Original Research Article

Clinical profile and associated risk factors of uveitis in patients attending tertiary care hospital

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A B S T R A C T

Purpose: To study clinical profile of uveitis in tertiary care centre.

Materials and Methods: In a cross-sectional study, total of 66 patients were identified as having uveitis visiting tertiary care centre. The diagnosis of uveitis and associated systemic diseases was based on a detailed clinical history, ophthalmological examination, general physical examination, and available laboratory tests. The patients were classified according to the standardization of uveitis nomenclature (SUN) working group. All patients were offered treatment as per possible investigation reports or through clinical work up.

Results: Out of sixty-six patients M: F ratio was 1.87; unilateral 62.12%; bilateral 37.87%. Minimum age among study population was 18, while maximum age among study population was 72. Most cases of uveitis recorded in 25-44 years age group (51.51%). Specific diagnosis could be made in 26 (39.39%) patients. Anterior uveitis was the most common variant (n = 43 [65.15%]), followed by posterior (n = 12 [18.18%]), intermediate uveitis (n = 8 [12.12%]), and panuveitis (n=3 [4.54%]). 29 (43.93%) patients had acute, 23 (34.84%) had chronic, 13 (19.69%) had recurrent course of disease and 1 (1.51%) patients had quiescent phase of disease on presentation.

Conclusion: We found specific etiology in one third of patients with the help of investigations. Despite of much efforts to identify the cause of uveitis, majority of the cases remained idiopathic or undiagnosed. However, the prompt clinical diagnosis and early initiation of appropriate treatment could achieve good response. Majority of patients in our study received topical corticosteroids.

1. Introduction

Uveitis encompasses multiple distinct ocular conditions, characterized by inflammation of the uveal tract, either primarily or secondary to inflammation of adjacent structures.[1] Anatomically uveitis classified as anterior uveitis when there is involvement of iris, pars plicata or both the structures; intermediate uveitis when there is involvement of pars plana; posterior uveitis when there is involvement of choroid as well as outer layers of retina as later depends on choroid for nutrition; lastly, panuveitis when whole uveal tract is involved. Anterior uveitis is more common than posterior segment inflammation and is generally less sight-threatening and less serious.

Etiologically, uveitis is classified as infectious, non-infectious and idiopathic. Infectious cause of uveitis can be bacterial, viral, fungal, spirochetal and parasite related inflammation. Among bacterial causes tuberculosis remains the common cause of uveitis in developing countries like India. Others examples include mycobacterium leprae and syphilitic uveitis. Common viruses causing uveitis include herpes simplex (HSV), herpes zoster (HZV), cytomegalovirus (CMV) and human immunodeficiency virus (HIV). Among parasites, toxoplasma gondii an obligate intracellular parasite which causes intraocular infection. While commonly encountered non-infectious causes of uveitis are juvenile idiopathic arthritis, human leukocyte antigen (HLA) related disease, Behcet's disease,

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rheumatoid arthritis, systemic lupus erythematosus, Vogt-Koyanagi-Harada disease, sarcoidosis, Wegener's granulomatosis.[2] The term idiopathic is used whenever the intraocular inflammation cannot be attributed to a specific ocular cause or any underlying systemic disease. Newer uveitic entities have also emerged over last few years like-acute posterior multifocal placoid pigment epitheliopathy (APMPPE), multiple evanescent white dot syndrome (MEWDS), acute retinal necrosis (ARN), Birdshot chorioretinopathy, etiopathogenesis remains obscure in most of them.[2]

The inflammation process primarily affects the uveal tissues but may also cause subsequent damage to the retina, optic nerve and vitreous resulting in severe loss of vision. Various complications attributing to uveitis are secondary cataract, glaucoma, cystoid macular edema, or retinal photoreceptor or optic nerve damage.[1] As a result, long term treatment and follow ups are must in all cases of uveitis. It also reflects several systemic diseases developing elsewhere in the body which become first evident in the eyes.

Evaluation of a case of uveitis is very important with elaborate history taking, followed by ocular and systemic examinations and investigations to reach a clinical conclusion. When basic investigations like complete blood count, Mantoux test, Chest X-ray PA view, X-ray sacroiliac joint etc. cannot establish uveitis, specific investigations[2] such as HLA B27 (Human leukocyte antigen) typing for spondyloarthritis, HLA B5 for bechets disease, antinuclear antibody (ANA) for juvenile arthritis and lupus, double stranded DNA (dsDNA) for systemic lupus erythematosus, antineutrophil cytoplasmic antibody (ANCA) for systemic vasculitis, QuantiFERON-TB Gold assay for tuberculosis, fluorescent treponemal antibody absorption (FTA-ABS) for spirochets, serum angiotensin converting enzyme (ACE) levels for sarcoidosis, real time PCR for various viruses like; herpes zoster, herpes simplex, varicella zoster, TORCH test for viruses, high resolution computed tomography (HRCT) for sarcoid granuloma are advised in uveitis patients to differentiate various causes. However, such tests are advised only if there is a strong clinical suspicion of a specific disease. Laboratory testing should be tailored according to a specific diagnosis rather than advising a full panel of tests. In order to demystify uveitis, we apply clinical skills, knowledge of the disease and available investigations. Hereto, in this study we tried to unravel uveitis etiologies and possible risk factors.

