

Case Report

Hypertensive anterior uveitis after bee sting: a case report

Uveíte anterior hipertensiva após picada de abelha: um relato de caso

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ABSTRACT: Uveitis is the inflammation of the uveal tract, which can cause reduced visual acuity (VA) and blindness. Its diagnosis and treatment must be done earlier in order to avoid secondary inflammatory glaucoma, a feared complication. Hymenoptera bites are a rare and rarely reported cause of uveitis, that due to the type 1 hypersensitivity reaction triggered by the peptide toxins released by these insects. The article shows the case of a 67-year-old man who presented with reduced VA and pain in his right eye after bee stings. Although adequate treatment with corticosteroids and antibiotics was instituted, the patient evolved with worsening of the condition and hypertensive anterior uveitis due to non-adherence to the therapy, anti-inflammatory and anti-glaucoma drugs were, therefore, used to prevent permanent vision loss, showing good answer.

Keywords: Uveitis; Hymenoptera; Glaucoma; Case report; Ophthalmology; Ophthalmology.

RESUMO: A uveíte é a inflamação do trato uveal, podendo causar redução da acuidade visual (AV) e cegueira. Seu diagnóstico e tratamento devem ser feitos precocemente a fim de se evitar o glaucoma secundário do tipo inflamatório, uma temida complicação. Picadas de himenópteros é uma causa rara e pouco relatada de uveíte, onde esta se deve à reação de hipersensibilidade tipo 1 desencadeada pelas toxinas peptídicas liberadas por estes insetos. O artigo expõe o caso de um homem de 67 anos que se apresentou com diminuição da AV e dor em olho direito após picadas de abelhas. Apesar de ter sido instituído tratamento adequado com corticoesteroides e antibiótico, o enfermo evoluiu com piora do quadro e uveíte anterior hipertensiva devido à não adesão terapêutica, utilizando, então, drogas anti-inflamatórias e anti-glaucoma para impedir a perda permanente da visão, apresentando boa resposta.

Palavras-chave: Uveíte; Himenópteros; Glaucoma; Relato de caso; Oftalmologia.

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INTRODUCTION

Uveitis is defined as inflammation of the uveal tract, which may be associated with adjacent structures, and is an important cause of decreased visual acuity (VA) and blindness in ophthalmology^{1,2,3}. The diagnosis and treatment of this disease should happen early in order to avoid complications such as secondary inflammatory glaucoma⁴.

Uveitic glaucoma occurs in about 20% of patients with uveitis and appears more frequently in inflammatory cases associated with herpetic uveitis, juvenile idiopathic arthritis, and in patients with heterochromic fuchs uveitis². Its pathophysiology may be associated with different mechanisms, but most commonly there is a disproportion between the production and drainage of aqueous humor due to the inflammatory process, where it obstructs the trabecular meshwork with a consequent increase in intraocular pressure (IOP)^{2,3}.

Several etiologies are associated with uveitis; however, uveal involvement triggered by hymenoptera stings, a group of insects represented by bees, wasps, and ants, is considered rare and little reported in the world literature^{1,5,6}.

In this case report, we describe an unusual form of hypertensive anterior uveitis in a 67-year-old farmer who attended the ophthalmology outpatient clinic with corneal ulceration and a history of sudden vision loss with intense ocular pain after a bee swarm attack. We also take this opportunity to highlight the importance of early identification and correct treatment of uveitis in order to avoid permanent reduction of VA secondary to uveal inflammation.

CASE REPORT

A.A.C. male, 67 years old, farmer, resident and native of Palmeira dos Índios-AL. He complained of intense pain in the right eye (OD) followed by sudden loss of visual acuity in the same eye 30 days ago. About 1 month ago, the patient reported being victim of a bee swarm attack, in which he had stings all over his body, including his right eye.

After the event, the patient claims that he sought medical attention at the time, and was prescribed treatment with moxifloxacin, cetarolac, and later fluormetolone and sodium hyaluronate (eye drops), but without details of this previous appointment. The patient was then referred for specialist evaluation.

