

Clinical Profile of Patients of Uveitis with Optical Coherence Tomography Diagnosed Macular Edema

K Rajeev, K V Ashwini

Assistant Professor, Department of Ophthalmology, Sapthagiri Institute of Medical Sciences and Research Center, Bengaluru, Karnataka, India

Abstract

Background: Uveitis is a complex intraocular inflammatory process involving uveal and retinal tissues and is one of the leading blinding disorders in India. Macular edema and its sequelae are among the most important causes of decreased vision in patients with uveitis. Optical coherence tomography (OCT) is a safe and non-invasive diagnostic modality for investigation of macular diseases by allowing morphological assessment by producing two-dimensional images of the retina. We have described the clinical profile of uveitis patients having OCT detected macular edema.

Aim: Evaluation of clinical profile of patients of uveitis with OCT diagnosed macular edema.

Materials and Methods: This is a hospital-based, cross-sectional, descriptive study. Uveitis patients presenting to a tertiary care center between November 2010 and July 2012 underwent systemic and complete ophthalmic examination including OCT. All patients with OCT diagnosed macular edema were included in the study. Clinical profile of these patients was described.

RESULTS: 66 patients of uveitis had macular edema on OCT (87 eyes). 3 patterns were found on OCT evaluation, namely diffuse macular edema (DME), cystoid macular edema, and serous retinal detachment, of which 64 eyes had DME. A significant percentage of the cases we studied (32.2%) had anterior uveitis as their anatomic diagnosis. 68% of cases were unilateral. Mean age of patients was 43.5 years. 30 out of 87 eyes had posterior uveitis as an anatomic diagnosis. The etiological diagnosis could be established in 10 patients.

Conclusion: Most of our cases were idiopathic in etiology. DME may go undetected unless OCT is performed. Macular edema may cause visual morbidity even in anterior uveitis cases. Studies with larger sample sizes are required to assess if macular edema is really a cause of visual morbidity in anterior uveitis cases.

Key words: Anterior uveitis, Macular edema, Optical coherence tomography, Uveitis, Visual acuity

INTRODUCTION

Uveitis is an intraocular inflammatory process involving uveal and retinal tissues. With a prevalence of 310/100,000, uveitis is one of the leading blinding disorders in India.^{1,2}

Macular edema and its sequelae are among the most important causes of decreased vision in patients with uveitis. Studies have shown three different types of macular edema-cystoid macular edema (CME), diffuse macular

edema (DME), and serous retinal detachment (SRD) demonstrable on optical coherence tomography (OCT) associated with uveitis.^{3,4} CME is commonly associated with visual loss in uveitis patients.⁵

Fluorescein angiography, which was used to detect and confirm macular edema, is an invasive technique and may even cause anaphylaxis.^{3,6} OCT is safer and a non-invasive diagnostic modality for investigation of macular diseases, allowing morphological assessment by producing two-dimensional (2D) images of the retina. It allows quantification of macular edema objectively and allows for serial follow-up of cases.³

Studies of uveitic macular edema have shown significant correlations between macular thickness measured by OCT and visual acuity.^{3,4,7}

Access this article online



www.ijss-sn.com

Month of Submission : 10-0000
Month of Peer Review : 11-0000
Month of Acceptance : 12-0000
Month of Publishing : 12-0000

Corresponding Author: Dr. K Rajeev, Department of Ophthalmology, Sapthagiri Institute of Medical Sciences & Research Center, No. 15, Chikkasandra, Hesarahatta Main Road, Bengaluru - 560 090, Karnataka, India. Phone: +91-9686799557. E-mail: rajeev86@gmail.com

In this study, we describe the clinical profile of such uveitic macular edema patients. Furthermore, macular edema is usually seen in cases of intermediate and posterior uveitis.³ We looked for subclinical macular edema in anterior uveitis cases as well.

Aims

Evaluation of clinical profile of patients of uveitis, with OCT, diagnosed macular edema.