2. Materials and Methods

The present study is a hospital based cross-sectional observational study of patients with uveitis attending the outdoor patient department in a tertiary care government hospital in South Gujarat. Total 66 patients of uveitis enrolled during a period from May 2018-October 2019.These patients were examined and investigated thoroughly as per the protocol.

2.1. Inclusion criteria

All patients having uveitis visiting our outdoor department above 12 years of age.

2.2. Exclusion criteria

1. Uveitis following any intraocular surgery
2. Endophthalmitis
3. Uveitis following any intraocular trauma
4. Uveitis secondary to any malignancy

All patients having uveitis who fulfilled inclusion criteria were included in study.

Informed written consent was taken from the patient and purpose of study was explained to the patient first. A standard proforma filled up for each patient.

Patient characteristics such as age, sex, duration of uveitis were noted.History of present complaints were noted including duration of presenting complaints, eye to be affected, number of episodes and course of disease whether acute, chronic or recurrent. Detailed history was elicited regarding any systemic illness, treatment taken or family history of uveitis.

All patients were evaluated for visual acuity by illuminated Snellen's chart for 6meter distance and near vision measured with Roman's near vision chart. Visual acuity was determined in both eyes with or without glasses at the time of presentation accordingly. Detailed examination was performed using slit-lamp biomicroscopy. Intraocular pressure measured with applanation tonometry using Goldmann applanation tonometer. Dilated fundus examination done by direct ophthalmoscopy using Heine direct ophthalmoscope when ocular media is clear and with indirect ophthalmoscopy using Heine indirect ophthalmoscope with +20D Volk lens.

The patients were classified according to the Standardization of Uveitis Nomenclature (SUN) working group, endorsed by the International Uveitis Study Group (IUSG) classification system.

Routine laboratory workup included complete blood count, erythrocyte sedimentation rate, liver function tests, renal function tests, Mantoux skin test and urinalysis. Radiological workup including X-ray chest PA view, X-ray sacroiliac joint or X-ray for lumbosacral spine advised whenever required. Ancillary test including ultrasonography was carried out when media opacity is there and not able to delineate posterior segment status. In view of history of uveitis, in patients with strong suspicion for any systemic condition which may be associated with uveitis, outside investigations were advised in tailored approach with patient's consent.

The final diagnosis was based on chronological history, clinical manifestations and the results of specific laboratory investigations.

Administering corticosteroid either topical or systemic therapy. Immunosuppressive therapy when required. Medical, surgical, dermatological and other speciality references done, whenever systemic disease association were present or suspected, and for taking advice to start corticosteroid or immunosuppressive therapy when required.

Patients were specifically questioned for presence of any side effects with oral corticosteroid at each visit. Laboratory parameters including total leukocyte count, platelet count and liver function tests were monitored timely in all patients on immunosuppressive agents.
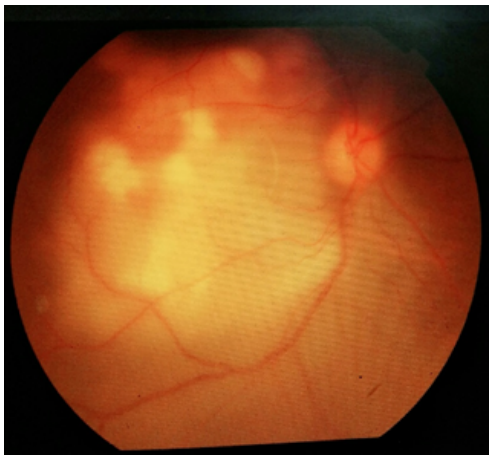
Fig. 1: Multifocal choroiditis in a case of Tuberculosis
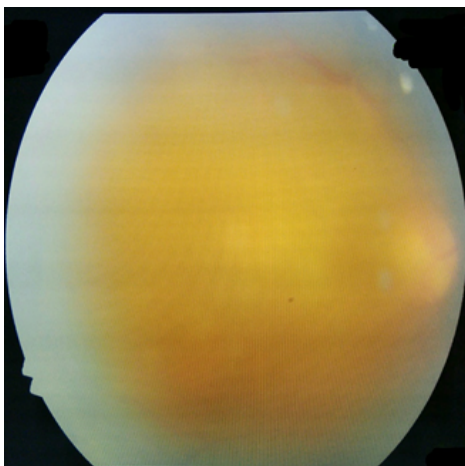
Fig. 2: Headlight in fog appearance in Toxoplasmosis

3. Results

Total 66 patients of uveitis were recorded during period of May 2018 to October 2019. In present study, Minimum age among study population was 18, while Maximum age among study population was 72. Most cases of uveitis recorded in 25-44 years Age group i.e. 34 patients (51.51%). Among study population male: female ratio is 1.86:1.

