INDIAN JOURNAL OF MEDICAL MICROBIOLOGY
(Official publication of Indian Association of Medical Microbiologists, Published quarterly in January, April, July and October)
Indexed in Index Medicus/MEDLINE/PubMed, ‘Elsevier Science - EMBASE’, ‘IndMED’

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Published by MEDKNOW PUBLICATIONS
A-109, Kanara Business Center, Off Link Rd, Ghatkopar (E), Mumbai - 400075, INDIA
Phone: 91-22-6649 1818/1816, Fax: 91-22-6649 1817 • E-mail: publishing@medknow.com, Web: www.medknow.com

The journal is printed on acid free paper.
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OCULAR TOXOCARIASIS IN A CHILD: A CASE REPORT FROM KASHMIR, NORTH INDIA

*BA Fomda, Z Ahmad, NN Khan, S Tanveer, SA Wani

Abstract

Toxocariasis is an important zoonotic disease caused by the second stage larva of *Toxocara canis* or *Toxocara cati*. The typical clinical syndromes of toxocariasis in humans are visceral and ocular toxocariasis. Ocular toxocariasis may presents as peripheral inflammatory mass, posterior pole granuloma and endophthalmitis. We report a serologically confirmed case of ocular toxocariasis in 12-year-old female. The diagnosis was confirmed by detection of anti-*Toxocara* antibodies in aqueous and vitreous sample by enzyme-linked immunosorbent assay. We suggest that ophthalmologist in this region should include ocular toxocariasis in differential diagnosis particularly in children and young adults.

Key words: Endophthalmitis, ocular toxocariasis, diagnosis

Human toxocariasis is a zoonotic parasitic disease caused by *Toxocara canis* or *Toxocara cati* larvae. Human infection is usually an outcome of accidental ingestion of the embryonated eggs, due to geophagia, pica and the consumption of contaminated raw vegetables and poor personal hygiene, especially in childhood. The clinical disorder caused by the migration of *Toxocara* larva to the eye is known as ocular larva migrans (OLM). Ocular toxocariasis mainly affects younger patients; infestation is typically unilateral and presents as either a granuloma in the peripheral or posterior retina or a moderate to severe vitreous inflammation mimicking endophthalmitis. The clinical findings and age of presentation makes differential diagnosis with retinoblastoma necessary, which is at times difficult, although essential, since the treatment and prognosis are very different. Human toxocariasis is highly prevalent in Kashmir valley as indicated by a study, which showed 33.33% population being seropositive (unpublished data). It is reported that 82.6% of ascariasis patients in Kashmir also had positive antibody response to *Toxocara canis* excretory secretory (ES) antigen. We have previously reported that ascariasis and toxocariasis positive patients showed T-helper type-2 cytokine response. To the best of our knowledge, no confirmed cases of ocular involvement by this helminth have been described previously from this region. We report a serologically confirmed case of ocular toxocariasis.

Case Report

A 12-year-old female presented with sudden onset of diminished vision and redness of right eye to a private practitioner who diagnosed her as a case of acute iridocyclitis. She was treated with topical mydriatic (atropine) and topical corticosteroid (dexamethasone). Redness of eye improved but diminution of vision progressed for which she consulted the department of ophthalmology at Government medical college. There was no history of ocular trauma or ocular ailment in past. Her general physical and systemic examination was normal. Left eye had vision of 6/6 and was normal on examination. Right eye had vision of hand movements close to face and ciliary congestion. Slit lamp bio microscopic examination showed exudates in vitreous cavity. Fundus examination revealed yellowish reflex in pupillary area, with hazy media (Figure).

