



Case report

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OCULAR TOXOCARIASIS - A CASE REPORT

SUMMARY

Toxocariasis is a zoonotic diseases caused by *Toxocara canis* or *Toxocara cati*. Clinically, human infestation may take one of two forms: visceral larva migrans and ocular toxocariasis.

Ocular toxocariasis is usually a unilateral disorder. It may take one of three clinical types: diffuse nematode endophthalmitis, posterior pole granuloma type and peripheral inflammatory granuloma type. Ocular toxocariasis may cause blindness.

We report a case of a 71-year-old woman with ocular toxocariasis of the left eye - posterior pole granuloma type, with unilateral visual impairment and strabismus.

Exposure to household dogs or cats is believed to be a risk factor for infection with *Toxocara*.

Key words: ocular toxocariasis, posterior pole granuloma type

INTRODUCTION

Toxocariasis is an important zoonotic diseases caused by *Toxocara canis* or *Toxocara cati*. Human infestation occurs secondary to ingestion of soil or food contaminated with ova shed in dogs' faces. In the intestine, the ova develop into larvae, which penetrate into the intestinal wall and travel to various organs such as liver, lungs, skin, brain and eyes. When larvae die, they disintegrate and cause an inflammatory reaction followed by granulation. Clinically human infestation may take one of two forms: visceral larva migrans and ocular toxocariasis (1).

Ocular toxocariasis is an uncommon diseases that occurs primarily in young patients, approximately 7 years old, with a range from 2 to 30 years (2). It affects females and males with approximately equal frequency. Most patients report a history of recent exposure to puppies or kittens (3).

Ocular toxocariasis is a unilateral disorder that presents as strabismus, leukocoria, or decreased vision. Retinal damage is the result of the host's inflammatory response to the single nematode infection, which usually must be dead before uveitis can develop. Although the posterior uveitis may be of severe intensity, it is not uncommon that little external evidence of inflammation is noted (2).

Clinical presentation varies: chronic endophthalmitis, posterior pole granuloma, peripheral granuloma.

Chronic endophthalmitis presents between 2 to 9 years of age with leukocoria, strabismus or unilateral visual loss. Signs: anterior uveitis and vitritis. The peripheral retina and pars plana may be covered by a dense grayish-white exudate.

Posterior pole granuloma presents between 6 and 14 years of age with unilateral visual impairment. Signs: absence of uveitis. A solid, round, yellow-white granuloma between one to two

discs in diameter is seen at the macula, in the maculopapillary bundle, or it may involve the optic nerve head.

Peripheral granuloma presents usually during adolescence or adult life with visual impairment from distortion of the macula or retinal detachment. Sign: absence of uveitis. A white hemispherical granuloma may be seen at or anterior to the equator in any quadrant of the fundus (1).

The prevalence of ocular infection with *T. canis* has been calculated from smaller series of uveitis patients and ranges between 0 and 3,1% in most of the cases, although the study performed in London found a prevalence of 10% (3). A population-based survey of primary and secondary students in Ireland, reported a prevalence of 6,6 cases per 1000,000 population (4). The prevalence of toxocariasis among the population of Yugoslavia in all cases registered before 1970 reported the mean age of patients of 7,5 years, while studies reported after 1981 found a mean age of 13 years or older (5). The most patients in Japan are adults even, which may be due to the changing dietary habit in that country (6).

The disease is usually diagnosed by characteristic ocular manifestation, laboratory diagnosis - patients with ocular toxocariasis typically do not develop eosinophilia (2) and by positive result in ELISA for anti *T. canis* antibody in serum or in intraocular fluid (6). ELISA testing of vitreous body fluid can prove the presence of toxocara infection when no systemic signs of infection are present and no antibodies are detectable in the serum (7, 8). High sensitivity and specificity (90%) of ELISA titer for *Toxocara* are registered. These titers may eventually decrease after infection with the organism, and therefore any positive titer, even less than 1:8, should be considered significant in the evaluation of a patient suspected of having this disease (2).

Ultrasonography may be useful both in establishing the diagnostics with hazy media and in excluding other causes of leukocoria (1).

Toxocariasis is in the differential diagnosis of retinoblastoma. Although calcification has been reported in rare cases of ocular toxocariasis, this finding is frequently detected in retinoblastoma by ultrasonography or computed tomography. In addition, patients with retinoblastoma are frequently younger than persons with ocular toxocariasis. Unlike toxocariasis, retinoblastoma may be familial. Although a negative *Toxocara* ELISA result is evidence against this parasitic infection, a positive titer does not eliminate the possibility of retinoblastoma, since an increased titer may be present in a significant proportion of the general pediatric population in various regions of this country (2).

A CASE REPORT

We report a case of 71- year-old woman with ocular toxocariasis. The patient came to Ophthalmology Clinic, Clinical Centre Nis in June 2005 to the check-up ophthalmology examination for new presbyopic pair of spectacles.

