Original Research Article

Clinical trends of intraocular inflammation in tertiary health centre

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Received: 04-11-2021 / Revised: 28-12-2021 / Accepted: 10-01-2022

Abstract

Aim: To study the clinical pattern of uveitis and its systemic associations in a tertiary care health centre. **Methods**: This cross sectional, observational study was done on 250 patients with intraocular inflammation presenting to the ophthalmology department from May 2019 to May 2020.Data regarding demographic profile, anatomical location, clinical features and etiology of the disease was collected and analyzed. Thorough systemic and local examination was done and tailored laboratory investigations were advised to find systemic associations of uveitis. **Results**: Two hundred fifty patients with the intraocular inflammation were examined. The mean age of presentation was 38.3±17.7 years, with most patients belonging to the age group of 20-40 years. The male to female ratio was 1:1.2. Most patients (87.6%) had unilateral disease with acute onset presentation in 81.6%. Anterior uveitis was most common (79.6%) anatomical type and non-granulomatous was most common (93.2%) pathological type. Disease was idiopathic in most (60.4%) cases. Infectious etiology was found in 8.8% cases and non-infectious in 30.8% cases. Most common identifiable causes weretrauma (21.7%) in anterior uveitis, tuberculosis (18.18%) in posterior uveitis, and Vogt Koyanagi Harada syndrome (36.36%) in panuveitis. **Conclusion**: The pattern of uveitis shows great variation depending upon geographical and environmental factors. This study concluded that uveitis predominantly occurred in young adults with acute presentation being the most frequent. The most common anatomical type was anterior uveitis and pathological type was non – granulomatous. Aspecific aetiology could be identified in only 39.6% cases.

Keywords: Uveitis, Clinical Trends, Central India.

Introduction

The term uveitis encompasses a large group of intra ocular inflammatory diseases of diverse aetiology which involves not only the uveal tract but also adjacent structures including the retina and vitreous. It most commonly affects patients of working age group and the uncontrolled inflammation and frequently relapsing course of uveitis can lead to several vision-threatening complications, including cataract, glaucoma, macular oedema, neovascularization, retinal detachment, and optic neuropathy.

The patient of uveitis may present with a multitude of ocular as well as systemic symptoms and signs. Clinically the disease may present as acute, chronic or recurrent disease and anatomically, it can be classified into anterior, intermediate, posterior and panuveitic forms. The aetiology of uveitis can be broadly classified into infectious and non-infectious and it is also known to be frequently associated with systemic diseases and trauma.

Since the disease has an extensive differential diagnosis, making a correct diagnosis becomes challenging but it is important because when properly diagnosed, many entities are treatable and potentially sight threatening complications can be avoided. Because of its association with systemic diseases, sometimes uveitis may be the indicator of the underlying disease.

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Thus, it becomes important to be aware of the clinical pattern and presentation of uveitis. The pattern of uveitis is greatly influenced by a variety of factors, including ethnic, geographic, genetic and environmental factors, varying diagnostic criteria, and referral patterns. It also changes over time with the emergence or identification of newer uveitic entities and improvement of diagnostic techniques.

Numerous studies on the pattern of uveitis in various geographical locations across western countries, Asia and Africa have been published in literature that show distinct differences as well as similarities in epidemiological profile and aetiologies. Data from different parts of India including north, south, west and north-east are also available but similar data from central India is lacking, hence the need for the present study.

Material and methods

This was a cross sectional, observational study conducted in ophthalmology department of a tertiary care health centre from May 2019 to May 2020. A total of 250 patients with intraocular inflammation were examined. A thorough history regarding chief complaints and details of presenting illness was taken. Relevant past, personal and medical history as well as history of treatment taken for ocular ailments was noted. A comprehensive ocular examination was done which included best corrected visual acuity, slit lamp examination and a dilated fundus examination using 90 D lens and indirect ophthalmoscopy. As needed, fundus fluorescein angiography, OCT and B-Scan was performed in selected cases. According to Standardization of Uveitis Nomenclature (SUN), disease was classified on the basis of anatomical involvement into anterior,

intermediate, posterior and panuveitis, on the basis of course into acute, chronic and recurrent, on the basis of pathological type into granulomatous and non–granulomatous[1].

