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Posterior Segment Involvement as a Marker of Poor Visual Outcome in Cases of Anterior Uveitis

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Abstract: ***Aim: To evaluate incidence and variety of posterior segment involvement especially by OCT in case of acute anterior uveitis during or after acute phase. Methods: 72 patients of acute anterior uveitis attending OPD of R.I.O. M.D. Eye Hospital and SRN Hospital Prayagraj were included in the study. Basic information was obtained by meticulous history. Vision on snellen's chart, IOP, anterior segment examination by slit lamp was done. During treatment if vision did not improve much, Direct and Indirect ophthalmoscopy, +90 D lens examination and OCT was done to evaluate posterior segment involvement. Results: 42 (58.33%) patients exhibited posterior segment involvement in the form of macular abnormality, vitreous haze and pigment epithelial detachment. Macular edema present was mostly moderate (400-550 µ) or severe (>550µ). Conclusion: Case of anterior uveitis, if did not show desired visual status, must be subject under careful examination including OCT to evaluate posterior segment involvement as a cause of poor visual outcome.***

Keywords: Acute anterior uveitis, Pigment epithelial detachment, Optical Coherence Tomography, Central Retinal Vein Occlusion, Branch Retinal Vein Occlusion

1. Introduction

The involvement of iris and ciliary body is still considered to be most common type of uveitis everywhere. Its incidence accounts for upto 92% of cases outside uveitis referral centres with other anatomical categories less frequently represented in community practice. The most common etiologies ascribed for anterior uveitis are idiopathic (38-56%), seronegative spondyloarthropathies (21-23%), Juvenile arthritis (9-11%) and herpetic keratouveitis (6-10%). It has been established that ten percent of legally blind persons under 65 are visually compromised because of uveitis and its complications[1].

Posterior segment involvement in patients of anterior uveitis may vary as different types of macular edema, macular hole, epiretinal membrane, choroidal neovascularization and serous retinal detachment etc. There might be vitreous involvement or retinal vascular leakage. With the clinical application of OCT in evaluating posterior segment abnormalities, better understanding of poor visual outcome even after meticulous management of anterior uveitis becomes possible. Many posterior segment involvement specially as a complication of anterior uveitis may not be detected ophthalmoscopically. Now a days treatment of acute anterior uveitis is no more remains a problem but sometimes inspite of most meticulous management of anterior uveitis (by topical and systemic steroids) anticipated visual outcome is not achieved. With the advent of OCT as a diagnostic tool in retinal diseases many posterior segment pathologies as a complications of anterior uveitis may be detected and poor visual outcome may better be explained.

Alejandra Rodriguez, Yonc A., Akova et al (1994) studied series of 29 patients with HLA B27 associated uveitis and looked for extent of posterior segment involvement. The most common findings observed by them is severe vitreous inflammation, papillitis, retinal vasculopathy and pars plana exudates[2].

In a similar study Tingting Liu et al (2015), studied a series of 413 patients of uveitis and evaluated macular abnormality in 242 (58.6%) of patients. They observed specifically CME in 105 (25.4%) eyes.

The aim of present study is to evaluate cause of poor visual outcome in cases of anterior uveitis in the form of posterior segment involvement even after most meticulous management of anterior uveitis.

2. Material and Methods

The present study is undertaken at Regional Institute of Ophthalmology, M.D. Eye Hospital Prayagraj after taking permission from ethical committee of M.L.N. Medical College, Prayagraj from December 2017 to November 2018. Written consent was obtained from every patient enrolled in the study.

The study included patients of anterior uveitis during and after acute phase. It has been observed that inspite of meticulous management of anterior uveitis and regression of anterior segment signs of uveitis, visual acuity did not improve to anticipated level. Thus, just to evaluate reason for this, we conducted a study upon patients of anterior uveitis to observe incidence and type of posterior segment involvement as a cause of poor improvement.

All patients of anterior uveitis during and after acute phase of uveitis were included in the study.

Exclusion Criteria:

(1) During and after acute phase of anterior uveitis anterior segment sign as in cornea, aqueous or lens being detected as a cause of poor visual outcome.
(2) Other causes of posterior segment involvement as diabetes, hypertension, vasculitis, CRVO, BRVO, optic disc changes and age related macular degeneration.

