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A Study Of Uveitis : Etiology And Diagnosis

[1] Dr Dinesh Malhotra, [2] Dr. Sakshi Sahni
[1] Professor and HOD, [2] Assistant Professor,
Department Of Ophthalmology,ASCOMS & Hospital ,Jammu.

***Corresponding Author:**
Dr. Sakshi Sahni
Department Of Ophthalmology,ASCOMS & Hospital ,Jammu.

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Abstract :

Introduction: Uveitis refers to a heterogenous group of diseases characterised by intraocular inflammation and accounts for significant visual morbidity worldwide[1]. Uveitis describes a group of intraocular inflammatory disorders of iris, ciliary body, and choroid that may be infective or non-infective. Uveitis may affect other tissues in the eye, including the retina (uveoretinitis), retinal blood vessels (retinal vasculitis), the vitreous (vitritis), and the optic nerve (papillitis)[2]. Uveitis workup starts with an elaborate history taking. Subsequently meticulous systemic and ocular examination will offer a clinical conclusion . It is estimated that 70% of diagnosis can be made on the basis of detailed medical history and thorough clinical workup alone. Systemic history offer possible systemic disease association with ocular involvement. It is often the clinical acumen of the ophthalmologist that points out the diagnosis, that is further confirmed or ruled out by a tailored laboratory approach [20].

Material and methods: This prospective study was conducted on 60 consecutive patients of uveitis attending ophthalmology OPD of ASCOMS Hospital, Jammu. All patients with anterior uveitis , posterior uveitis and panuveitis were included in the study. The personal biodata , history of present illness, past history, family history , findings on examination and laboratory investigations were recorded**.**

Conclusion : Despite best efforts no aetiological cause could be detected in substantial number of cases and it compares well with observation of other authors. ELISA , Mantoux test , serum studies , HLA typing and radiological studies play a significant role in reaching a particular diagnosis. In our study,73.3% of patients were having anterior uveitis , 20 were having posterior uveitis and 6.6% were having panuveitis.45% were having acute and 55% were having chronic uveitis. Irrespective of the type of uveitis ,females showed higher incidence of poorer visual acuity as compared to the males especially belonging to poor socioeconomic status. There is no universally accepted approach to the evaluation of uveitis. If the history, physical examination, and basic laboratory tests do not suggest a specific diagnosis, serologic studies for syphilis and chest radiography for sarcoidosis and tuberculosis , and HLA typing are recommended. Basic laboratory studies include complete blood count with differential, basic metabolic panel, urinalysis, and erythrocyte sedimentation rate.

Introduction

Uveitis refers to a heterogenous group of diseases characterised by intraocular inflammation and accounts for significant and accounts for significant visual morbidity worldwide[1]. Uveitis describes a group of intraocular inflammatory disorders of iris, ciliary body, and choroid that may be infective or non-infective. Uveitis may affect other tissues in the eye, including the retina (uveoretinitis), retinal blood vessels (retinal vasculitis), the vitreous (vitritis), and the optic nerve (papillitis)[2]. Uveitis is classified on basis of anatomical location as anterior, intermediate, posterior and panuveitis. “Anterior uveitis” includes

