

## CORNEA AND ANTERIOR SEGMENT

### A Comparison of Visual Outcomes after Extracapsular Cataract Surgery and Phacoemulsification in Eye Foundation Hospital Lagos Nigeria

Oderinlo O. O., Hassan A. O., Oluyadi F. O., Ogunro A. O., Okonkwo O. N., Ulaikere M. O., Ashano O.  
*Eye Foundation Hospital, GRA, Ikeja, Lagos, Nigeria.*  
 E-mail: [olufemi\\_oderinlo@yahoo.com](mailto:olufemi_oderinlo@yahoo.com)

**Introduction:** Phacoemulsification is the procedure of choice for cataract surgery in most developed countries.<sup>[1,2]</sup> Extracapsular cataract surgery (ECCE) is, however, still commonly performed in many developing countries with variable visual outcomes reported.<sup>[3]</sup> Our study compares the visual outcome between these two important procedures within a private tertiary hospital setting in sub-Saharan Africa.

**Aim:**

- 1 To evaluate and report postoperative unaided and best-corrected vision at 1 month after extra capsular cataract surgery (ECCE) and phacoemulsification (Phaco).
- 2 To evaluate and report postoperative unaided and best-corrected vision at 3 months after ECCE and Phaco.

**Methods:** A retrospective review of records of patients that had phacoemulsification between January 2012 and December 2013 in Eye Foundation Hospital Lagos Nigeria was done. All pediatric cataracts and eyes with ocular co morbidities were excluded.

**Results:** A total of 238 eyes of 186 patients were evaluated, 87 female 99 male. A total of 157 eyes (from 119 patients) that had Phacoemulsification and 81 eyes (from 67 patients) that had extra capsular cataract surgery were considered in the course of the statistical analysis. By the first post-operative month 134 of eyes (85.4%) that had Phaco had vision of 6/18 and better when compared to 44 eyes (54.5%) that had ECCE ( $P < 0.001$ ). Similarly 145 post Phaco eyes (92.4%) had best corrected vision of 6/18 and better at 1 month when compared to 60 eyes (70.4%) in post ECCE eyes ( $P = 0.001$ ). At 3 months postoperatively 126 Phaco eyes (84.6%), had unaided vision of 6/18 and better compared to 45 of the eyes that had ECCE (56.3%),  $P = 0.001$ , best corrected vision of 6/18 and better was seen in 146 Phaco eyes (98.0%) compared to 70 eyes (87.5%) that had ECCE,  $P = 0.004$  [Table 1].

**Discussion:** In general, a higher proportion of patients undergoing Phaco have a higher percentage achieving unaided vision of 6/18 and

better when compared with ECCE.<sup>[4-6]</sup> Similar results were obtained in our study and these differences were all statistically significant with Phaco having better results. We also noted that eyes that had ECCE progressively improved in best corrected vision of 6/18 and better when comparing the first and third postoperative months (74.1% to 87.5%), but unaided vision at 3 months remained poor at only 56.3% in the ECCE group. Earlier visual improvements were noted in Phaco eyes, by the first post-operative month 85.6% of eyes in this group already had unaided 6/18 and better. Our study adds to the available information that Phaco has significantly better visual outcomes but also shows that ECCE can equally give good results especially best corrected. The retrospective design of the study affected preoperative age and sex matching and our sample size is relatively small.

**Conclusion:** Although both procedures results in good unaided and best-corrected postoperative vision at 1 and 3 months respectively with low complications rates, Phacoemulsification's results are significantly better.

**REFERENCES**

1. Eye Care Work Group. Eye Care 11: Physician Performance Measurement Set. Chicago: American Medical Association and National Committee for Quality Assurance; 2007. p. 18. Available from: <http://www.ama-assn.org/apps/listserv/x-check/qmeasure.cgi?submit=PCPI>. [Last accessed on 2014 Sep 12].
2. Russo CA, Owens P, Steiner C, Josephsen J. Ambulatory Surgery in U.S. Hospitals, 2003. HCUP Fact Book 9. Rockville, MD: Agency for Healthcare Research and Quality, AHRQ Publication No. 07-0007; 2007. p. iv. Available from: <http://www.archive.ahrq.gov/data/hcup/factbk9/factbk9.pdf>. [Last accessed on 2014 Jul 21].
3. Foster A. Cataract – A global perspective: Output, outcome and outlay. *Eye (Lond)* 1999;13 (Pt 3b):449-53.
4. Arriaga ME, Lozano J. A Comparative study of visual acuity outcomes: phacoemulsification vs. Extracapsular cataract extraction. *Invest Ophthalmol Vis Sci* 2002;43: E-Abstract 360.
5. Murphy C, Tuft SJ, Minassian DC. Refractive error and visual outcome after cataract extraction. *J Cataract Refract Surg* 2002;28:62-6.
6. Tabin G, Chen M, Espandar L. Cataract surgery for the developing world. *Curr Opin Ophthalmol* 2008;19:55-9.

