

Pattern of Uveitis at a Tertiary Eye Care and Training Center, North-West Ethiopia

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Research Article

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Abstract

Objective: Uveitis can potentially cause irreversible ocular damage and blindness and knowing its characteristic clinical features is essential in making an accurate diagnosis and starting early appropriate treatment. The aim of this study was to determine the clinical presentations of uveitis at the University of Gondar Tertiary Eye Care and Training center, North-West Ethiopia.

METHODS: Institutional based cross-sectional study was conducted at University of Gondar tertiary eye care and training center from August 2017 to July 2018. Study patients underwent complete ophthalmic evaluation and relevant ancillary tests. Data was collected using a data extraction format and entered in to SPSS version 20 and analyzed.

RESULTS: A total of 105 eyes of 82 patients were studied. The mean age was 33.8 ± 14.8 years (Range 7 to 80). Half of the participants (41/82) were in the age group between 19 and 39 years. Fifty three (65%) were male and uveitis was unilateral in 72%. Anterior uveitis was the commonest, 57%, followed by Intermediate uveitis 21.7%, pan uveitis 12% and posterior uveitis 10%. Twenty three percent of patients were bilaterally blind at presentation. Out of the 105 eyes involved with uveitis, 63% (66/105) were blind. Cataract was the commonest complication followed by ocular hypertension.

CONCLUSION: This study showed that uveitis is prevalent in the working age group with significant number of blindness. Anterior uveitis was the commonest type of Uveitis and cataract was the commonest complication.

Introduction

Uveitis can cause permanent structural damage to the eye which results in incurable blindness.¹ The estimated annual incidence in developed countries is 52.4 per 100,000 person-years.² More than 50% of all uveitis patients develop secondary complications and up to 35% of patients suffer severe visual impairment³ which accounts for 5 to 20% of legal blindness in both the United States and Europe.^{3,4} In developing countries, Uveitis occurs in up to 714 per 100,000 in the population⁵ and cause up to 25% of blindness. But still the significant visual loss and blindness may be underestimated in these countries.^{3,4}

Different factors including race, geographical location, socioeconomics and environment can all affect the prevalence of uveitis between different societies.⁶ Uveitis doesn't seem to have sexual predilections as seen in most series.^{3,7,8} Uveitis can affect any age group, but people aged from 20 to 60 years are most commonly affected.^{3,9,10} The incidence of uveitis in children is much lower than that in adults in Northern Europe, and composes 5–10% of the total uveitis population.¹⁰

The causative agents of uveitis include infectious or noninfectious systemic or ocular disease and masquerade syndromes. Infections causing uveitis is more common in the developing world, accounting

for 30 to 50% of all cases of uveitis in this part of the world. ¹¹⁻¹⁴ Socioeconomic factors play an important role in developing countries in which poverty, overcrowding, and poor nutrition can promote infection. ¹¹ In developed countries, infectious uveitis is less common accounting 11% to 21% of uveitis cases. ⁸

Uveitis may be a presenting sign of life-threatening systemic disease such as vasculitis. Proper diagnosis and treatment of uveitis and the associated systemic illnesses can reduce the resultant morbidity and mortality. ¹ Studies from tertiary referral centers in different parts of the world, showed that anterior uveitis is the commonest type of uveitis, followed by posterior or panuveitis and intermediate uveitis. ¹⁵

The peak age of onset is during the highly productive years, and the potential for severe visual loss highlights the seriousness of the impact of uveitis on patients and communities.

Knowledge of the typical clinical features of uveitis and its epidemiology is essential in making accurate diagnosis and starting early appropriate treatment.

Studies that describe the epidemiology of uveitis in Africa are very scarce. We do not have adequate published data on the clinical presentation of uveitis in Ethiopia. This study was therefore conducted to enable us to have baseline knowledge on clinical presentations, severity of visual impairment and secondary complications of uveitis.

