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Demographic and Clinical Profile of Anterior Uveitis Patients Presenting in a Tertiary Eye Care Hospital

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Abstract

Introduction *- Anterior uveitis is referred as an inflammation of the iris and ciliary body. Anterior uveitis is the most common type of uveitis and frequently affecting young adults. Aim of this study was to evaluate the clinical presentation, etiology, pathological pattern, complications and treatment outcome of anterior uveitis in the Rewa district of Madhya Pradesh.*

Materials and Methods *- A Prospective, hospital based, interventional study was conducted on all anterior uveitis patients, treated at the Department of ophthalmology, S. S. Medical College, Rewa, Madhya Pradesh for the period of two years from January 2016 to December 2017.*

All patients aged 0-80 years that were treated for anterior uveitis are taken in consideration. Complete ophthalmic evaluation, necessary lab investigations and imaging were performed to establish the etiology. Demographic data, uveitis characteristics, pathological pattern, investigations, etiology, complications and the treatment outcome were collected for each patient. Patients of anterior uveitis with incomplete investigations, intermediate, posterior and panuveitis, postoperative uveitis, sympathetic ophthalmia, endophthalmitis and masquerade syndromes were excluded from study.

Results *- Present study included 212 patients over a period of two years (January 2016 to December 2017). Anterior uveitis affect most frequently in the 5th decade of life (33.96%). Majority of patients had non-granulomatous type of uveitis (73.11%). Etiology of anterior uveitis remained unknown (idiopathic) in 126 cases (59.43%). The most common etiology identify in present study is tuberculosis in 47 cases (22.16%) followed by syphilis in 8 cases (3.77%). The most common complication of anterior uveitis is complicated cataract 18 cases (8.49%) followed by secondary glaucoma in 8 cases (3.77%).*

Conclusion *- This study gives valuable information on clinical and demographic characteristics of anterior uveitis in resident of the Rewa, district of Madhya Pradesh.*

Keywords *- Anterior uveitis, Intermediate uveitis, Posterior uveitis, Panuveitis, Tuberculosis, Rewa District*

Introduction

Uveitis is a complex intraocular inflammatory disorder that resulted from multiple etiological factors. Anterior uveitis referred to inflammation of the anterior part of the uveal tract, viz iris and ciliary body.[1] The pattern of anterior uveitis influenced by personality, several geographic, demographic and ethnic factors and also shows variable changes over a period of time because of emerging and identification of new uveitic entities.[2-7] Uveitis is associated with ocular as well as many systemic disorders such as rheumatoid arthritis, idiopathic juvenile arthritis, ankylosing spondylitis, chrohn's disease, Reiter's syndrome, sarcoidosis, herpes simplex, herpes zoster, human immune virus, tuberculosis, leprosy and syphilis. Trauma and postoperative anterior uveitis were also common in clinical practice. Uveitis requires large number of investigations to establish primary etiology. Misdiagnosis of etiology is quite common in uveitis.[2-4]

The incidence of uveitis in developed countries has been estimated between 17 and 52 per 100 000 of population per

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year, and the prevalence as 38–714 cases per 100 000 of population.[2-7]

It is a major cause of severe visual impairment. The number of patients blind as a result of uveitis is unknown; it has been estimated that uveitis accounts for 10% to 15% of all cases of total blindness in the United States.[8] Accurate diagnosis of specific etiology is essential for adequate treatment of uveitis. Timely treatment may save vision in the eyes.

So far there was no study on anterior uveitis from the Rewa district of Madhya Pradesh about etiological pattern of anterior uveitis. Shyam Shah Medical College, Rewa MP is a tertiary care hospital and taking care of Rewa (Population 2.8 lacs), Satna, Sidhi, Singrauli, Shahdol, Umaria, Katni and other adjacent districts. Large number of patients of anterior uveitis present to the ophthalmology outpatient department. Hence, this prospective study was conducted to evaluate clinical presentation, etiology, pathological pattern, complications and treatment outcome of anterior uveitis in the Rewa district of Madhya Pradesh. Only residents of the Rewa District were included in the study. We followed a standard protocol and the results were compared with the pattern of anterior uveitis in other geographic area of India and other parts of the world.