**Table 1: Visual outcome between phaco and ECCE**

Type of surgery	<6/60 (%)	6/60 to <6/18 (%)	6/18 and better (%)	$\chi^2$ Significance test
Pre-operative visual acuity				
PHACO	56 (35.7)	41 (26.1)	60 (38.2)	
ECCE	45 (55.6)	24 (29.6)	12 (14.8)	
Unaided visual acuity at 1 month				
PHACO	7 (4.5)	16 (10.2)	134 (85.4)	$\chi^2$ (2)=27.313, P value<0.001
ECCE	12 (14.8)	25 (30.9)	44 (54.3)	
Best corrected visual acuity at 1 month				
PHACO	4 (2.5)	8 (5.1)	145 (92.4)	$\chi^2$ (2)=15.039, P value=0.001
ECCE	6 (7.4)	15 (18.5)	60 (74.1)	
Unaided visual acuity at 3 month				
PHACO	2 (1.3)	21 (14.1)	126 (84.6)	$\chi^2$ (2)=22.266, P value<0.001
ECCE	2 (2.5)	33 (41.2)	45 (56.3)	
Best corrected visual acuity at 3 month				
PHACO	1 (0.7)	2 (1.3)	146 (98.0)	$\chi^2$ (2)=10.871, P value=0.004
ECCE	2 (2.5)	8 (10.0)	70 (87.5)	

Abstracts

**Bilateral Corneal Melting Associated with the Use of Topical Steroid**

Sadiq M. Abdullahi, Murtala M. Umar, Ihenacho I. U.<sup>1</sup>, Alhassan M. B.<sup>2</sup> *Departments of Clinical Services, <sup>1</sup>Anterior Segment and Cornea and <sup>2</sup>Vitreoretina, NEC, Kaduna, Nigeria. E-mail: [abdullahisadiq274@yahoo.com](mailto:abdullahisadiq274@yahoo.com)*

**Introduction:** Steroids are invaluable agents in the treatment of wide variety of ophthalmic conditions including inflammatory and noninflammatory diseases.<sup>[1]</sup> The use of topical steroid can lead to sight threatening complications.<sup>[2,3]</sup> Bilateral corneal melting is not a common complications associated with the use of topical steroid, however, non-steroidal anti-inflammatory can cause it.<sup>[2,4-6]</sup> The purpose of this study is to present a case of bilateral corneal melting following use of topical steroid.

**Case Report:** An 11-year-old pupil presented with two days history of pain, redness, foreign body sensation, purulent discharge and loss of vision in both eyes following application of topical corticosteroid (Stardex®). No history suggestive of any systemic diseases. Examination revealed visual acuity of light perception in both eyes and bilateral corneal melting involving the central 7.6 mm x6.8 mm and 7.8 mm x 6.4 mm in the right and left eye, respectively. There was descematocele in the two eyes. Microbiological study of the Corneal scrappins showed no growth. The steroid application was immediately stopped. The patient was placed on topical diclofenac, atropine, and ciprofloxacin with systemic ciprofloxacin and ibuprofen. Two to three weeks later he developed bilateral anterior staphyloma with deep and superficial vascularization. The patient was referred to Aravind Eye Hospital India, where he had left penetrating keratoplasty. Examination three month after the surgery showed presenting visual acuity of HM and 6/24 in the right and left eye respectively, good graft and intact sutures.

**Discussion:** This is a rare case of corneal melting complication following the use of topical steroid case. Bilateral corneal melting needs prompt treatment in order to prevent irreversible visual loss. Our patient developed bilateral corneal melting after use of topical steroid for two days. This is an uncommon presentation because most cases of corneal melting from topical application of medications are unilateral and not steroid-related.<sup>[4,5,7,8]</sup> Vitamin A deficiency and trauma are commoner causes of corneal opacity in our environment.<sup>[10]</sup> To the best of our knowledge this is the first reported case of bilateral corneal melting from Nigeria associated with the use of topical steroid. Even though the patient is at risk of corneal graft rejection due to younger age of 11 years and corneal vascularization, the graft was clear 3 months after the transplant. He will need long-term follow up for long term graft failure, graft rejection among other complications. This case report demonstrated catastrophic ocular complications such as corneal melting, staphyloma and blindness, which can arise following short term use of topical steroid. We recommend that topical steroid should only be prescribed by an Ophthalmologist. There is need for the drug regulatory agency in Nigeria to strengthen extant laws prohibiting over the counter sell of topical steroid.