Patient And Method

Institutional based cross sectional study was conducted to assess clinical presentations of uveitis at the university of Gondar Tertiary Eye care and Training center from August 2017 to July 2018.

All patients with a diagnosis of uveitis who visited the outpatient clinics of the center during the study period were studied.

Data was collected using a standardized checklist and data extraction format which consisted of history, review of systems, presenting visual acuity and intraocular pressure measurement.

Tumbling-E Snellen's charts were used to assess visual acuity. Grading of visual impairment and blindness was done according to the WHO classification system ¹⁶ as follows: visual acuity better or equal to 6/18 – normal; visual acuity less than or equal to 6/24 and better than 6/60 – moderate visual impairment; visual acuity less than or equal to 6/60 and better than counting fingers at 3m – severe visual impairment; visual acuity less than or equal to counting fingers at 3m – blindness; for bilateral blindness the result of the eye with the better presenting visual acuity were recorded. Detailed anterior segment examination with slit lamp and dilated fundus examination with slit lamp using 90D lens was done.

Uveitis was classified as anterior, intermediate, posterior and panuveitis based on Standardization of Uveitis Nomenclature (SUN) working group classification system.¹⁷ Diagnosis of uveitis was confirmed by ophthalmologist.

For patients with bilateral disease, recurrent unilateral disease, pan uveitis, granulomatous uveitis, posterior uveitis, manifestations of associated systemic disease and disease resistant to treatment, available investigations which included complete blood cell count (CBC), erythrocyte sedimentation rate (ESR), HIV serology, Triponema pallidom hemagglutination Assay (TPHA), Antinuclear antibody (ANA), Rheumatoid factor (RF), chest x-ray and Anti-toxoplasma serology were done and results recorded on the data extraction format. For patients with signs of old or active anterior uveitis (Iritis) but with media opacities such as cataract and/or vitreous opacities ocular ultrasound was done to rule out involvement of the vitreous retina and choroid in the inflammation.

The collected data were checked for accuracy, coded, cleaned and entered in to Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA.) version 21. Descriptive statistics was used in the analysis.

The study was conducted in full compliance with the 2013 declaration on research involving human subjects. Prior to commencement of the study, ethical clearance was obtained from the Ethics Committee (Institutional Review Board) of University of Gondar with reference number GUEB233/2017.

Results

A total of 105 eyes of 82 patients were included in the study. The mean age of patients was 33.8+/- 14.8 years (range 7 to 80 years) and 41(50%) patients were in the age group between 19 and 39 years. Males accounted 65% (53/82) and females 35% (29/82), with male to female ratio of 1.8:1. Forty six (56%) patients were from urban area and 36(44%) were from rural area.

Anterior uveitis was present in 47 (57%) of the patients, Intermediate uveitis in 17 (21%), posterior uveitis in 8 (10%), and pan uveitis in 10 (12%) of the population. Unilateral Uveitis was present in 59 (72%) and bilateral disease was present in 23 (28%) of the study population.

Seventy four percent of anterior uveitis cases were unilateral while 26% were bilateral. Intermediate uveitis was unilateral in 65% and bilateral in 35%. Posterior uveitis was unilateral in 87% and bilateral in 13%. pan uveitis was unilateral in 60% and bilateral in 40%.

Reduction of vision was the commonest presenting complaint seen in 62 (75.6%) of patients followed by eye pain 22(26%) and redness/photophobia 17 (21%). The clinical presentation was insidious onset in 68% (56/82) and sudden onset in 32% (26/82) of patients. Only 39% of patients came within one month of the onset of symptoms and the remaining 61% came later than one month after the disease onset.

Based on presenting visual acuity of patients in the better eye, 19 (23%) patients were blind and 7 (8.5%) had severe visual impairment. Moderate vision impairment was present in 7 (8.5%) and 49 (60%) had

normal vision.

