

## CASE REPORT / ПРИКАЗ БОЛЕСНИКА

# Keratouveitis caused by handling of a tarantula

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**Introduction** The aim of this paper was to present a case of keratouveitis caused by casual handling of a tarantula. Tarantulas, including the *Grammostola rosea* (Chilean rose), have barbed irritant or urticating hairs, which may be shed during casual handling and in contact with the eye migrate to different parts of the eye and cause inflammatory response known as ophthalmia nodosa.

**Case outline** A 15-year-old boy presented to our department with a sudden onset of a sore, red left eye, which he noticed after handling his tarantula pet. Slit-lamp examination of the left eye revealed ciliary injection and multiple hairs in all corneal layers. Topical antibiotic and corticosteroid treatment was commenced and there was initial improvement in his clinical status. Three weeks after the initial presentation he developed uveitis and mild macular oedema in his left eye and the best corrected visual acuity in the left eye was reduced. Only local corticosteroid treatment was continued and there was improvement in both the best corrected visual acuity and clinical status of the left eye, while the corneal hairs had not migrated and were still present in all corneal layers despite of long-term tapering regimen of topical steroid therapy.

**Conclusion** Handling of these increasingly popular exotic pets requires special precautionary measures.

**Keywords:** keratouveitis; tarantula spider; urticating hairs; ophthalmia nodosa

**INTRODUCTION**

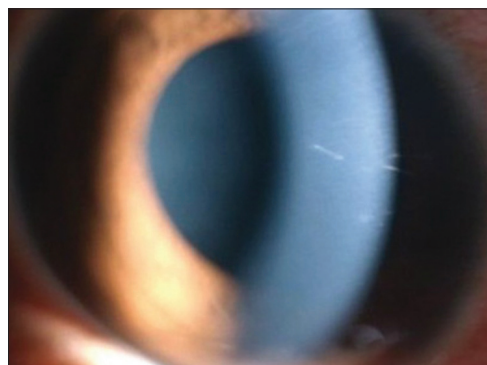
Ophthalmia nodosa is an ocular response to vegetation or animal urticating hairs and was first described in 1904 as nodular response in the palpebral and bulbar conjunctiva [1, 2, 3]. Urticating hairs that can cause this condition are divided into four groups depending on the mechanism they use to penetrate into tissues and the pattern of their barbs. Tarantula hairs are a type 3 and are approximately 0.1–0.3 mm long, they have sharp-pointed head and numerous barbs. They travel like arrows and can penetrate deeply into the skin or the eye, causing multiple foci of inflammation in all layers of the eye [1, 4]. There are reported cases of keratoconjunctivitis, uveitis, skin urticaria, chronic keratitis, chorioretinitis, and even complications like secondary glaucoma or cataract [4–7].

The aim of this paper was to present a case of keratouveitis caused by casual handling of a tarantula.

**CASE REPORT**

A 15-year-old boy presented to our department with a sudden onset of a sore, red left eye, which he noticed one day after handling his Chilean rose (*Grammostola rosea*) tarantula pet. The patient also had a rash on the arm which was in contact with the spider. Anamnestically, we found out that the patient was healthy, wasn't

taking any medications, and had no allergies. Initially, his best corrected visual acuity tested on the Snellen chart was 1.0 on both eyes. Slit-lamp examination of the right eye was normal, while the left eye examination revealed ciliary injection and multiple hairs in all corneal layers, with associated opacities (Figure 1). Fundus examination was normal in both eyes. Topical antibiotic and corticosteroid treatment was commenced and there was initial improvement in his clinical status (Figure 2). An infectiologist was consulted and oral azithromycin was introduced (500 mg once daily) for three days. The laboratory tests performed (complete and differential blood count, erythrocyte sedimentation rate, C-reactive protein, urinalysis, hepatic enzymes) were normal. Conjunctival swabs were negative for bacteria and eosinophiles.