Data Collection:

Data which was either asked from patients or collected from medical records as-

1-Patients Name, Age, Sex, chief complaints at the time of presentation.
2-History of previous episodes of pain and redness, joint pain, any problem related to ear, nose, throat, sinuses, history suggestive of urethritis, mucosal ulcer, connective tissue disorders, any other neurological problem or problems related to spine.

Examination:

Patients were subjected under:

- Visual acuity on snellen's chart
- Intraocular pressure.
- Examination of anterior segment by focal illumination and slit lamp i.e. keratic precipitates, aquous flare and cells, iris nodules, synechia, status of lens, iris atrophy etc.
- Slit lamp bimicroscopy with + 90 D lens for posterior segment evaluation.
- Ophthalmoscopy Direct and Indirect.
- Spectral domain optical coherence tomography for macular involvement.
- Patients were subjected under complete haematogical investigations.
- Any other investigations if required.

Follow up:

After prescribing treatment of anterior uveitis patients were followed up at 2 weeks, 4 weeks and 6 weeks interval. All clinical, OCT and other investigations were carried out as in first visit. After diagnosis, if required, patients were subjected under posterior subtenons or intravitreal triamcinolone acetonide.

3. Observation and Results

Table 1: Table showing age distribution

Age Group	No. of Patients	Percentage (%)
<20	4	5.5
20-40	42	58.3
40-60	18	25
>60	8	11.2

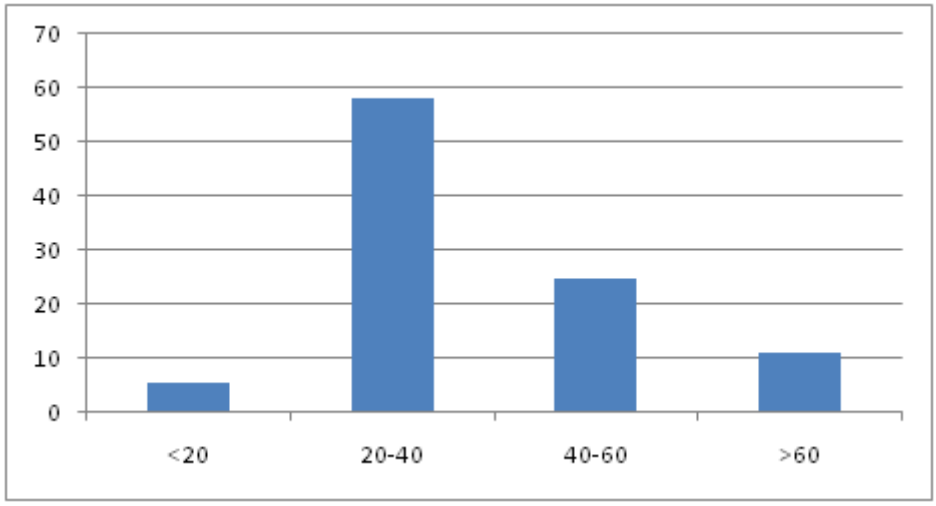


Table 2: Table showing etiology in patients of anterior uveitis

Etiology	No. of Patients	Percentage (%)
Granulomatous	21	29.2
Non Granulomatous	51	70.8

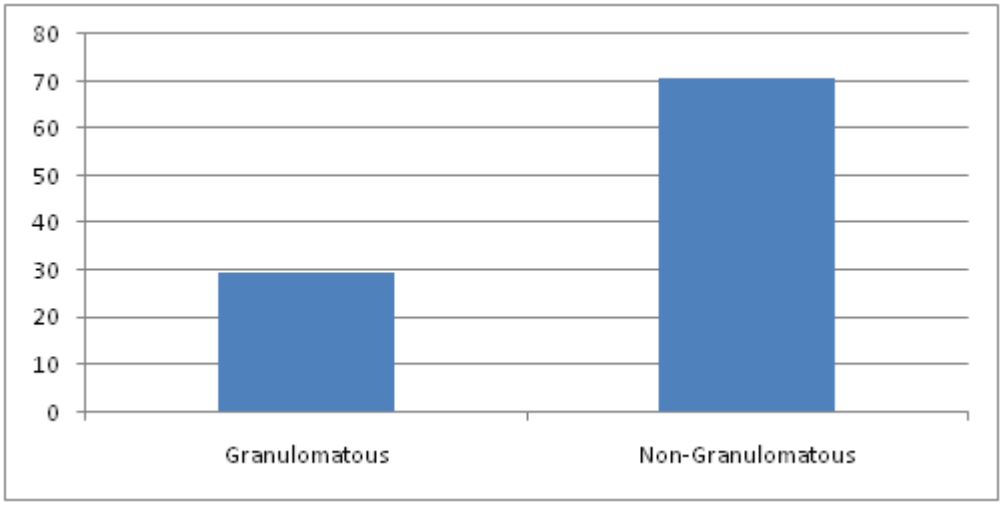


Table 3: Table showing posterior segment involvement

Posterior segment involvement	No. of Patients	Percentage (%)
With posterior segment involvement	42	58.33
Without posterior segment involvement	30	41.67

