Cataract surgery in Mechi Eye Care Centre, Nepal

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Abstract

Since the establishment of Mechi Eye Care Centre, 783 patients have had cataract surgeries with the implantation of intraocular lens in their eyes in the period between 1 December 1996 and 15 May 1998. Ninety-one percent of the patients regained vision better than 6/18 with minor refractive correction. There was no sight threatening and eye threatening complications noted in the intraoperative and postoperative period.

Keywords: cataract surgeries; intraocular lens; Mechi Eye Care Centre

Introduction

Nepal is a small, land-locked country located at the southeastern part of Asia. This beautiful country, positioned between India and China, is famous because of Mount Everest, the highest peak in the world. It is, however, a bitter fact that it is one of the undeveloped countries in the world. At present, the population of Nepal is 18,491,097 and the per capita income is US$ 202. The discouraging health indices of Nepal show that it is one of the countries in the world, which needs a lot to be done in decades ahead in the health-related field. It is, still, facing the health problems that the developed countries have overcome. There are only 80 Ophthalmologists working in 43 different eye centres and eye hospitals. And most of these Ophthalmologists are working in the Kathmandu valley.

Mechi zone is located in the eastern region of Nepal with population of 1.2 million. According to Nepal Blindness Survey 1981[1], prevalence of blindness in this zone was 0.64 per cent. The most important cause of blindness was cataract, accounting for two thirds of Nepal's blindness, and the sequel of cataract accounts for another 5.3% of cases. Retinal disease follows with an estimated 3.3%, glaucoma 3.2%, other infections 2.8%, trachoma 2.4%, and trauma 2.4%. Before the establishment of Mechi Eye Care Centre in Mechi zone, the people of the eastern region of Nepal had to go either in neighboring zone or across the border to India for detailed ocular examination and intraocular surgery. Since its establishment in 1 December 1996, it has provided both the facilities for the ocular examination and for the operation. Eighty-nine percent of the total operations were for the intraocular cases. Among these, cataract surgery is the main surgery performed in the centre. In this study we have included the total cataract operations performed in our Centre from 1 Dec. 1996 to 15 May 1998. We have not included the data of the cataract operated in the outreach activities of the Mechi Eye Care Centre.

Materials and methods

Cases planned for cataract operations undergo preoperative slit lamp examination, fundus examination, intraocular pressure measuring by shiotz tonometry, blood pressure recording and syringing. Preoperative findings, investigations, operative and postoperative findings are recorded in a format.

Operation is done under the Takagi OM-5 microscope. Extracapsular cataract extraction with posterior chamber intraocular lens implantation is the routine procedure. Sometimes if indicated, we perform the intra capsular cataract extraction with anterior chamber intraocular lens implantation. Lens implantation is done under the air in anterior chamber; however, viscoelastics is used occasionally if the intraoperatively IOP is high and there is difficulty in lens implantation. Suturing is done with 10'0 Nylon suture. Subconjunctival injection of Gentamicin is given only when there is conjunctival discharge or conjunctival congestion is noted in the eye. Similarly, when there is excessive manipulation during surgery then only subconjunctial injection of Dexamethasone is given.

Post operatively patients are examined under the slit lamp. On the first day, they are examined by the ophthalmologist. Patients are discharged on the first postoperative day and are called after one week for follow-up. In their subsequent visit, they are examined either by the opthalmologist or by the ophthalmic assistant. If any complication is noted, then the ophthalmologist is notified immediately. Refraction is done every time in the first visit and afterwards.

Observation

This observation is based on the findings recorded in the format. A total of seven hundred and eighty three eyes were operated in this period. The ratio of male (50.4%) and female (49.6%) was nearly equal. Operations were done in RE (49.4%) and in LE (50.6%). Ninety six per cent of the patients were Nepalese in origin; 3% were Indians and 1% was Bhutanese refugees.

	Male		Female		Total
	RE	*LE*	*RE*	*LE*	
Cataract extraction with PCIOL	178	182	170	185	715 (91.3%)
Cataract extraction with ACIOL	11	11	11	7	40 (5.10%)
Aphakia	10	3	7	8	28 (3.57%)
Total	199 (25.41%)	196 (25.03%)	188 (24.01%)	200 (25.54%)	783

Types of Cataract

Type	*Nos.*
Age related cataract	1221 (94.65%)
Congenital	25 (1.94%)
Traumatic	21 (1.63%)
Complicated	13 (1.01%)
Dislocated lens	10 (0.78%)
Total	1290

Age related cataract was the commonest responsible cause for cataract surgeries.

Difficult and complicated surgeries

Surgery was experienced to be difficult in eleven per cent of the cases. Complication was experienced in nearly five per cent of the cases.

