.5 days (range, 181–219 days), no recurrence of conjunctival folds on the lower eyelid margin was observed.

As already described, conjunctivochalasis may cause some symptoms. The foreign body sensation is caused by the compression of the redundant conjunctiva during eyelid blinking or closure.^{1,3} Subconjunctival hemorrhage is thought to be caused by the destruction of bent vessels in the conjunctival folds.^{1,4} Epiphora is caused by interference of lower tear meniscus formation and the occlusion of the inferior punctum by conjunctival folds on the margin of the lower eyelid.³

Hughes hypothesized that a senile change in subconjunctival elastic or supporting tissue causes conjunctival laxity, and, as a result, conjunctival folds are formed (Figure 1, top). We agree with this hypothesis. Clinicians usually find less subconjunctival connective tissue in the older population than they observe in younger people. The bulbar conjunctiva of the patient is usually loosely attached to the sclera of the eye, and the lower fornix is shallow (Figure 1, bottom).

Because the symptoms caused by conjunctival folds are