TOXOPLASMA RETINOCHOROIDITIS WITH INVOLVEMENT OF 2ND AND 3RD CRANIAL NERVE: A RARE CASE REPORT

Deepak Choudhury, Jayashree Dora, Pramod Kumar Sharma, Nisha Jha, Kanhei Charan Tudu, Gopeswari Hota
Department of Ophthalmology, Veer Surendra Sai Institute of Medical Science and Research, Burla, Sambalpur, Odisha, India

ABSTRACT

A 30 year Hindu female presented with headache & blurring of vision of left eye (LE) for 2 days. She had a history of contacts with cats in her house. O/E: - VA- HM+ in LE. Restricted ocular movements (adduction, elevation and depression of LE) with mild ptosis were present. Pupil of LE was sluggishly reacting to light. Posterior segment examination revealed an isolated choroiditis patch along superior temporal arcade in paramacular area. Investigation showed ESR- 40, Toxoplasma IgG titre +ve (117). Ocular Coherence Tomography (OCT) showed hyperreflective patch along superior temporal arcade. MRI showed mild diffusely thin left optic nerve with prominent perioptic CSF space. PCR of aqueous humor was +ve for toxoplasma. Patient was treated with oral Trimethoprim with Sulfamethoxazole BD for 7 days. Oral Methylprednisolone 16mg 3 times/ day was given after 2 days of starting of antibiotic & tapered over 3 weeks. 1mg of Vit- B12 was given orally for 3 week. On follow up after 1 week VA improved to 20/40. Ptoisis improved and ocular movements were restricted only in extreme gazes. On OCT, size of the patch decreased after t/t. On follow up after 2 week, VA was 20/30, no ptosis, ocular movements were full and free in all direction. No identifiable patch was present on fundus examination and OCT. Conclusion- It’s a rare case of toxoplasma choroiditis with involvement of 2nd and 3rd cranial nerve. Complete recovery occurred after timely appropriate treatment.

INTRODUCTION

Ocular Toxoplasmosis is caused by Toxoplasma gondii, a single-cell, obligate intracellular protozoan and is likely most common cause of infectious retinochoroiditis in humans. It is transmitted either by maternal transmission during pregnancy or ingestion of raw or undercooked meat with tissue cysts or contaminated fruit, vegetable, or water. It has a unilateral presentation in 72-83% of the cases. Patients with ocular toxoplasmosis with macular involvement usually present with diminished vision and/or floaters. Toxoplasma lesion is characterised by a focal necrotizing retinochoroiditis mainly involving posterior pole moderate to severe vitreous inflammation. However, a variety of less common, atypical presentations may be unfamiliar to clinicians, delaying both diagnosis and treatment.

In this patient 2nd and 3rd cranial nerve are involved along with retinochoroiditis. This case is reported because of its rarity.

CASE REPORT

A 30 year old Hindu female presented to our outpatient department (OPD) in 29th April 2015, with headache and blurred vision in her left eye for 2 days. Deterioration of vision was painless and sudden. Detailed history revealed she had contact with cats in her house.

On General examination, patient was conscious and oriented. Vital signs and all systems were within normal limits. On Ocular examination, head was erect and face was bilaterally symmetrical. Best corrected visual acuity (BCVA) in right eye (OD) was 20/20 and left eye (OS) was hand movement. Ocular Motility in OD was full and free in all directions. Restricted adduction, elevation and depression with mild ptosis were present in OS. Pupil in OD was...
circular, normally reacting to light and in OS was circular, sluggishly reacting to light. Relative afferent pupillary
defect (RAPD) or Marcus-Gunn pupillary response was present in OS. Dilated fundus examination in OD was
normal, but OS revealed an isolated chorioretinitis patch along superior temporal arcade in paramacular area. Intra
cocular pressure in both the eyes was 20 mm Hg. various investigations were done.
Ocular coherence tomography (OCT) showed hyperreflective patch above the superior temporal arcade, in the
paramacular area (Figure- 1).