He came to our service for an ophthalmologic appointment, stating that he did not use the previously prescribed medications regularly, using them sporadically and randomly, only Hyabak® when he experienced pain.

Regarding the personal history, the patient reported

only chronic bronchitis, with no other important systemic or ophthalmologic pathological history, and no relevant family history.

Ophthalmologic examination showed ectoscopy: eyelid edema in the OD. Visual acuity (VA) with correction (CC) OD: hand motion (HM) and OS CC: 20/30. Tonometry: 34 mmHg (OD) and 14 mmHg (OS). Biomicroscopy OD: corneal epithelial and stromal edema 3+ (Figure 1), diffuse corneal opacity, clean base ulcer measuring 1.4 mm x 1.9 mm (Figure 2), medium mydriasis and nuclear cataract 3+, impossible to assess anterior chamber reaction by corneal opacity. Moderate ciliary injection.

Biomicroscopy OS: nuclear cataract 2+, no other changes. Fundoscopy OD: Impossible due to photophobia and media opacity. Fundoscopy OS: Optic nerve excavation of 0.7 x 0.7, macula without abnormalities.

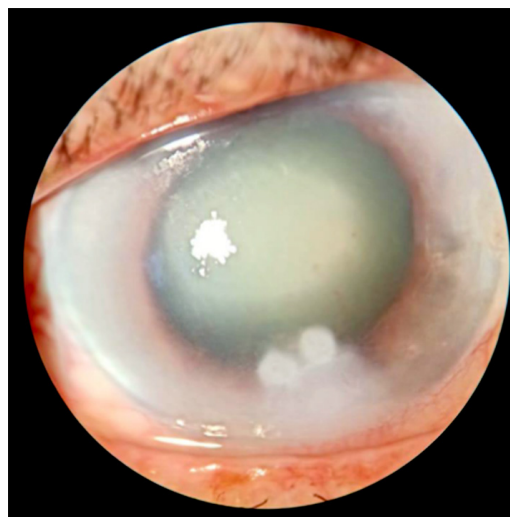


Figure 1 - Epithelial corneal edema and diffuse corneal opacity in OD.

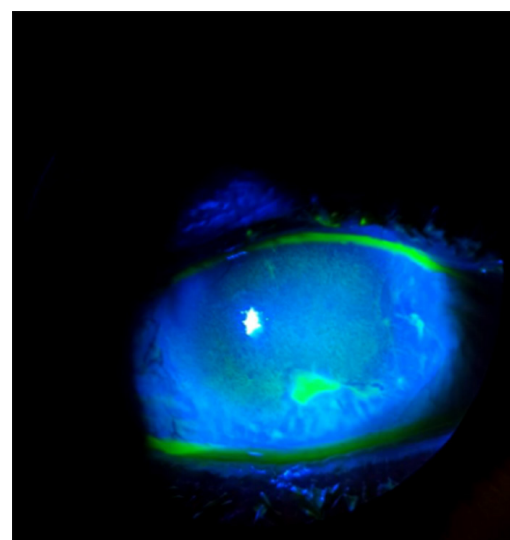


Figure 2 - Clean based inferior ulcer (no infectious appearance) in the OD evidenced on fluorescein biomicroscopy.

A diagnosis of uveitic ocular hypertension was made and the following were prescribed: fluormetolone twice a day, sodium hyaluronate three times a day, Regencil® ointment twice a day, dorzolamide eye drops twice a day, acetazolamide 250 mg, orally three times a day. An ambulatory return visit in 2 days was also requested for treatment evaluation.

At return, the patient reported absence of pain; VA maintained in OD; at OD biomicroscopy: cornea remained with edema and opacity, clean base ulcer measuring 1 mm x 1.7 mm, tonometry: 10 mmHg (OD), 8 mmHg (OS). Medications were maintained and patient was referred for follow-up with a specialist in his city.

DISCUSSION

Insect bites are responsible for several types of medical emergencies in the rural environment, especially when they involve accidents with animals of the *hymenoptera* group⁷. These insects release non-enzymatic peptide toxins that are toxic to several human tissues, causing type I hypersensitivity reaction (immediate) at the site of the bite^{7,8}.