**REFERENCES**

1. Renfro L, Snow JS. Ocular effects of topical and systemic steroids. *Dermatol Clin* 1992;10:505-12.
2. Dinning WJ. Steroids and the eye – Indications and complications. *Postgrad Med J* 1976;52:634-8.
3. Becker B. The side effects of corticosteroids. *Invest Ophthalmol* 1964;3:492-7. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/14229934>.
4. Bekendam PD, Narváez J, Agarwal M. Case of corneal melting associated with the use of topical nepafenac. *Cornea* 2007;26:1002-3.
5. Menghini M, Watson SL, Bosch MM. Corneal melting two weeks after pterygium excision with topical mitomycin C: successfully treated with lamellar keratoplasty and amnion membrane transplantation. *Case Rep Ophthalmol* 2012;3:24-9.

6. Gokhale NS, Vemuganti GK. Diclofenac-induced acute corneal melt after collagen crosslinking for keratoconus. *Cornea* 2010;29:117-9.
7. Asai T, Nakagami T, Mochizuki M, Hata N, Tsuchiya T, Hotta Y. Three cases of corneal melting after instillation of a new nonsteroidal anti-inflammatory drug. *Cornea* 2006;25:224-7.
8. Zanini M, Savini G, Barboni P. Corneal melting associated with topical diclofenac use after laser-assisted subepithelial keratectomy. *J Cataract Refract Surg* 2006;32:1570-2.
9. WHO\_PBL\_98.68(1).pdf.
10. Whitcher JP, Srinivasan M, Upadhyay MP. Corneal blindness: a global perspective. *Bull World Health Organ* 2001;79:214-21.

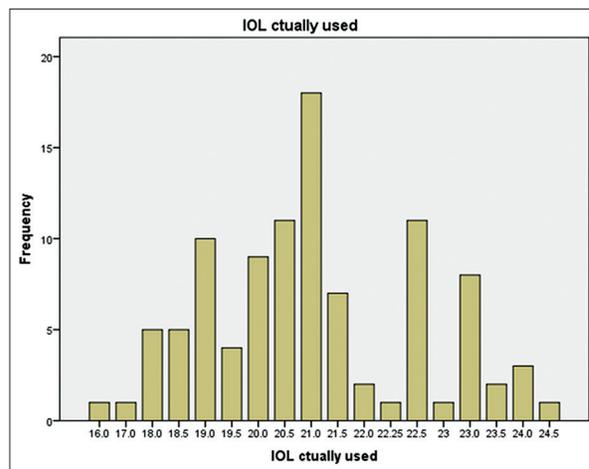
**Commonly Used Posterior Chamber Intraocular Lens Powers in University College Hospital Ibadan**

Aina A. S., Oluleye T. S., Adewole A. T. *Department of Ophthalmology, University College Hospital, Ibadan, Nigeria. E-mail: [solarhema2013@yahoo.com](mailto:solarhema2013@yahoo.com)*

**Background:** Cataract is the most common cause of reversible blindness in the world and it gives the greatest burden in the developing countries.<sup>[1]</sup> It can only be managed surgically.<sup>[2]</sup> Cost (direct and indirect) of cataract surgery is one of the most frequently reported cause of barriers to uptake of surgery however direct cost of is often influenced by the consumables involved in the provision of the service.<sup>[2]</sup> The use of intra ocular lens in cataract surgery offers distinct advantages of better visual outcomes, quicker visual restoration and quality of life.<sup>[2,3]</sup> Cost of provision of cataract surgery needs to be minimized by an eye care provider by having a guided pattern of the posterior chamber intraocular lens (PC IOL) power's to be purchased in order to avoid waste that can occur from unused stock. Furthermore in preparing for eye camps we need to know the commonly used PC IOL powers so as to be able to stock appropriate powers that will be needed. This study aims to determine the most commonly used PC IOL powers in adults in UCH Ibadan.

**Methodology:** It's a retrospective study in which 100 adults who had cataract surgery with PC IOL implantation between January and June 2013 in the Community Ophthalmology unit were reviewed. The age, sex and PC IOL powers implanted were retrieved from their records. Data were analyzed using SPSS version 21.