Among patients with unilateral uveitis 61% (36/59) eyes were blind, 10% (6/59) eyes had severe visual impairment, 12% (7/59) eyes had moderate visual impairment and 17% (10/59) eyes normal vision. (Figure-I)

Among patients with bilateral uveitis 65% (30/46) eyes were blind 14% (3/46) eyes had severe visual impairment, 23% (5/46) eyes had moderate visual impairment and 17% (8/46) normal vision. (Figure-II)

Out of the 105 eyes studied, 18% (19/105) had normal vision, 10.5% (12/105) had moderate visual impairment, 8.5% (9/105) had severe visual impairment, 63% (66/105) were blind. (Figure-III)

Based on clinical examination findings and laboratory data, specific diagnosis was made in 28% (23/82) of patients and in the remaining 72% (59/82) specific diagnosis could not be made. Sixty five percent (15/23) of patients with specific diagnosis had infectious etiology and the remaining 35% (8/23) were non-infectious. Herpes simplex was the commonest infectious etiology 46.6% (7/15) followed by toxoplasmosis 26.6% (4/15). Herpes simplex was the causative agent in 15% of anterior uveitis and toxoplasmosis was diagnosed in 50% of posterior uveitis. (Table-I)

Eighty seven eyes (83%) had at least one complication and cataract was the commonest complication diagnosed in 47 (45%) eyes followed by ocular hypertension seen in 13% (14/105) eyes: 14 eyes had intraocular pressure greater than 20 mmHg from which 6 eyes had IOP more than 30 mmHg.. (Table II)

Discussion

The mean age of uveitis patients in this study was 33.8 +/-14.8 years and 50% of the patients were in the age range between 19 and 39 years. This is similar with the study done in china where the mean age was 33.8 +/- 16.5 years and 60% are in the age range between 25 and 44 years¹⁸, and studies done in North India⁵, Tunisia¹⁴ and Turkey¹⁹ which reported mean age 34.4, 34, 35.7 years respectively.

There was a higher percentage of males, 65%, in this study which was also the case in South India 62.2%²⁰, North India 52%⁵, and China 52%.¹⁸ Factors contributing to male predominance in uveitis surveys reported from developing countries are undoubtedly complex and it was suggested that men tend to seek medical attention more often than women in agricultural societies⁶ and this may certainly have contributed to the trend in our clinic. In contrary females were predominant in the studies done in United states^{15,7}, England⁹, Thailand²⁰ and Tunisia.¹⁴

Anterior uveitis has been found to be the predominant type of uveitis by a number of investigators. This study also showed that anterior uveitis was the commonest type seen in 57% of patients. Studies done in China¹⁸, Turkey¹⁹, Thailand²¹, North India⁵ and Tunisia¹⁴ also reported anterior uveitis to be the commonest type of uveitis in their studies. A population based study done in urban south India showed intermediate uveitis was the commonest type of uveitis.²⁰ However, studies from Los Angeles California

¹⁵ and Washington University ⁷ in United States of America showed that posterior uveitis was the commonest type accounting for 38.4% and 48.4% respectively followed by anterior uveitis, pan uveitis and intermediate uveitis. A study from England showed that pan uveitis was the commonest in their series accounting for 47% followed by anterior, intermediate and posterior uveitis.⁹

Our study showed sudden onset of the disease was reported in only 32% of the study population while 68% presented with insidious onset. However, a study done in Washington University had higher percentage of patients with sudden disease onset, 55%, while 45% presented with insidious onset of presentation. ⁷

This study showed a higher percentage of unilateral disease (72%) and a lower percentage of bilateral disease (28%) than those of other series. A study done in Tunisia showed unilateral disease was the commonest accounting for 59.7% of patients which is similar with our result. ¹⁴ However, a study done in England showed a higher number of bilateral uveitis 66% than unilateral uveitis 34%. ⁹

In this study 23% of the study population had bilateral blindness which is higher than study done in England 11.4% ⁹, Thailand 7.2 %) ²⁰ and Tunisia 3.4%. ¹⁴ This study has also showed 63% of involved eyes were blind and this is much higher than reports from Nepal (23%)²², Tunisia (12.5%)¹⁴, England (11.5%)⁹. The high prevalence of secondary complications such as cataract in our patients (45%) and delayed presentation (61%) may be the reasons for the significantly higher vision loss.

