Spontaneous Resorption of an Insect Hair in the Corneal Stroma: A Case Report

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A case of keratitis, due to an insect hair penetrating into the deep cornea, was reported. The patient felt right ocular pain while riding a motorcycle, as an insect struck into his eye. On examination, an insect hair was seen embedded into the corneal stroma with severe corneal edema, which caused a visual acuity of the right eye decreased to hand motion. The patient was treated by a topical antibiotics, cycloplegics, and anti-inflammatory drugs, without removing the hair. After a 6-week follow-up period, there was a spontaneous resorption of the hair. There was no apparent toxic sign during 6-months of follow up, and the visual acuity improved to 6/6. The insect hair could be left in the deep cornea with careful observation, and spontaneous resorption can occur.

Keywords: *Insect hair, Deep cornea, Keratitis, Spontaneous resorption*

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Insect hairs, when penetrating into the eye, can cause various degrees of ocular inflammation[1]. Many reports have suggested their removal as soon as possible because they induce prolonged or serious intraocular inflammation, i.e. keratouveitis and endophthalmitis[2-7]. However, some studies advise leaving them in place without surgical intervention in cases where the inflammation can be controlled[7-9]. The authors reported a case of severe keratitis caused by an insect hair penetrating into the deep cornea with spontaneous resorption.

Case Report

A 68-year-old man was referred to Maharaj Nakorn Chiang Mai Hospital with a painful loss of vision in the right eye. Four hours prior to that, the patient was struck on the right eye by an insect while riding a motorcycle without a visor on his protective helmet. He suddenly experienced severe ocular pain, photophobia, and markedly decreased vision. The patient went immediately to a general physician at a community hospital, who found a cloudy cornea and an insect inside the right eye. After removing the insect from the eye, the patient was referred to Maharaj Nakorn Chiang Mai Hospital for proper management.

Ophthalmic examination showed a visual acuity of RE: hand motion and LE: 6/6. Slit-lamp biomicroscopy of the right eye showed severe conjunctival injection and diffuse corneal edema, which was more prominent of the central cornea, and one insect hair was found deeply embedded in the corneal stroma (Fig. 1).

The patient was hospitalized and initially treated with topical 33% of cefazolin and fortified gentamicin hourly, combined with topical prednisolone acetate 1% and topical atropine 1% four times a day. The small size and deep penetration of the hair prevented removal with forceps. The dosage of fortified topical antibiotics was systematically reduced to every four hours daily within one week. The inflammation was gradually improved until the tenth day of admission, when the cornea had become clear with no reaction in the anterior chamber, but the insect hair was still in the deep cornea (Fig. 2). The patient was then discharged with a visual acuity in the right eye of 6/9. His home medication was topical ciprofloxacin and topical predinisolone acetate 1% four times a day.

During the period of weekly follow up, a careful series of examinations was performed. A

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decrease in size of the insect hair was noticed with no change in its position in the cornea. In the sixth week of follow up, there was only faint opacity in the cornea at the same position where the hair had been seen, but without any evidence of the hair in the iris, anterior chamber angle, lens, vitreous, or retina. All medication was stopped, and the patient was then followed up every month. At the last follow up in a six months period, no evidence of inflammation was seen and the cornea was clear with a visual acuity of 6/6 (Fig. 3).

Discussion

Numerous reports of granulomatous nodular reaction to insect hairs or setae in the eye, termed ophthalmia nodusa, have been found in the literature[1-12]. The clinical features of ophthalmia nodusa vary greatly, and Cadera et al classified the inflammatory reactions into five types that spanned from conjunctival involvement (type 1) to vitreoretinal involvement (type 5)[1].

Patients can develop some or all types of inflammatory reactions[1], and the presented patient developed type 1 to 3. Furthermore, the severity of the ocular reaction tends to vary with the nature of exposure to the hairs[1-13]. Intraocular involvement generally occurs when the insect has hit the eye with some force or after rubbing the eyes[1-10], as in the presented case of our patient, who was struck by an insect while riding a motorcycle. Milder reactions usually occur with windblown hairs[1,13].