MATERIALS AND METHODS

This is a hospital-based, cross-sectional, descriptive study. The study was approved by our local ethics committee, and consent was obtained from each patient.

Uveitis patients presenting to a tertiary care center between November 2010 and July 2012 underwent complete ophthalmic and systemic examination. The ophthalmic examination included best-corrected Snellen visual acuity, slit-lamp examination, fundus bio microscopy, indirect ophthalmoscopy, and OCT. We used a STRATUS OCT machine.

The OCT scans were performed through a dilated pupil. The macula was scanned first with fast macular thickness scan protocol and then line scan protocol in horizontal and vertical meridians as appropriate. For each eye, the pattern of macular edema was noted along with the central retinal thickness on STRATUS OCT. All patients with OCT diagnosed macular edema were included in the study; excluding patients with other causes of macular edema such as diabetic or hypertensive retinopathy. 66 patients (87 eyes) qualified for our study.

Uveitis was classified based on International Uveitis Study Group classification system.¹ Other significant findings observed during evaluation were noted and described.

Laboratory investigations including complete blood count with differential leukocyte count, fluorescent treponemal antibody absorption test, angiotensin-converting enzyme, antinuclear antibodies, and Toxoplasma antibody titers were performed when indicated.

Radiologic investigations, such as chest X-ray and imaging of sacroiliac joints, were done as and when the relevant diagnosis was suspected.

Clinical profile of these patients was described.

RESULTS

Three patterns of uveitic macular edema were recorded on OCT imaging.

1. DME (Figure 1)
2. CME (Figure 2)
3. SRD (Figure 3).

Some patients also had an epiretinal membrane (Figure 4).

In our study, 66 patients of uveitis had macular edema on OCT (87 eyes), of which the laterality and gender distribution were as shown in Graphs 1 and 2.

21 of our cases had bilateral, and 45 cases had unilateral uveitis.