In our study, with the help of tailored investigations; we established specific diagnosis in 26 (39.39%) patients. Infectious causes were recorded in 14 (53.84%) patients while 12 (46.15%) cases with non-infectious etiologies. Tuberculosis was the most common cause among infectious etiology; seen in 7 (10.60%) patients, while Human leukocyte associated uveitis being the most common cause among non-infectious etiology seen in 4 (6.06%) patients.

We recorded newer emerging trend of acute retinal necrosis (ARN) and acute posterior multifocal placoid pigment epitheliopathy (APMPPE) as an etiological cause for posterior uveitis.

Anterior uveitis presented in 43 (65.15%) cases, 25 (64%) patients were idiopathic followed by Tuberculosis in 5 (11.63%) and HLA B27 in 4 (6.06%) patients.

Intermediate uveitis recorded in 11 (%) patients; 5 (71.42%) patients were idiopathic while specific diagnosis made in 2 patients; i.e. sarcoidosis in 1 (14.28%) patient and ulcerative colitis in 1 (14.28%) patient.

Posterior uveitis comprised of (%), tuberculosis associated posterior uveitis was most common etiology seen in 3 (27.27%) patients. Out of 3 patients of tuberculosis related posterior uveitis; 2 patients had multifocal choroiditis and 1 patient had tuberculoma with serous retinal detachment.

Panuveitis recorded in (n=2) patients, 1 (50%) patient was suffering from Vogt-Koyanagi-Harada's (VKH) disease and other was idiopathic.

4. Discussion

Uveitis is inflammation of the middle-lining layer of the eye, comprising the iris, ciliary body, and choroid. It may involve other adjacent tissues, such as the retina, optic nerve, and vitreous humor.[3] This disease is a sight threatening condition worldwide. It accounts for up to 10% of legal blindness in United States and about 25% in the developing countries.[2,4] The average annual incidence of uveitis has been reported as approximately 14–17 per 100 000, rising to a peak in the 20–50 age group.[3,5–7] The total population prevalence of uveitis varies geographically; 38 per 100 000 in France, 68–76.6 per 100 000 in Finland, around 200 per 100 000 in the United States, and is estimated to be 730 per 100 000 in India.[4] The age-sex adjusted prevalence of uveitis in India is 0.73%.[8] Crude and age-adjusted prevalence rates for endogenous uveitis were 310/100,000 and 317/100,000.[9]

Table 1: Sex wise distribution among study group and comparison with other studied

	Present study (n=66)	Biswas J et al.[3] 2018 (n=352)	Das D et al.[4] 20 15 (n=343)
Male	43 (65.15%)	197 (56%)	209 (60.93%)
Female	23 (34.84%)	155 (44%)	134 (39.06%)

Table 2: Laterality as per presentation of uveitis and comparison with other studied

	Present study (n=66)	Biswas J et al.[3] 20 18 (n=352)	Madhavi KM et al.[5] 2015 (n=174)
Unilateral	41 (62.12%)	107 (30.4%)	156 (89.66%)
Bilateral	25 (37.87%)	245 (69.6%)	18 (10.34%)

Table 3: Comparison of course of uveitis cases in the present study with other studies

	Present study (n=66)	Palsule AC et al.[6] 2017 (n=198)	Madhavi KM et al.[5] 2015 (n=174)
Acute	29 (43.93%)	125 (63.1%)	132 (75.86%)
Chronic	23 (34.84%)	45 (22.7%)	31 (17.82%)
Recurrent	13 (19.69%)	28 (14.1%)	11 (6.32%)
Quiescent	1 (1.51%)	-	-

Table 4: Comparison of the most common causes of anterior uveitis and posterior uveitis with other studies

