A CLINICAL STUDY OF INTERMEDIATE UVEITIS IN A TERTIARY EYE CARE CENTRE

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ABSTRACT

BACKGROUND

Intermediate Uveitis also known as pars planitis essentially affects the pars plana of ciliary body and periphery of choroid. It occurs particularly in young adults with female predominance. Determining the aetiology of intermediate uveitis is one of the most difficult problem in curing the patient. This is a study of presentation, progression and follow up of a group of people diagnosed as intermediate uveitis, seeking medical care in south Indian population.

MATERIALS AND METHODS

A prospective study was done to identify the pattern of uveitis in a uveitis clinic population of a major referral centre in South India. A total number of 25 patient and 30 eyes were followed from January 2016 to April 2017. A standard clinical protocol, laboratory investigations, were used for the final diagnosis. A standard treatment protocol was followed and patients were reviewed accordingly.

RESULTS

There were 13 female and 12 male patients. Mean age of presentation was 29 ± 3.6 years (with a range of 10–47 years). Among the 25 patient 15 were bilateral rest being unilateral. Among the cases 3 presented with grade 1 vitritis, 15 with grade 2 vitritis, 5 with grade 3 vitritis and 2 with grade 4 vitritis. Snowballs were seen in inferior quadrant of 7 patients. Among the 25 cases, 10 had ocular tuberculosis, 6 had sarcoidosis, 2 had multiple sclerosis and 7 diagnosed to be pars planitis. All cases were given specific treatment according to their aetiology. In idiopathic cases periocular injection of triamcinolone was instituted.

CONCLUSION

Intermediate uveitis is a potentially vision threatening condition because of its chronic course and complications if appropriate therapy is not instituted. Thorough investigations to find out the underlying aetiology should be performed to institute cause specific treatment.

KEYWORDS

Intermediate Uveitis, Periocular Steroids, Ocular Tuberculosis.


BACKGROUND

Intermediate uveitis is an intraocular inflammation involving the anterior vitreous, peripheral retina and pars plana.¹ It usually affects patients from 5 to 30 years old, without gender or racial preferences. It can be caused by both infectious and non-infectious factors like multiple sclerosis, autoimmune diseases, sarcoidosis, tuberculosis and Lyme disease. The diagnostic term pars planitis is used for the condition where vitreous reaction with snow balls and snow banking are present but all the underlying etiological factors have been ruled out.² Symptoms are blurring of vision, floaters and distortion of central vision. The vitreous reaction may be typically associated with snowballs and retinal snowbanking.³ The condition is bilateral in 80% of the patients and may become chronic with periods of exacerbation and remission. Cataract and glaucoma are frequent complications. A patient with intermediate uveitis should be thoroughly investigated to clinch the underlying cause and appropriate treatment should be instituted. Though steroids are the main stay of therapy, institution of cause specific treatment helps us to control recurrence of inflammation. The long-term prognosis of intermediate uveitis is usually good, particularly with strict control of inflammation and with proper management of complications.
Purpose
The main aim of this study is to document the clinical characteristics of patients with intermediate uveitis in South Indian population.

MATERIALS AND METHODS
This study was conducted in Uvea and Retina services of Regional Institute of Ophthalmology and Government Ophthalmic hospital, Egmore, Chennai from January 2016 to April 2017. A total of 25 patients diagnosed as intermediate uveitis (according to the International Uveitis Study Group) were included in this study.

Inclusion Criteria
1. Patients above the age of 18 years.
2. Patients with a minimum of 2 months of follow up following treatment.

Exclusion Criteria
1. Patients with an evidence of an active chorioretinal patch or an old scar or patients with a prominent anterior chamber granulomatous inflammation.
2. History of any intraocular surgery in the recent past.

Methodology
After obtaining Informed consent from all patients included in our study, they underwent a complete ophthalmological examination— uncorrected and Best Spectacle corrected visual acuity, intraocular pressure measurement with Goldmann applanation tonometry and a detailed anterior segment examination with a slit lamp. Fundus evaluation was done by slit lamp bio microscopy with a +90 D lens and indirect ophthalmoscopy Routine blood investigations were done. All patients of presumed tuberculous aetiology underwent Mantoux skin testing, complete blood count with erythrocyte sedimentation rate, chest X-ray and quantiferon gold TB testing when necessary. Patients suspected of sarcoidosis underwent serum ACE levels with chest imaging. Specific investigations pertaining to the aetiology was done for appropriate cases. Fundus fluorescein angiography and optical coherence tomography were performed when necessary to rule out any evidence of cystoid macular oedema and presence of epiretinal membrane respectively. B scan Ultrasound was also done in patients when required. Monitoring and follow up of patients was documented by taking serial fundus photographs of patients using Kowa VX 10 along with routine fundus examination to document the resolution of vitritis and vitreous exudates. A Pulmonologist opinion was obtained for all patients with Chest X ray and Tuberculin skin testing to rule out any evidence of pulmonary or extra pulmonary tuberculosis. Physician opinion was also obtained when necessary. Presence of vitreous cells with predominance in the anterior vitreous phase, with vitreous condensation with snowball and snow banking was considered as evidence of active vitritis. The grading of vitritis was done as shown in Table 1.