Materials and Methods

This is hospital based, interventional, non-randomized, prospective study. The study was conducted at department of ophthalmology, Shyam Shah Medical College, Rewa MP. All newly diagnosed anterior uveitis patients presenting from January 2016 to December 2017 were included in study. Demographic data (age sex, address), ocular and systemic complaints, past history of ophthalmic and systemic disorders were recorded. Slit-lamp assisted anterior segment examination was done to record presence of ciliary congestion; presence, distribution and type of keratic precipitates (figure 1); grade of anterior chamber reaction, hypopyon, presence and type of anterior synechiae (figure 2); iris atrophic patches, iris color and nodule; status of crystalline lens and grading of cells in anterior vitreous. Intraocular pressure was measured with Goldmann applanation tonometer. Posterior segment examination was carried out with the help of direct and indirect ophthalmoscope and 90 D lens. Fundus Fluorescein angiography, B-scan ultrasonography, ultrasound biomicroscopy and optical coherence tomography were performed to rule out intermediate or posterior uveitis or complication of anterior uveitis. Systemic evaluation was done by physician to rule out systemic disorders. All patients underwent routine blood investigations which includes complete blood count, blood sugar, erythrocyte sedimentations rate, urine routine and microscopy. Immunological tests include Mantoux text, Venereal disease Research Laboratory (VDRL), or Rapid plasma regain (RPR), immunofluroscent test for toxoplasmosis, antinuclear antibodies for juvenile rheumatoid arthritis, ELISA for tuberculosis and rheumatoid factor. Other investigations are ordered according to clinical diagnosis which included sacro-iliac joint and knee joint X-ray, X-ray chest PA view, human leukocyte antigen (HLA) typing for HLA B27, serology for herpes simplex, human immune deficiency virus.

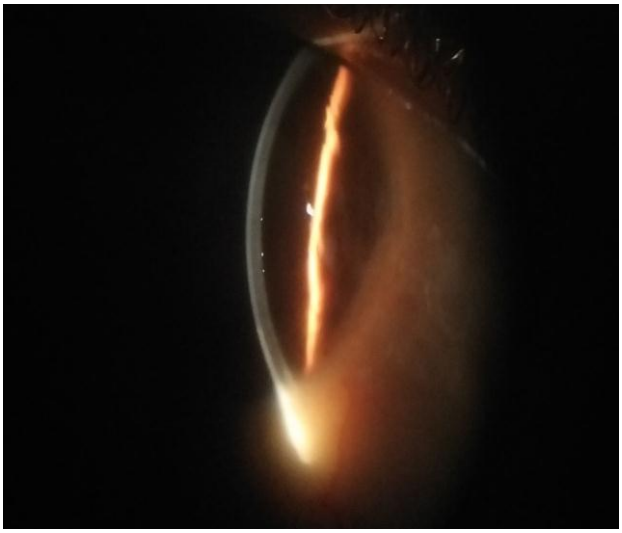

Figure 1: Slit lamp image showing fine keratic precipitates on back of cornea in idiopathic anterior uveitis

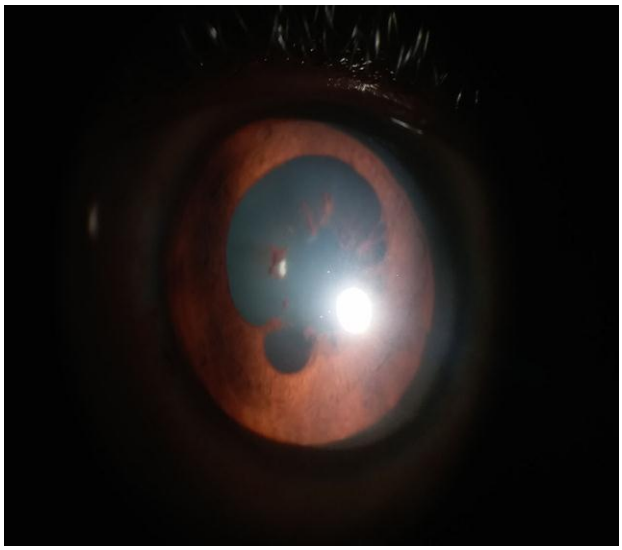

Figure 2: Slit-lamp examination showing synechiae in patient with anterior uveitis

Inclusion criteria

- All cases of anterior uveitis treated at department of ophthalmology, S. S. Medical College, the Rewa, MP, India were taken into consideration
- Patients from the Rewa District.

