

# Survey of Cataract Surgical Techniques in Nigeria

Sebastian N N Nwosu

Guinness Eye Center Onitsha , Nigeria

## SUMMARY

**Objective:** To determine the techniques of cataract surgery as currently being practiced by ophthalmologists in Nigeria.

**Materials and Methods:** A self-administered questionnaire was administered to practising ophthalmologists in Nigeria, selected by simple random sampling. Information sought included the type of cataract surgery performed and how often performed; the type of IOL (if any) used; mode of after-surgery care; and availability of biometry and YAG laser facilities.

**Results:** Of the 90 ophthalmologists selected, 84 returned the questionnaire, giving 93.3% response rate. All the ophthalmologists perform cataract surgery. The more frequently employed techniques were the ECCE/IOL (73.8%) and SICS/IOL (29.8%); 2.4% occasionally perform phacoemulsification, while 26.2% occasionally perform intracapsular cataract extraction without intraocular lens implant. Ambulatory (day case) surgery was practiced by 20.2%. The PMMA lenses were most commonly used IOL (94.1%). Only 47.6% of the ophthalmologists have access to ocular biometry and YAG laser was available only to 10.7%.

**Conclusions:** This survey suggests that the most popular cataract surgery technique in Nigeria at present is the wide incision ECCE/IOL and facilities for biometry and Nd:YAG laser are not commonly available. It is recommended that ophthalmologists in Nigeria upgrade both surgical techniques and instrumentation for better post-operative visual outcome for cataract patients.

**Key words:** cataract, surgical techniques, Nigeria

## INTRODUCTION

Cataract is the commonest cause of blindness in Nigeria accounting for nearly 50% of all cases of blindness in persons aged 40 years and above.<sup>1</sup> At present, the confident method of restoring sight to a cataract blind eye is surgery. Many surgical techniques, all aimed at improving visual outcome, have been invented for treating cataract. The techniques have evolved from the ancient method of couching through intracapsular cataract extraction (ICCE) to various forms of extracapsular surgery.<sup>2</sup> While couching is not accommodated in modern ophthalmic surgery, intracapsular surgery is now regarded essentially as a technique that occasionally may be considered for extracting subtotal subluxated or dislocated lenses.

The techniques currently in vogue in various parts of the world

include phacoemulsification,<sup>3</sup> manual small incision sutureless cataract surgery (SICS),<sup>4</sup> and wide incision extracapsular cataract extraction (ECCE).<sup>2,3</sup> With any of the modern methods of cataract surgery, vision is best rehabilitated with the implantation of the intraocular lens (IOL).<sup>2-4</sup> However, in spite of their usefulness, these modern surgical techniques, for various reasons, are not uniformly practiced throughout the world.

The aim of the present study is to describe the cataract surgical techniques as currently practiced by ophthalmologists in Nigeria.

## MATERIALS AND METHODS

A self-administered questionnaire was sent to ophthalmologists, selected by simple random sampling, from all parts of Nigeria in September 2008. Information sought included the type of cataract surgery performed and how often performed; the type of IOL (if any) used; mode of after- surgery care (ambulatory [day case] or in-patient care); and availability of biometry and YAG laser facilities.

## RESULTS

Of the 90 ophthalmologists to whom the questionnaire was sent, 84 responded. This gave a response rate of 93.3%. All the ophthalmologists perform cataract surgery. Table 1 shows the surgical techniques often used (at least 90% of the time) by the ophthalmologists. Some ophthalmologists frequently employ more than one technique.

No ophthalmologist performs phacoemulsification frequently though 2 (2.4%) ophthalmologists occasionally (<10% of the time) employ the technique. Also 22 (26.2%) ophthalmologists occasionally perform intracapsular cataract extraction without intraocular lens implant. Ambulatory (day case) surgery was practiced by 17 (20.2%) ophthalmologists.

Table 2 shows the availability of facilities that enable enhancement of visual rehabilitation post-cataract surgery. While PMMA lenses are most commonly used, only 47.6% of the ophthalmologists have access to ocular biometry.

**Table 1.** Common cataract surgical techniques

\*Percentage based on 84 respondents.

\*\*ECCE – extracapsular cataract extraction; ICCE – intracapsular cataract extraction; SICS – manual small incision sutureless cataract surgery; IOL –

intraocular lens

**Table 2.** Adjunctive facilities available

Facility**	No.	%*
Biometry	40	47.6
Nd:YAG laser	9	10.7
PMMA lens	79	94.1
Foldable lens	5	6.0

\*Percentage based on 84 respondents

\*\*Nd:YAG – neodymium yttrium aluminium garnet; PMMA – polymethylmethacrylate

## DISCUSSION

The results of this survey suggest that all practicing ophthalmologists in Nigeria perform cataract surgery with wide incision extracapsular cataract extraction and intraocular lens implant (ECCE/IOL) as the most frequently employed technique. Although pseudophakic technology in cataract surgery has been the routine and minimum standard of care in developed countries since the 1980s,<sup>5</sup> it was more than a decade later that it was introduced in Nigeria as shown by reports of initial experience from various parts of Nigeria.<sup>6-8</sup> These early reports from Nigeria show that ophthalmologists all employed the wide incision ECCE/IOL technique. This contrasts with the practice in industrialized countries which favour the high technology automated small incision phacoemulsification technique.<sup>5</sup> The introduction of intraocular lens implant surgery in Nigeria necessitated a re-training of ophthalmologists in the technique.<sup>9</sup>

To benefit from the advantages of small incision sutureless surgery without being burdened by the high cost of technology involved in phacoemulsification, manual small incision sutureless cataract surgery with intraocular lens implant (SICS/IOL) was developed in Asia<sup>4</sup> and is currently being popularized throughout the world. Courses are available in different parts of Nigeria to train ophthalmologists in this new technique.

