

# Prevalence of Blindness in Patients with Uveitis

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## ABSTRACT

**Introduction:** The uvea plays an important role in ocular immunological defense mechanism. Immunologically speaking, the eye has a deviant and privileged position because of the blood retina barriers, absence of lymphatic drainage and a special feature called anterior chamber associated deviation. This special defense mechanism contributed to the preservation of vision. If these mechanism fail, intraocular inflammation will arise, which may lead to blindness. The aim of this research is to find out the incidence of blindness in patients with uveitis.

**Material and methods:** In this study, 50 cases of uveitis attending ophthalmic out patients and those who are admitted in department of ophthalmology, Regional Institute of Medical Sciences, Imphal were studied to find out clinical incidence of blindness. All the patients were subjected to detailed ocular examination including visual acuity, slit lamp biomicroscopy, direct/indirect ophthalmoscopy and intraocular pressure was recorded.

**Results:** Out of 50 patients examined, 20 cases (40%) developed blindness or visual impairment. Bilateral loss of vision developed in 5 cases (10%) and unilateral loss of vision occurred in 11 cases (22%).

**Conclusion:** Uveitis was found to be more common in the age group of 21 – 30 years with male preponderance. The main cause of visual loss were secondary glaucoma and cataract. Patients with panuveitis had the worst visual prognosis.

**Keywords:** Blindness; Uveitis; Visual acuity; Ophthalmoscopy.

## INTRODUCTION

Uveitis is an intraocular inflammation involving primarily the uveal tract. Vision is one of our most cherished senses. There are nearly 45 million people worldwide who are blind and a further 135 million people are visually disabled. Uveitis causes 0.6% - 11% of blindness in various studies. Khandekar R et al examined a total of 11417 people to estimate the magnitude and the causes of blindness through a community based nationwide survey in oman. The prevalence of blindness was estimated to be 1.1%. The major causes of blindness were unoperated cataract (30.5%), trichomatous corneal opacities (23.7%) and glaucoma (11.5%), Uveitis caused 0.8% of the blindness in this survey.<sup>1</sup>

It has been estimated that uveitis accounts for 10% to 15% of all cases of total blindness in the United States. Although uveitis is a well-known cause of blindness, there is only scant knowledge concerning the prevalence and incidence of uveitis among the blind. The complications like cataract and glaucoma, macular abnormalities are included in many epidemiological studies about blindness, how many of these attributable to uveitis is not specified. De Boer J et al carried

out a retrospective study of data of 123 consecutive patients with active uveitis and onset of ocular disease before the age of 16 years. Systemic disease was observed in 36 patients (29%) with juvenile idiopathic arthritis being the most frequent. Toxoplasma retinochoroiditis was diagnosed in 12 patients with posterior uveitis. Ocular complication were observed in 93 patients (76%) of which the most common was cataract (35%).<sup>2</sup>

The aim of treating uveitis is to prevent vision threatening complications, to relieve the patient's discomfort and to treat the underlying disease if possible. The four drugs currently used in the treatment of uveitis are mydriatics, steroids, cyclosporin and cytotoxic agent. Steroids are the mainstay of management of most cases of uveitis. It may be used topically, systemically or periocular by anterior or posterior sub-tenon injection. Mydriatics give comfort to the patients by relieving spasm of ciliary muscle and sphincter of the pupil, it prevents formation of synechiae and breaks down synechiae already formed. In general, the indications for proceeding with surgery need to be more carefully considered in eyes with uveitis. Because of the possible increased risks, surgery is frequently not justified on eyes with slightly decreased but functional vision, which are not in danger of visual loss from a surgically repairable problem. Hajari A and Sangwan VS studied visual outcome of cataract surgery in eyes with uveitis, and found that cataract extraction with posterior chamber intraocular implantation is safe with good visual prognosis and concluded that in all patients with uveitis and complicated cataract, the uveitis should be well controlled for at least three months before surgery.<sup>3</sup>

The aim of the present study was to find out the incidence of blindness in patients with uveitis.

## MATERIAL AND METHODS

The present study is undertaken on 50 cases of uveitis attending eye OPD and those who are admitted in Regional Institute of Medical Sciences, Imphal, Manipur during September 2001 to September 2003. Due permission from

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the institutional ethical committee and written informed consent of all patients had been obtained. Blindness, in this study, was regarded as best corrected visual acuity of  $\leq 3/60$  or its equivalent in the better eye or the field of vision restricted to  $< 10^\circ$  around the central fixation (corresponding to a distant vision  $\leq 3/60$ ). The criterion for severe visual impairment is a vision  $< 6/60$  to  $3/60$  in the better eye. This corresponds to the standard WHO definition of blindness and severe visual impairment.