Specific diagnosis was established in only 28% of our patients which is lower than reports from Thailand (56%)²¹, Tunisia (64.8%)¹⁴ and Nepal (36.7%)²². This may be due to limitations in the available laboratory tests in our center.

Herpes simplex was the commonest infectious etiology identified followed by toxoplasmosis and this is in line with similar studies.^{14,22,23}

The commonest complication of uveitis among our study population was cataract 45% followed by ocular hypertension. Similarly, cataract was the commonest complication of uveitis in other studies done in England ⁹ and Thailand ²¹, but cystoid macular edema was the second most common complication in the England ⁹ study and the commonest complication in Tunisia. ¹⁴ Cystoid macular edema was lower in our study probably because of lack of imaging modalities like ocular coherence tomography and fluorescein angiography for diagnosis.

Uveitic glaucoma evidenced by glaucomatous optic nerve damage was found in 3% of our study patients but it was higher in the study done in Thailand 23%. ²¹

The small sample size and limitations in the available laboratory test to reach at etiologic diagnosis are limitations of our study.

Conclusion

This study has identified Anterior Uveitis to be the commonest type of uveitis followed by intermediate uveitis, pan uveitis and posterior uveitis. Herpes simplex was the commonest infectious agent identified followed by toxoplasmosis. The commonest complication was cataract followed by ocular hypertension and 23% of our study patients had bilateral blindness.

Declarations

Disclosure

The authors report no conflicts of interest in this work.

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Data Availability

All data are fully available without restriction

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Not applicable.

Authors' contributions

Both LS and AT were involved in all components of the research process including data collection, review of literature, manuscript writing and statistical analysis. Both authors read and approved the final manuscript.

Consent for publication- Not applicable

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Tables

Table I. Frequency distribution by Etiology of Uveitis in patients presented to University of Gondar Tertiary Eye Care and Training Center, NW Ethiopia (n=82)

	Anterior Uveitis	Intermediate Uveitis	Posterior Uveitis	Panuveitis
Unknown Etiology	39	16	1	3
Herpes simples uveits	7	-	-	-
Toxoplasmosis	-	-	4	
Syphilitic uveitis	-	-	-	1
Tuberculosis uveitis	-	-	-	1
Acute retinal necrosis	-	-	1	-
CMV Retinitis	-	-	1	-
Vogt Koyanagi Harada syndrome	-	-		3
Eale's disease			1	
Sympathetic Ophthalmitis	-	-	-	1
Multiple sclerosis	-	1	-	-
sarcoidosis	-	-	-	1
Juvenile Rheumatoid arthritis	1	-	-	-

Table II. Complications in Patients with Uveitis presented to University of Gondar Tertiary Eye Care and Training Center, NW Ethiopia (n=105)

Complications	Frequency,n, (Eyes)	Percentage (%)
Cataract	47	45
Uveitic Ocular Hypertension	14	13
Vitreous Opacification	11	11
Retinal Detachment	4	4
Optic Disc Edema	3	3
Uveitic Glaucoma	3	3
Band Keratopathy	2	2
Macular Edema	1	1
Retinal Neovascularization	1	1
Hypotony	1	1