All patients underwent a standard protocol of investigations that included total and differential blood cell count, random blood sugar, haemoglobin, ESR, CRP and RA factor. Depending upon the history provided by the patient, systemic symptoms and full ocular examination, patients were directed to specific laboratory investigations that included HLA B27, Mantoux test, HIV, VDRL, ELISA, urine analysis and radiological investigations in the form of x-ray sacroiliac joint, chest x-ray, x-ray lumbosacral spine.Where needed, specialists in rheumatology, neurology and infectious diseases were also consulted. In case of unavailability of some specific investigations, diagnosis was made on the basis of characteristic features and diagnostic criteria prescribed[2,3,4].

Observations and results

During a 1-year study period, 250 patients with intraocular inflammation were examined. The age of the patients ranged from 10 to 86 years with a mean age of 38.3 ±17.7 years. Patients between the ages of 20-40 years were maximally involved (n=94; 37.6%). A slight female preponderance was observed in our study with the male:female ratio being 1:1.2.

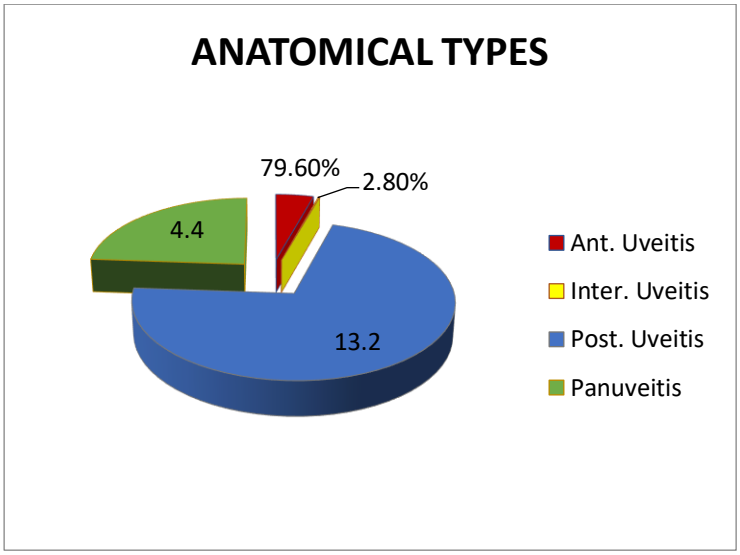

Fig 1: Showing distribution of patients according to anatomical type of uveitis

Categorizing the patients on the basis of the anatomical type of uveitis, it was observed that the most common type was anterior uveitis seen in 199 patients (79.6%) followed by posterior uveitis in 33 patients (13.2 %). Panuveitis was present in 11 patients (4.4 %) while 7 (2.8%) patients had intermediate uveitis.

In the present study, majority of the cases (n=219; 87.6%) had unilateral involvement with only 26 (10.4%) patients showing bilateral presentation. Amongst the different anatomical types also, unilateral disease was more common except in panuveitis group in which 6 (54.54%) had unilateral disease and 5 (45.45%) had bilateral. Alternating presentation of disease was seen in only 5 cases, all of whom had anterior uveitis. Analyzing the course, we found that overall, majority (n=204; 81.6%) of the patients had acute disease. Whereas most patients of anterior and posterior uveitis had acute form of disease, chronic presentation was more (n=7; 63.63%) common in panuveitis. Recurrent disease was encountered only in anterior uveitis. Non-granulomatous uveitis was the predominant pathological form seen in our study accounting for 93.2% (n=233) of all cases. Individual anatomical sub-types also showed non-granulomatous form of disease to be more common except panuveitis in which granulomatous disease was more frequent (n=6; 54.54%).