**Results and Discussion:** The age range was 22–95 years with mean age of 68 years. The peak age range was in the 6–7<sup>th</sup> decade of life. This is consistent with findings in the NNBVIS<sup>[1]</sup> and this may be attributable to the fact that increasing age is the commonest risk factor for the development of cataract.<sup>[4]</sup> The slight female gender (53%) preponderance over male gender (47%) suggests that there is a better health seeking altitude of females than males. The distribution of the PC IOL powers showed that all the powers of the intraocular lenses are not used equally and the commonly used PC IOL powers ranges between 18.0 D and 23.0 D. This suggests that the majority of the study participants were likely to be emmetropic since the choice of the power was guided by the biometry.



Abstracts

**Conclusion and Recommendation:** Cost of provision of eye care services needs to be minimized as much as possible by Avoiding Waste that can occur as a result of already purchased unused PC IOL powers. Also while preparing to go for an eye camp, it is important to have a guide (evidence based) in stocking the different powers of PC IOL's that will be used. Similar study should be carried out in other centers and the findings be made available to the hospital management in other to Avoid Waste from unused Intraocular lenses.

REFERENCES

1. Abubakar T, Gudlavalleti MV, Sivasubramaniam S, Gilbert CE, Abdull MM, Imam AU. Coverage of hospital-based cataract surgery and barriers to the uptake of surgery among cataract blind persons in nigeria: the Nigeria National Blindness and Visual Impairment Survey. *Ophthalmic Epidemiol* 2012;19:58-66.
2. Eruchalu UV, Pam VA. A preliminary review of extracapsular cataract extraction with posterior chamber intraocular lens implantation in Kaduna, Nigeria. *Niger J Med* 2004;13:26-31.
3. Murchison A, Richards M, Tabin G, Ruit S, Gurung R. Optimal single intraocular lens power for the Nepali population. *Br J Ophthalmol* 2004;88:1235-6.
4. Lee PP. Understanding the American Academy of Ophthalmology's preferred practice pattern for cataract. *Int Ophthalmol Clin* 1998;38:87-92.

**Penetrating Keratoplasty in Nigerian Eyes: The Eye Foundation Cornea Transplant Study**

Hassan O.A., Oluyadi F. O., Tijani O., Ijasan A.  
*Eye Foundation Hospital, Deseret Community Vision Institute, Lagos, Nigeria. E-mail: topelatifat06@yahoo.com*

**Background:** The indications for penetrating keratoplasty fall into the following four general categories: optical, therapeutic, tectonic and cosmetic. An improvement in visual acuity or visual function through the creation of clear ocular media is the desired goal in most penetrating keratoplasties.

**Methods/Patients/Participants:** The aim of the study was to determine indications for penetrating keratoplasty, surgical outcomes and risk factors for graft failure in Eye Foundation hospital, Ikeja, Lagos State. A retrospective analysis of all cases of penetrating keratoplasty done at the Eye Foundation Hospital, Ikeja from March 2010 to March 2013 was done. All cases were performed by a single cornea specialist utilizing donor tissue that fulfilled all requirements of the eye bank association of Nigeria.

**Results:** A total of 79 eyes underwent penetrating keratoplasty within the study period. 70 eyes met the inclusion criteria and were analyzed. The leading indication for PKP was bullous keratopathy (31.4%) followed by infectious keratitis (18.6%) and repeat penetrating keratoplasty (14.3%).

Indications	Number of eyes	%
Bullous keratopathy	22	31.4
Infectious keratitis	13	18.6
Repeat penetrating keratoplasty	10	14.3
Traumatic eye injury	5	7.1
Chemical injury	4	5.7
Keratoconus	3	4.2
Band keratopathy	2	2.9
Silicon oil keratopathy	2	2.9
Post pterygium excision	2	2.9
Vernal keratoconjunctivitis	2	2.9
Congenital endothelial dystrophy	2	2.9
Cornea blood staining	1	1.4
Cornea dystrophy	1	1.4
Peter's anomaly	1	1.4

Graft survival was defined as a clear cornea button at 1 year postoperative and there was a graft survival rate of 66% (46 eyes) at 6 months, 63% (44 eyes) at 9 months and 60% (42 eyes) at 1 year. Multivariate survival analysis techniques were used to estimate rates of graft outcome events and to estimate the magnitude of risk factors. Age, gender, endothelial cell count of graft tissue, Harvest – implant time, concomitant operative procedures, and ocular comorbidities were analyzed in a linear and logistic regression against graft clarity at one year with insignificant results.  $P > 0.05$ . However, there was a linear correlation between complications and graft failure with  $P = 0.01$  at 95% confidence interval of -0.046 which was statistically significant.