Literature suggests that eye pain in accidents with *hymenoptera* occurs due to the presence of venom in the eye associated with inflammation caused by the venom⁹. The main neurotoxins related to pain and hypersensitivity are apamine and melittin, respectively; apamine is a potassium channel blocking neurotoxin with high pain potential^{9, 10, 11}.

When the inoculation of these toxins occurs in areas close to the eyes, inflammation can occur in the anterior chamber simulating a chemical burn of this region, in addition to other visual problems such as corneal edema, optic neuritis, anterior segment ischemia, and secondary inflammatory glaucoma^{1,5,7,11,12}.

In this case report, we show a 67-year-old farmer who suffered an accident with a swarm of bees with stings distributed along the body and OD. Soon after the event, the patient reported sudden onset pain in the affected eye with associated vision loss. Corneal edema and anterior chamber inflammation are the symptoms most often reported in the literature, which were present in the patient described above^{9,10}.

The initial approach in cases such as this involves the mechanical or surgical removal of the bee sting followed by drug treatment; however, this step was not performed in the patient in question, a factor that may be related to the chronicity and worsening of the condition^{7,9}.

The extraction of the sting is done through a small removal in the cornea with subsequent removal using tweezers⁶. However, the inflammatory infiltrate and edema caused by peptide toxins may make it difficult to visualize and remove it⁶. Therefore, the literature describes some techniques for better visualization of the area inoculated

by the insect by means of focal illumination with endoillumination probes^{6,8}.

Soon after removal of the sting, treatment with topical corticosteroids and oral or topical antibiotics is indicated, since these patients have a higher risk of developing keratoconjunctivitis and hypopyon^{8,11}.

The patient in this case report was treated with moxifloxacin, cetarolac, and then with fluormetolone and sodium hyaluronate, all medications recommended in the literature and associated with better clinical outcomes⁶.

After the initial treatment, the patient abandoned the pharmacological treatment and started presenting periods of improvement and worsening of ocular pain with progressive reduction of VA in the affected eye. Still on the case follow-up, because the uveitis was not satisfactorily treated, the patient developed an important complication of the anterior chamber inflammation, secondary inflammatory glaucoma^{9,13}.

Inflammatory glaucoma is a rare complication of uveitis that can course to optic nerve damage and vision loss¹⁴. Early and effective treatment of uveitis decreases the chance of evolution of the inflammatory process with increased IOP¹⁴.

The IOP of the patient in this case on tonometry was 34 mmHg in the affected eye (OD), this increased pressure being secondary to aqueous humor drainage obstruction and the chronic inflammatory process obstructing the trabecular meshwork². The treatment instituted to deal with this disorder included dexpantol, dorzolamine and acetazolamide. Fluormetolone and sodium hyaluronate were also used in the treatment in order to correct ocular surface changes.

Besides drugs to reduce the inflammatory process, anti-glaucoma drugs can and should be used to reduce IOP and decrease the risk of permanent vision loss¹⁵. Two pharmacological classes are usually used to treat glaucoma: carbonic anhydrase inhibitors, whose therapeutic effect is the inhibition of aqueous humor production, and prostaglandin analogues, which act by intensifying the aqueous humor drainage through the ciliary body; however, the use of prostaglandins in inflammatory conditions, as the one reported here, is controversial in the literature and should be avoided^{15,16}.

At his return to the service, the patient presented satisfactory improvement of the condition with resolution of pain and decrease of IOP in the OD. Tonometry of the OD showed 10 mmHg and biomicroscopy revealed the presence of lens opacity and a clean base ulcer, sequelae of the condition that may be related to a failure in the follow-up of the individual's uveitis.

CONCLUSION

In this paper, we report the case of a 67-year-old farmer who suffered an accident by a hemynoptera

that led to an painful condition with decreased VA. The patient in question did not follow the therapeutic plan and progressed with hypertensive anterior uveitis that was subsequently treated with corticosteroids and anti-glaucoma drugs with good response to treatment.

Conflict of interest: The authors declare no conflict of interest.

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