**Figure 1.** The left eye before topical corticosteroid therapy – tarantula hairs in all corneal layers and conjunctival injection

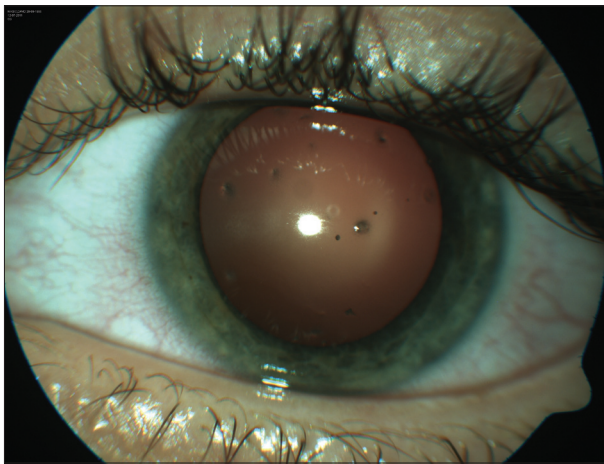
Примљено • Received:  
March 20, 2016

Прихваћено • Accepted:  
May 23, 2017

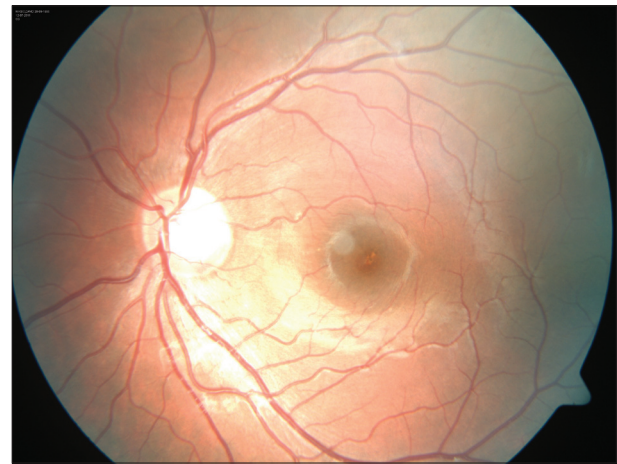
Online first: May 30, 2017

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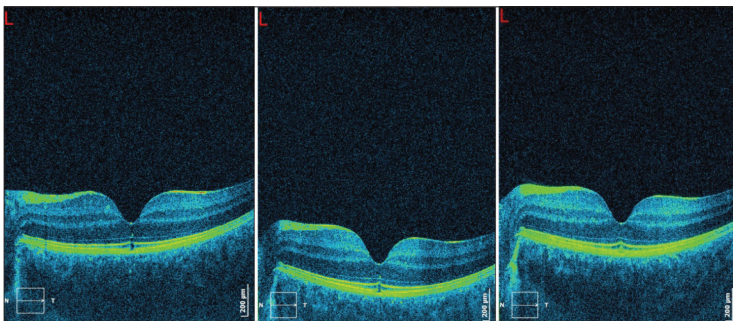
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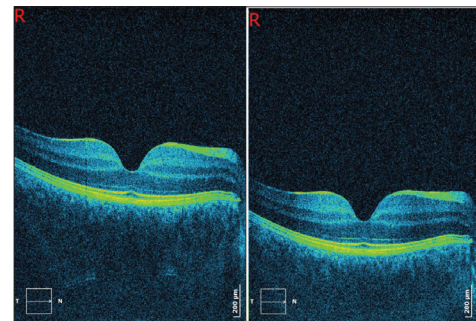
**Figure 2.** The left eye after corticosteroid topical therapy – corneal opacities



**Figure 3.** Control fundus of the left eye shows pigment layer defect without macular oedema



**Figure 4.** Optical coherence tomography of the left macula – cystic subfoveal lesion in regression; a – first month; b – after two months; c – after five months



**Figure 5.** Optical coherence tomograms of the right eye – normal; a – first month; b – after five months

After consulting recent medical data, we found that tarantulas, including the Chilean rose, have barbed irritant or urticating hairs which may be shed during casual handling and in contact with the eye migrate to different parts of the eye and cause inflammatory response known as ophthalmia nodosa. Three weeks after the initial presentation, there was a reduction in the best corrected visual acuity in the left eye from 1.0 to 0.75, tested on the Snellen chart. Slit-lamp examination of the left eye revealed strong mixed ciliary injection, even more tarantula hairs in all corneal layers, inflammatory cells in the anterior chamber and anterior uveitis. The fundus examination of the left eye revealed mild macular oedema without signs of vitritis (Figure 3) and optical coherence tomogram of the macula showed a cystic subfoveal lesion (Figure 4 a–c). Tomogram of the right eye was normal (Figure 5 a–b).