The recommended treatment depends on the type of ocular involvement[1,2,7]. For reaction types 1 and 2, the treatment should be irrigation and meticulous removal of visible and easily removed hairs, followed by topical antibiotics and possibly steroid drops. Type 3 reactions should be treated by surgical removal of the conjunctival nodules. Hairs in the cornea can be removed if they are superficial, but the approach to deeper intracorneal hairs may depend on their location, further migration and degree of reaction involved. Careful observation is suggested if the inflammation can be controlled. However, if there is evidence of recurrent inflammation[7,10], surgical removal of hairs is indicated by penetrating or lamellar keratoplasty[1,7,10]. Type 4 reactions can be treated with topical steroids. They may require iridectomy for the removal of iris nodules or operative removal of hairs from the anterior segment. Type 5 reactions should be treated with local and or systemic steroids, laser photocoagulation, or even vitrectomy, depending on the severity of the inflammation[1-3,14]. Enucleation has

Fig. 1 Slit-lamp photograph of the cornea at the initial injury shows marked corneal edema with a hair deeply embedded in the corneal stroma

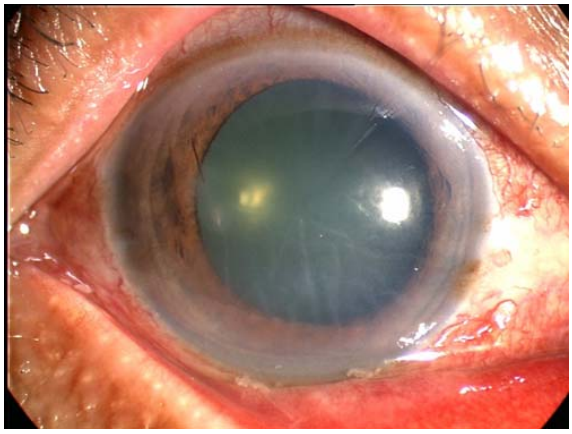

Fig. 2 Slit-lamp photograph of the cornea at 10 days after admission shows the decreased corneal edema with the hair still in the deep cornea

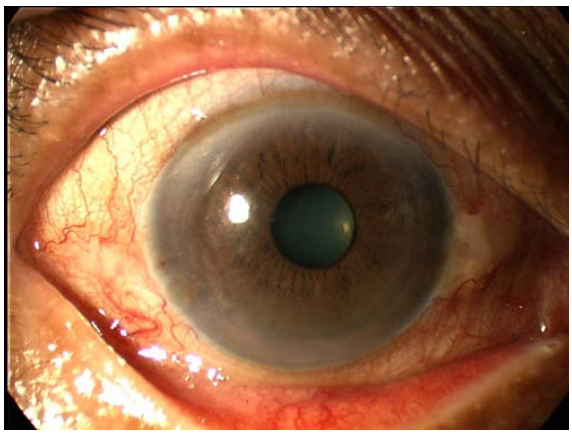

Fig. 3 Slit-lamp photograph of the cornea after 6 months of follow-up shows a clear cornea without any sign of inflammation

been reported for intractable endophthalmitis[5], while one study reported a case of intraretinal hair without intraocular inflammation[9].

With the presented patient, the auhtors postulated that the toxin from the insect hair was released at the time of initial injury, which caused marked inflammation immediately. After that, the hair was inert and spontaneously resolute without any evidence of toxic sign. The decrease in inflammation together with the improvement of vision guided the authors' decision to observe rather than pursue any invasive intervention in this patient.

In conclusion, an insect hair can be left in place in the deep cornea if the inflammation can be controlled. Spontaneous resolution of the hair can occur. Careful observation should be considered in this situation. Finally, prevention with a visor on a protective helmet while riding a motorcycle should also be emphasized to the public in order to avoid this kind of accident.

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การย่อยสลายเองของขนแมลงในชั้นลึกของกระจกตา: รายงานผู้ป่วย 1 ราย

สมสงวน อัษญคุณ, เกษรา พัฒนพิฑูรย์, รัชดา ศิริวันสาณฑ์, โสภา วัฒนานิกร

รายงานผู้ป่วย 1 ราย ซึ่งมีกระจกตาอักเสบจากการมีขนแมลงฝังลึกในกระจกตา ผู้ป่วยมีอาการปวดตาขวาจากการมีแมลงบินชนตาขณะขี่รถจักรยานยนต์ การตรวจตาพบว่ามีขนแมลงฝังลึกในเนื้อกระจกตา และกระจกตาบวมอย่างมากจนทำให้สภาพการมองเห็นลดลงเหลือเพียงมองเห็นการเคลื่อนไหวของมือ การรักษาประกอบไปด้วยการหยอดตาด้วยยาปฏิชีวนะ ยาขยายม่านตาและยาลดการอักเสบ จากการติดตามผลการรักษาไปในระยะเวลา 6 สัปดาห์ พบว่ามีการย่อยสลายเองของขนแมลง และไม่มีพิษใด ๆ หลงเหลืออยู่ขณะติดตามผู้ป่วยไปในระยะเวลา 6 เดือน ซึ่งสภาพการมองเห็นของผู้ป่วยดีขึ้นเป็น 6/6 ดังนั้นขนแมลงที่อยู่ในชั้นลึกของกระจกตาอาจปล่อยทิ้งไว้ได้ด้วยการติดตามการรักษาอย่างระมัดระวัง โดยอาจมีการย่อยสลายเองได้