Anatomical classification	Various etiologies	Present study (n=66)	Palsule AC et al.[6] 20 17 (n=198)	Biswas J et al.[3] 20 18 (n=352)	Das D et al.[4] 20 15 (n=343)
Anterior uveitis		43 (65.15%)	82 (41.4%)	124 (35.22%)	142 (41.39%)
	Idiopathic	27 (62.79%)	44 (53.7%)	46 (37.4%)	36 (25.35%)
	Tuberculosis	5 (11.62%)	4 (4.9%)	17 (13.8%)	3 (2%)
	HLA-B27 anterior uveitis	4 (9.30%)	24 (29.3%)	37 (30%)	58 (40.84%)
	Leprosy	1 (2.32%)	1 (1.2%)	1 (0.8%)	-
	HSV	1 (2.32%)	-	5 (4%)	15 (10.56%)
	RA associated	1 (2.32%)	-	-	-
Intermediate uveitis		8 (12.12%)	33 (16.66%)	106 (30.11%)	81 (23.61%)
	Idiopathic	6 (75%)	23 (69.7%)	55 (51.88%)	41 (50.61%)
	Sarcoidosis	1 (12.5%)	-	14 (13.21%)	19 (23.24%)
	Ulcerative colitis	1 (12.5%)	-	-	-
Posterior uveitis		12 (18.18%)	41 (20.7%)	88 (25%)	56 (16.32%)
	Tuberculosis	3 (25%)	8 (19.5%)	31 (35%)	21 (37.5%)
	Toxoplasmosis	3 (25%)	8 (19.5%)	18 (20.4%)	8 (14.28%)
	APMPPE	2 (16.66%)	-	-	1 (1.78%)
	ARN	1 (8.33%)	-	6 (6.8%)	2 (3.57%)
	Idiopathic	2 (16.66%)	13 (31.7%)	10 (11.4%)	7 (12.50%)
	CMV retinitis	1 (8.33%)	5 (12.2%)	-	2 (3.57%)
Panuveitis		3 (4.54%)	42 (21.2%)	34 (9.65%)	64 (18.65%)
	Idiopathic	1 (33.33%)	18 (42.9%)	5 (14.7%)	6 (9.37%)
	VKH	1 (33.33%)	6 (14.3%)	19 (55.9%)	10 (15.62%)
	Behcet's disease	1 (33.33%)	-	1 (2.9%)	-

The study conducted by Das D et al.[10] at Guwahati, Assam; maximum patients (69.6%) were in the age group of 20–29 years. In the study conducted by Madhavi KM et al.,[11] maximum patients (64%) were seen in the age group of 20-40 years. Above studies taking into comparison we concluded maximum number of patients were in between 2nd to 4th decades. Present study compared with Das D et al.[10] study and Biswas J et al.,[12] study conducted at Chennai Tamil Nadu. We recorded similar results and Male preponderance among study population. Madhavi KM et al.[11] studymajority of patients 89.66% presented with uniocular involvement while, 10.34% patients presented with bilateral involvement. Similar findings were recorded in our study. In Biswas J et al.,[12] study 30.4% cases presented with unilateral involvement while, 69.6% cases presented with bilateral involvement.results were discordant with our study plausibly explained by different geographic and demographic factors.

In Palsule AC et al.,[8] study and Madhavi KM et al.,[11] study course of uveitis were comparable to our study. The Das D et al.[10] study and R Singh et al.,[13] study anatomical classification recorded were in concordance with present study. Various studies compared around the India. We found anterior uveitis is most common among anatomical classification.

The study by Biswas J et al.[12] and Palsule AC et al.,[8] suggested that HLA B27 associated uveitis was the most common etiology among anterior uveitis population. These results are similar to our study. The study published in 2015 by Das D et al.[10] among posterior uveitis (n=56), TB related posterior uveitis was the common etiological cause seen in 21 cases (37.5%). In Biswas J et al.[12] study posterior uveitis cases comprised of 25% of the study in population. The etiology could be established in 88.6% cases, and the most common cause was TB. The study conducted by Das D et al.,[10] among panuveitis 64 (18.65%) patients; Vogt-Koyanagi-Harada's (VKH) disease seen in 10 cases (15.62%), sympathetic ophthalmia seen in 14 cases (21.87%), and TB related panuveitis seen in 19 cases (29.68%). In Biswas J et al.[12] the most common cause of panuveitis was Vogt–Koyanagi– Harada (VKH) syndrome seen in 19 cases (55.9%).

The study published in 2017 by Palsule AC et al.,[8] they concluded among anterior uveitis cases (n=82), specific diagnosis could be reached in 38 (46.3%) patients. HLA B27 associated uveitis was the most common etiology seen in 24 (29.3%) patients. Among the posterior uveitis cases (n = 41 [20.7%]), specific diagnosis could be reached in 28 (68.3%) patients. Presumed ocular tuberculosis seen in eight patients (19.5%) and toxoplasmosis seen in eight (19.5%) patients. In Dogra M et al.,[14] study they concluded among specific etiologies of uveitis, Tuberculosis (22.9%) was the most common infectious and HLA-B27 associated uveitis (9.46%) among non-infectious causes.

5. Source of Funding

None.

6. Conflict of Interest

None.

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