

INCIDENCE OF CME AS MEASURED BY SPECTRAL DOMAIN OCT (SD-OCT) FOLLOWING EXTRA CAPSULAR CATARACT EXTRACTION (ECCE)

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ABSTRACT: AIM: To determine incidence of CME as measured by Spectral Domain OCT (SD-OCT) following extra capsular cataract extraction surgery by different techniques and to study tomographic characteristics of CME. **MATERIALS AND METHODS:** A prospective observational study to determine incidence of CME after ECCE by SD-OCT was carried out from June 2013 – May 2014. A total 102 eyes of patients following ECCE were included in the study and OCT was done preoperatively and at 2, 6 and 10 weeks after surgery. **RESULTS:** 2 eyes developed CME after 6 weeks of cataract surgery and there was a proportionate increase in macular thickness in all of these eyes postoperatively. **CONCLUSION:** Our data indicate that the onset of CME is rare after ECCE but with respect to preoperative values we observed an asymptomatic increase in macular thickness and volume at 6 weeks.

KEYWORDS: CME-Cystoid Macular Edema, OCT-Optical Coherence Tomography, ECCE- extra-capsular cataract extraction.

INTRODUCTION: Cystoid macular edema (CME) is the formation of fluid-filled cystoid spaces between the outer plexiform and inner nuclear layers of the retina, resulting from disruption of the blood-retinal barrier. It is a common complication observed after cataract surgery. Although the pathogenesis is still not fully understood, the diagnosis is usually easily missed clinically and confirmed by angiographic examination or recently by OCT. With modern surgical techniques the incidence of CME has decreased to 1%^{1,2} The incidence of angiographic CME, without clinical macular edema, has been reported to be around 10–20% following cataract surgery. While it usually occurs 4–12 weeks following surgery; there are a few cases reported after many months or years after the surgery³ Optical coherence tomography (OCT) is a noninvasive and quantitative imaging modality, which provides cross-sectional images of the retina, with the help of ~800 nm diode laser light.⁴⁻⁷ The anatomic findings of cystoid macular edema demonstrated by spectral-domain OCT are described by their degree of reflectivity. Hypo-reflective areas in an OCT retinal image usually represent areas of extracellular fluid found in cystoid macular edema.

AIM AND OBJECTIVES:

1. To determine incidence of CME post ECCE by SD-OCT.
2. To study macular thickness changes after cataract surgery.

MATERIALS AND METHODS: Patients with senile cataracts, who underwent ECCE by different techniques with IOL implantation, were taken in the study.

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Pre-operative: Complete Ophthalmologic examinations of the patients were performed, including:

- Uncorrected and BCVA.
- Biometry.
- intraocular pressure measurements
- Grading of cataract.
- Posterior segment examinations.

Peroperative:

- Cataract surgery was performed under local/topical anesthesia.
- Manual SICS and phacoemulsification was done with placement of an IOL according to the need of the patient, intraoperative feasibility and as per the surgeons' choice.

Postoperative:

- Topical fluoroquinolones and topical prednisolone was routinely prescribed to the patients in the postoperative period for 4 weeks.
- Postoperative SD-OCT was performed to evaluate the macular area at week 1, week 4 and between 6-8weeks.

Inclusion Criteria:

- Age above 40 yrs, either sex.
- Patients with visually significant cataract with IOL implantation.

Exclusion Criteria:

- Patients with any ocular pathology other than cataracts, such as retinal vascular disorders and ARMD were excluded.
- Patients who underwent previous intraocular surgery were also excluded.



Fig. 1: Acquiring Macular Thickness Scan

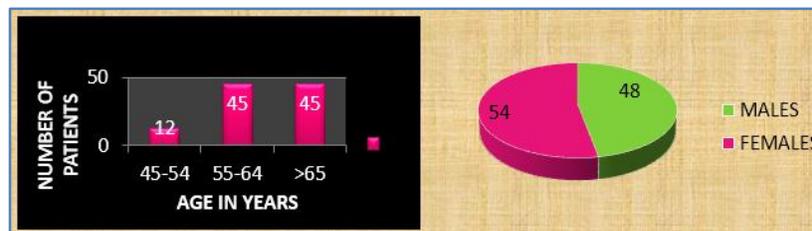


Fig. 2

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Age and Sex Distribution of patients followed by table and histogram depicting mean Central Macular Thickness Changes Pre-operatively and Postoperatively.