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Exclusion criteria

- Patients with incomplete investigations and non resident of the Rewa District
- Patients with intermediate, posterior and panuveitis
- Patients with postoperative uveitis
- Sympathetic ophthalmia
- Masquerade syndromes
- Endophthalmitis

All patients were treated with oral steroids, atropine 1% ointment and topical prednisolone1%. Some patients with recurrent uveitis were treated with posterior sub-Tenon's Triamcinolone Acetonide, 20 mg, injection. Oral prednisolone 1mg/kg body weight with pentoprazole 40 mg once a day. Patients recalcitrant with oral steroid were received azathioprime 50 mg once a day. Specific underlying disorder treated as per standard guidelines. Children with juvenile rheumatoid arthritis associated anterior uveitis were treated with intravenous methyl prednisolne followed by oral prednisolone for several weeks. All patients initially reviewed on weekly bases than once a month for 1 year. During follow up every patient was examined for visual acuity, anterior chamber reaction, lens opacity, intraocular pressure and fundus examination. Complicated cataract was treated with small incision cataract extraction with posterior chamber intraocular lens implantation under local anesthesia. Patients with secondly glaucoma were treated with topical antiglaucoma medications. Patient data were feed in excel sheet and analyzed. Informed consent was obtained from all participants before study. During entire study periods investigator adhered to the tenets of Declaration of Helsinki. Written consent was taken from all participants prior to study. Results were expressed in percentage.

Results

Total 212 cases of anterior uveitis were seen from January 2016 to December 2017 at our centre. Annual incidence of anterior uveitis is 37.85 per 100000 in present study. Anterior uveitis seen most frequently in the 5th decade of life (33.96%) followed by the 3rd decade of life (27.35%) (Table 1). Out of 212 anterior uveitis patients 59.43% were males and 40.09% were females (Table 2). Majority of patient have unilateral involvement. Bilateral anterior uveitis is seen in only 5.66% cases (Table 3). Acute anterior uveitis was seen in 82.07% of cases. Only 11.32% cases have recurrent episodes of disease and 6.6% cases turned up into chronic course (Table 4).

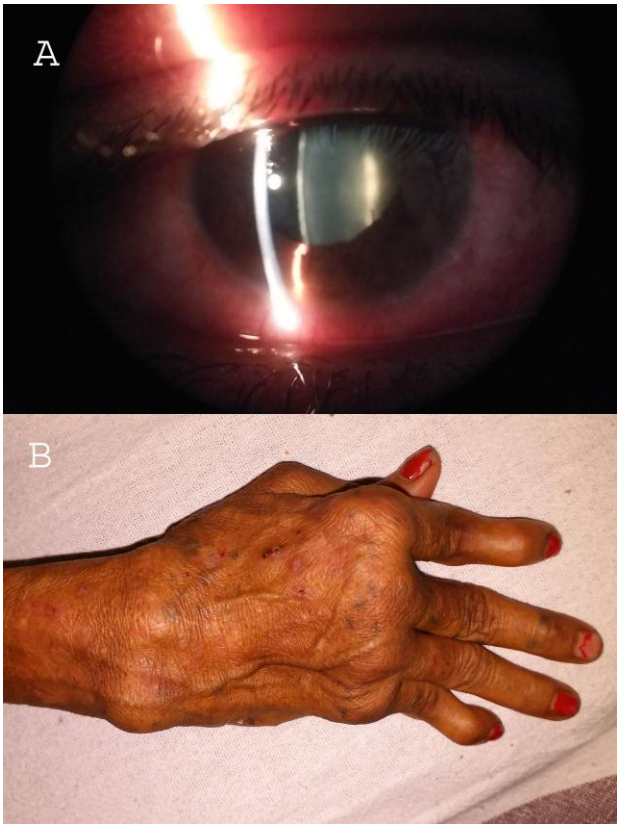

Figure 3: (A) Slit-lamp photograph showing complicated cataract, (B) Hand deformities in patient with long standing rheumatoid arthritis.

