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Aetiological Study of Anterior Uveitis in a Tertiary Hospital in Assam

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Abstract: ***Aim: To determine the clinical presentation and aetiology of anterior uveitis. Methods: This cross sectional observational study was conducted among 71patients below 20 years of age, attending the ophthalmology outpatient department of Assam Medical College & Hospital, between June, 2016 to May, 2017. Results: Acute, unilateral, nongranulomatous presentation were more common. Males were predominantly affected. Majority cases were idiopathic followed by HLA B_{27} associated uveitis, herpetic uveitis, traumatic uveitis. Conclusion: Determination of aetiology of anterior uveitis is one of the most difficult problems in ophthalmology. A thorough history, physical examination and investigations are essential to reach a definite diagnosis.***

Keywords: Anterior uveitis, Assam, Idiopathic, HLA B27 associated uveitis, herpetic uveitis

1. Introduction

Uveitis is a complex intraocular inflammation, involving primarily the uveal tract[1] It is an important cause of visual impairment, accounting for almost 10% of all legally blind individuals in United States and about 25% in developing countries and leading to a significant personal and population burden.[2,3] The total population prevalence of uveitis varies globally with an estimated prevalence of 730 cases/1,00,000 in India.[4]

Anterior uveitis is the most common form of uveitis (accounts for 57.4%)[5]. Anatomically, anterior uveitis involves inflammation of the iris alone (iritis), anterior part of ciliary body (anterior cyclitis) or both structures (iridocyclitis).

Based on etiology[6] anterior uveitis is classified as infectious (viral, bacterial, fungal, protozoal), autoimmune with only ocular involvement or with systemic disease association (e.g. psoriasis, IBD,SLE, juvenile idiopathic arthritis) or presenting as masquerade syndrome. It can be post traumatic, post-surgical, lens induced and drug induced. Pathologically anterior uveitis is classified as granulomatous or non granulomatous based on nature of keratic precipitates.

Patients of anterior uveitis present with redness of eyes, photophobia, watering and blurred vision. Such are nonspecific symptoms and should be differentiated from other conditions like conjunctivitis, keratitis and acute congestive glaucoma.

Determination of aetiology of anterior uveitis is one of the most difficult problems in ophthalmology. The correct diagnosis of uveitis is often challenging as these patients present with a plethora of ocular as well as systemic signs and symptoms.

2. Methods

This prospective study was conducted among patients attending the out patient department and those who were admitted in the eye ward of Assam Medical College and Hospital, suffering from anterior uveitis from June 2016 to May 2017.

Inclusion Criteria

- All patients aged 20 years and above.
- Clinical examination suggestive of anterior uveitis (acute, chronic, recurrent)

Exclusion Criteria

- Age <20 years.
- Intermediate uveitis.
- Posterior uveitis.
- Uveitis developing postoperatively.
- Uveitis following penetrating ocular injuries.
- Sympathetic ophthalmitis.

Seventy one anterior uveitis patients who fulfilled the above mentioned inclusion and exclusion criteria were enrolled in this prospective study from June 2016 to May 2017. Necessary clearance from the Institutional Ethics Committee was taken, and informed consent were taken from all the study participants. A standard clinical proforma was filled in all cases, which included salient feature in history, visual acuity, clinical findings, laboratory investigations, and the final aetiology. Complete ophthalmic examination was performed in all cases, including best-corrected Snellen visual acuity, slit-lamp examination, applanation tonometry, and dilated fundus examination with +90D lens, direct ophthalmoscope and indirect ophthalmoscope. Patients were classified according to the International Uveitis Study Group System (IUSG).

The inflammation is considered acute if symptoms are present less than 3 months, chronic if it is more than 3 months, recurrent if the patient has two or more episodes of inflammation separated by a disease free interval. Anterior uveitis is defined granulomatous if large keratic precipitates, nodules at pupillary margin (Koeppe nodules) or nodules on or within the anterior iris stroma (Busacca nodules) are present.[7]

The anterior uveitis was considered to be idiopathic if it was not associated with human leucocyte B_{27} haplotype and neither with defined clinical syndromes nor with definite aetiology.[5]

The Mantoux test was selectively performed in cases that presented with clinical signs of uveitis suggesting intraocular TB, such as granulomatous uveitis. A skin induration of 15 mm or larger was considered as a positive result.

The diagnosis of herpetic uveitis was made based on the clinical findings of unilateral anterior uveitis with epithelial and/or stromal keratitis, decreased corneal sensation, and sectoral iris atrophy as previously reported.

Medical consultation and evaluation were requested to reach the final etiological diagnosis whenever systemic involvement was suspected.

Tailored laboratory investigations were carried out. Hb%, complete blood count, differential blood count, ESR, blood sugar level, urine and stool examination, VDRL test to detect syphilis, Mantoux test, ELISA for HIV, Rheumatoid Factor were done in all cases. Radiological investigations included X ray chest and lumbosacral joint. Other investigations like HLA-B27, ANA were considered whenever necessary.