inflammation of the anterior chamber (iris alone or in combination with ciliary body) [3***]*** **.**It is the commonest form of intraocular inflammation with varying incidence in various countries around the world. ***[4]]*** Posterior uveitis, where the primary site of inflammation is the retina or choroid is less common and is generally more sight-threatening than anterior uveitis. Etiology of uveitis may be autoimmune, infection related, drug induced or associated with malignancy (masquerade syndrome)***[5]*** About fifty percent of cases are idiopathic and are presumed to be autoimmune. Uveitis may be a reflection of other systemic diseases and may be the first evidence of such systemic diseases.***[3,6]*** The systemic diseases include collagen vascular diseases, sarcoidosis, Behcet's syndrome, Reiter's syndrome and Vogt Koyanagi Harada's (VKH) syndrome. Tuberculosis, leprosy, syphilis Chikungunya and West Nile Virus diseases are common systemic infections that can cause uveitis. ***[7,8]*** . The varied etiology makes the etiological diagnosis a challenging to ophthalmologists. Published literature on uveitis from different countries reveals a great epidemiological variation in terms of aetiology and presentation for example Vogt Koyanagi-Harada disease and sarcoidosis in Japan ***[9]*** , herpes virus in Tunisia ***[10]*** **,** tuberculosis in India ***[11])*** and toxoplasmosis in South America. ***[12]*** .Knowledge of the epidemiological pattern of uveitis is important as diagnostic work-up and treatment protocols oriented towards commonly prevalent diseases will result in better clinical outcomes. India presents a unique challenge to due to its varying socio-economic, demographic and morbidity pattern. In uvetis too, different etiological profile has been reported ***[13,14]*** compared to western counterparts and countries like Japan and Iran ***[15]*** . We are doing this study with the objective of determining the causes of uveitis and associated systemic condition and to compare the uveitic pattern in our region with different region in India and elsewere in the world. The inflammatory process primarily affects the uveal tissues with subsequent damage to the retina, optic nerve and vitreous. On several occasions, it reflects diseases that are developing elsewhere in the body and uveitis may be the first evidence of such systemic diseases, generating a challenge to the ophthalmologist in reaching the etiological diagnosis. Besides, because several entities share common clinical symptoms and signs, the etiological diagnosis may prove to be a difficult task.[16] There is need to have a thorough knowledge of all entities and their work up has to be complete including systemic and ocular examinations. In addition to the above mentioned challenges, India presents unique problems because of varying socio-economic, demographic and morbidity patterns. The prevalence and severity of diseases in economically deprived population differ from those in rest of the world because of lack of good primary health care, poor affordability and poor compliance. There is also added challenge of handling these problems in addition to managing uveitis. Many classifications have been proposed . Broadly ,uveitis can be classified :1.anatomically,2.pathologically,3.clinically, 4.aetiologically [17] The International Uveitis Study Group regards an inflammation as chronic if it remains visible for more than 3 months with or without treatment , if not, it is an acute uveitis [18]. The uveitis was classified in different ways. Classification based on the duration of uveitis was based on standardization of uveitis nomenclature criteria(SUN) in which anterior uveitis was classified as limited (less than or equal to 3 months duration) and persistent (more than 3 months). Based on the course of uveitis ,anterior uveitis was classified as acute anterior uveitis with episodes of sudden onset and limited duration, recurrent anterior uveitis with repeated episodes separated by periods of inactivity without treatment of period >= 3 months duration and chronic uveitis which persists and relapses in less than 3 months after discontinuing treatment[26]. The main problem in the diagnosis of uveitis is that it is almost never possible to find out the cause in a given case unless live pathogenic organisms are isolated from uvea, a condition which is very rare indeed, the diagnosis can only be presumptive. Such a presumptive diagnosis is made by discovering some intercurrent abnormality, such as UTI, a mild arthritis, or an elevation of some serum antibody titre and by comparing the clinical picture with that proven to be associated with that proven to be associated with the disease . It may be possible to presume aetiologies in a significant proportion of patients with uveitis, but it is impossible to be certain of aetiology of many significant number of cases of uveitis.[19]

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This study in jammu region is to evolve a pattern of causes of uveitis in this region which comprises of plains , foothills and mountains. These are correlated with epidemiological factors, history, physical findings , radiological and laboratory data and results obtained would be analysed and statistically compared where possible.