Follow Up
The Best Spectacle Corrected Visual Acuity and the presence and absence of inflammation were assessed while on treatment and after completion of the regimen. Patients were reviewed every month.

RESULTS
The mean age of presentation is 29 years with a standard deviation of 3.6 years. 13 females and 12 males were included in the study. 40 eyes of 25 patients were included in the study.

Among them, 9 cases have BCVA less than 6/60 of which nearly 7 were less than 3/60, 14 cases have BCVA ranging from 6/24-6/12/60 and 2 cases presented with 6/9 vision.

On confirmation of diagnosis all patients were started on specific treatment along with Posterior Subtenon injection (PST) of triamcinolone. Repeat injections were performed when necessary after clinical assessment. When patients showed poor response to injection PST, those patients were started on oral prednisolone, 1 mg/kg body weight.

The mean intraocular pressure measured by applanation tonometry is 12 mmHg (range 11 – 14 mm hg).

Commonest symptom was reduction in vision which was seen in 80% of the patients and was the commonest symptom. Other symptoms included floaters 48% and redness and pain in 16%. Vitritis was the commonest sign and it was present in 100% of the patients. The anterior segment findings are minimal and present in 44%. These patients had various features such as circumcorneal congestion, keratic precipitates behind cornea, few cells and flare in anterior segment and posterior synechiae.

<table>
<thead>
<tr>
<th>Haze Severity</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good view of nerve fibre layer (NFL)</td>
<td>0</td>
</tr>
<tr>
<td>Clear disc and vessels but hazy NFL</td>
<td>+1</td>
</tr>
<tr>
<td>Disc and vessels hazy</td>
<td>+2</td>
</tr>
<tr>
<td>Only disc visible</td>
<td>+3</td>
</tr>
<tr>
<td>Disc not visible</td>
<td>+4</td>
</tr>
</tbody>
</table>

Table 1. Grading of Vitreous Haze

Graph 1

The mean intraocular pressure measured by applanation tonometry is 12 mmHg (range 11 – 14 mm hg).
Among the 25 patients, 3 cases presented with grade 1 vitritis, 15 cases with grade 2 vitritis, 5 with grade 3 vitritis and 2 with grade 4 vitritis as assessed through 90 D under slit lamp biomicroscope.

**Table 1. Clinical Features of our Study Population**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defective vision</td>
<td>20 (80%)</td>
</tr>
<tr>
<td>Floaters</td>
<td>12 (48%)</td>
</tr>
<tr>
<td>Redness</td>
<td>4 (16%)</td>
</tr>
<tr>
<td>Vitritis</td>
<td>25 (100%)</td>
</tr>
<tr>
<td>Snowballs</td>
<td>7 (28%)</td>
</tr>
<tr>
<td>Snow banking</td>
<td>4 (16%)</td>
</tr>
<tr>
<td>AC Reaction</td>
<td>11 (44%)</td>
</tr>
</tbody>
</table>

Among the 25 cases, 10 cases were due to presumed intraocular tuberculosis. They were diagnosed based on the following criteria- a) Mantoux test positive >10 mm b) history of contact with tuberculosis with or without raised ESR c) previous history of pulmonary or extrapulmonary tuberculosis d) positive quantiferon gold TB test d) microbiological evidence of tuberculous acid fast bacilli or PCR positivity for IS 6110 gene or other appropriate genes. These patients were started on anti-tuberculous therapy along with tapering doses of oral steroids. Six patients were positive for sarcoidosis, they were diagnosed in accordance with International Workshop On Sarcoidosis (IWOS) criteria. These patients were instituted on initial systemic steroid therapy and injection PST. 2 patients did not respond to steroid therapy and had to be put on immunosuppressive therapy. 2 patients were found to have demyelinating plaques on T1 weighted MRI in the periventricular region and were diagnosed as multiple sclerosis. Both patients were females and were put on immunosuppressive therapy. The remaining seven patients were investigated thoroughly and all underlying systemic and ocular etiological factors were ruled out and were grouped under idiopathic or pars planitis type.

**Table 2. Etiological Factors of Intermediate Uveitis**

<table>
<thead>
<tr>
<th>Factor</th>
<th>No. of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis</td>
<td>10 (40%)</td>
</tr>
<tr>
<td>Sarcoidosis</td>
<td>6 (24%)</td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>Idiopathic or pars planitis</td>
<td>7 (28%)</td>
</tr>
</tbody>
</table>

Visual prognosis as seen through best spectacle correction, in patients after two weeks of treatment found to have improved up to 6/6. Reduction of vision following several weeks of treatment might be due to steroid induced cataract and glaucoma.