Although expectedly ECCE/IOL is, at present, the most popular technique of cataract surgery, it is equally gratifying to observe from this survey that an increasing number of ophthalmologists in Nigeria are also frequently performing the SICS/IOL. A study in Jos, Nigeria, showed that this technique is safe, has good visual outcome, and is associated with minimal complications in our environment.<sup>10</sup>

On the other hand, it is not encouraging that nearly 10% of the ophthalmologists surveyed still frequently perform extracapsular cataract surgery without visual rehabilitation with the intraocular lens, while some others (26.2%) perform ICCE without intraocular lens implant. Aphakic spectacles, contact lens, refractive surgery and intraocular lens are the different methods of visual rehabilitation after cataract surgery. The superiority of the intraocular lens over the other methods has been well established,<sup>2,3</sup> and every ophthalmic surgeon should take advantage of this when operating on the cataract patient.

The vogue in cataract surgery techniques globally are phacoemulsification and SICS. This survey shows that the former is scarcely practiced in Nigeria, with 2.4% of the ophthalmologists performing the surgery less than 10% of the time. Reasons for this include the high cost of equipment and consumables as well as deficiency in the requisite skills. Anecdotal reports however indicate that a growing number of cataract patients now specifically request

to be treated using the phacoemulsification technique. About a decade ago ophthalmologists in Nigeria willingly and enthusiastically re-trained and effectively converted from performing intracapsular cataract surgery to routinely performing the ECCE/IOL surgical technique. Such positive attitude should also be adopted in re-training for phacoemulsification and other associated modern methods of lens surgery. Such a re-training will no doubt enhance our blindness prevention efforts and ensure maximal visual benefit to the cataract blind in Nigeria. To avoid fossilization, ophthalmologists in Nigeria, of necessity, need to move with the times and trend.

In this survey, only 47.6% use biometry while only 10.7% have facility for YAG laser capsulotomy. Biometry and Nd: YAG laser are adjunctive facilities that help ensure the maximization of visual results after cataract surgery. Ocular biometry helps with the calculation of the intraocular lens power. Implanting an intraocular lens of inappropriate power is one of the causes of poor visual outcome in an otherwise well performed cataract surgery.<sup>11</sup> Nd:YAG laser capsulotomy restores vision in a situation of posterior capsular opacification. Posterior capsule opacification has been documented as one of the commonest post-operative complications of ECCE/IOL surgery in Nigeria.<sup>8</sup> While it may be difficult and even economically unprofitable for every practitioner to have these ancillary facilities, it is recommended that ophthalmologists should avail their patients the opportunity of benefiting from these facilities by referring them to healthcare institutions where they are available.

Day case cataract surgery is also not yet popular. It is currently being practiced by only 20.2% of the ophthalmologists in this survey. Improvement and refinement in cataract surgery techniques, patient health education on cataract surgery after-care as well as the need for cost containment have popularized day case surgery in developed countries.<sup>12</sup> Cost savings and other benefits that may accrue from day case cataract surgery in Nigeria deserve further detailed study.

In conclusion, this survey suggests that the most popular cataract surgery technique in Nigeria at present is the wide incision ECCE/IOL. While an increasing number of ophthalmologists are performing SICS/IOL, only 2.4% perform phacoemulsification. However, equipment for biometry and Nd:YAG laser are not commonly available. It is therefore recommended that ophthalmologists in Nigeria upgrade both surgical techniques and instrumentation for better post-operative visual outcome.

## REFERENCES

1. Kyari F, Gudlavalleti MVS, Sivsubramaniam S et al. Prevalence of blindness and visual impairment in Nigeria. *The National blindness and visual impairment survey*. Invest Ophthalmol Vis Sci 2009; 50(5):2033 – 9.
2. Peyman GA, Sanders DR, Goldberg MF (eds.). Principles and Practice of Ophthalmology. Philadelphia: WB Sander. Vol1, 1980: 605-607.
3. American Academy of Ophthalmology. Basic and Clinical Science Course 2009 - 2010. Section 11: Lens and cataract. San Francisco: American Academy of Ophthalmology 2009: 91 – 161.
4. Natchiar G. Manual Small Incision Cataract Surgery. An alternative technique to instrumental phacoemulsification. 2<sup>nd</sup> Edition. Madurai, India: Aravind Publications, Aravind Eye Hospitals 2004: 94pp.
5. Desai P. The national cataract surgery survey II: Clinical

- outcomes. *Eye* 1993; 7: 48 – 54.
6. Agbeja AM. Intraocular lens implantation, the Nigerian experience. *Afr J Med Med Sci* 1994; 23: 233 – 237.
  7. Adejor GO. Early experience with posterior chamber intraocular lens implantation in National Eye Centre Kaduna Nigeria. *Nigerian Journal of Ophthalmology* 1997; 5: 6 – 12.
  8. Nwosu SNN, Onyekwe LO. Intraocular lens implant surgery in Onitsha, Nigeria. *Nigerian Journal of Ophthalmology* 2002; 10: 5-9.
  9. Alhassan MB, Kyari F, Achi IB, et al. Audit of outcome of an extracapsular cataract extraction and posterior chamber intraocular lens training course. *Br J Ophthalmol* 2000; 84: 848 – 851.
  10. Mpyet CD. Outcome and benefits of small incision cataract surgery in Jos Nigeria. *Nigerian Journal of Clinical Practice* 2007; 10: 162 – 165.
  11. Adepoju FG, Ayanniyi AA. Management of cataract surgery in a high myope – a case report. *Nigerian Journal of Ophthalmology* 2006; 14: 65 – 67.
  12. Desai P. The national cataract surgery survey III: Process features. *Eye* 1993; 7:667 – 671.