Table 4: Table showing various posterior segment findings

Posterior segment finding	No. of Patients	Percentage (%)
Macular Involvement	20	47.6
Vitreous haze	16	38.1
Pigment epithelium detachment	6	14.3

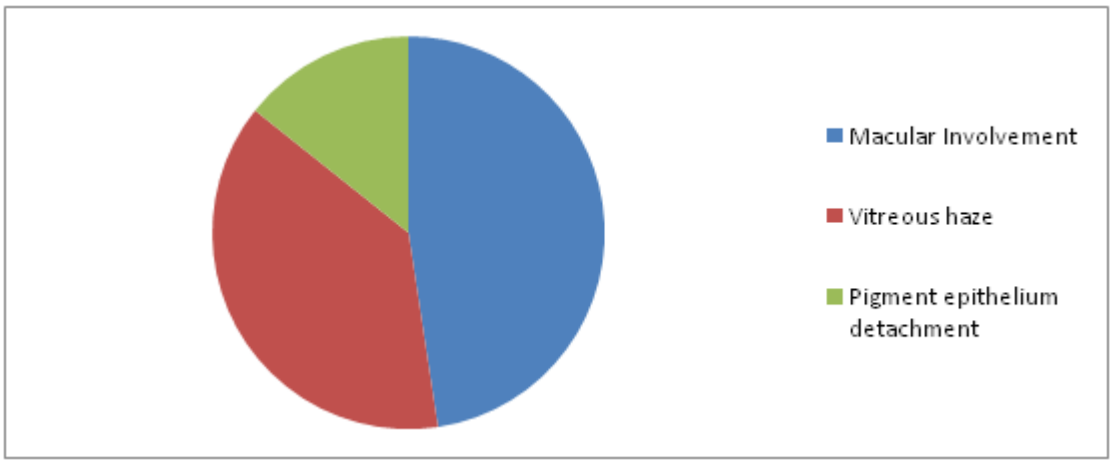


Table 5: Table showing visual acuity status in patients with posterior segment involvement