After ophthalmic examination and tailored laboratory investigations, a specific diagnosis could be established in only 99 (39.6%) cases. Amongst these, 77 (30.8%) had a non-infectious cause. Infectious aetiology accounted for 39.4% cases of posterior uveitis while non-infectious aetiology was more common in anterior (34.2%) and panuveitis (36.36%) groups. No definite aetiology could be attributed to any patient of intermediate uveitis.

Table1: Distribution of patients according to aetiology

Aetiology	Anterior	Intermediate	Posterior	Panuveitis	Total
Infectious	6 (3%)	0	13 (39.4%)	3 (27.27%)	22 (8.8%)
Non-infectious	68 (34.2%)	0	4 (12.1%)	4 (36.36%)	77 (30.8%)
Idiopathic	125 (62.8%)	7 (100%)	16 (48.5%)	4 (36.36%)	151 (60.4%)
Total	199 (100%)	7 (100%)	33 (100%)	11 (100%)	250

Table 2: Aetiological causes of anterior uveitis

Aetiology	Number (n)	Percentage (%)
Idiopathic	125	62.8
Traumatic	43	21.7
Post-operative	19	9.5
JIA	1	0.5
Ankylosing spondylitis (HLA B27)	4	2.0
Tuberculosis	3	1.5
Viral	3	1.5

Fuch's heterochromatic uveitis	1	0.5
Total	199	100

Analysing the aetiology of patients with anterior uveitis, it was found that the most commonly established aetiology was trauma, accounting for 43 (21.7%) cases followed by post-operative in 19 (9.5%) cases. Infectious aetiology was seen in 6 (3%) and non-infectious in 68 (34.2%) cases. The largest number of patients however, belonged to the idiopathic group (n=125; 62.8%).

Table 3: Aetiological causes of intermediate uveitis

Aetiology	Number (n)	Percentage (%)
Idiopathic	7	100
Total	7	100

No cause could be found in any of the patients of intermediate uveitis and so all were grouped under idiopathic.

Table 4: Aetiological causes of posterior uveitis

Aetiology	Number (n)	Percentage (%)
Idiopathic	16	48.48
Tuberculosis	6	18.18
Toxoplasma	5	15.15
Serpiginous choroiditis	3	9.09
Viral	2	6.06
Frosted branch angiitis	1	3.03
Total	33	100

Among the 33 patients of posterior uveitis, an aetiological cause was found in 17 (51.52%) cases, the most common being tuberculosis in 6 (18.8%) and Toxoplasma in 5 (15.15%) cases. A single case (3.03%) of frosted branch angitis was also seen in our series. However, in 16 (48.48 %) patients, no cause of uveitis could be ascertained.

Table 5: Aetiological causes of panuveitis

Etiology	Number (n)	Percentage (%)
Idiopathic	4	36.36
VKH	4	36.36
Tuberculosis	2	18.18
Toxoplasma	1	9
Total	11	100

In patients having panuveitis, an aetiological cause could be identified in more than half the patients, the most frequent of which was Vogt Koyanagi Harada (VKH) syndrome seen in 4 (36.36%) patients. Tuberculosis as a cause of panuveitis was found in 2 (18.18%) cases and Toxoplasma in 1 (9.0%). Four (36.36%) patients were grouped as idiopathic.

Discussion

Uveitis is one of the important causes of preventable visual impairment. Comparison of statistics of uveitis of different studies is difficult due to difference in diagnostic criteria, investigation modalities and treatment. Geographical distribution also plays an important role in the varied presentation of uveitic entities. Many studies have been done to study its pattern and profile in different geographical areas across different countries and all show variation in the distribution of the uveitis.

This was a cross sectional study done with the aim to study the clinical pattern and profile of uveitis and to analyse its association with different systemic conditions.