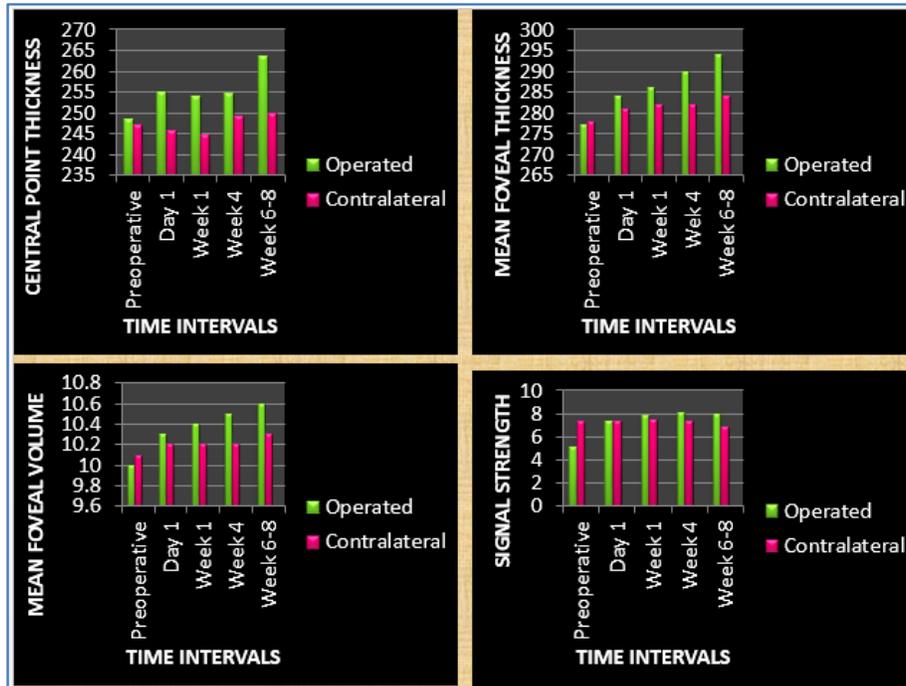


Fig. 3

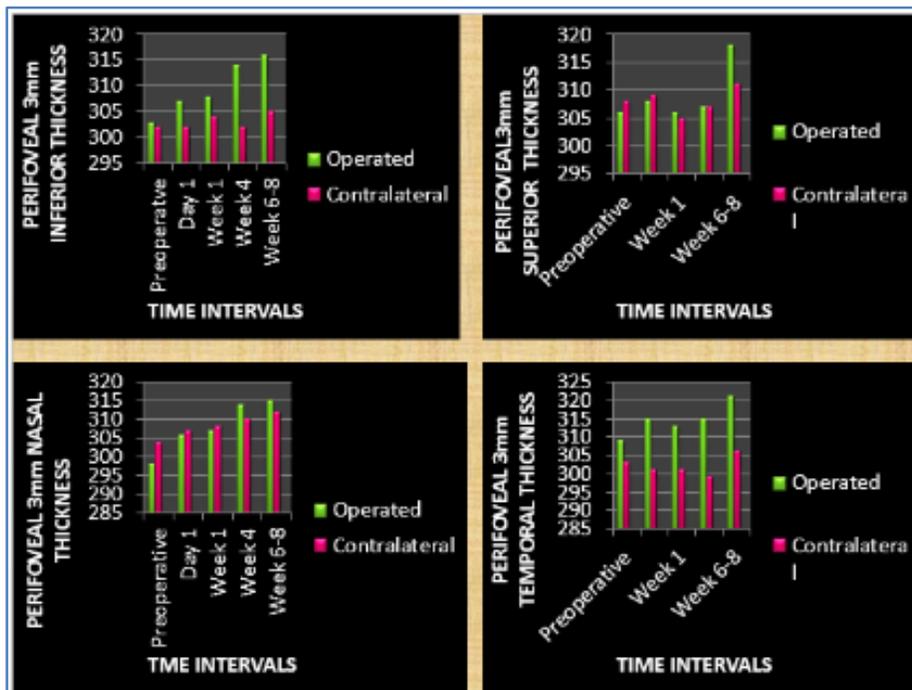


Fig. 4

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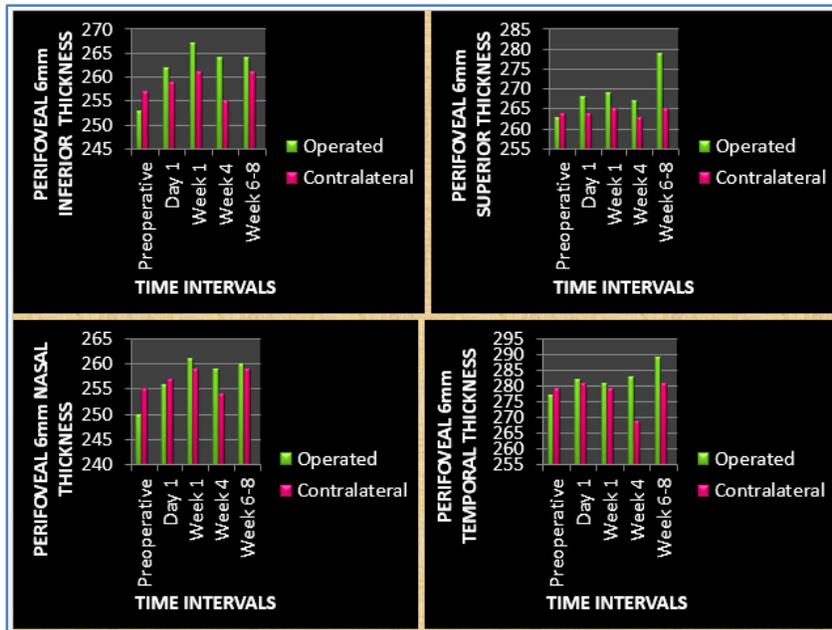