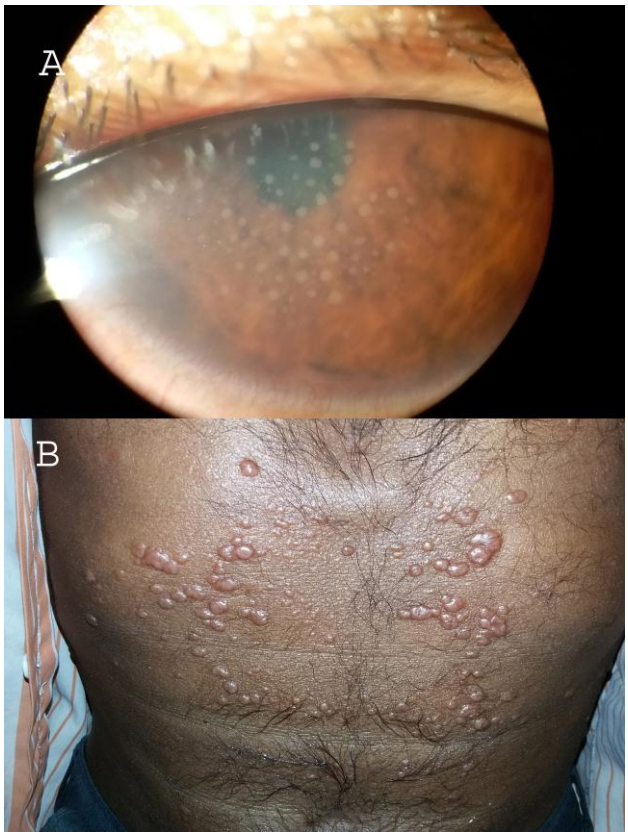

Figure 4: (A) Slit-lamp photograph showing mutton fat keratic precipitates on back of cornea in anterior uveitis secondary to leprosy.(B) Numerous nodule on skin in patient with lapromatous leprosy.

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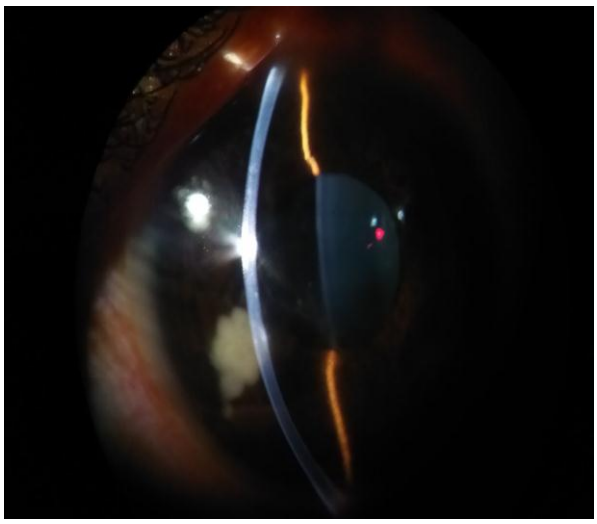

Figure 5: Slit-lamp photograph showing fungal colony and fibrious exudation in anterior chamber after penetration injury.

Table no 1. Age distribution of patients with anterior uveitis

Age (years)	No of patients	Percentage (%)
0-10	2	0.94
11-20	7	3.30
21-30	22	10.37
31-40	58	27.35
41-50	72	33,96
51-60	27	12.73
61-70	14	6.60
71-80	8	3.77
81-90	2	0.94

Table no 2: Gender distribution of patients with anterior uveitis

Gender	No of patients	Percentage (%)
Males	126	59.43
Females	85	40.09
Transgender	1	0.47

