Original Article

Intermediate Uveitis: Causes and Systemic Associations

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Purpose: The purpose of this study was to analyze the patients for the etiologies/ systemic associations of intermediate uveitis (IU) at a single center.

Study Design: Descriptive case series.

Place and Duration of the Study: Department of Ophthalmology, Hayatabad Medical Complex, Peshawar From 1st August 2010 to 31st July 2012.

Materials and Methods: Data collected included demographics such as gender, age at presentation, complete ocular examination including intraocular pressure. Systemic examination including central nervous, respiratory, gastrointestinal and cardiovascular systems was also performed. Relevant investigations such as full blood count (FBC) with erythrocyte sedimentation rate (ESR), syphilis serology (Venereal Disease Research Laboratory (VDRL) test), Rheumatoid Factor (RF), antinuclear antibodies (ANA), Toxoplasma antibodies (IgM, IgG), Mantoux test and chest x-rays with radiology report were performed. SPSS version 16 was used for data analysis.

Results: The study included 21 eyes of 21 patients with IU. Mean age of patients was 34.7 years with male to female ratio of 15:6. The disease was bilateral in 6 patients (28.6%). Nineteen cases (90.5%) were idiopathic with no systemic association. Two patients (9.5%) with IU were diagnosed with tuberculosis.

Conclusion: Infectious causes must be ruled out in all cases of IU.

Key words: Intermediate uveitis, systemic associations, tuberculosis.

Intermediate uveitis (IU) is defined as uveitis in which vitreous is the major site of inflammation with or without peripheral vascular sheathing and macular edema[1]. The International Uveitis Study Group (IUSG) described IU to be an idiopathic inflammatory syndrome which mainly involves the anterior vitreous, ciliary body and peripheral retina with minimal or no anterior and chorioretinal signs[2]. The incidence is similar in both genders with no racial predilection[3]. It can affect any age group but is commonly found in third and fourth decades[3]. Diagnosis of IU is usually clinical. Patients usually present with decreased visual acuity and/or floaters. There is no pain, redness or photophobia. There are vitreous cells which outnumber anterior chamber cells and pars plana exudates.

Usually IU is less commonly associated with a systemic disorder and most of the cases remain idiopathic[2,4-5]. However, with laboratory investigations and ancillary tests we may exclude an associated disorder. It has got associations with systemic infectious diseases such as tuberculosis, syphilis, HTLV-1, toxocariasis, sarcoidosis and multiple sclerosis[6]. Cause and any systemic association need to be determined for proper management. Incomplete or improper management is associated with higher incidence of ocular complications. Proper management is required to save vision as well as life of the patients. That's why we conducted this study to reach to any cause or systemic association for proper vision and life saving management.

MATERIALS AND METHODS

This descriptive case series was conducted at Ophthalmology department of Hayatabad Medical Complex from 1st August 2010 to 31st July 2012. The diagnosis of IU was made clinically and its systemic associations were investigated according to standard criteria described by the Standardization of Uveitis Nomenclature (SUN) Working Group[1]. All patients underwent standardized thorough clinical history, complete ophthalmological examination with systemic review, laboratory and radiological investigations. Laboratory investigations included full blood count (FBC) with erythrocyte sedimentation rate (ESR), syphilis serology (Venereal Disease Research Laboratory (VDRL) test), Rheumatoid Factor (RF), antinuclear antibodies (ANA), Toxoplasma antibodies (IgM, IgG) and Mantoux test and chest x-rays with a radiology report. Cases of IU without a specific systemic disease were labeled as idiopathic. More than +3 vitreous cells were described as severe vitritis.

Data included gender, age, eye/eyes affected, clinical ocular & systemic examination, chest x-rays findings and laboratory investigations. Medical history and other systemic co-morbidities were also recorded.

IU in both genders with age 16 years or more with best corrected visual acuity of less than 6/12 on Snellen's visual acuity chart were included in the study. Patients with anterior uveitis, posterior uveitis and pan uveitis were excluded from the study. Patients who fulfill the inclusion criteria were selected in this study via OPD. After the approval of the study by ethical board, informed consent was taken from all patients. SPSS version 16 was used for data analysis.