Material And Methods:

This prospective study was conducted on 60 consecutive patients of uveitis attending ophthalmology OPD of ASCOMS Hospital. All patients with anterior uveitis , posterior uveitis and panuveitis were included in the study. The personal biodata , history of present illness, past history, family history , findings on examination and laboratory investigations were recorded . Uveitis workup starts with an elaborate history taking. Subsequently meticulous systemic and ocular examination will offer a clinical conclusion . It is estimated that 70% of diagnosis can be made on the basis of detailed medical history and thorough clinical workup alone. Systemic history offer possible systemic disease association with ocular involvement. It is often the clinical acumen of the ophthalmologist that points out the diagnosis, that is further confirmed or ruled out by a tailored laboratory approach [20]. Efforts were made to find out any family history of systemic problems like tuberculosis, joint pains (arthritis), or similar eye problem.Complete ocular examination including anterior segment and posterior segment examination was carried out with slit lamp examination and direct and indirect ophthalmoscopy respectively. Intraocular pressure was recorded. Systemic examination included general physical examination, examination of chest with special attention to rule out any lesion of the lungs, cardiovascular system, abdomen and examination of the joints to rule out the possibility of arthritis. The opinion of the concerned specialist was obtained where abdomen and examination of the joints to rule out the possibility of arthritis. Investigations included laboratory and radiological investigations which included the tests which were possible in our set up and were essential for aetiological diagnosis and treatment . Patients presenting with signs and symptoms suggestive of uveitis and patients already diagnosed with uveitis elsewere , were also be included in the study . Patients will also undergo the following investigations relevant for making differential diagnoses depending on their anatomic classification, which includes:

1. Complete Blood Count (CBC) : for any polymorphonuclear leucocytosis or lymphocytosis.

2. Erythrocyte Sedimentation Rate : as it is important in tuberculosis , sarcoidosis, and collagen diseases.

3. HLA-B 27 typing

4. Serum fluorescent treponemal antibody absorbtion detection

5. Serum angiotensin-converting enzyme.

6. Tuberculin skin testing

7. Chest radiography.

8. Latex fixation test.

9. VDRL: for syphilis

10.ELISA: for igM antibodies against toxoplasma gondii for toxoplasma gondii infection.

11.Urine analysis for albumin , sugar and pus cells.

12. Rheumatoid factor for rheumatoid arthritis.

13. Serum: For proteins- important in sarcoidosis and collagen diseases.

For uric acid-important in gouty arthritis

14. Radiological investigations –

X-ray chest – for hilar lymphadenopathy , tubercular foci.

X-ray sacro-iliac joint- for any narrowing of joint space, syndesmophytes and ossification of lumbar ligaments.x-ray hands –for any bone cysts, marginal erosions and narrowing of the joint space.

Specific specialist (physicians, rheumatologists, chest physician, infectious disease specialist, oncologist) consultation will be done as necessary. Final etiological diagnosis will be based on clinical features, systemic involvement and laboratory investigations. If the specific etiology cannot be established the term “idiopathic uveitis” will be used for purpose of this study.

Results: The result of our study are as follows:

Table 1: Sex incidence

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Males	47(78.33%)
Females	13(21.66%)
	60(100)

Table 2: Age distribution of cases:

Age group(years)	No.of cases	%age of cases
0-10	1	1.66
11-20	11	18.33
21-30	8	13.33
31-40	14	23.33
41-50	15	25.00
51-60	4	6.66
61-70	5	8.33
Above 71yrs	2	3.33
	60	100

Table no 3: Distribution of patients as per geographical incidence:

Plains	40	66.66
Mountains	13	21.66
Foothills	7	11.66

Table no 4. Showing occupation of uveitis patients studied.

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Occupation	No.of patients	%age
Office workers	22	37.28
Farmers& housewives	18	30.50
Industrial workers	8	13.55
Others	11	18.64

One patient was a child of 3 months and was not included .In this study only 9 patients had bilateral involvement ,out of these 6 were males and 3 were females.

Table no 5: Showing distribution of unilateral and bilateral cases.

Laterality	Unilateral	Bilateral
Males 47	41	6
Females 13	10	3
Total 60	51	9

Cases selected for the study , presented as chronic uveitis or acute uveitis. It was seen that 33 of them (55%) cases had chronic uveitis including those who had recurrent attacks and remaining 27 (45%) had acute uveitis .