Table no. 3: Laterality anterior uveitis

Laterality	No of patients	Percentage
Unilateral	200	94.33
Bilateral	12	5.66

Table no 4. Clinical presentation of anterior uveitis

Clinical presentation	No of patients	Percentage
Acute	174	82.07
Recurrent	24	11.32
Chronic	14	6.60

Table no. 5. Etiology of anterior uveitis

Etiology of Anterior uveitis	No of patients 212	Percentage (%)
Idiopathic	126	59.43
Tuberculosis	47	22.16
Syphilis	8	3.77
Rheumatoid arthritis	6	2.83
Phacogenic	5	2.35
Fuchs uveitis	4	1.88
Herpes simplex	3	1.41
JIA	3	1.41
HIV	2	0.94
Trauma	2	0,94
Ankylosing spondylitis	2	0.94
Leprosy	2	0.94
Infective	1	0.47
Behcet's	1	0.47

Table no. 6. Pathological pattern of anterior uveitis

Pathological pattern of anterior uveitis	No of patients	Percentage (%)
Non-granulomatous	155	73.11
Granulomatous	57	26.88

Table no 7. Complications of anterior uveitis

Complication	No of patients	Percentage (%)
Complicated cataract	18	8.49
Secondary Glaucoma	8	3.77
Phthisis bulbi	1	0.47
Painful blind eye	1	0.47

In anterior uveitis, specific diagnosis could be made in 86 cases (40.57%), of which the most common underlying cause was tuberculosis in 47 cases (22.16%) followed by syphilis in 8 cases (3.77%), Rheumatoid arthritis (figure 3) in 6 cases (2.83%). Other causes were phacogenic uveitis in 5 cases (2.35%), Fuchs heterochromic cyclitis 4 cases (1.88%), herpes simplex uveitis 3 cases (1.41%), juvenile idiopathic arthritis 3 cases (1.41%) and leprosy ((figure 4) in 2 cases (0.94%). Other specific uveitis etiology is shown in Table 5. Diagnosis remained idiopathic in 126 cases (59.43%). One case of trauma has developed fungal uveitis (figure 5).

Non-granulomaous uveitis seen in 73.11% cases while granulomatous uveitis seen only in 26.88% cases (Table 6). Most cases responded well to treatment. Complicated cataract was formed in 8.49% of cases while secondary glaucoma developed in 3.77% cases (Table 7).

Discussion

To identify the pattern of anterior uveitis in the Rewa district of Madhya Pradesh, a prospective study was carried

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out on all cases of anterior uveitis seen at Department of ophthalmology, S. S. Medical College. Total 212 cases of anterior uveitis were seen. Annual incidence of anterior uveitis is 37.85 per 100000 in present study. The incidence of uveitis in the developed countries has been estimated between 17 and 52 per 100 000 of population per year, and the prevalence as 38-714 cases per 100 000 of population. Anterior uveitis seen most frequently in the 5th decade of life (33.96%) followed by 4th decade of (27.35%) in this study. In Hyderabad study, Hussain and Mirza, observed that 40-50 years age group is more prone for anterior uveitis (27.53%).[9]

Biswas et al conducted study in Chennai and disclosed maximum incidence of uveitis at 5th decade of life.[10] Similarly other researcher also noted that uveitis is more common among 40-50 years age group.[11-12] However Singh et al reported anterior uveitis in the 4th decade of life.[13] Anterior uveitis is less common under 10 years of age and above 60 years of age.[11]

Out of 212 anterior uveitis patients 59.43% were males and 40.09% weres female in present study. Anterior uveitis is more frequently seen in males than females.[10-14] Juvenile idiopathic arthritis is a type of auto-immune arthritis that affect children below the age of 16 years. It is more common in females than males.[10,12]

Majority of patient have unilateral involvement. Bilateral anterior uveitis is seen in only 5.66% cases in this study. Most of the patients had unilateral presentation. Rathinam et al reported 85.3% unilateral presentation in their study.[11] Both right and left eyes have equal predilection of disease.