Visual acuity	No. of Patients
>6/18	6
<6/18-6/60	8
<6/60-3/60	15
<3/60	13

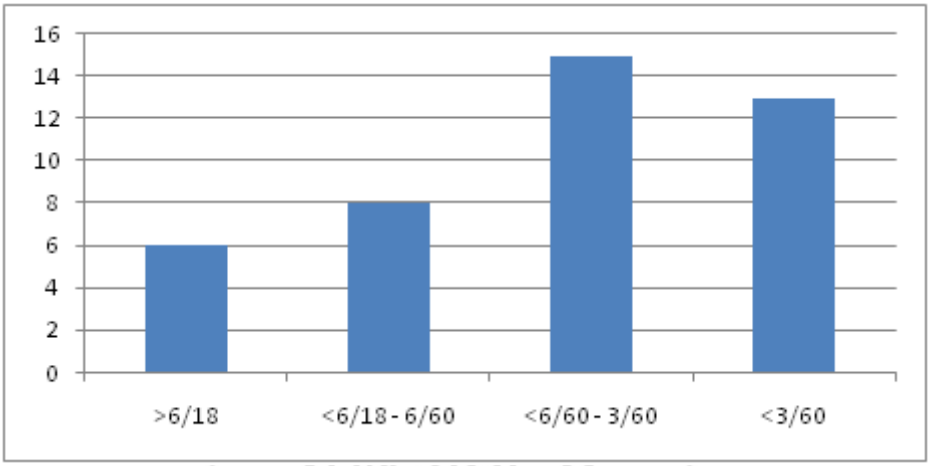
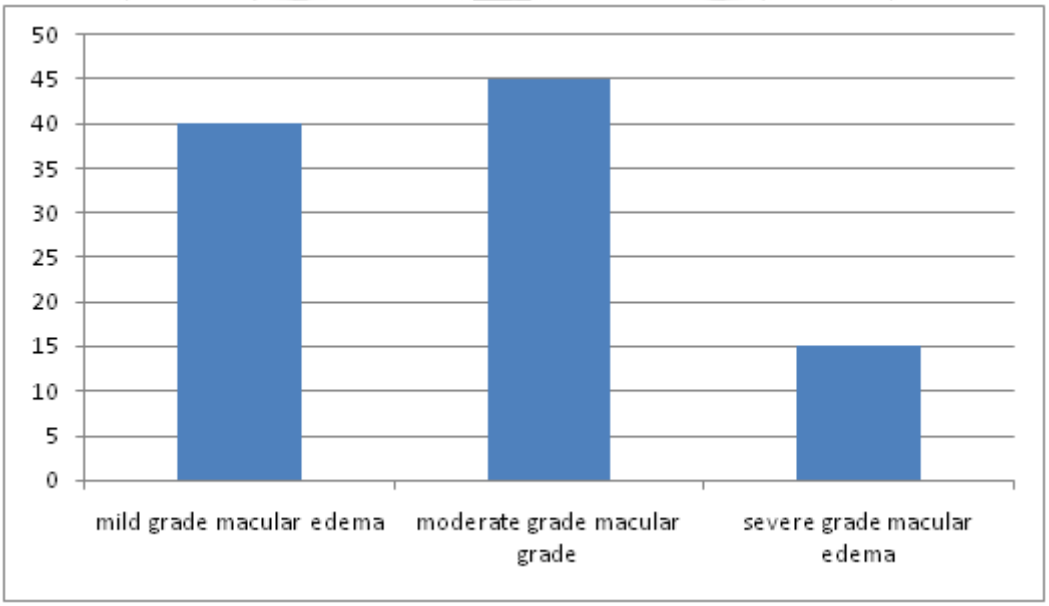


Table 6: Table showing grade of macular edema

Central Macular thickness	No. of Patients	Percentage (%)
Mild grade macular edema (250-400µ)	8	40
Moderate grade macular edema (400-550µ)	9	45
Severe grade macular edema (>550µ)	3	15



4. Results

(i) Maximum numbers of patients were encountered in age group of 20-40 years (58.3%). Children and adolescents (5.5%) exhibited least representation. (Table 1)

(ii) 51 (70.8%) patients presented with non granulomatous while 21 (29.2%) with granulomatous type of uveitis (Table 2)

(iii) 42 (58.33%) patients of anterior uveitis presented with posterior segment involvement (Table 3)

(iv) Macular involvement was observed in 20 (47.6%) cases. While 16 (38.1%) with vitreous haze and 6 (14.3%) patients with pigment epithelial detachment.

(v) Maximum number of patients with posterior segment involvement 15 (35.7%) presented with visual acuity in the range of <6/60-3/60 (table v)

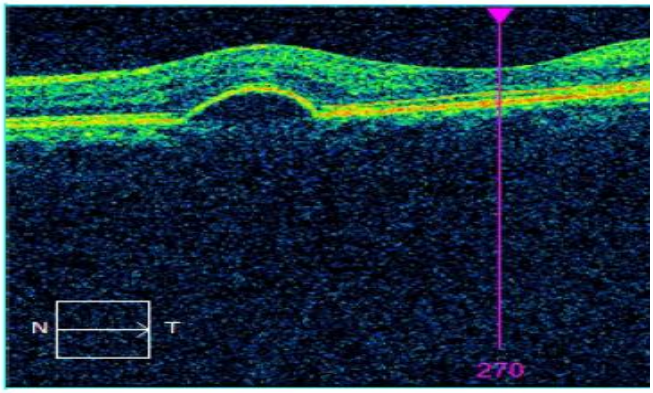
(vi) Most of the patients 17 (85 %) presented with mild to moderate grade of macular edema (250-550µ). Grading has been done by ourselves. (Table VI)

