·Clinical Research·

Ocular toxoplasmosis in Iran: 40 cases analysis

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Abstract

• AIM: To report ocular symptoms, funduscopic findings and demographic distribution of ocular toxoplasmosis in Iran

• METHODS: In this cross-sectional study, a total of 40 patients with ocular toxoplasmosis (24 female, 16 male) were enrolled. The distribution of symptoms and funduscopic findings were studied.

• RESULTS: The patients' age was in the range of 13-52 with the most common age of 19 years old. Twenty-four patients were female (60.0%). The most common presenting sign was visual loss. There was anterior chamber (AC) inflammation in 23 patients (57.5%). Vitritis was presented in 36 patients (90.0%). In 35 patients (87.5%), the retinal lesion was central. In patients with peripheral lesion, 3 patients (60.0%) had flashing *vs* 12.5% chance of flashing in all patients. Older patients had larger lesion (P =0.04).

• CONCLUSION: Ocular toxoplasmosis substantially varies among patients with different age, gender, status of immunity, site of lesion and other undetermined factors. One of ocular symptoms, flashing, may necessitate a more precise peripheral fundus examination.

• KEYWORDS: ocular toxoplasmosis; iran; clinical finding; flashing; inflammation; symptom
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INTRODUCTION

Ocular toxoplasmosis probably is the most prevalent form of infectious posterior uveitis in the world [1,2]. The vision may devastatingly decreased in ocular toxoplasmosis because of frequent involvement of macula [3-5]. There is increasing evidence that ocular toxoplasmosis may be considered as an acquired condition involving the eye, although this disease has been considered as the reactivation of a congenital infection for a long time [6,7]. *Toxoplasma gondii* may be in a latent state as tissue cysts. This can occur in various organs, and one of them is the eye. This tissue cyst can occur as a chorioretinal scar, therefore leading to a new infection. Usually, ocular toxoplasmosis can be diagnosed because of typical features [8]. Ocular toxoplasmosis may manifest by different symptoms, such as visual loss, floater or flashing. Intraocular inflammation is a common feature of ocular toxoplasmosis; it may be expressed as anterior cells and flare, vitreous cells and haze. Severity of these inflammatory reactions varies considerably between patients.

MATERIALS AND METHODS

Subjects Forty (24 female, 16 male) patients enrolled in the study. The diagnosis was made according to the clinical picture at presentation. For each patient, we performed total ophthalmologic examinations; and the diagnosis of all was made based on clinical characteristics consistent with *Toxoplasma gondii* retinochoroiditis (foci of retinal necrosis), in the absence of other identifiable diseases, by one ophthalmologist who is working in retina and vitreous. A lesion was considered to be central if located within the major arcades or located within one disc diameter of the optic disc; and outside the arcades, considered peripheral lesion. Patients with acquired immunodeficiency syndrome (AIDS) were excluded, because it may affect clinical presentation of the disease (see below). The presence of anterior chamber and vitreous inflammation was studied according to the SUN Working Group Grading system for anterior chamber cells and vitreous haze[9]. The frequency of floater and flashing was studied in all patients. This study follows the limitations of the declaration of Helsinki. For all patients, all data were documented before treatment.

Methods We review clinical findings of 40 patients meeting inclusion criteria. All subjects were studied in a consecutive cross-sectional research.

Statistical Analysis Data were analyzed by SPSS 13 (SPSS Inc., Chicago, IL, USA). Chi-square test and *t* test were used for the quantitative and qualitative data, respectively. $P<0.05$ were considered statistically significant.

RESULTS

We studied 40 (24 female, 16 male) patients. The age range of patients was 13-52 years with a mean age of 24.3±11.7 years, and the age 19 was more common. The age distribution of patients was showed in Table 1. The presenting symptom was visual loss in 36 patients (90.0%) and floater in 4 patients (10.0%), but during the overall process of the ocular disease, visual loss was present in 36 patients (90.0%), floater was present in 14 (35.0%) and 5 patients had flashing (12.5%)(Table 2).

There was inflammation in anterior chamber in 23 patients (57.5%). Vitritis was present in 36 patients (90.0%)(Table 2).