In our study the age of the patients ranged from a minimum of 10 years to a maximum of 86 years with a mean age of 38.3±17.7 years, and the most commonly affected age group was 20-40 years. Most studies from across different parts of India as well as from outside India have also reported that most patients of uveitis belonged to the younger age group with mean age of presentation varying between 33.05 years to 44.0 years[5,6,7,8,9,10]. The disease was seen to be slightly more frequent in females (54.8%), an observation which was similar to that of others[7,9,11]. However, some studies which documented a male preponderance attributed it to males having greater access to medical care[6,8,12,13].

In the present study, uveitis affected only one eye in most (87.6%) cases, a finding which was consistent with other studies[6,8].The disease was bilateral in 10.4 % while it involved both eyes alternatingly in only 2% cases. In contradistinction to this, Hosseini M et al in their study in Iran observed majority (63.8%) of their cases having bilateral disease[11]. Some previous studies reported a more equitable distribution of disease in terms of laterality, with unilateral disease ranging from 48.5% to 59.7%[7,9,13,14].

The cause of uveitis in this prospective study of 250 patients, could be ascertained in only 39.6% patients, the rest (60.4%) being idiopathic. This was similar to studies by Camilo ENR et al[8] (61.5%) and Kurumkattil R et al[10] (62.5%) but in contrast to others which reported idiopathic cases ranging from 23.0% to 49.5%[6,7,9,11,14]. Systemic conditions, which could be considered attributable to the intraocular inflammation, were determined in this study in 31 patients (12.4%) on the basis of history, ocular examination and laboratory investigations.

The most common anatomical variant in our study was anterior uveitis(79.6%). This observation is comparable to that reported by others but with percentages varying from 35.1% to 70%[6-10, 12-14]. The study by Hosseini M et al however, documented that anterior uveitis was the second most frequent anatomical type, seen in 37%[11].

Posterior uveitis was the second most common (13.2%) anatomical variety in our study, which is similar to that documented by Khairallah M et al[7] and Irengbam S et al[15].

Patients of panuveitis and intermediate uveitis were less common in our study accounting for 4.4% and 2.8% cases respectively. The highest prevalence (46.8%) of panuveitis was reported by Hosseini M et al[11]. A study in China by Zheng Yet al[13] also documented a high prevalence of panuveitis (32.7%) but only 1% for intermediate uveitis and Camilo ENR et al[8] from Brazil noted panuveitis in 3.4% with no case of intermediate uveitis. Irengbam S et al[15] from Manipur, India reported a low prevalence (4.3%) of panuveitis which was in accordance with our results but a higher prevalence of intermediate uveitis as compared to ours, was reported by Palsule AC et al[9] (16.6%) and Singh R et al[5] (16.06%).

Most of the patients (81.6%) in our study had acute presentation of disease, 16% had chronic disease while recurrent uveitis was observed in only 2.4% cases. Other Indian studies from southern and western India also reported most of their cases having an acute onset[6,9]. A study[13] on Chinese subjects noted a more equitable distribution of patients with acute (55.3%) and chronic (44.7%) disease but the study in Tunisia by Khairallah M et al[7] documented a preponderance of chronic uveitis with 67.2% cases. Palsule AC et al[9] observed more cases of recurrent uveitis (14.1%) which was in contrast to our results.

In the present study, we found that a large majority (93.2%) of patients had non-granulomatous uveitis, an observation corroborated by others[6,7,11]. However, in the study by Luca C et al[14] done in Italy, there were 55% patients who had granulomatous uveitis as compared to 45% patients with non-granulomatous uveitis.

When patients in our study were investigated to establish the cause of uveitis, a non-infectious aetiology could be ascertained in 30.8 % and infectious cause in 8.8 % patients, while the remainder (60.4%) had idiopathic uveitis. Aetiological cause was most frequently identified in patients of panuveitis (63.64%) followed by 51.5% in posterior uveitis patients. Most (62.8%) of the patients with anterior uveitis were idiopathic. Non-infectious causes were more commonly seen in patients of panuveitis (36.36%) and anterior uveitis (34.2%) while infectious etiology was more frequently found in posterior uveitis patients (39.4%). All (100%) cases of intermediate uveitis were idiopathic.