5. Discussion

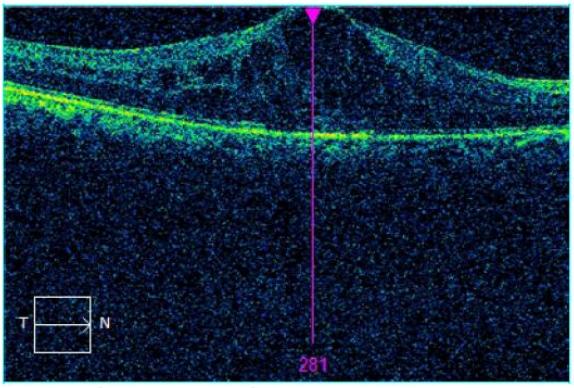
In the present study maximum number of patients encountered in age group of 20-40 years (54.7%). The mean age in our series is 35 years which is similar to the observations made by Tingting et al and Minna et al[3] in which mean age was 36.7 years. The mean age was 32.8 years in a study done by Ji Hwan Lee etal[4]. The mean age recorded in other two studies done by Christopher, Henry[7] and Oren Tomkins etal[6] was 43.9 years.

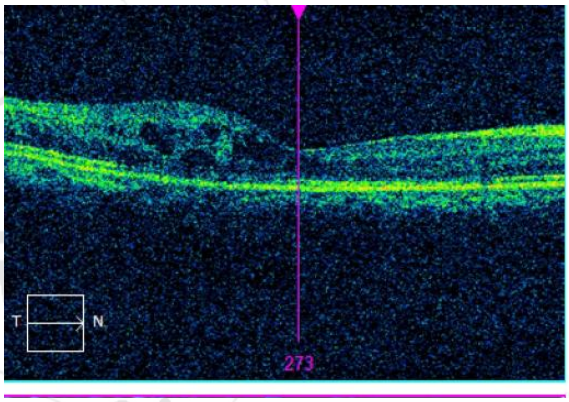
In the present study of total 72 patients of acute anterior uveitis, the percentage of female patients (56.95%) was slightly more as compared to male. Sylvia Torres etal[1] in 2012 observed 54.2% female while 45.8% male patients. The study is very much in accordance with our study. On the other had S Agnai etal[5] in 2010 observed 56% male patients. However this difference in such a small number of series may be statistically insignificant.

In the present series of 72 patients of AAU 42 patients (58.33%) presented with one or other mode of posterior segment involvement. In spite of meticulous management of AAU by various topical medications and systemic sterioid, visual status of patients did not improve. On further evaluation by various modalities including OCT, most of patients exhibited posterior segment involvement as macular abnormalities, vitreous haze and/or pigment epithelial detachment. In a series of 413 uveitis patients Tingting Liu etal[3] in 2015 also observed various macular abnormalities in 242 (58.6%) patients. This study of Tingting Liu et al[3] is very much similar to observations made in our study. Charlotte WT, A lardenoye et al[8] also noticed CME in 33% of patients in their sutdy. Surprisingly none of patients in our study was found to be having epiretinal membrane while Tingting Liu et al observed it as second most common (12.6%) abnormality of macula. Thus ultimately their patients required additional treatment modalities as periocular/Intravitreal injections of triamcinolone acetonide/Avastin for proper visual improvement. It is thus of utmost importance to meticulously evaluate posterior segment in a case of AAU specially if visual status of patient remains stationary or become worse even after full and complete management of AAU.



We noticed that maximum numbers of patients with uveitis having macular edema are in the macular thickness range of moderate grade (400-550□ □.) With the clinical use of OCT it becomes possible to quantify the quantum of macular thickness. Grading of macular thickness as mild (250-400µ), moderate (400-550µ) and severe (>550µ) has been done by ourselves. The significance of grading macular thickness is that patients with mild grade usually resolve during management of anterior uveitis with routine treatment while moderate or severe grade thickness usually requires some specific interventions as intravitreal or posterior subtenon injections of triamcinolone acetonide. The clinical features and disease association between uveitis and macular edema has already been extensively discussed in literature.





The limitations in our study are that number of patients is small. Further we could not evaluate choroidal vasculature as facility of enhanced depth imaging is not available in our institute's OCT machine.

6. Conclusion

It has been observed many times that even after careful management of acute anterior uveitis, visual status of some patients either remains stationary or at times even deteriorates. These patients must be evaluated for posterior segment involvement in the form of macular involvement, vitreous haze or pigment epithelial detachment. Macular edema, if present should be graded as mild (250-400µ), moderate (400-550µ) and severe (>550µ) as most of the time moderate to severe grade macular edema requires some specific treatment, as posterior subtenon or intravitreal triamcinolone acetonide. Other posterior segment involvement may be managed accordingly.

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