

## An evaluation of intraoperative and postoperative outcomes of phacoemulsification surgery in eyes with shallow anterior chamber

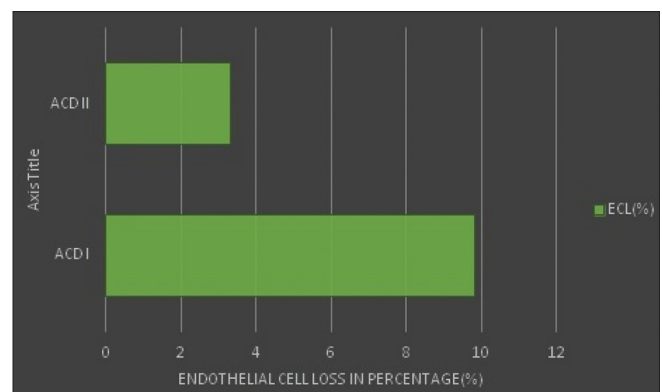
Dear Editor,

It is a well-known fact that there is some endothelial cell loss (ECL) after cataract surgery and there are multiple risk factors that affect the ECL such as axial length (AL), anterior chamber volume, lens density, and anterior chamber depth (ACD). In this study, we have tried to throw some light on shallow anterior chamber and its effect on intraoperative complications and postoperative ECL after phacoemulsification surgery.

In our study, we took shallow ACD (<2.5 mm) as a single nonmodifiable independent variable. It was found out that shallow ACD was associated with higher percentage of ECL that could be possibly due to confined space, which makes it difficult to perform different surgical maneuvers. Shallow ACD also compromises the use of instruments with ease and causes more of thermal damage to the corneal endothelial cells density (CED). In our study, we observed that shallow anterior chamber was more commonly seen in elderly females (>60 years) and patients with higher nuclear density Table 1. In this study, ECL was more in shallow ACD ( $9.8 \pm 3.16\%$ ) as compared to normal ACD (>2.5 mm) ( $3.3 \pm 2.06\%$ ) [Table 2 and Fig. 1] which was supported by a similar study done by Khalid *et al.*,<sup>[1]</sup> who divided the cases undergoing phacoemulsification into two groups according to ACD and documented statistically significant effect of shallow anterior chamber and smaller AL on CED loss ( $P = <0.05$ ). A greater number of intraoperative (20.5%) and postoperative complications (17.9%) were seen in shallow

ACD patients Table 3. Vasavada *et al.*<sup>[2]</sup> in a similar study compared intraoperative and postoperative results in FLACS and conventional phacoemulsification in the shallow anterior chamber and found out that the mean ECL (%) after 3 months postoperatively was  $9.76 \pm 1.6$  and  $9.85 \pm 1.1$  in two groups, respectively, the ECL was close to result of our study but they have not compared their results between the shallow and normal ACD. Hence, it is important to consider shallow ACD as a very important risk factor prior to surgery and the surgeon should be aware of all the possible complications associated with it. Therefore, preoperative assessment of shallow ACD is extremely important to possibly minimize the intraoperative and postoperative complications.

Phacoemulsification is a very common surgical procedure done nowadays throughout the world. Doing phacoemulsification in a shallow anterior chamber itself is a challenging task. In our study, we made a humble attempt



**Figure 1:** Pre-operative and post-operative comparison of Endothelial cell loss (ECL) among two groups

**Table 1: Basic characteristics**

	ACD		P
	ACD I (n=39)	ACD II (n=31)	
Age (mean±SD)	60.3±7.5	56.5±8.4	0.04
Gender			0.6
Male	14 (35.8%)	13 (41.9%)	
Female	25 (64.2%)	18 (58.1%)	
Visual acuity (log MAR, mean±SD)	0.86±0.19	0.83±0.19	0.51
IOP (mean±SD)	15.2±2.2	15.1±2.0	0.84

**Table 2: Pre-operative and postoperative comparison of ECD and ECL among two groups (\*cells/mm<sup>2</sup>, mean±SD)**

VARIABLES	ACD I (n=39)	ACD II (n=31)	P
ECD			
Preoperative	2504.4±251.9	2525.8±253.1	0.72
Postoperative (2 month)	2257.8±304.4	2429±249.5	
ECL*	251.6±301.5	96.7±61.1	0.04
ECL (%)	9.8±3.16%	3.3±2.06%	

**Table 3: Association between ACD and Intraoperative and Postoperative complications**

	ACD	
	ACD I (n=39)	ACD II (n=31)
Intra-op complications		
Iris prolapse	4 (10.2%)	0
Iris chaffing	1 (2.5%)	0
Zonular dialysis	0	0
PCR	3 (7.6%)	0
Postop complications		
Corneal edema	3 (7.6%)	0
Keratitis	4 (10.2%)	0
Raised IOP	0	1

to find out the complications faced by the surgeon while doing phacoemulsification in shallow anterior chamber. Even though there were many studies related to this topic that focused mainly on either intraoperative<sup>[3]</sup> or postoperative complications, our study was unique in the sense we took both intraoperative complications like iridodialysis, iris chaffing and posterior capsule rupture and postoperative complications like ECL together. We would like to conclude in our study by saying that prior knowledge of ACD is helpful in preventing various complications and can bring out better visual outcomes in patients following surgery.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

**Upasna, Vinod K Singh, Jagriti Rana, Santosh Kumar, Aarti Singh, Kamaljeet Singh**

Department of Ophthalmology, Regional Institute of Ophthalmology, M.D. Eye Hospital, Prayagraj, Uttar Pradesh, India

**Correspondence to:** Dr. Santosh Kumar, Demonstration Flat 1, MLN Medical College Campus, Prayagraj - 211 003, Uttar Pradesh, India.  
E-mail: drsantosh7373@gmail.com

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