Normal Surgery	695 (88.76%)
Difficult surgery	88 (11.24%)
No complication	741 (94.64%)
Complication	42 (5.36%)

Reasons for difficulty in surgery

Causes	*Numbers*
High vitreous pressure	47 (6.0%)
Poor Corneal transparency	30 (3.80%)
Small pupil	11 (1.40%)
Cough during surgery	3 (0.39%)
Uncooperative patient	1 (0.13%)

High vitreous pressure was the commonest cause for difficult surgery.

Intraoperative complications

Complications	*Numbers*
Posterior capsule rupture	32 (4.09%)
Vitreous loss	24 (3.04%)
Zonular dehiscence	2 (0.26%)
Descemet dehiscence	1 (0.13%)
Accidental peripheral iridectomy	1 (0.13%)

Posterior capsule rupture was the commonest complication.

Post operative complications

Postoperative hyphema was the most common problem.

	Day	*Week*	*Month*	*Month*

	1	*1*	*1*	*2*
Wound				
Wound leak	2	1		
Wound gaping	3	1		
Total	5 (0.64%)			
Cornea				
Edema	11	3		
Striae	33	2	1	
Hazy	10		1	
Total	54 (6.9%)			
Anterior Chamber				
Reaction	42	14	2	
Hyphema	59	20	2	2
Cortex	12	2		
Vitreous	6			
Total	119 (15.20%)			
Pupil				
Irregular	52	5	2	1
Sphincter tear	21			
Pupillary capture	3			
Posterior synechia	1	1	1	
Total	77 (9.83%)			

Preoperative vision

Vision	*Nos.*
<3/60	1094 (79.62%)
>3/60–6/36	253 (18.41%)
>6/36–6/24	24 (1.74%)
>6/18–6/6	3 (0.21%)
Total	1374

Nearly eighty percent of the patients were blind due to cataract.

Post operative vision (Presenting)

Visual acuity	*Day 1*	*Week 1*	*Month 1*	*Month 2*
<3/60	57 (7.28%)	36 (5.84%)	11 (5.02%)	1 (2.08%)
3/60-6/60	95 (12.13%)	64 (10.39%)	12 (5.48%)	4 (8.33%)
6/36-6/24	297 (37.9%)	274 (44.5%)	90 (41.1%)	20 (41.67%)
6/18-6/6	313 (40%)	236 (38.31%)	102 (46.6%)	23 (47.92%)

Not mentioned	21 (2.68%)	16 (2.04%)	4 (1.83%)	
Total	783	616 (78.67%)	219 (27.9%)	48 (6.13%)

Postoperative vision (Corrected)

Vision	*Week 1*	*Month 1*	*Month 2*
<3/60	1 (0.18%)		
3/60-6/60	7 (1.23%)		
6/36-6/24	36 (6.33%)	2 (1.03%)	2 (5.13%)
6/18-6/6	515 (90.5%)	189 (97.42%)	36 (92.31%)
Not mentioned	10 (1.8%)	3 (1.55%)	1 (2.56%)
Total	569	194	39

On the first day of surgery, nearly 78% of the patients had vision better than or equal to 6/36, whereas at the end of the first week, nearly 83% of the operated patients had vision better than 6/36 and nearly 88% of patients had vision better than 6/36 at the end of one month. With refractive correction, nearly 97% of the patients had vision better than 6/36. 91% of the patients had vision better than or equal to 6/18.

Cause for blindness even after cataract surgery

Following are the causes of low presenting vision, even after surgery, noticed on first postoperative day.

Causes	*Numbers*
Aphakia	16 (2.04%)
Corneal opacity	2 (0.26%)
Posterior capsular opacity	4 (0.51%)
Posterior synechia	1 (0.13%)
Maculopathy	1 (0.13%)
Age-related macular degeneration	1 (0.13%)
Macular hole	1 (0.13%)
Optic atrophy	3 (0.38%)
Retinal hemorrhage	1 (0.13%)
Poor fundal glow	4 (0.51%)
Retinal detachment	2 (0.26%)
Retinal scar	3 (0.39%)
Phacomorphic glaucoma	2 (0.26%)
Total	57

Discussion

Sex, Nationality and laterality

There was no significant difference between the sex ratio and the laterality of
the eye. The ratio of Indian patients is very low in comparison to other eye centres and other eye hospitals situated in the Terai region of Nepal. This is because of the
less publicity of this hospital in the Indian population. As there are nearly 100,000 Bhutanese refugees residing in Mechi zone, they also visit our centre with their ocular problems.

Type of cataract

As usual, the most common type of cataract was age-related and most of the time it was mature. As our centre does not have facility for general anesthesia, we could operate only on children with congenital cataract of more than twelve years of age and those who were cooperative.