RESULTS

Table 1:

Total Number of Patients (n)	21
Mean age (years)	34.7 (min.17, max. 60, SD ± 1.07)
Male versus Female	15 versus 6 (71.4% VS 28.6%)
Laterality at initial presentation	Unilateral: 15 (71.4%)
	Bilateral: 6 (28.6%)

N = number, Min = minimum, Max = maximum, % = percentage

The Demographic data is given in table 1. Nineteen patients (90.5%) had idiopathic disease. The systemic examination and laboratory work up was unremarkable in these patients. Two patients (9.5%) had pulmonary tuberculosis based on chest X-rays and positive Mantoux test of 15 mm induration. They had presenting best corrected visual acuity of 1.30 log MAR (Snellen equivalent: 6/120) in comparison to 1.00 log MAR (6/60) in idiopathic cases which is statistically significant ($p < 0.05$). The disease was bilateral in both cases. They had severe vitritis with snow balls, macular edema and peripheral retinal periphlebitis. There were no choroidal lesions which are associated with intraocular tuberculosis.

DISCUSSION

Usually IU is autoimmune in nature in the developed world while the situation in developing countries is different[7]. There is limited data of infectious associations especially tuberculosis with IU in the developed world[8-10]. In our study tuberculosis was main association which is consistent with our high tuberculosis incidence rate. We had 9.5% of cases with tuberculosis as etiology of IU which is higher than Japan and USA with an incidence of 6.9% and 7.0% respectively[5,11]. A study by Parchand et al showed an association of 46.7% with tuberculosis in IU[7]. A local study also showed association with tuberculosis[12].

In our study tuberculosis associated IU has similar incidence in both gender with a ratio of 1:1. Both patients with tuberculosis associated IU presented in their 4th decades with a positive family history of tuberculosis. This could be due to the living conditions and low socioeconomic status of our study population. Tuberculosis associated IU presented with worse mean best corrected visual acuity than idiopathic cases. This could be due to associated macular edema. Peripheral periphlebitis usually occurs with multiple sclerosis[13]. We experienced its occurrence in our cases associated with tuberculosis. None of the idiopathic cases had periphlebitis. Tuberculosis association with posterior uveitis (choroiditis) or panuveitis is more common than with IU in international studies[14-18].

In endemic areas like Pakistan, tuberculosis should be excluded as a cause of IU. Many ophthalmologists may not routinely investigate these patients for tuberculosis which can lead to prolonged disease course with frequent recurrences. Significant reduction in recurrences of tuberculosis associated IU can be achieved by prompt diagnosis & treatment. It

should be a multidisciplinary approach to treat IU by ophthalmologist, infectionists & immunologists with uveitis experience for better management, prognosis and course of the disease.

Multiple sclerosis has a strong association with IU in the Western population[19-20]. But in our study no systemic findings warrant MRI or CSF analysis. We did not perform MRI for patients with uveitis keeping in mind the low prevalence of multiple sclerosis in our population. ANA & RF were negative in all patients.

In our study most cases were idiopathic like other studies in Asia & Western countries. The prevalence of idiopathic IU is 70 – 90% in Africa, Europe and USA[11, 18-21]. In spite of using all the investigating tools for systemic associations, there is still commonly a local pathological process than systemic in IU. With improved newer diagnostic tools the proportion of idiopathic IU will be reduced[22].

Patients having visual acuity of < 0.3 logMAR (< 6/12 on Snellen's visual acuity chart) used to be usually treated[12]. Now more aggressive treatment is advocated. Various treatment options are local steroids (periocular or intravitreal), oral steroids, immunomodulatary therapy, cryotherapy or indirect laser photocoagulation to peripheral affected retina, pars plana vitrectomy with induction of posterior hyloid separation and peripheral laser photocoagulation to pars plana snow banks.[12] Periocular injections are the preferred route of treatment[12]. Intravitreal triamcinolone acetonide (IVTA) is used to treat inflammation and cystoid macular edema associated with IU which achieves high vitreous concentration as compared to periocular route[23].

All our IU patients received IVTA. In addition to IVTA, IU patients having associated tuberculosis also received anti tuberculosis drugs for 9 months. They showed good response to anti tuberculosis drugs with vitreous activity reduction to < +1 cells and resolution of macular edema at final follow up visit at 120th day of starting treatment. Peripheral peribhlebitis also showed resolution.

Our study has limitations due to small sample size of patients. Secondly, referral bias as we got all these patients from certain specific areas which didn't show the true population representation. The strong thing is that we got patients from all ethnic groups to our tertiary care teaching hospital. However the results of our study were comparable with the studies in other part of our region or the world which is quite significant.

CONCLUSION

It is recommended that in endemic areas like Pakistan, high vigilance should be done to find out the infective causes of IU especially tuberculosis. This will prevent visual loss associated with systemic disease recurrences and decrease the disease burden, morbidity and cost of management.

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