On the initial visit or on admission, ocular symptoms, their nature, duration and recurrence were noted. Any general complaints, past or family history suggestive of associated systemic disease and history of trauma were noted. Visual acuity was examined with the help of Snellen's test type and field of vision was recorded with Bjerrum screen. Detailed ocular examination was done by slit lamp biomicroscopy and direct/indirect ophthalmoscopy. Intraocular pressure was recorded in each eye separately by means of Schiotz indentation tonometer after anaesthetizing cornea with 4% lignocaine. Any rise or fall in intraocular pressure was noted.

All patients were treated with topical mydriatics and steroids, some are treated with subconjunctival/subtenon injections. The OPD patients were followed up weekly for six weeks and at each visit, detailed examination was done. To determine the visual loss, the final visual acuity at the end of 6 weeks for OPD patients and at the time of discharge for indoor patients was recorded.

### STATISTICAL ANALYSIS

The data collected was analysed using statistical package for social services (SPSS). The categorical variables were presented as percentages using Microsoft excel. Microsoft

word was used to generate tables.

### RESULTS

In the present study, out of 50 cases, 56% were male and 44% female, maximum number of patients being found in the age group of 21 – 30 yrs. It was less common in children below 10 yrs. Males are predominantly affected in comparison to females (table-1).

In this patient series, anterior uveitis was the predominant anatomical diagnosis (37 cases, 74%). 1 (2%) presented with intermediate uveitis, 4 (8%) presented with posterior uveitis and 8 (16%) presented with panuveitis (table-2).

Severe visual impairment indicate visual acuity  $< 6/60$  to  $3/60$  in the better eye and visual loss indicates best corrected visual acuity in the better eye  $\leq 3/60$  or field of vision restricted to less than  $10^\circ$  around the central fixation (according to WHO criteria) (table-3).

Out of 50 patients, 20 (40%) developed blindness or visual impairment. Bilateral loss of vision occurs in 10% and unilateral loss of vision in an additional 22% and severe visual impairment in 8% of all patients with uveitis. When patients were subdivided according to anatomical site, those with panuveitis had the worst visual prognosis, 75% of patients with panuveitis exhibited blindness or severe visual impairment in one or both eyes.

There were many patients with more than one complication. The main cause of visual loss in uveitis in this study was secondary glaucoma. The second commonest complication was cataract (table-4).

The aetiology of uveitis is difficult to established and the exact cause frequently remains unknown. These were the few cases in the present study where the aetiology of uveitis

Sex	1 - 10	11 - 20	21 - 30	31 - 40	41 - 50	51 and above	Total
Male	2 (4%)	4 (8%)	8 (16%)	8 (16%)	3 (6%)	3 (6%)	28 (56%)
Female	-	5 (10%)	5 (10%)	2 (4%)	4 (8%)	6 (12%)	22 (44%)

**Table-1:** Distribution of cases with respect to age (in yrs) and sex.

Types	No. of Cases	
	n.	%
Anterior uveitis:	37	74
Acute	24	48
Chronic	13	26
Intermediate uveitis	1	2
Posterior uveitis	4	8
Panuveitis	8	16

**Table-2:** Anatomical distribution of uveitis.

	Bilateral severe visual impairment	Unilateral severe visual impairment	Bilateral visual loss	Unilateral visual loss
Anterior uveitis	-	2 (4%)	4 (8%)	5 (10%)
Intermediate uveitis	-	-	-	-
Posterior uveitis	-	1 (2%)	-	2 (4%)
Panuveitis	-	1 (2%)	1 (2%)	4 (8%)
Total	-	8%	10%	22%

**Table-3:** Visual loss in uveitis.

	No. of Patients	
	n	%
1. Glaucoma	11	22
2. Cataract	8	16
3. Cystoid macular oedema	1	2
4. Macular lesion	2	4
5. Retinal detachment	2	4
6. Retinal vascular anomalies	2	4
7. Phthisis	2	4
8. Miscellaneous		
Occlusio papillae	1	2
Iris atrophy	1	2
Proliferative vitreoretinopathy	1	2
Rubeosis iridis	2	4
Total no. of patients with one or more complications.	33	66

**Table-4:** Complication of uveitis (n = 50)

Disease	No. of Patients
1. Ankylosing spondylitis	2
2. Ocular toxoplasmosis	2
3. Systemic lupus erythematosus	1
4. Sacroilitis, HIV +ve, pulmonary kochs'	1
5. Arthritis with dermatographism	1
6. Trauma	5

**Table-5:** Established or known aetiology of uveitis.

was ascertained. The aetiology could not be established in the remaining 38 cases (table-5).