Table no 6: Distribution of various types of uveitis out of 60 patients.

	Anterior	Posterior	Panuveitis
Chronic uveitis 33	21(35%)	8(13.33%)	4(6.66%)
Acute uveitis 27	23(38.3%)	4(6.66%)	-
Total 60	44(73.3%)	12(20.0%)	4(6.66%)

The duration of illness in acute uveitis was measured in terms of weeks .The main symptoms in the patients with acute and chronic uveitis were loss of vision followed by redness and pain were the prominent features in both acute and chronic uveitis patients. Chronic uveitis patients were divided on the basis of presence of disease measured in terms of years at the time of presentation. Out of 33 chronic cases of uveitis , 19 cases were of recurring type of uveitis. Out of these, 9 patients gave a history that their attacks of redness, pain and photophobia have definite relation with the change in weather. Diminision of vision followed by redness and pain were the prominent features in both acute and chronic

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uveitis. Laboratory investigations routinely in this series includes estimation of complete blood count, ESR, examination of urine and stools. Mantoux skin test was done in 58 patients and was found to have a reading of +15 or more in 25 patients. Test for rheumatoid factor was fond positive in 8 cases.VDRL was found positive in only patient of chronic uveitis. ELISA for toxoplasma gondii was found to be reactive in 5% of cases. X- ray chest was carried in all patients and 11 out of all showed signs of healed tuberculosis. Calcification of lumbar ligaments was seen in 5 patients.2 patients showed soft tissue swelling on doing X-ray of both hands of all patients.

Discussion :

The aim of this present study is to evolve a pattern of causes of uveitis in Jammu province. Moreover, the differential diagnosis of uveitis has been changing over a period of time to such an extent that the pattern of differential diagnosis of uveitis found now may not be the same for the same place and people after few years, so the present study could be the basis of comparison later on. In the present series, 60 consecutive patients of all types of uveitis have been included which is different in a way from other studies conducted elsewhere in the world, where only the endogenous uveitis cases have been included ;as by D.Geriant James et al [21] and Chung et al [22]. So all types of cases irrespective of severity and nature came to this hospital for treatment and the element of bias introduced by the referral nature of patients to tertiary care centres was not there in the present study , as is existing in one of the studies conducted in USA, where mild to even moderately severe iridiocyclitis, which is most common form of uveitis seen in general ophthalmologist practice, as they usually responded well to topical corticosteroids therapy, required no significant diagnostic evolution and were only infrequently referred to tertiary uveitis clinic. It was only for severe and problematic cases of uveitis, that general ophthalmologist would seek further consultation at these centres. Our study tends to cover all types of uveitis and is likely to be more representative of the actual incidence and other parameters.

Out of total number of 60 cases, 47 (78.3%) were males and 13 (12.7%) females, The incidence among males in the present study is even higher, which could be due to the fact that in this study all types of types of uveitis, including traumatic have been included. As trauma is more frequent in males, who are more exposed by nature of their work to injuries as compared to females. Moreover the reluctance on part of the females especially from poor socioeconomic strata to come to the hospital for a short duration- rapidly improving disease, might be a factor which can explain this discrepancy. Singh R et al. [14] retrospectively assessed pattern of uveitis in a major referral center in north India from 1996-2000. 1233 patients were included in the study; 641 (51.98%) were males.

48.3% of the patients in this study were in the age group of 31-50 years, and 68.2% of the total patients were between 20-60 years of age at the time of presentation. These figures are in close proximity with the figures reported. D. Geraint James et al [21] reported that 85% of the patients were between 20-50 years of age; while Chung et al [22] reported that 35% of the patients were in the 30-39 years and 89.6% of the total patients were between 20-69 years of age. These observations clearly indicate that uveitis is predominantly seen in the 20-40/50 years age group. This may be related with the chronicity and duration of the disease which has been present over a varying period of time, but as in this span of life person is most actively working to earn his livelihood, so they presented themselves during this period.