Reports from other studies also show more than half of their patients as having idiopathic uveitis[5, 8, 10, 12, 14, 15]. However, various other studies have reported a lesser number (ranging from 23.0% to 49.5%) of patients in whom no cause for uveitis could be established[6, 7, 9, 11,14].

In our study, most of the patients with anterior uveitis were idiopathic (62.8%) followed by those with traumatic aetiology (21.7%) and post-operative uveitis (9.5%). Other aetiologies in this group were HLA-B27 ankylosing spondylitis (2.0%), viral and tubercular (1.5 % each) and Fuch's uveitis and Juvenile idiopathic arthritis (0.5% each).Similarly, studies by Zheng Y et al[13] (7.8%) and Sudha Madhavi KM et al[16] (20%) also had trauma as the most common cause of anterior uveitis. Uveitis has a very diverse aetiology and the most common causes documented in other studies include herpes[6,7], seronegative spondyloarthropathy[10], Fuch's uveitis[11], collagen disorders[15], HLA B-27 associated uveitis[9] and ankylosing spondylitis[5,12].

In all patients of intermediate uveitis in our study, we were unable to make a specific diagnosis and so all cases were grouped as idiopathic. Many studies[7, 9, 11, 14, 15] also reported most cases of intermediate uveitis being idiopathic but other common causes documented include sarcoidosis[5, 6, 7, 15] Behcet's disease and seronegative spondyloarthropathy[11] and presumed ocular TB[9,12].

Of the 33 patients of posterior uveitis in the present study, most (48.5%) cases were idiopathic, a finding similar to few other studies[9,10,13]. Amongst the various causes identified, the most common was tuberculosis (18.18%) followed by Toxoplasma (15.15%). Serpiginous choroiditis was documented in 9.09% cases, viral retinitis in 6.06% and we also had one (3.03%) case of frosted branch angiitis. Sarcoidosis, cat scratch disease, CMV retinitis, acute retinal necrosis, Behchet's syndrome, Toxocariasis and AMPPE are the other aetiological causes documented in various studies[5, 7, 9, 10, 12, 17, 18].

In patients presenting with panuveitis, no causative aetiology could be identified in 36.36% cases and this is in agreement with other studies[6,9,12]. VKH was the most common (36.36%) aetiology to be documented in our series of panuveitis patients, others being Tuberculosis and toxoplasma. Reports from other studies document tuberculosis[5,9,15] and Behcet's disease[7,13] as the most common cause of panuveitis. Hosseini SM et al[11] observed an equal proportion (22.72% each) of idiopathic, Behcet's disease and VKH in his series of panuveitis patients. Seasonal hyper acute panuveitis (SHAPU), sarcoidosis and viral retinitis were other reported aetiologies[5, 9, 10, 12, 17].

Conclusion

From the results of this study, we concluded that uveitis predominantly occurred in young adults with acute presentation being the most frequent. The most common anatomical type was anterior uveitis and pathological type was non – granulomatous. A specific aetiology could be identified in only 39.6% cases.

Our study has certain limitations. The study duration was short and being cross sectional, some diagnosis may change over time. Since the study included a sizeable number of traumatic and post-operative uveitis patients, the proportion of anatomic type of uveitis was skewed towards anterior uveitisIt was done at a tertiary health care centre of central India that caters to many patients from nearby remote areas where accessibility to health resources is hindered by poor socio-economic status andlack of awareness, thus resulting in under diagnosis and delayed referrals. However, our results to a great extent, convey the generalpattern of uveitis seen in Vindhya region of central India.