**COMPLICATIONS**

Among the 25 patient, 5 developed complicated cataract and 13 developed macular oedema. Raised intraocular pressure was seen in one patient.
DISCUSSION
In our study, the term intermediate uveitis as suggested by International Study of Uveitis Group, is used to classify patients with intraocular inflammation predominately involving the vitreous and peripheral retina. Intermediate uveitis in South Indian patients showed high incidence of infectious and idiopathic causes in contrast to other study. Among these patients 28% of cases fulfilled the criteria for the term pars planitis which according to Standardization of Uveitis Nomenclature (SUN) working group is the subset of IU where there is snowbank or snowball formation occurring in the absence of an associated infection or systemic disease. Like in our study many researchers have noted that intermediate uveitis is common in young adults with mean age group of 29 ± 3.6 years. In developed nations intermediate uveitis is usually idiopathic. Contrast to India where tuberculosis is common, intermediate uveitis patients included in our study suffered from infectious diseases predominates the aetiology. Among the infectious causes tuberculosis occurs in 40% of cases of intermediate uveitis. diagnosed based on following criteria a) Mantoux test positive >10 mm b) history of contact with tuberculosis with or without raised ESR c) previous history of pulmonary or extrapulmonary tuberculosis d) positive quantiferon gold TB test d) microbiological evidence of tuberculous acid fast bacilli or PCR positivity for IS 6110 gene or other appropriate genes. These patients were started on anti-tuberculous therapy along with tapering doses of oral steroids. About 24% of cases had sarcoidosis depending on the criteria of International Workshop on Ocular Sarcoidosis (IWOS) which includes (1) mutton-fat keratic precipitates (KPs)/small granulomatous KPs and/or iris nodules (Koepppe/Busacca), (2) trabecular meshwork (TM) nodules and/or tent-shaped peripheral anterior synechiae (PAS), (3) vitreous opacities displaying snowballs/strings of pearls, (4) multiple chorioretinal peripheral lesions (active and/or atrophic), (5) nodular and/or segmental peri- phlebitis (± candle wax drippings) and/or retinal macroaneurism in an inflamed eye, 6) optic disc nodule(s)/granuloma (s) and/or solitary choroidal nodule, and (7) bilaterality and laboratory findings were (1) negative tuberculin skin test in a BCG-vaccinated patient or in a patient having had a positive tuberculosis skin test previously, (2) elevated serum angiotensin converting enzyme (ACE) levels and/or elevated serum lysozyme, (3) chest x-ray revealing bilateral hilar lymphadenopathy (BHL), (4) abnormal liver enzyme tests, and (5) chest CT scan in patients with a negative chest x-ray result. Among these 3 of the above intraocular signs and 2 positive laboratory tests, the condition was labelled as probable ocular sarcoidosis and treated with systemic steroids. Non responders are treated with cyclosporine and other immunosuppressants. In our study 8% of cases had multiple sclerosis presenting with optic neuritis in 50% of cases, and demyelinating plaques on T1 weighted MRI in the periventricular region. Peribulbitis in multiple sclerosis is a particular indication of intermediate uveitis. HLA association has been identified in patients with multiple sclerosis and intermediate uveitis. Uveitis associated with multiple sclerosis is treated with corticosteroids and immunosuppressants. Interferon may have beneficial effect on uveitis associated with this condition. Cases diagnosed as Idiopathic or pars planitis after ruling out all ocular and systemic factors were treated with periocular injection, posterior subtenon injection of triamcinolone 40 mg in 1 ml. Periocular injections are repeated in 4-12 weeks interval, giving a series of 2-4 injections before declaring it as ineffective. Intermediate uveitis patients included in our study suffered from complications such as cystoids macular oedema, cataract, glaucoma, epiretinal membrane formation and retinal detachment. Cataract and glaucoma complication might be due to intermediate as such or its treatment. Cystoids macular edema is treated with intraocular or intravitreal injection of triamcinolone 2 mg.20 Cataract is managed with phacoemulsification with posterior chamber intraocular implantation. Glaucoma complications are treated with antiglaucoma drugs. Despite of complication, intermediate uveitis had overall good visual prognosis.

CONCLUSION
Intermediate uveitis is a potentially vision threatening condition because of its chronic course and complications if appropriate therapy is not instituted. Thorough investigations to find out the underlying aetiology should be performed to institute cause specific treatment. Patients should be kept on regular follow up for adequate management and early identification of complications and
treatment. Prompt therapy will alleviate the clinical course of the disease and improve visual outcome in patients.

REFERENCES