Difficult and complicated surgery

Surgeons experienced difficulty in eleven per cent of the cases. In six per cent of the cases, it was due to *raised intraocular pressure* in the intraoperative period. Raised IOP was due to poor anesthesia and akinesia. Other causes were due to excessive dose of retrobulbar injection of anesthetic agent, and insufficient application of pressure after giving anesthesia. In congenital cataract, more incidence of raised IOP intraoperatively was noted.

Poor corneal transparency was either due to corneal preoperatively or due to excessive application of dilute Povidone Iodine irrigating solution, used for washing of the conjunctival culdesac. Similarly, topical anesthesia of 4% Xylocaine was found to be toxic to the epithelium of the cornea. Occasionally, central corneal haziness was noted without proper closure of the eyelids. *Posterior capsular rupture and the vitreous loss* were the commonest problems encountered. These were because of the high vitreous pressure, poor corneal transparency and the small pupil. In some of the eyes it was because of the dislocated lens and traumatic posterior capsule rupture present before the surgery.

Postoperative complications

Anterior chamber problems:

Postoperative hyphema was the most common problems encountered but in most of the patients, hyphema was resolved after a few days of treatment with steroids, mydriatics and bed rest. In most of the cases, hyphema was because of the leakage of blood through the wound. Only four patients required wash out of the anterior chamber due to hyphema. Some patients had severe reaction in their anterior chamber that subsided after few days of treatment with the steroid eye drops and mydriatics. *Cortex in anterior chamber* was resolved with treatment and none of the patients required surgical intervention. *Vitreous in anterior chamber* was due to either posterior capsular rent or leak through the zonules.

Pupillary problems:

Pupillary problem was the next most common problem encountered. None of the patients required surgery in their eyes due to pupillary problems. Though pupillary capture was noted in three eyes, the patients had satisfactory vision; no surgical intervention was done.

Corneal problems:

Corneal problems were due to difficulty in surgery experienced in the intraoperative period. In all the cases, corneal problems subsided with time and the patients regained satisfactory visual acuity.

Wound:

Wound gaping with leakage was noted in two eyes that were repaired in the first postoperative day. In eyes where there was wound gaping without leakage, no surgical intervention was done.

Post operative visual acuity

Preoperatively, eighty per cent of the patients had vision less than 3/60 and ninety-eight per cent of the patients had vision poor than 6/18. On the first postoperative day, only seven per cent of the patients had presenting vision worse than 3/60 and forty per cent of the patients had vision better than 6/18. On the first visit to hospital, only six per cent had presenting vision worse than 3/60, and with refractive correction only 0.18% were blind. With refractive correction, nearly ninety-one per cent of the patients had vision better than 6/18. There was a significant improvement in vision noted after the surgery and minor refractive correction.

Causes for blindness after surgery

Aphakia was the important cause for the presenting vision to be less than 3/60. Other important causes were posterior segment disorders present before the surgery.

There is controversy whether to do ICCE or ECCE in the developing world and whether to implant or not to implant an intraocular lens in the eye ? Both of the procedures have certain advantages and disadvantages. ECCE offers well-known advantages[2]: low frequency of vitreous loss and cystoid macular edema, but still the risk of opacification of the posterior capsule is great. Twenty-one per cent of the patients had posterior capsular opacification at follow-up.[3] Intracapsular cataract extraction is a reasonably successful, appropriate and cost effective procedure. It is particularly suitable for treating the increasing number of blind cataract patients in areas of the world where resources are

limited.[4,5,6] Of 235 aphakic patients, followed for 1-10 years in Karnali, Nepal, only 23% were wearing aphakic spectacles in good condition, 25% had lost or broken their spectacles, 31% were wearing scratched or repaired spectacles, 5% never received spectacles and 16% were dissatisfied.[7]

The use of intraocular lens implants in developing countries should be carefully balanced with the need to provide surgery for most cataract blind in a less expensive way which will not deprive many of the surgery that is required.[8] In Nepal, despite our best efforts cataract is still the
major cause of blindness. Some centres are doing extracapsular cataract extraction
with posterior chamber intraocular lens implantation while some of the centres are doing intracapsular cataract extraction and prescribe spectacles afterwards. In our view, as the quality of vision is better with the IOL implantation and intraocular lens is available at cheaper prices, intraocular lens implantation is a cost effective procedure after extra capsular or intracapsular cataract extraction. With practice technical expertise can be learned and implantation can be done without using viscoelastics.

Conclusions

Despite our best efforts, cataract is still the most important cause of blindness. Extracapsular cataract extraction with intra-ocular lens implantation is a cost effective procedure with less sight threatening and eye threatening complications in the
hands of experienced surgeon. Technical expertise can be learned with practice. In our country where aphakic glasses are not easy to buy in many parts of the country, IOL implantation during cataract surgery in eye hospitals and eye centres is a better alternative to the aphakic correction with spectacles.

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