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Tarantula Hairs as Corneal Foreign Bodies

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Key Words
Cornea · Keratitis · Foreign body · Tarantula

Abstract
Purpose: To report a case of tarantula hairs found in the cornea and discuss treatment.
Case Report: A 16-year-old male presented with a 6-week history of right ocular irritation that began after letting his pet tarantula crawl on his face. Slit-lamp examination of the right eye revealed the presence of approximately 16 dark foreign bodies that had the appearance of small hairs. The foreign bodies were removed from the nasal region of the right cornea using Jewelers forceps, and the patient was prescribed a combination neomycin, polymyxin B, and dexamethasone ointment (Maxitrol®), given 4 times per day.
Results: The patient presented for follow-up 2 weeks later, with resolution of symptoms.
Conclusion: Effective treatment of keratitis caused by tarantula hairs includes taking a detailed history, conducting a careful slit-lamp examination, removal of any accessible hairs, and initiation of treatment with a topical steroid as determined by the clinical picture.

Introduction

Foreign body injury is a common cause of ocular pain and damage to the cornea. Common sources of foreign bodies in the cornea include metal, wood chips, and other organic matter. Insects are a less common source of corneal injury and foreign bodies. Some insects pose particular risk as corneal foreign bodies due to their possession of true setae, which are barbed hairs that provide a defensive mechanism in these insects [1]. Two groups of insects that have been known to cause ocular injury through their true setae are caterpillars and tarantulas [2, 3].

Ocular injury from barbed hairs of tarantulas is of particular concern due to the popularity of tarantulas as household pets and the lack of understanding that pet owners have about the risks from tarantula hairs. This article will present a case of keratitis caused by tarantula setae, and discuss treatment options and possible outcomes.

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Case Report

The patient was a 16-year-old male who presented with a 6-week history of right ocular irritation. The patient had a pet tarantula that he had allowed to crawl on his face 6 weeks previously. As the spider was crawling on his face, the patient felt a scratching sensation on the surface of his right eye. At this point, he pulled the spider from his face and vigorously rubbed the eye. He felt no relief from rubbing his eye. The patient believed that his eye had been scratched by the tarantula. He complained of irritation and conjunctival injection in his right eye that was progressively worse. The patient explained that he felt as if his right cornea was scratched, and that the pain was worse in the mornings. After 5 weeks of ocular irritation, the patient visited an optometrist who prescribed a once-a-day steroid eye drop and referred him to the Moran Eye Center, Salt Lake City, Utah, USA.

The patient presented with 20/20 visual acuity in both eyes. Slit-lamp examination of the right eye revealed the presence of approximately 16 dark foreign bodies that had the appearance of small hairs. The foreign bodies were concentrated on the nasal side of the eye. During examination, the patient had difficulty maintaining an open eye due to irritation. Images of the right eye were taken using the slit lamp and camera and are presented in **figure 1**.

Sixteen foreign bodies were removed from the nasal region of the right cornea using Jewelers forceps and visualization by the slit lamp. Visualization of the hairs after removal combined with the history of a tarantula on the patient's face provided evidence that the foreign bodies were tarantula hairs. The patient was prescribed a combination neomycin, polymyxin B, and dexamethasone ointment (Maxitrol®; Alcon Laboratories, Ft. Worth, Tex., USA), given 4 times per day.

Results

The patient presented for follow-up 2 weeks later, stating that the eye felt much better. He denied itching, burning, and foreign body sensation. He reported that the eye began feeling better within 1 or 2 days of the removal of the hairs. Conjunctival injection was not present. Slit-lamp examination revealed a healing cornea.

Discussion

Tarantulas are popular household pets that are widely available at pet stores. While many of these pet tarantulas are considered relatively safe due to their lack of poison or fangs, they pose an underappreciated danger from their defensive hairs [3]. Tarantulas are recognized for their possession of true setae, which are a subtype of insect defensive hairs [1]. The setae of these tarantulas are typically located on their abdomen, are short, ranging from 100 to 500 μm in length, have multiple barbs, and a density of 10,000–12,000 setae/mm [4, 5]. The base of the setae is attached to a stalk or socket on the spider, and the hairs are removed with mechanical stimulation [4, 5]. The tarantulas use these hairs defensively in 1 of 2 basic methods. Some species flick the setae at enemies with rapid vibrations of their hind legs, while others press the setae into an enemy upon contact [1, 4, 5].

Tarantula hairs have been reported to cause a number of medical issues in humans [1]. It has been proposed that the hairs inflict injury initially through an acute inflammatory reaction followed by chronic granulomatous inflammation [6]. Common presenting symptoms of ocular injury from tarantula hairs include conjunctival injection, foreign body sensation, periorbital facial rash, photophobia, and tearing [3, 7–14]. Because many of these symptoms are similar to other diagnoses, the presence of ocular injury secondary to tarantula hairs can be initially difficult to detect [13]. Patients with tarantula hair foreign bodies can be misdiagnosed as having conjunctivitis [7, 15]. Slit-lamp examination reveals hairs that can be either light or dark in color, and their description varies, from 'clear, acrylic rods' to dark and 'resembling needles' [3, 11]. The hairs are

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often easier to visualize after a short course of topical steroids because infiltrates clear [10, 13].

After diagnosis of tarantula hair ocular injury, the first decision to be made in terms of treatment is whether removal of the hairs should be attempted. Some reports suggest better outcomes if the hairs can be removed [6, 15]. Our patient responded very well to simple removal of the offending hairs and a very short course of topical antibiotic/steroid combination therapy. However, removal of the hairs is not appropriate in all cases [3, 9]. Factors that suggest leaving the hairs include: a large number of hairs, deep corneal penetration, lack of patient tolerance, and risk of perforation [9]. It has been suggested that the removal of deeper hairs is not necessary because the hairs may be absorbed without further complications [1, 7].

The visible load of hairs, the associated intraocular inflammatory response, and the subsequent response to treatment are factors that should play an important role in the choice of steroid drop, frequency of administration, and the length of treatment [9]. Erythromycin ointment, neomycin, polymyxin B, gentamicin, and tobramycin have all been used in ocular injury secondary to tarantula hairs [3, 8, 10].

When physicians see patients with suspected ocular injury secondary to tarantula hairs, they should take a detailed history, conduct a careful slit-lamp examination, remove any accessible hairs, and initiate treatment with a topical steroid as determined by the clinical picture. Patients should be warned about the importance of treatment compliance, the risk of long-term complications, and the necessity of both proper eye protection while handling their pet tarantula and cleaning their hands soon after to reduce risk of introduction of tarantula hairs to their eyes from their hands.

Disclosure Statement

The authors declare that they have no conflicts of interest.

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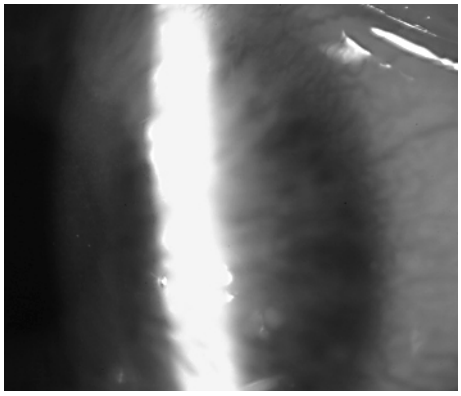

Fig. 1. Slit-lamp image of tarantula hair corneal foreign bodies. Hairs are visible in the left-inferior portion of the image.

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