There was only one lesion in all patients. In 35 patients (87.5%), the retinal lesion was central; and 5 patients had peripheral lesion (12.5%). (Table 2) In patients with peripheral lesion, 3 patients (60.0%) had flashing vs 12.5% chance of flashing in all patients. The size of lesion was <1 disc diameter (DD) in 12 (30.0%), 1-2 DD in 23 (57.5%), 2-3DD in 4 (10.0%) patients, and only one patient had the lesion larger than 3 disc diameter (3.5 DD) (Table 3). There was a relationship between the size of lesion and age of patient; patients older than 50 had a higher chance of having larger lesions. So older patients had larger lesion ($P=0.04$) .

Table 1 Age distribution of patients

Age group	Number of patients
11-20	18(45.0%)
21-30	16 (40.0%)
31-40	3(7.5%)
41-50	-
51-60	3(7.5%)

Table 2 Demographic and medical data of the patients SD=Standard Deviation ,AC =Anterior Chamber

Age	
Mean ± SD	24.3±11.7
Median (Range)	21(13-52)
Gender	
Male	16(40.0%)
Female	24(60.0%)
Symptom	
Visual loss	36(90.0%)
Floater	14(35.0%)
Flashing	5(12.5%)
Ocular inflammation	
AC inflammation	23(57.5%)
Vitreous inflammation	36(90.0%)
Location	
Central	35(87.5%)
Peripheral	5(12.5%)

Table 3 Distribution of lesion size.

Size of lesion	Number of patients
< 1 DD	12(30.0%)
1-2 DD	23(57.5%)
2-3 DD	4(10.0%)
≥3 DD	1(2.5%)

DISCUSSION

We performed a cross-sectional study that studied presenting symptoms, anterior chamber and vitreous inflammation and fundus lesions. The most common presenting symptom was visual loss. Scherrer *et al* [10] demonstrated that even in quiescent stage, visual impairment on standard automated perimetry was present in >94% eyes; in contrast, reduced visual acuity loss was present in a significantly lower proportion of the patients. It shows that visual loss may be present in many patients. However, we did not perform perimetry for our patients. Toxoplasmosis is an endemic disease in most countries of the world, with large population involved especially young adult population [2,5].Ocular toxoplasmosis probably is the most prevalent form of infectious posterior uveitis in the world [1]. The disease can lead to devastating visual impairment.

It is usually believed that patients remain infected with this parasite for the entire of life with intracellular cysts forming in the muscles, brain, eye and other organs. It has been demonstrated that about 2% of persons infected with T. gondii have symptoms and signs of ocular toxoplasmosis in USA [11]. Nearly 0.2%-0.7% of patients infected with this parasite develop symptomatic ocular toxoplasmosis annually [1].

In our study, ocular toxoplasmosis was more prevalent in female sex (60.0%), which was compatible with some other studies [11,12]. In other studies, it was obvious that elderly patients have larger lesions than that of general population [12,13]. In our study, there was also a relationship between the size of the lesion and age of patient. We can explain this fact by more and more recurrence of ocular toxoplasmosis that makes the scar larger, but it may not be true, because the active lesion is larger in this age group, so we can explain it by waning immunity in elderly [12,13]; Holland [14,15] stated that older patients who are recently infected with the parasite may have a higher chance of ocular involvement and more severe ocular disease. Our

study showed that most patients (87.5%) had ocular lesion in the posterior pole, which was in agreement with other authors [6,16]. There was an interesting point; flashing was more common in peripheral lesion (P=0.009) and in the presence of flashing, one of differential diagnosis may be ocular toxoplasmosis especially peripheral lesion.

Ocular toxoplasmosis was more common among young patients; as in our study, the mean age was 24.6 and the most frequent age was 19. This fact was also demonstrated by other reports [5]. All of our cases were unilateral. If we accept that bilateral involvement is more prevalent in congenital cases, we can conclude that acquired toxoplasmosis is more common in our population. There was inflammation in both anterior chamber and vitreous. Consistent with other studies, presence of anterior chamber inflammation was related to vitreous inflammation (P = 0.002) [13]. Dodds *et al* [13] in a cross-sectional study, suggested that increased ocular inflammation in ocular toxoplasmosis was associated with larger retinal lesions, extramacular location, and older patient age; however, in our study the grading of ocular inflammation was not documented at that time.

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