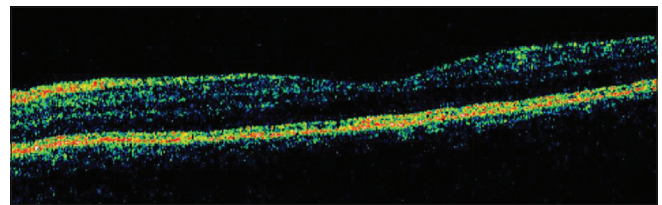


Figure 1: Diffuse macular edema as seen on optical coherence tomography

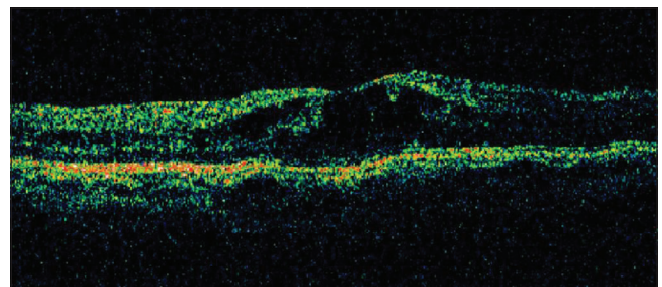


Figure 2: Cystoid macular edema

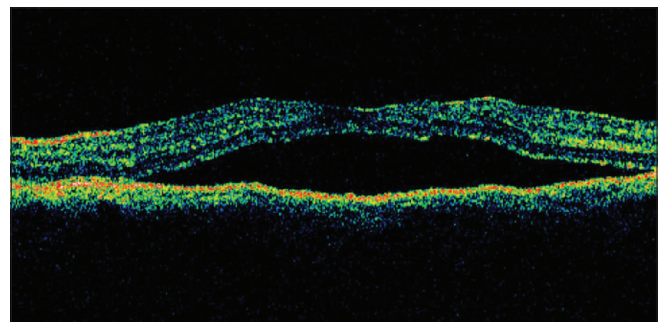


Figure 3: Serous retinal detachment

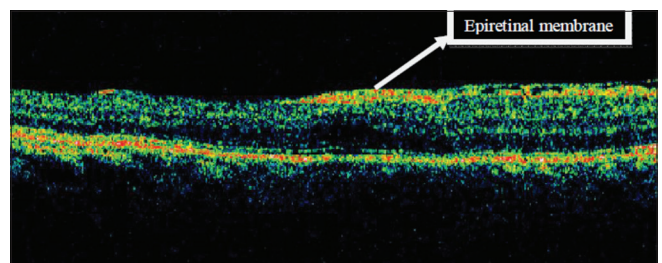


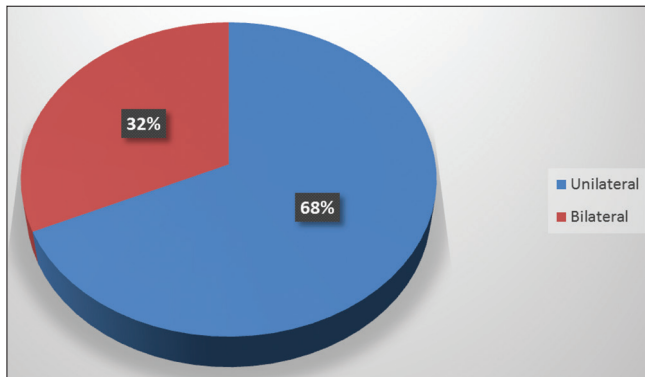
Figure 4: Epiretinal membrane with diffuse macular edema

47 were males, and 19 patients were females.

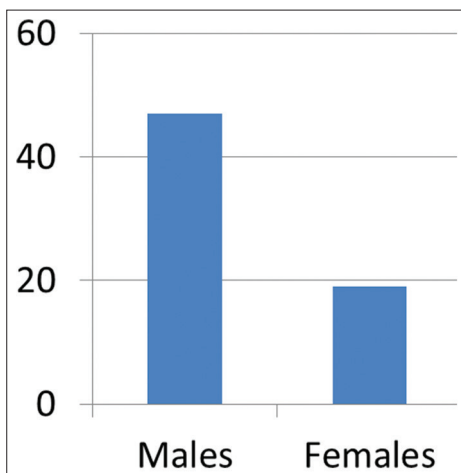
Age distribution varied from 12 to 75 years (mean 43.5 years).

Posterior uveitis was the most common type of anatomic type of uveitis in our study, followed by anterior uveitis (Graph 3).

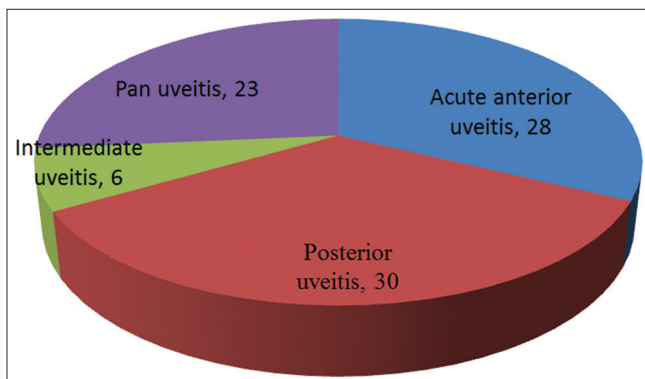
We saw 30 eyes having posterior uveitis, 28 anterior, 23 pan uveitis, and 6 intermediate uveitis cases.