**DISCUSSION**

Uveitis is a general term for inflammation of the uveal tract due to any cause and usually includes a large group of diverse diseases affecting not only the uvea but also the retina and vitreous. The exact cause of uveitis frequently remains unknown in most of the cases. It is a potentially blinding disorder but there is only scant knowledge concerning the prevalence and incidence of uveitis among the blind. The conditions like cataract, glaucoma and macular abnormalities are included in many epidemiological studies about blindness. How many of these are attributable to uveitis is not specified.

In this study, the incidence of blindness in patients with uveitis according to the definition of WHO was 10% (Table 3). This can be compared to Herse P and Gothwal VK,<sup>4</sup> Table Tambi F<sup>5</sup> and Ronday MJH et al<sup>6</sup> who found it to be 6%, 8.5% and 11% respectively.

20 (40%) of patients developed blindness or severe visual impairment. Bilateral loss of vision occurred in an additional 22% and severe impairment in 8% of all patients with uveitis (Table 3). These findings can be compared to retrospective study carried out by Rothova A et al, who found 35% blindness or visual impairment among 582 patients. Bilateral legal blindness developed in 4%, unilateral in 14% and 11% had visual impairment.<sup>7</sup> In their study, cystoid macular oedema was the commonest cause of visual loss in contrast to present study where secondary glaucoma was the commonest cause of visual loss.

Serious complications may occur as a consequence of uveitis. Among the most common complications were cystoids macular oedema, cataract and glaucoma. In this study, secondary glaucoma was the most common complications, occurring in 22% cases, followed by cataract 16% (Table 4). This is in conformity with the study carried out by Panek WC et al where 23% of patients develop glaucoma.<sup>8</sup> De Boer J et al found cataract to be most common complication.<sup>2</sup> In this study of 50 patients, there were 28 (56%) males and 22 (44%) females, with male preponderance. Maximum number of patients were in between 21-30 yrs of age. It was less common in children below 11 years (2%) [Table 1]. This is in conformity with a study carried out by Das D et al in which males (64%) predominate females (36%) and incidence of uveitis in children below 10 years was only 2.3 (6%).<sup>9</sup>

The commonest presenting symptoms were blurring of vision, redness, pain, photophobia and watering. Anterior uveitis was the predominant anatomical diagnosis 37 (74%) [Table 2]. This confirms with studies carried out by Wakefield D et al, where uveitis was anterior in 75% of patients.<sup>10</sup> James DG et al examined a series of 368 patients with endogenous uveitis. Of the 368 patients, 215 (58%) had anterior uveitis, posterior in 65 (18%) and generalized in 88 (24%).<sup>11</sup> Ayanru Jo reviewed 1987 patients with uveitis. 56% of cases had posterior/mid peripheral uveitis, 15% panuveitis, 21.5% anterior uveitis.<sup>12</sup> In this study, when patients were subdivided according to anatomical site, those with panuveitis had the worst visual prognosis, 75% of patients with panuveitis became legally blind and 19% suffered bilateral visual impairment in one or both eyes (Table 3).

Post traumatic endophthalmitis is a rare complication of penetrating eye injuries. It is thought that between 2.4% and 7.4% of eyes with ocular trauma develop endophthalmitis. In this disease process the ocular walls are breached, resulting in contamination of intraocular structure. In this present study, 5 patients had history of trauma (Table 5) with 3 cases developing endophthalmitis. 2 cases were children aged 9 and 10 years. The visual outcome was poor, 2 cases developing blindness and one with severe visual impairment. Alfaro DV et al 1995, evaluated separately cases of post traumatic endophthalmitis in children under the age of 10 years.<sup>13</sup> They concluded that this subset of patients potentially may do worse compared with older patients, given the possibility of developing amblyopia. In their study, the majority of patients suffering from post traumatic endophthalmitis were male 75%, which is found to coincide with this study.

Uveitis usually includes a large group of diverse disease affecting not only the uvea but also the retina and the vitreous. It is not a single disease but include ocular involvement related to various systemic disorders as well as primary ocular conditions.

**CONCLUSION**

In the present study anterior uveitis was the commonest anatomical diagnosis (74%) with male preponderance over female. The most common presenting symptoms of uveitis

were blurry of vision, redness, pain, photophobia and watering of eyes. 40% cases developed blindness or had severe visual impairment. The main cause of visual loss in this study was glaucoma and cataract.

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