Jammu region comprises of heterogenous type of population of hindus , muslims and sikhs. In the present study 43(71.7%) of patients were hindus whose eating habits are similar to sikhs comprising of 6 (10%) of cases in this study. So hindus and sikhs when taken together form 81.7% of the number of cases and remaining 11(18.3%) were muslims whose eating habits are different in some aspects. Out of 49 hindus and sikhs , 8(16%) gave positive history of having eaten pork in the past, out of which one patient (12.8%) ultimately was found to be having cycticercosis cyst in the eye causing uveitis. So it seems important enough to enquire about religion and eating habits of the patients.In the present study all the patients included were causians (Indians) as no patient of mongoloid race from ladakh region of jammu and Kashmir has reported to OPD for treatment of uveitis, so that race is not represented and data pertains to Caucasians.

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Geographical distribution , occupation and socioeconomic status clearly shows 2/3 (66.66%) of patients were from plains and remaining one third(33.3%) were from mountaineous regions and foothills . In this study 40 (66.6%) patients from the plains were involved in professions , where one is likely to come in contact with animals, vegetative matter and injuries ,out of these 22 (37.2%) patients were working or studying in the school and colleges. No significant association was found between uveitis and geographical distribution and occupation of the patient.it was found that 7(11.6%) out of 9(15.2%) patients of suspected or proven tuberculosis uveitis belonged to low socioeconomic status.

Duration of illness at the time of presentation : 12 out of 27 patients reported to the hospital within first 2 weeks after the start of the symptoms and18 of the total patients came in the first 5 weeks and the remaining patients reported between 6 to 12 weeks . All the patients had directly come to the hospital without prior consultation of an eye specialist. The duration of uveitis in case of chronic uveitis is measured in terms of years. 8 (24.2%) patients were suffering from the disease for 1-2 years duration and the total number of 21 patients forming the majority have had it for 3 month to 6 years period i.e. at the start of summer and at the start of winter season

In the present study, out of 33 chronic/recurrent cases of uveitis19 (57.5%) were recurring type of uveitis and out of these 9(27.3%) gave a history relating their attacks with the change in weather.

Symptoms in patients of uveitis:

In acute uveitis, diminision of vision was nearly universal i.e in 26(96.2)% while watering was in 19(70.3%), redness in 23(85.1%),pain in 22(81.4%) and photophobia in21(77.7%). Poor visual acuity<6/60 was found in 50% of the female patients as compared to 23.8% males showing a gross neglect on the part of the female patients in reporting to the hospital for treatment .largest number of patients having visual acuity <6/60 or less is due to chronicity or recurrence over a period of months to years causing damage in the form of synechiea , complicated cataract ,clouding of media, macular edema , increase in size of choroidal lesions. All these factors contribute in causation of diminition of vision.

The special tests done included laboratory and radiological tests, the results obtained are as follows

1. Latex fixation test done for rheumatoid factor was found to be positive in cases (14.2%) out of total number of 60 cases in which it was carried out

Aetiological causes of anterior uveitis:

Diagnosis	No of cases	%age
Tubercular iridocyclitis	14	31.7%
Iridocyclitis associated with AS	5	11.3
Herpes simplex keratouveitis	2	4.5
Herpes zoster keratouveitis	1	2.2
Viral keratouveitis	1	2.2
Sclerouveitis (associated with RA)	2	4.5

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Fuch's heterochromic iridocyclitis	1	2.2
Reiter's syndrome	1	2.2
Lepromatous iridocyclitis	1	2.2
IOL related	1	2.2
Idiopathic iridocyclitis	15	34.0
	44	100

Posterior uveitis

Diagnosis	No. of cases	%age
Toxoplama retinochoroiditis	3	25.0
Tuberculous uveitis	4	33.3
Idiopathic uveitis	5	41.6
Total	12	100.0