**Discussion/Conclusion:** Anecdotally assumed risk factors for graft failure such as endothelial cell count of graft tissue, harvest-implant time, age or concomitant operative procedures did not statistically affect the clarity of cornea grafts at 1 year but postoperative complications such as rejection, epithelial defects, button perforation were high indicators of poor graft clarity. This study demonstrates that cornea grafts have equal chances of survival as long as they fulfill all requirements of the eye bank and the need for aggressive managements of complications in the postoperative period is imperative as they arise to threaten graft clarity.

REFERENCES

1. Flowers CW, Chanq KY, McLeod SD, Irvine JA, McDonnell PJ, Rao N, et al. Changing indications for penetrating keratoplasty, 1989-1993. *Cornea* 1995;14:583-8.
2. Robin JB, Gindi JJ, Koh K, Schanzlin DJ, Rao NA, York KK, et al. An update of the indications for penetrating keratoplasty 1979 through 1983. *Arch Ophthalmol* 1986;104:87-9.

**Primary Anterior Chamber Intraocular Lens Implantation in Jos**  
 Olukorede O. Adenuga, Alice V. Ramyil, Caleb D. Mpyet, Patricia D. Wade  
*Department of Ophthalmology, Jos University Teaching Hospital, Jos, Plateau State, Nigeria. E-mail: korexmed@yahoo.com*

**Introduction:** Following vitreous loss during cataract surgery, a variety of lens options exist when the intraocular lens cannot be placed in the capsular bag. Most surgeons however consider the flexible open loop anterior chamber intraocular lens (AC IOL) and the trans-sclerally sutured posterior chamber intraocular lens to be the most acceptable alternatives.<sup>[1]</sup> In our hospital we implant an AC IOL when faced with inadequate capsular support which usually occurs following a posterior capsule rupture (PCR) with vitreous loss (VL).

**Methods:** Retrospective analysis of medical records of a consecutive series of primary anterior chamber intraocular lens implantations carried out in the Jos University Teaching Hospital, Jos over a 5 year period from January 2004 to December 2009. Eyes with complicated or traumatic cataracts, ocular co-morbidity and cases of combined surgery were excluded from the analysis of visual outcome.

**Results:** There were 119 cases of primary anterior chamber intraocular lens implantations during the study period. The case files of 100 eyes of 96 patients were available for review. Inadequate capsular support following PCR was the commonest indication for implanting the AC IOL. Visual outcome was analyzed in 76 eyes that met the inclusion criteria [Table 1]. The commonest postoperative complication was corneal edema (38%) followed by distorted/updrawn pupil (29%).

**Discussion:** When VL occurs during cataract surgery, there is a greater risk of a poor visual outcome and a rise in the incidence of postoperative complications.<sup>[2]</sup> Also implantation of an AC IOL after VL is associated with a poorer visual outcome than implantation of a posterior chamber IOL.<sup>[3]</sup> In our series the proportion of eyes with a good outcome (42%) contrasts with over 70% reported in studies that used vitrectomy machines.<sup>[2,4]</sup>

**Conclusion:** Our results indicate a less than satisfactory visual outcome with primary implantation of anterior chamber intraocular lenses. Caution should be exercised when implanting an AC IOL following complicated cataract surgery, particularly in the absence of appropriate vitrectomy equipment.

Abstracts

**Table 1: Visual outcome**

VA	No (%)			
	Preop VA	VA 1/52	VA 8/52	BCVA
<6/60	70 (96)	38 (52)	18 (32)	10 (18)
6/60-<6/18	2 (3)	29 (40)	27 (47)	23 (40)
≥6/18	1 (1)	6 (8)	12 (21)	24 (42)
Total	73 (100)	73 (100)	57 (100)	57 (100)
Lost to follow up	16		16	

**REFERENCES**

1. Donaldson KE, Gorscak JJ, Budenz DL, Feuer WJ, Benz MS, Forster RK.

Anterior chamber and sutured posterior chamber intraocular lenses in eyes with poor capsular support. *J Cataract Refract Surg* 2005;31:903-9.

2. Collins JF, Gaster RN, Krol WF, Colling CL, Kirk GF, Smith TJ, *et al.* A comparison of anterior chamber and posterior chamber intraocular lenses after vitreous presentation during cataract surgery: the Department of Veterans Affairs Cooperative Cataract Study. *Am J Ophthalmol* 2003;136:1-9.

3. Ionides A, Minassian D, Tuft S. Visual outcome following posterior capsule rupture during cataract surgery. *Br J Ophthalmol* 2001;85:222-4.

4. Pearson PA, Owen DG, Maliszewski M, Smith TJ. Anterior chamber lens implantation after vitreous loss. *Br J Ophthalmol* 1989;73:596-9.