Fig. 5

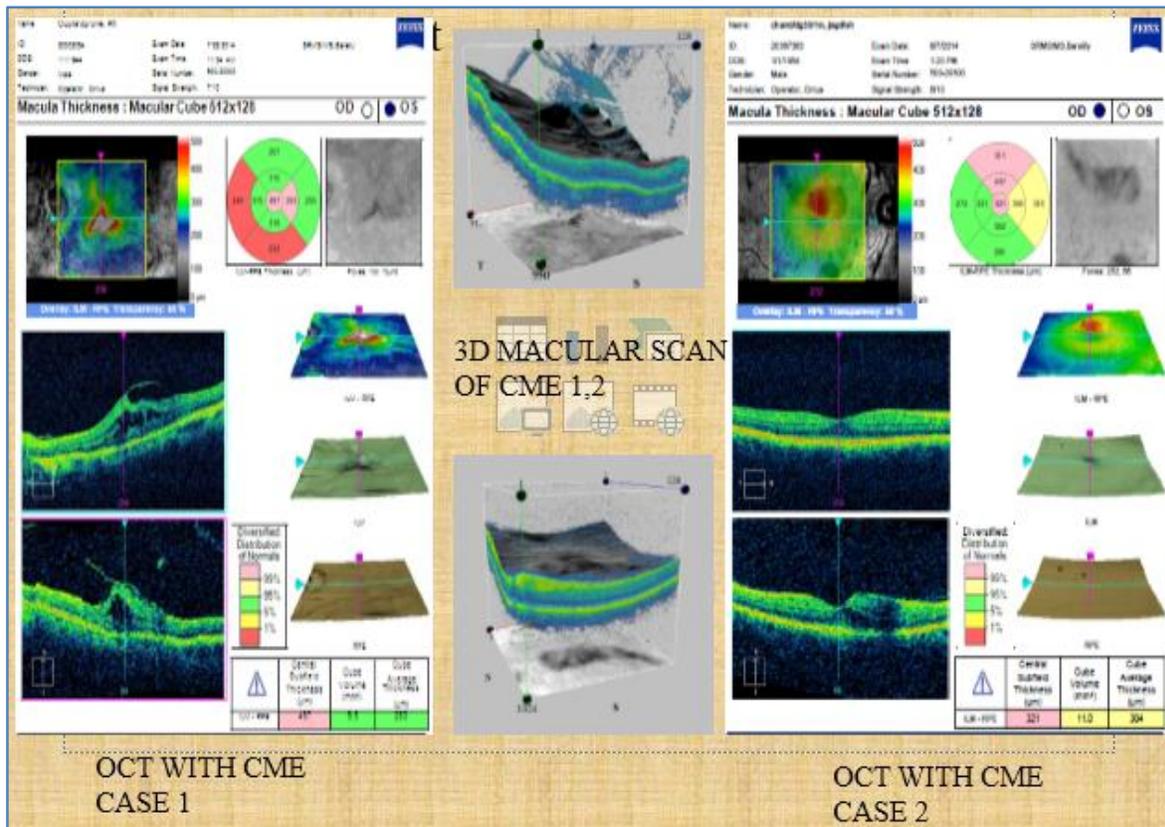


Fig. 6

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RESULTS: In this study 2 eyes out of 102 of ECCE group developed CME after 6 weeks of cataract surgery and there was a proportionate increase in macular thickness in all of these eyes postoperatively. The incidence of CME was 1.96%

DISCUSSION: Macular edema is an important cause of poor visual outcome following cataract surgery. With ICCE, the rate of postoperative macular edema was around 2-20%, whereas it decreased to 1-2% with the widespread use of extracapsular cataract extraction (ECCE) with intact posterior capsule.⁸⁻⁹ With the introduction of phaco-emulsification, the rate of postoperative macular edema is even less.⁸⁻¹⁰ The research into the use of OCT to measure CFT post-cataract surgery or to diagnose postoperative CME is heterogeneous in terms of whether CFT or peri-foveal thickness increases or decreases in patients after cataract surgery, regardless of whether they developed CME. Other papers,¹¹⁻¹² have reported that macular thickness increases postoperatively, regardless of the presence of CMO. We have found similar results to the latter studies, with mean macular thickness very similar to those reported. Incidence of OCT diagnosed CME in our study was 1.96%.

CONCLUSION: The increase in macular thickness begins at postoperative day 1 and peaks at 3rd month postoperatively. After phacoemulsification and small incision cataract surgery, macular edema remains at subclinical level and may not affect the visual acuity in most of the cases.

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