Figures

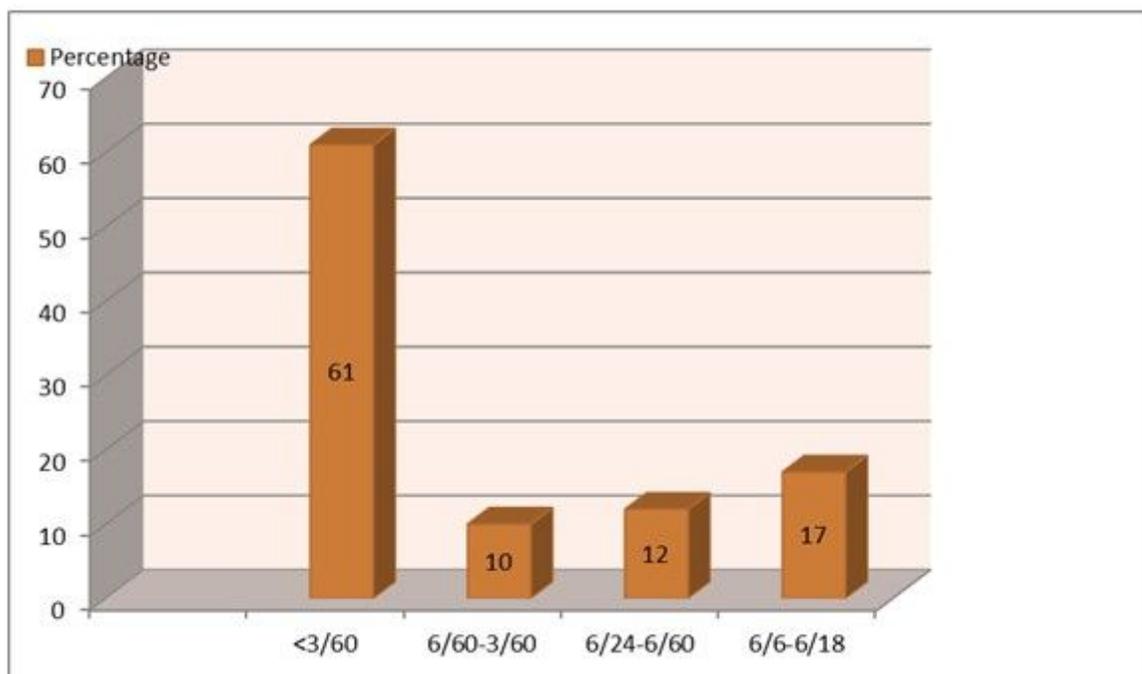


Figure 1

Visual acuity in eyes of patients with unilateral uveitis diagnosed among patients presented to University of Gondar Tertiary Eye Care and Training Center, NW Ethiopia. (n=59)