Toxocara uveitis presented as a posterior granuloma of the left eye and strabismus. The disease is unilateral, visual acuity of the left eye is diminished (VOS= L+P+/-) and normal in the right eye (VOD = 1,0). The unilateral visual impairment occurred when she was 12 years old. The patient had been exposed to puppies and adult animals at home all her life.

The biomicroscopy examination of both eyes was normal except for exotropia, about - 30 on her left eye.

During the ophthalmic examination of the fundus we saw two solid, round, yellow-white granuloma, with the size between one to two discs in diameter at the posterior pole of the left eye. One of them was within the optic nerve head and another was in the maculopapillary bundle (Figures 1, 2).

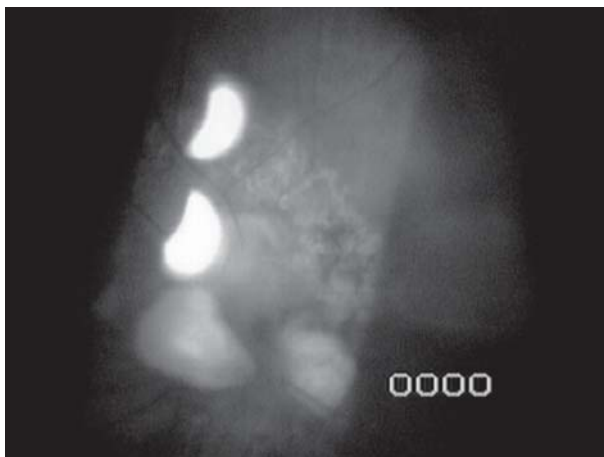


Figure 1. The ophthalmoscopic examination of the fundus in the patient with ocular toxocariasis - two solid, round, yellow-white, granulomas, with the size between one to two discs in diameter at the posterior pole of the left eye. One of them is within the optic nerve head, and another in the maculopapillary bundle.



Figure 2. The patient with ocular toxocariasis and exotropia in the left eye

We made a computer tomography (CT) image of the brain, which was normal, but the result in an enzyme-linked immunosorbent assay (ELISA) for anti-*T. canis* antibody in serum was positive with titer 10,9 NU. An aesthetic operation was suggested to her, which she refused.

The disease is diagnosed by the characteristic unilateral ocular manifestation and the positive result in ELISA for anti *T. canis* antibody in serum. The primary cause of the sight loss in the left eye of our patient was ocular toxocariasis as well as the exposure to household dogs as a risk factor for the infection with *Toxocara*.

DISCUSSION

Uveitis is a common cause of vision loss, accounting for 5% to 20% of all cases of blindness worldwide (7). Among posterior forms of intraocular inflammation, intraocular infection with *Toxocara canis* is a well-recognized cause, particularly in young patients.

In children, the seroprevalence of *Toxocara* infection has been estimated to be 4%–31% in developed countries and may increase to 86% in tropical regions, where environmental conditions favor the transmission of geohelminths (4).

Toxocara uveitis presented as granuloma in the peripheral retina in 50% of cases, as granuloma

in the macula in the 25% of cases, and as a moderate to severe endophthalmitis in 25% cases. In most of the patients, visual acuity is diminished and the most common causes of vision loss are vitreous inflammation, cystoid macular edema and traction retinal detachment (3).

Serum ELISA has been used routinely to confirm the diagnosis of toxocara uveitis (1,2,3,6,8). Exposure to household dogs or cats is believed to be a risk factor for infection with *Toxocara* (81,8%), because human infection occurs as a result of ingestion of parasite eggs, either from soil or from other contaminated sources. Although *Toxocara canis* is a parasite of dogs, it can be difficult to distinguish from *Toxocara cati*, similar parasite of cats; because *Toxocara canis* is much more prevalent in puppies than in adult dogs, the standardized uveitis questionnaire completed by all patients asks about exposure to puppies (or kittens) instead of adult animals (3).

To summarise, toxocara uveitis is an uncommon disease of children and young adults that can cause significant vision loss. Inflammation is typically unilateral and presented as either granuloma in peripheral or posterior retina or moderate to severe endophthalmitis. The paper reports the case of a 71-year-old woman with ocular toxocariasis - posterior pole granuloma type, with unilateral visual impairment and strabismus.

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OKULARNA TOKSOKARIAZA - PRIKAZ SLUČAJA

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SAŽETAK

Toksokariaza je zoonoza uzrokovana *Toxocarom canis* ili *T. cati*. Klinički humana infestacija može da poprimi jednu od dve forme: visceralna larva migrans i okularna toksokariaza.

Okularna toksokariaza je obično unilateralno oboljenje. Javlja se u jednom od tri klinička tipa: difuzni nematoda endoftalmitis, tip granulom zadnjeg pola i tip periferni zapaljenski granulom.

Radom se prikazuje 71-godišnja bolesnica sa okularnom toksokariazom levog oka – tip granulom zadnjeg pola, sa jednostrano narušenim vidom i strabizmom.

Izloženost kućnim ljubimcima, psima ili mačkama, veruje se, predstavlja faktor rizika za infekciju *Toxocarom*.