Only local corticosteroid treatment was continued and there was improvement in both the best corrected visual acuity and clinical status of the left eye. During two months of the follow-up period, both eyes were white and unremarkable. The patient was on a long-term tapering regimen of topical steroids for three months, the corneal hairs with opacities had not migrated and were still present in all corneal layers but were less numerous. (Figure 2). Fundus examination and optical coherence tomogram of the left eye were normal.

## DISCUSSION

Tarantulas are large spiders covered in numerous hairs that are usually found in tropical and subtropical areas, they belong to the *Theraphosidae* family [8]. They are increasingly popular as pets since they are easily available, slow moving, interesting to watch, have a long life span, and tolerate a certain amount of handling by people. All sorts of tarantulas are venomous and Chilean rose is the least venomous and therefore the most popular species. Their defend mechanism, if they feel threatened, relies on painful bites and a shower of urticating hairs they release of the dorsum of their abdomen. These hairs are located at a density of approximately 10,000 per square millimeter; in case of danger they start to vibrate, which causes a shower of hairs towards the source of the danger [8]. In contact with ocular tissue, they might penetrate the cornea or sclera and involve even the posterior segment of the eye [1, 4, 7].

Different eye conditions caused by handling of a tarantula have been reported – from conjunctivitis and keratitis [9, 10], which responded well to topical corticosteroid treatment, to complicated panuveitis with complications like secondary glaucoma and cataract [4, 7, 11], which needed systemic corticosteroid therapy or surgical treatment [12]. In cases when they penetrated all the way to the posterior segment of the eye, these urticating hairs caused multiple foci of inflammation [7, 12, 13]. Similar

cases were reported as a reaction to urticating caterpillar hairs, which are also type 3 urticating hairs. These cases encompassed a wide range of diagnoses, from keratitis and uveitis to endophthalmitis [14, 15, 16].

Treatment of these conditions included removal of superficial hairs and topical or even systemic corticosteroid therapy. Antibiotic therapy doesn't provide satisfactory results. Because of these facts, we assume that the reason for this condition is hypersensitivity reaction to urticating

tarantula hairs rather than infective element. Rare reported cases had to be treated surgically [7, 12].

Inflammatory reaction of different eye parts, especially the cornea, may persist for a long period of time with uncertain course and permanent sequel in terms of visual function. Therefore, the owners of such pets should be aware of the importance of precautionary measures and their proper handling. Also, the public should be better advised over the potential risks with these exotic pets.

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## Кератоувеитис узрокован контактом с тарантулом

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### САЖЕТАК

**Увод** Циљ овог рада био је да прикаже случај кератоувеитиса узрокованог контактом с пауком тарантулом, врсте *Grammostola rosea* (Chilean rose). Тарантуле могу отпустити длачице које унете у око специфичним механизмом могу продриети у све слојеве рожњаче, чак и дубље у око. Реакција ока на овакве длачице назива се *ophthalmia nodosa*.

**Приказ болесника** Петнаестогодишњак се јавио с црвенилом левог ока један дан након што је у руци држао свог кућног љубимца паука тарантулу. Први преглед открио је кератитис с бројним длачицама тарантуле у свим слојевима рожњаче. После увођења локалне антибиотске, а касније

и кортикостероидне терапије, дошло је до краткотрајног побољшања, да би после три недеље наступило погоршање с падом видне оштрине, увеитисом и блажим макуларним едемом. Након што смо увели локалну кортикостероидну терапију, дошло је до побољшања, али су и даље перзистирале длачице, које се нису повукле ни након дужег коришћења препоручене терапије.

**Закључак** Руковање с тарантулама као све чешћим егзотичним кућним љубимцима захтева посебне мере опреза.

**Кључне речи:** кератоувеитис; тарантула; пенетрирајуће длачице; нодозна офталмија