Panuveitis

Diagnosis	No of cases	%age
Syphilitic	1	25.0
Endophthalmitis	1	25.0
Idiopathic panuveitis	2	50.0
Total	4	100

Bagheri M et al. [15]) in their recent systematic review summarized the pattern of uveitis in Iran. 3,567 patients were included and mean age of patients was 40 years and gender was not found to be significant predisposing factor. Most common anatomical pattern of involvement was anterior uveitis, and prevalence of middle, posterior and pan-uveitis, were almost equal. Most common etiologies

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of uveitis in the Iranian population were idiopathic uveitis, toxoplasmosis, Behcet's syndrome, and Fuchs heterochromic iridocyclitis. Aetiological diagnosis has been posing problems since the time, the uveitis has been established as a definite entity, but with passage of time , due to improved investigations and diagnostic facilities ,more and more disease entities are being considered etiologically responsible , so the pattern is changing very fast. Taking the following studies , we find that D. Geriant James et al (21) could not find aetiological basis for uveitis in 54% of studies, while in a study by I.W Abrahms (23), this percentage fell to only 10%, but in a retrospective study of Dale E. Henderly[24] 33% of the cases of uveitis could not be ascribed to any cause. Chung [22] could not find the cause in 10 % of the cases.Tuberculosis and toxoplasmosis were the commonest form of infective uveitis, while ankylosing spondylitis and serpiginous choroidopathy were commonly seen as the non-infective causes of uveitis in North India in a study done by Singh et al[14]. So in the present study we could come to etiological diagnosis in 38 (63.3%) cases which stand somewhere between the values given by the other authors.

Conclusion :

Despite best efforts no aetiological cause could be detected in substantial number of cases and it compares well with observation of other authors. ELISA , Mantoux test , serum studies , HLA typing and radiological studies play a significant role in reaching a particular diagnosis. In our study,73.3% of patients were having anterior uveitis , 20 were having posterior uveitis and 6.6% were having panuveitis.45% were having acute and 55% were having chronic uveitis. Irrespective of the type of uveitis ,females showed higher incidence of poorer visual acuity as compared to the males especially belonging to poor socioeconomic status. Signs were found to be conformity with established pattern of the disease depending upon its type as to anterior or posterior uveitis and whether it was acute or chronic. Lab investigations showing anemia ,increase TLC, increase DLC and ESR gives an indication of infection somewhere . While lymphocytic count was significant higher in chronic uveitis is pointer towards probable tubercular lesion. ELISA was found to be positive in high percentages of case of retinochoroiditis and we can conclude that it is a significant test to rule out the possibility of toxoplasma infection.There is no universally accepted approach to the evaluation of uveitis. If the history, physical examination, and basic laboratory tests do not suggest a specific diagnosis, serologic studies for syphilis and chest radiography for sarcoidosis and tuberculosis , and HLA typing are recommended. Basic laboratory studies include complete blood count with differential, basic metabolic panel, urinalysis, and erythrocyte sedimentation rat

Proforma

Name:

Age/ Sex:

Address:

O.P No:

Chief Complaints:

History Of Presenting Illness:

H/O defective vision, floaters H/O pain, redness, photophobia H/O contact with tuberculosis patients

Past History :

H/O similar episodes in the past H/O diabetes, hypertension

H/O pulmonary or extra pulmonary tuberculosis

H/O previous Anti Tuberculosis Therapy H/O previous ocular surgery.

Familyhi Story:

H/O diabetes, hypertension

H/O tuberculosis in family members

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Treatment History:

Any medical/surgical treatment for the current illness

General Examination

`Built Nourishment Anaemia/jaund ice/cyanosis/clubbing/Iymphadenopathy

Vitals-pulse,
temperature,
blood pressure,
respiratory rale
Ocular
examination
Visual acuiry
Eyelids
Extraocular
movements
Conjunctiva
Cornea
Anterior chamber
Iris
Pupil
Lens
Fundus examination
Intraocular pressure

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