Graph 1: Laterality



Graph 2: Gender distribution



Graph 3: Anatomic types of uveitis

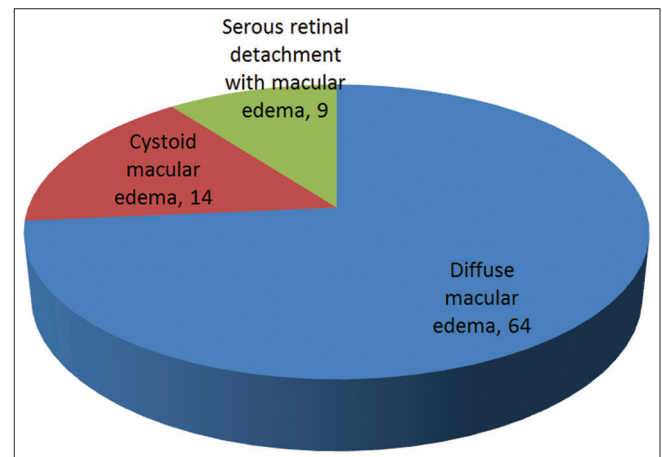
DME was the most common type of macular edema that we saw on OCT (72%), followed by CME and SRD (Graph 4).

64 eyes had DME, 14 eyes CME, and 9 eyes had SRD.

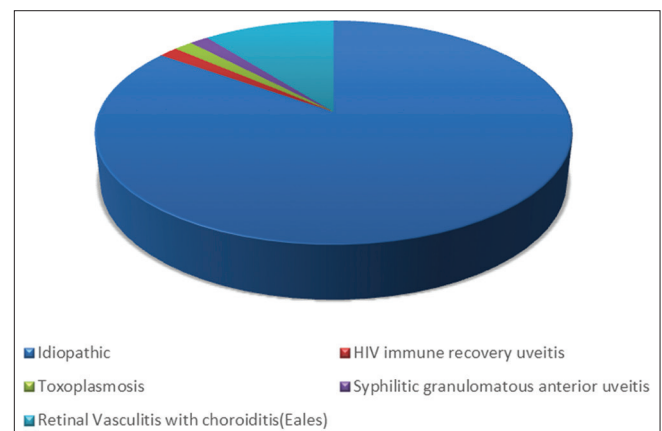
The etiological diagnosis could be established in 10 patients only. All others were deemed idiopathic. One patient each had HIV immune recovery uveitis, toxoplasmosis, and syphilitic granulomatous anterior uveitis. Seven patients had retinal vasculitis with choroiditis, possibly Eales disease (Graph 5).

DISCUSSION

OCT is a safe and noninvasive diagnostic modality for investigation of macular diseases, allowing morphological assessment by producing 2D images of the retina. It allows quantification of macular edema objectively.³ It is not compromised by a low or medium degree of optical haze.⁸ OCT is more sensitive than slit-lamp biomicroscopy to changes in retinal thickness and helps in objectively



Graph 4: Morphologic types of macular edema on optical coherence tomography



Graph 5: Etiology

monitoring patients with macular edema.⁹ Detailed interpretation of OCT images can replace fluorescein angiography for evaluation of macular edema, especially in uveitis cases.¹⁰

Markomichelakis *et al.* found in their study that DME was the most common type of uveitic macular edema (54.8%). 42 of 60 patients (70%), they studied had intermediate uveitis as their anatomic diagnosis and three patients had anterior uveitis.³ DME was the most common (73.5%) type of macular edema that we found in the 87 eyes in our study, and 30 of 87 eyes (34.5%) with uveitic macular edema had posterior uveitis.

In our study, of the 87 eyes of uveitic macular edema, 28 eyes had acute anterior uveitis (32.2%), with 25 eyes having the first episode of anterior uveitis. There have not been many reports of the occurrence of macular edema in cases of anterior uveitis. In one study conducted in Pakistan, CME was seen in 8 of 46 eyes of anterior uveitis evaluated (17%).¹¹

We were able to establish a diagnosis in 10 of our 66 patients (13 eyes). One patient each had HIV immune recovery uveitis, toxoplasmosis, and syphilitic granulomatous anterior uveitis. Seven patients had retinal vasculitis with choroiditis, possibly Eales disease. In the other studies that we reviewed, syphilis was not a cause in any of them.^{3,12} Even in our study, only one patient had syphilis with granulomatous anterior uveitis of both eyes, and with only one eye having OCT detected macular edema. It appears to be a very rare cause. In the other 56 patients, in our study, we could not arrive at a specific diagnosis.