RESULTS

The present study was conducted at Assam Medical College and Hospital, Dibrugarh for the period of 1 year from June 2016 to May 2017. In the present series, 71 cases of anterior uveitis were investigated and treated accordingly.

Table 1: Age wise distribution of patients

Age Group *(in years)*	Number *(n)*	Percentage *(%)*
20–29	13	18.31
30–39	32	45.07
40–49	15	21.13
50–59	7	9.86
60–69	2	2.82
>/=70	2	2.82
TOTAL	71	100.00
Mean ± S.D.	38.54 ± 12.32 years	

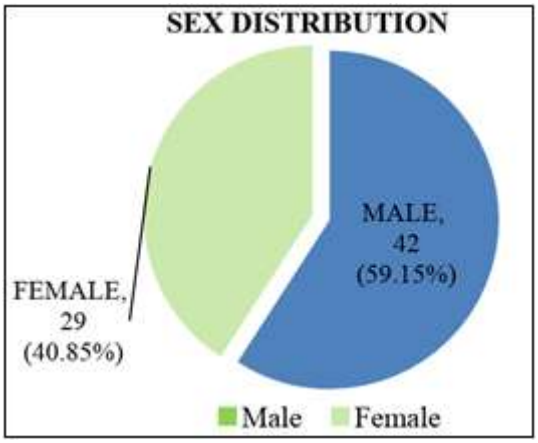

Figure 1: Sex distribution

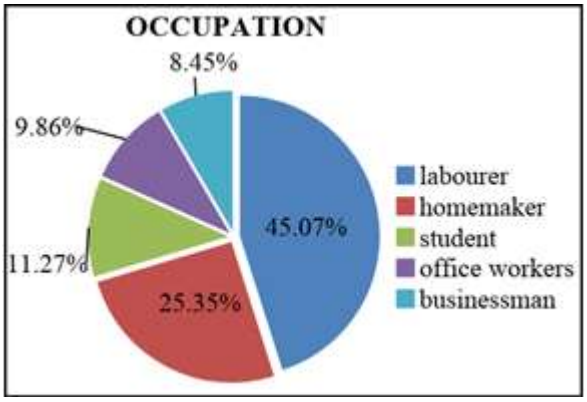

Figure 2: Occupation

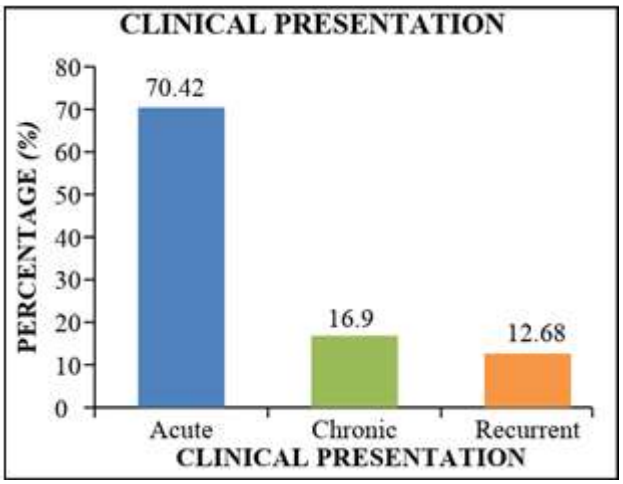

Figure 3: Clinical presentation

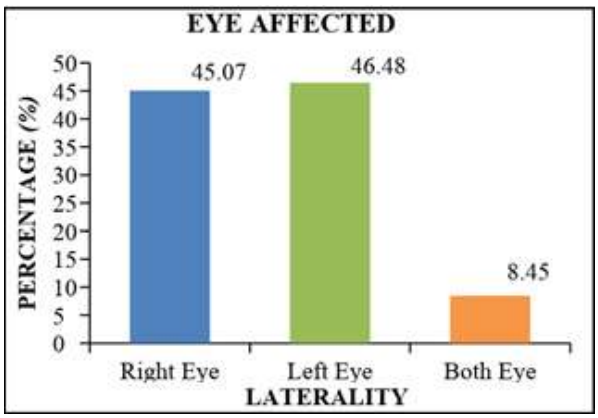

Figure 3: Laterality

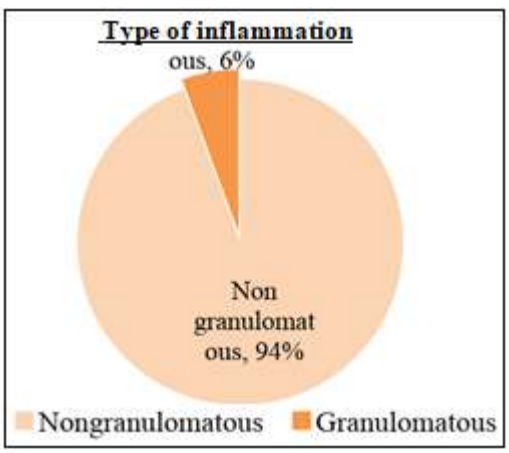

Figure 4: Type of inflammation

Table 2: Aetiology of anterior uveitis

Aetiology	Number *(n)*	Percentage *(%)*
Idiopathic	30	42.25
HLA B $_{27}$ associated iridocyclitis	15	21.12
Herpes infection	9	12.67
Blunt Trauma	7	9.86
Tuberculosis	3	4.23
Fuch's Heterochronic Iridocyclitis	1	1.41
Rheumatoid arthritis	1	1.41
Phacolytic uveitis	5	7.04