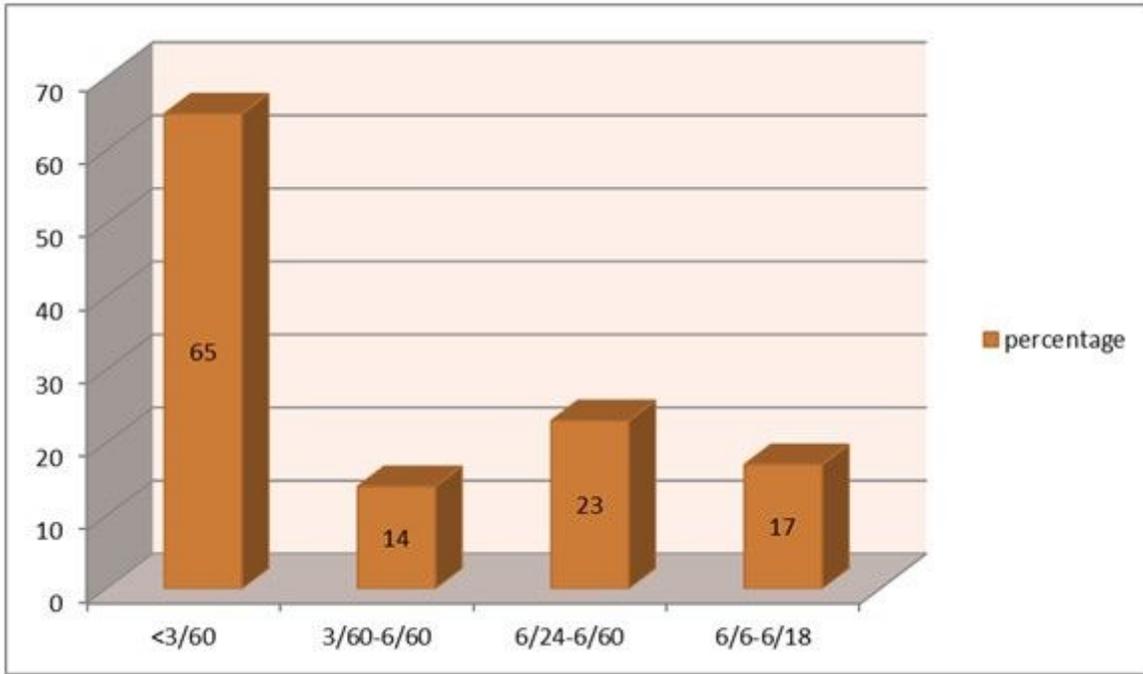


Figure 2

Visual acuity in eyes of patients with bilateral uveitis diagnosed among patients presented to University of Gondar Tertiary Eye Care and Training Center, NW Ethiopia. (n=46)

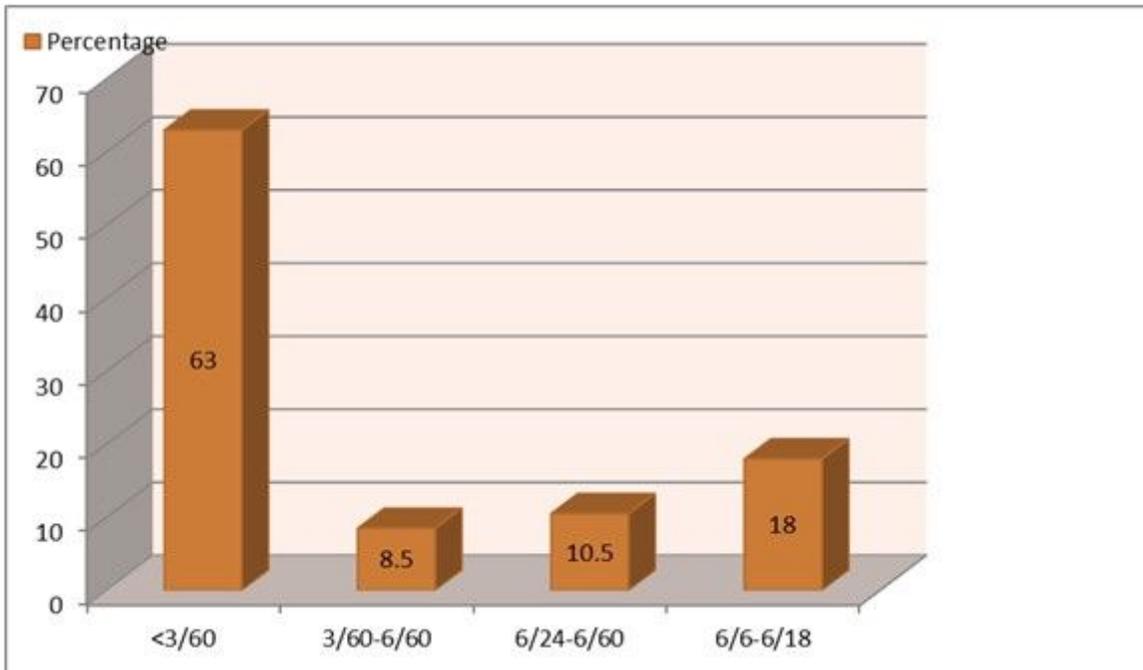


Figure 3

Visual acuity measurements in eyes diagnosed to have uveitis among patients presented to University of Gondar Tertiary Eye Care and Training Center, NW Ethiopia. (n=105)