

EXOGENOUS *CANDIDA* ENDOPHTHALMITIS IN A HOP GROWER - A CASE REPORT

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**Abstract:** A case is reported of exogenous *Candida* endophthalmitis after ocular injury with a metal wire used for hop growing. A detailed description of treatment with vitrectomy and intravitreal amphotericin B injection is presented. On the basis of our experience, in such cases it is advisable to perform vitrectomy with amphotericin B intravitreal injection and silicone oil tamponade to prevent retinal detachment.

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Endophthalmitis related to ocular injuries is a serious complication, which despite considerable progress in vitreoretinal surgery and intraocular antibiotic injections has poor prognosis. Among this group, cases of endophthalmitis related to injuries taking place in rural areas are especially severe [5].

A case is presented of exogenous endophthalmitis after the eye had been punctured with a metal wire used in hop plantations. Endophthalmitis was caused by the *Candida* sp. infection.

## CASE DESCRIPTION

On 7 May 1997, an 18 year old female (BJ) injured her left eye with a metal wire used for hop growing that had been in contact with soil. On the day of the injury, the 2 mm long penetrating wound of the cornea, was surgically repaired. On the next day, visual acuity of the left eye was 1.0 without any inflammatory reaction in the anterior chamber and vitreous. On 13 May 1997, the patient was transferred to the First Ophthalmological Clinic of the Medical Academy in Lublin. It was suspected that there was some fine foreign body in the vitreous. During preliminary examination, an inflammatory reaction was found in the vitreous (+) and the visual acuity was 0.1. The X-ray picture taken did not confirm the presence

of any foreign bodies. The patient was given a localised anti-inflammatory treatment. An examination carried out the following day showed a massive inflammatory reaction in the vitreous that totally covered the entire eye fundus, and the visual acuity had decreased so that the patient could only see the movements of her hand in front of the eye (hand movements). On 14 May 1997, an immediate surgery - *pars plana* vitrectomy of the left eye was performed. At the same time, a sample was taken from the vitreous body. Ceftazidime at the dose of 2.25 mg/0.1ml was administered into the vitreous. Hence *Candida* sp. was cultured from the sample material taken, the patient received amphotericin B injection into the vitreous at a dose of 0.005 mg/0.1 ml on the 1st and 4th day after the surgical treatment. Despite the treatment applied, inflammation was increasing and on 20 May 1997, another vitrectomy was performed with a simultaneous administration of amphotericin B to the vitreous. During a follow-up examination, retinal detachment was found and on 2 June 1997, the 3rd vitrectomy combined with circumferential buckle and silicone oil tamponade was performed. The patient was released with visual acuity of 0.1. During the following year she developed a cataract and extracapsular cataract extraction was performed on 30 July 1998. During the following 2 years of observations, the visual acuity in the left eye remained at the level of 0.1.

## DISCUSSION

Endophthalmitis complicating penetrating ocular injury generally has a worse visual prognosis than postsurgical endophthalmitis [6, 10]. Among the factors that influence the final results of treatment there are: virulence of the infecting organisms, the severity of ocular trauma, quick diagnosis of the reasons for infection and appropriate treatment [8]. Boldt *et al.* [5] stated that endophthalmitis developed in 30% of patients after injuries that had taken place in a rural setting, whereas in the group of injuries that had taken place in nonrural setting, the percentage of endophthalmitis was only 11%. The reason for the development of endophthalmitis after a penetrating globe injury is, in most cases, a bacterial infection, and the dominant bacterial strains are *Bacillus*, *Staphylococcus*, and *Streptococcus*. Endophthalmitis with fungal etiology is more rare and appears, according to other authors, in 0-18% of all the cases of traumatic endophthalmitis depending on whether it occurs in agricultural or industrial areas. The most frequent causes of fungal inflammation are: *Candida* spp., *Fusarium* spp., *Aspergillus* spp., *Cylindrocarpus* spp. [1, 4, 5, 9, 11].

In the case presented, massive, fulminant *Candida* endophthalmitis developed 7 days after the injury that was only a simple puncture of the cornea. According to Affeldt *et al.* [1] any penetrating injury of the eye, including self-healed wounds of the cornea without injuries to the iris or lens, can lead to the loss of sight if live microorganisms penetrate into the eye due to the injury. The onset of the traumatic fungal infection is usually noted considerably later than the onset of bacterial infections, even though data from literature differ considerably from 1-180 days [1, 5, 9].

In the present case, symptoms of endophthalmitis developed very rapidly and were very intense. Vitrectomy was carried out urgently, and Ceftazidime was administered into the vitreous after the surgery since bacterial infection was suspected. Since examination of the sample taken (direct specimen) showed fungal infection, the patient received an injection with 5µg/0.1ml of amphotericin B into the vitreous. Culture confirmed *Candida* sp. infection. It might have been possible that pathogenic organisms had been present on the surface of patient's conjunctiva or cornea at the time of injury. However, among many cases of similar injuries of the eye, such massive endophthalmitis is very rare. Our case makes it probable that *Candida* organisms were present on the metal wire.

Most the authors agree that amphotericin B administered at the above dose into the vitreous is not toxic for the retina [2, 3, 7]. Results by Doft *et al.* [7] are very interesting as they pay particular attention to the considerably shorter half-life of amphotericin B in the eyes after vitrectomy when compared to non-operated eyes. Hence, they advise repeating intravitreal amphotericin B injections every 2-3 days in cases of patients who have already undergone

vitrectomy if the symptoms of infection persist or become more pronounced [7]. Peyman *et al.* [9] stress that amphotericin B administration into the vitreous is especially important in cases of exogenous endophthalmitis since the vitreous or the anterior chamber are the primary site of infection development.

During the 2-year observation period, the visual acuity in the present case was 0.1, and in the cases described by other authors the results of treatment varied from negative that ended in the eye enucleation to the visual acuity of 20/60 after the treatment. Final results of the treatment depend on the degree of intensity of the infection symptoms at the commencement of treatment [5, 9].

Presenting the case of exogenous endophthalmitis, we wanted to draw attention to an especially thorough course of treatment in cases in which the trauma of the eye took place in a rural area. Since the cases of traumatic endophthalmitis which take place in rural areas are more frequent, we suggest taking samples from the objects which caused the injury for bacteriological and mycological examination by culture. This would allow for an early application of a target treatment which, in turn would protect against the development of serious inflammatory changes inside the eye. On the basis of our experience we advise carrying out vitrectomy early and taking samples for examination in order to determine the pathogen. If inflammatory changes of the retina are found during surgery, it seems advisable to administer silicone oil as a protection against detachment of the retina.

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