![OCT image of OS showing hyperreflective patch](image1)

Erythrocyte Sedimentation Rate (ESR) was 40 mm at the end of 1st hour. Serum toxoplasma IgG titre was positive
and the titre was 117. Montoux test was negative. Magnetic Resonance Imaging (MRI) of brain and orbit was done.
It showed mild diffuse thinning of left optic nerve with prominent perioptic CSF space. To confirm the diagnosis 0.2
ml of aqueous humor was obtained by aspirating from anterior chamber of OS and was sent for Polymerase chain
reaction (PCR) testing. Single nested PCR and Southern blot hybridization was performed with DNA extracted from
the sample. PCR was found to be positive for toxoplasma.
Patient was treated with oral Trimethoprim with Sulfamethoxazole twice daily. Oral Methylprednisolone 16mg 3
times/ day was given after 2 days of starting of antibiotic & tapered over 3 weeks. Antibiotic treatment was given for
7 days. 1mg of Vitamin- B12 was given orally for 3 week.
On first follow up after 1 week, BCVA improved to 20/40 in the OS. Ptosis was reduced and ocular movements
were restricted only in extreme gazes. On OCT, size of the hyperreflective patch was decreased (figure- 2).

![OCT image showing decreased size of hyperreflective patch after 7 days of treatment](image2)

On follow up after 2 weeks, BCVA was 20/30 in left OS. There was no ptosis. Ocular movements were full and free
in all directions. The patch was almost resolved in OCT (figure- 3).
DISCUSSION

Cranial nerve involvement may occur in toxoplasmosis. The optic nerve involvement in the presence of a distant active retinochoroiditis has already been discussed in a study by Eckert et al. The involvement of optic nerve may bias the clinician to think about permanent and severe loss of vision. However, after treatment and healing of lesion vision improves significantly. The final visual acuity depends on location of lesion and not on the involvement of optic nerve. In this patient both the 2nd and 3rd cranial nerve was involved. Darrell W et al. in their study of 4 patients with atypical ocular toxoplasmosis showed that it was needed to include toxoplasmosis in the differential diagnosis of any patients presenting with optic neuritis. In addition, they suggest the importance of carefully testing patients with peripheral toxoplasmosis chorioretinitis for a Marcus-Gunn pupillary response to rule out concomitant occult optic nerve involvement. This patient also had RAPD, hence MRI was advised for optic nerve evaluation.

Ocular toxoplasmosis may occur in either a congenital or acquired form. Clinically, the ocular lesion in either form usually presents as a focal necrotising chorioretinitis. Headache with blurring of vision may be the presenting features in this disease. Diagnosis of ocular toxoplasmosis is almost always clinical and serum antitoxoplasma antibody titres can be supporting aid to the clinical diagnosis. In case of doubt patient may be evaluated for the presence of toxoplasma genomic sequences, using PCR technique. Antibodies titres are measured in aqueous humor and serum and Goldman Witmer (GW) co-efficient is calculated. A combination of PCR and Goldman Witmer (GW) co-efficient of antibody titres in aqueous or vitreous has high degree of sensitivity and specificity. In this patient Goldman Witmer co-efficient was not estimated, but PCR of aqueous humor was positive for toxoplasma. Antibody detection and characterization differentiates recently acquired and chronic infections (immunoglobulin [Ig] M and IgG respectively). Anti-Toxoplasma IgG titers present a 4-fold increase that peak 6–8 weeks following infection, then decline over the next 2 years, but remain detectable for life. Serum IgM titre was not raised in this patient, but serum IgG was raised. Hence PCR played an important role for diagnosis. To exclude ocular tuberculosis mandatory investigations including hemogram, ESR, Mantoux test and radiological imaging such as chest X-ray/CT scan should be done. In this patient ESR was raised but Montoux test was negative.

Active toxoplasmic lesions have shown 3 main OCT characteristics: (i) A highly reflective intraretinal area corresponding with the area of retinitis. (ii) A posterior hyaloid thickened and detached over the lesion and contained irregular hyperreflective formation. (iii) A shadow effect of the underlying choroidal tissue. In this patient hyperreflective patch was found. The MRI findings of optic neuritis, retinochoroiditis, and multiple enhancing lesions in the brain can be used in diagnosis of ocular and cerebral toxoplasmosis. In this patient MRI showed features of optic neuropathy.

An ideal combination that destroys tissue cysts and prevents recurrence has not been found as current therapies are targeted only on trophozoites. Treatment regimen consisting of a sulfonamide and a non-sulfonamide with systemic
steroids and folic acid supplements is preferred. In patients with sulfa allergy, clindamycin and azithromycin are suitable alternatives. In this case patient was treated with systemic steroid, sulfamethoxazole and trimethoprim.

CONCLUSION

It’s a rare case of toxoplasma choroiditis with involvement of 2nd and 3rd cranial nerve. Cranial nerve involvement in ocular toxoplasmosis may lead to gross diminuation of vision and ocular motility disorders. Complete recovery is possible after timely appropriate treatment.

REFERENCES