3. Discussion

In each community, the pattern of uveitis depends on multifactorial aspects of life and the demographic and ethnic factors prevalent in that period. These determine a definite geographical distribution of the pattern of uveitis.

In the present study, the maximum number of cases were observed in 30 – <40 years of age group (45.07%). Mean age is 38.54. Similar results were obtained other studies[8,9,10] like SR Rathinam[11] (2007) et al found mean age of presentation was 36.5 years in which elderly patients contributed to 7.3%. However a retrospective study conducted in Singapore, by Wai Jia Tan et al[12] (2005 – 2010) the mean age of presentation was 49.1± 16.6 years. It is evident from this study as well as from other studies that anterior uveitis is rare in old age and most prevalent in 3rd to 4th decade of life.

In our study, males were more affected (42 cases, 59.15%) as compared to females (29 cases, 40.85%) with a male : female ratio of 1.44 : 1. Similar results were shown by Rathinam et al[11] and others [12] [13],[14,15] while Rodriguez et al.[16] reported female preponderance. Thus, from our study, supported by observations of different authors, there was relatively low incidence in females, the cause of which is not definitely known but can be due to tendency of seeking medical attention by men more often than women in agricultural societies.[14]

Majority of patients came with unilateral involvement (91.55%). Many other studies found the similar findings.[11] [12] However there was no significant predilection for either the right eye or left eye. The most common presentation was acute (70.42%) followed by 16.90% chronic and 12.68% recurrent. Rathinam et al.[11] found in their study that 71.9% cases were acute, 24.3% cases were chronic and 3.8% cases were recurrent. Non granulomatous inflammation (94.37%) was predominantly found in our study.

In this present study 42.25% cases were idiopathic in nature which corresponds to other studies. The most commonly identified entity was HLA B_{27} associated anterior uveitis (21.12%). Dipankar Das et. al[17] reported 23.44% seronegative spondyloarthropathy in their study conducted in north east India.

In our study, most common infective cause was herpes (12.67%) which is comparable with Kumaraswami et al.[18] and Rathiram et al.[11] In our present study trauma was found in 9.87% of cases. 4.23% cases had tubercular anterior uveitis which is comparable with Rathiram et al.[11] and Singh et al[19] study whereas there are no data in Henderly et al.[10] study.

Herpes simplex infection, presenting as anterior uveitis or keratouveitis, diagnosed based on clinical features, was found to be the most common infectious cause of anterior uveitis in our series. The rate of herpetic uveitis in our patients (12.67%) is high compared to those found in previous reports.[20,21,22] It is unclear if this discrepancy is due to differences in the circulating virus's virulence, background immunity, or prevalence of other predisposing genetic or acquired conditions in the affected populations. Laboratory tests on aqueous humour aspirates, analysing antibodies against viruses HSV or VZV, or detecting viral particles using PCR, might be useful in diagnosing atypical presentations of HSV and VZV infections. Such laboratory tests could not be performed for our patients.

Traumatic uveitis is more common in developing nations as compared with developed countries. We observed a large number of cases of ocular inflammation related to trauma. The occupation, socioeconomic status, and quality of medical care most likely contribute to the high prevalence of traumatic uveitis. The use of protective eyewear for workers, which has been introduced in many Western countries, also needs to be introduced here to reduce the incidence of these preventable causes of uveitis.

TB is a rare cause of uveitis in our study. The reason for this phenomenon may be related to a limited sensitivity of the Mantoux test in patients with an active TB infection as well as patients with suppressed cellular immunity. Unfortunately, the newer TB tests that have a higher specificity, such as PCR for *Mycobacterium tuberculosis* or interferon gamma release assay, were not done in our study. Hence, it's worth mentioning that, in our study, inaccuracies involving ocular TB diagnosis as well as its under diagnosis are possible.

However, AIDS as an underlying cause of uveitis was not seen in our study.

4. Conclusion

Anterior uveitis mostly affects the male population aged between 30 and 40 years. A thorough history, physical examination and investigations are essential to reach a definite diagnosis. The most common aetiological factors for anterior uveitis are idiopathic followed by HLA B_{27} association, herpetic infection and traumatic. Perhaps, with the availability of much more sophisticated investigation like PCR (polymerase chain reaction), we could have arrived at definitive diagnosis in atleast a few more cases. Early diagnosis and prompt treatment results in good visual outcome whether chronicity and delay in therapy increases the risk of vision threatening complications.

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