References

1. Jabs DA, Nussenblatt RB, Rosenbaum JT, Standardization of Uveitis Nomenclature (SUN) Working Group. Standardization of uveitis nomenclature for reporting clinical data. Results of the First International Workshop. Am J Ophthalmol 2005;140:509–16.
2. International Study Group for Behcet's Disease, "Criteria for diagnosis of Behcet's disease," Lancet, vol. 335, no. 8697, pp. 1078–1080.
3. Read RW, Holland GN, Rao NA, Tabbara KF, Ohno S, Arellanes-Garcia L, et al. Revised diagnostic criteria for Vogt-Koyanagi-Harada disease: report of an international committee on nomenclature. Am J Ophthalmol. 2001 May;131(5):647–52.
4. Herbort CP, Rao NA, Mochizuki M, members of Scientific Committee of First International Workshop on Ocular Sarcoidosis. International criteria for the diagnosis of ocular sarcoidosis: results of the first International Workshop on Ocular Sarcoidosis (IWOS). Ocul Immunol Inflamm. 2009 Jun;17(3):160–9.
5. Singh R, Gupta V, Gupta A. Pattern of uveitis in a referral eye clinic in North India. Indian J Ophthalmol 2004;52:121-5.
6. Rathinam SR, Namperumalsamy P. Global variation and pattern changes in epidemiology of uveitis. Indian J Ophthalmol. 2007; 55:173–83.
7. Khairallah M, Yahia SB, Ladjimi A, Messaoud R, Zaouali S, Attia S, Jenzeri S, Jelliti B. Pattern of uveitis in a referral centre in Tunisia, North Africa. Eye. 2007 Jan;21(1):33.
8. Camilo EN, Moura GL. Clinical and epidemiological characteristics of patients with uveitis in an emergency eye care center in Brazil. Arquivosbrasileiros de oftalmologia. 2014 Feb;77(1):30-3.
9. Palsule AC, Jande V, Kulkarni AA, Beke NN. Pattern of uveitis in a tertiary eye care center in Western India. J Clin Ophthalmol Res 2017;5:127-31.
10. KurumkattilR, Dhar SK, Sharma VK,Trehan HS, Singh A. Clinical Profile and Pattern of Uveitis in a Tertiary Care Centre. ijirms [Internet]. 25Dec.2017;2(12):1580-1582
11. Hosseini SM, Shoeibi N, Ebrahimi R,Ghasemi M. Patterns of uveitis at a tertiary referral center in Northeastern Iran. J Ophthalmic Vis Res 2018;13:138-43.
12. Shrestha JB, Shah DN. Systemic association of uveitis in Nepalese population. Journal of Chitwan Medical College. 2017 May 24;7(1):35-40.
13. Zheng Y, Zhang L-X, Meng Q-L, Zhang M, Cui Y, Liu Q-Y, et al. Clinical patterns and characteristics of uveitis in a secondary hospital in southern China. Int J Ophthalmol. 2015 Apr 18;8(2):337–41.
14. Luca C, Raffaella A, Sylvia M, Valentina M, Fabiana V, Marco C, Annamaria S, Luisa S, Lucia B, Alessandro Z, Maria P. Changes in patterns of uveitis at a tertiary referral center in

Northern Italy: analysis of 990 consecutive cases. Int Ophthalmol. 2018 Feb 1;38(1):133-42.
15. Irengbam Supriya , Nameirakpam Mamota , Ahanthem Suchitra Devi , Sonam Gelek Palzang , Ningombam Reagan, et al. The patterns of uveitis presenting at a tertiary care facility in Imphal, Manipur. IOSR-JDMS 2016; 15(12): 38-42.
16. Madhavi SKM, Kumaraswamy RC. Study of clinical and aetiological pattern of anterior uveitis in middle Karnataka. Chrismed J Health Res 2015;2(2):124-8.
17. Das D, Bhattacharjee H, Bhattacharyya PK, Jain L, Panicker MJ, Das K, et al. Pattern of uveitis in North East India: A tertiary eye care center study. Indian J Ophthalmol. 2009; 57:144–6.
18. Biswas J, Kharel (Sitaula) R, Multani P. Changing uveitis patterns in South India - Comparison between two decades. Indian J Ophthalmol 2018;66:524-7.

Conflict of Interest: Nil Source of support: Nil