Acute anterior uveitis was seen in 82.07% of cases. Only 11.32% cases have recurrent episodes of disease and 6.6% cases turned up into chronic course in present study. Sudha Madhvi et al from Karnataka reported about 75.86% of acute anterior uveitis and 17.82% had chronic, and 6% had recurrent uveitis.[17]

Specific etiology of anterior uveitis was established only in 40.57% in present study. Singh et al identified specific etiology of uveitis in 48.82% of cases.[13] Specific etiology of uveitis detection possible nearly 50% of cases. The most common underlying cause of anterior uveitis was tuberculosis, 47 cases (22.16%) followed by syphilis in 8 cases (3.77%), and Rheumatoid arthritis in 6 cases (2.83%). Das et al identified collagen disease (29.4%) as a most common identifiable cause for anterior uveitis.[18] Rathinam et al identified leptospiral uveitis as a most common identifiable etiology of uveitis in their study.[11]

Tuberculosis, syphilis and leprosy are common causes of granulomatous uveitis in the developing countries. Tuberculosis can involve both the anterior and posterior segment of the eye. Typical tubercular uveitis is granulomatous type of uveitis but non-granulomatous uveitis also a rare presentation. There may be nodular lesions on the iris and angle of anterior chamber. A high index of suspicious based on clinical findings such as granulomatous type of uveitis, poor response to steroids, recurrence after stopping steroids, pigmented hypopyon, and early neovascularization of iris should be helpful in correct diagnosis of tubercular uveitis. Standard antitubercular treatment must be given to patient with probable/confirmed tubercular anterior uveitis. The duration of therapy should be for 6-9 months.

Ocular leprosy can manifest with episcleritis, scleritis, keratitis and iritis but the most common cause of blindness in this disease is the chronic low grade anterior uveitis that is usually asymptomatic until the late stage of the disease. In our study nongranulomatous uveitis is seen in 73.11% of patient of anterior uveitis while 26.88% patients have granulomatous uveitis. Sudha Madhavi et al reported nongranulomatous uveitis in 90% of cases and only 10% of patient had granulomatous uveitis in Karnataka.[17]

Intraocular fungal infection can develop in a variety of patients including immunosuppresed patients, immunocompetent patient with systemic mycotic infection, intravenous drug users, patients who have undergone ocular trauma or ocular surgery and postoperative patients. One case develops fungal anterior uveitis after penetrating injury which was managed with topical and systemic antifungal treatment.

Uveitis is associated with a wide variety of ocular complications including cataract, glaucoma, band shaped keratopathy, macular edema, epiretinal membrane, proliferative vitreoretinopathy, neovascularization of choroid and retina, painful blind eye and phthisical eye. These complications often result in visual impairment. In the present study, complications were seen in 28 eyes (13.20%). Most common complication was complicated cataract formation seen in 18 eyes (8.49%), followed by secondary glaucoma 8 eyes (3.77%) painful blind eye 1 case (0.47%), and phthisical eye 1 case (0.47%). %). Rothova et al19 reported cataract in 19% cases, glaucoma 11% cases and phthisical eye in 2.4% cases. Cataract formation in uveitis is usually developed by uncontrolled prolonged inflammation and long term use of high doses of topical as well as systemic steroid. All patients with complicated cataract underwent small incision cataract extraction with PMMA intraocular lens implantation under steroid coverage. All patients had best corrected vision 6/6 in the operated eye. Both, Secondary open angle and secondary angle closure glaucoma can develop in uveitis patients. Secondary open angle glaucoma develops due to blockage of trabecular meshwork by inflammatory cells, protein particles, debris or

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fibrinous material release from disruption of blood-aqueous barrier. In chronic cases scarring and obliteration of trabecular meshwork may lead to secondary open angle glaucoma in uveitis. Secondary angle closure glaucoma can resulted from various mechanisms such as pupillary block, 360 degree of posterior synechial closer of angle, and neovascularization in angle. Secondary glaucoma managed with topical anti-glaucoma medicine and none of patient required filtration surgery.

Conclusion

In this study, there was higher incidence of uveitis in 40-50 year of age. Idiopathic type of anterior uveitis is common in the Rewa district of Madhya Pradesh. Granulomatous type of uveitis secondary to tuberculosis and syphilis also kept in mind during dealing a patient of anterior uveitis in the Rewa, district of Madhya Pradesh.

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