With these findings, patient was admitted as a case of endogenous endophthalmitis. Her routine investigations were within normal limits. Vitreous sample showed no microorganism on Gram staining and KOH preparation. Both bacterial and fungal cultures were sterile. The patient was treated with topical gatifloxacin 0.3% (one drop six hourly), dexamethasone 0.1% (one drop two hourly) and atropine sulphate 1% (one drop six hourly). Figure: Fundus photograph showing hazy media with elevated whitish opaque lesion near posterior pole extending into vitreous
three times a day). The patient also received two intravitreal injections of ceftazidime 2.25 mg/0.1 mL and vancomycin 1 mg/0.1 mL. Repeat indirect ophthalmoscopy revealed faint glow and organized exudates in vitreous, thus, possibility of mass in mid-vitreal cavity or posterior pole granuloma was kept and a B-scan was advised, which revealed multiple ecchogenic dot-like opacities of low-to-medium amplitude in mid-and posterior vitreous cavity. In view of high spike in mid-vitreal cavity on B-scan, a differential diagnosis of right intraocular mass in mid-vitreal cavity or posterior pole granuloma was kept in mind. Antibodies specific to *Toxocara* purified ES antigen were detected in serum, aqueous and vitreous sample by enzyme-linked immunosorbent assay (ELISA) using kit obtained from IVD Research Inc, Carlsbad, CA, USA. The test was performed according to manufacturer’s instructions. Optical density (OD) was recorded in an ELISA reader (Anthos) at 450 nm. The samples were considered positive if absorbance reading was equal to or greater than 0.3 OD units and negative if absorbance was less than 0.3 OD units.

Aqueous and vitreous samples were positive for anti-*Toxocara* IgG antibody (1:64), whereas blood serology was negative (<1:64). Patient was diagnosed as case of right eye endophthalmitis (endoogenous) due to toxocariasis and advised vitreo-retinal surgery. The patient did not report for regular follow-up and was seen three months later with no vitreo-retinal surgery performed. This time, she presented with rubeosis iridis and dense complicated cataract and had no perception of light. The patient was lost during regular follow-up.

**Discussion**

*Toxocara* infection in human can produce minor and self-limiting syndromes, therefore, it is likely that in many patients clinical manifestations and laboratory abnormalities often go undiagnosed because of their non-specificity. The typical clinical syndromes of toxocariasis in human are visceral and ocular toxocariasis, also known as visceral larva migrans (VLM) and OLM. VLM syndrome including one or more of the following: eosinophilia associated with fever, general malaise, abdominal pain, headache, cough, anorexia, wheezing, hepatomegaly, anaemia, leucocytosis, dermatologic manifestations as prurit or urticaria, pulmonary signs and neurological or cardiac syndromes. OLM can cause uveitis, posterior and peripheral retinochoroiditis, vitritis, endophthalmitis, papillitis and other ocular lesions that often lead to loss of vision in the affected eye.

A definite diagnosis of OLM is difficult to establish as the larva is rarely identified from the lesions. Hence, immunodiagnostic tests have been used as a reliable adjunct for the diagnosis of toxocariasis. Among the serological tests, ELISA has been extensively used because of its higher sensitivity and specificity. The use of purified ES antigen does not require preabsorption of sera with embryonated ascaris egg antigen and no cross-reaction between purified ES antigen and sera from individuals infected with *Ascaris lumbricoides*, hookworm, *E. coli* or Giardiasis were observed. Testing of vitreous fluid for anti-*Toxocara* antibodies by ELISA can prove the presence of *Toxocara* infection when no systemic signs of infection are present and no antibodies are detectable in the serum. Specific immunotesting on aqueous humour is of particular importance to rule out severe clinical differential diagnosis such as retinoblastoma in children. Antibodies detection in aqueous humour and vitreous are more reliable than serum for diagnosis of ocular toxocariasis. Treatment with prednisolone and albendazole results in healing of the chorioretinal foci. Well-timed vitrectomy is a suitable therapy for vitreo-retinal complications in ocular toxocariasis to improve prognosis and to confirm the diagnosis. Ophthalmologists need to be made aware of the ocular toxocariasis - especially in children and young adults and should more often include toxocariasis in differential diagnosis of ocular diseases. Health promotion by means of a school-based programme of treatment, improving standards of hygiene and control of infection in dogs are necessary for control and prevention of the disease.

**References**


Source of Support: Nil, Conflict of Interest: None declared.