CONCLUSION

We found three patterns of uveitic macular edema on STRATUS OCT evaluation, namely DME, CME, and SRD. DME was the most common type.

A significant percentage of the cases we studied (32.2%) had anterior uveitis as their anatomic diagnosis; with most

of these patients having DME. This suggests that macular edema may cause visual morbidity even in anterior uveitis cases. It is important to note, however that we picked up macular edema in most anterior uveitis cases only on OCT evaluation. This may mean that cases of anterior uveitis having subclinical edema go undetected unless subjected to OCT. Studies with larger sample sizes are required to assess if macular edema is really a cause of visual morbidity in anterior uveitis cases.

REFERENCES

1. Bloch-Michel E, Nussenblatt RB. International Uveitis Study Group recommendations for the evaluation of intraocular inflammatory disease. *Am J Ophthalmol* 1987;103:234-5.
2. Rathinam SR, Krishnadas R, Ramakrishnan R, Thulasiraj RD, Tielsch JM, Katz J, *et al.* Population-based prevalence of uveitis in Southern India. *Br J Ophthalmol* 2011;95:463-7.
3. Markomichelakis NN, Halkiadakis I, Pantelia E, Peponis V, Patelis A, Theodossiadis P, *et al.* Patterns of macular edema in patients with uveitis: Qualitative and quantitative assessment using optical coherence tomography. *Ophthalmology* 2004;111:946-53.
4. Tran TH, de Smet MD, Bodaghi B, Fardeau C, Cassoux N, Lehoang P. Uveitic macular oedema: Correlation between optical coherence tomography patterns with visual acuity and fluorescein angiography. *Br J Ophthalmol* 2008;92:922-7.
5. Lardenoye CW, van Kooij B, Rothova A. Impact of macular edema on visual acuity in uveitis. *Ophthalmology* 2006;113:1446-9.
6. Yannuzzi LA, Rohrer KT, Tindell LJ, Sobel RS, Costanza MA, Shields W, *et al.* Fluorescein angiography complication survey. *Ophthalmology* 1986;93:611-7.
7. Iannetti L, Accorinti M, Liverani M, Caggiano C, Abdulaziz R, Pivetti-Pezzi P. Optical coherence tomography for classification and clinical evaluation of macular edema in patients with uveitis. *Ocul Immunol Inflamm* 2008;16:155-60.
8. Reinthal EK, Völker M, Freudenthaler N, Grüb M, Zierhut M, Schlote T. Optical coherence tomography in the diagnosis and follow-up of patients with uveitic macular edema. *Ophthalmologie* 2004;101:1181-8.
9. Hee MR, Puliafito CA, Wong C, Duker JS, Reichel E, Rutledge B, *et al.* Quantitative assessment of macular edema with optical coherence tomography. *Arch Ophthalmol* 1995;113:1019-29.
10. Schaudig U, Scholz F, Lerche RC, Richard G. Optical coherence tomography for macular edema. Classification, quantitative assessment, and rational usage in the clinical practice. *Ophthalmologie* 2004;101:785-93.
11. Khan MM, Iqbal MS, Jafri AR, Rai P, Niazi JH. Management of complications of anterior uveitis. *Pak J Ophthalmol* 2009;25:1-6.
12. Roesel M, Heimes B, Heinz C, Henschel A, Spital G, Heiligenhaus A. Comparison of retinal thickness and fundus-related microperimetry with visual acuity in uveitic macular oedema. *Acta Ophthalmol* 2011;89:533-7.

How to cite this article: Rajeev K, Ashwini KV. Clinical Profile of Patients of Uveitis with Optical Coherence Tomography Diagnosed Macular Edema. *Int J Sci Stud* 2015;3(9):48-51.

Source of Support: Nil, **Conflict of Interest:** None declared.