

# INTRAOCULAR LENS FOR THE CORRECTION OF APHAKIA

T K Lim

## SYNOPSIS

Technological advances have made better design of intraocular lens possible with less complications. Increased knowledge and improved surgical skill with the use of operating microscope have furthered the ideal of intraocular lens. This article presents four patients of different races in Malaysia, who were operated at the University Hospital, Kuala Lumpur. All of them benefitted from the use of intraocular lens in their respective profession, social and family activities as well as developing a more positive outlook in life. Disadvantages of aphakic spectacles and contact lens corrections are discussed.

## INTRODUCTION

Though intraocular lens implantation was tried out as early as the eighteenth century, (1) successful operations have only been achieved since 1949. The first operation was performed by Dr. Harold Ridley (2). Since then many intraocular lenses with modification of the original design have been implanted (1). The optical advantages of intraocular lens include the abolition of peripheral distortion, pin cushion effect and roving scotoma from aphakic spectacles correction (3, 4). In addition, spectacles correction would not be tolerated in unilateral aphakia due to anisometropia as a result of spectacles magnification. Intraocular lens would be ideal for such cases because of the absence of or acceptable small magnification: Intraocular lens implantation is undoubtedly more complex than routine cataract extraction (5, 6). This means that extra skill and experience are needed on the part of the surgeon to carry out the implantation. With advances in cataract surgery, intraocular lens implantation has become a less risky operation. The following four cases demonstrate the need for primary or secondary intraocular lens implantation.\*

*\*Secondary intraocular lens implantation is carried out at least 3 months after cataract extraction whereas primary implantation is carried out immediately following the cataract extraction.*

Department of Ophthalmology  
Faculty of Medicine  
University of Malaya  
Kuala Lumpur

T K Lim, MBBS, DO, FRCS(G)  
Lecturer

**CASE 1**

Mrs. N.R. is a 53 year old Indian housewife who had right unilateral cataract extraction done four years ago in November 1979. There was vitreous loss during surgery. Two months after the operation, she developed raised intraocular pressure which was controlled by acetazolamide. Acetazolamide was stopped in May 1980 without raised intraocular pressure. Her left vision was 6/9 with correction. As the patient was not in favour of the idea of wearing contact lens, she and her husband then tried to get an alternative optical correction. On 23rd December 1982, an anterior chamber intraocular lens of Choyce Mark IX model (7) (Figure 6) was inserted under general anaesthesia. Post-operatively, the progress was uneventful. Right visual acuity was 6/12 unaided on the second post-operative day and 6/6 after refraction. Three months later, the patient's right visual acuity remained at 6/6 with correction and no eye drop was needed. Without spectacles correction, her distant visual acuity was 6/12 and near vision was N6 without difficulty. She had no difficulty in watching television and doing housework with unaided vision. Therefore she did not request for the additional spectacles correction.

**CASE II**

Mr. H.K.S. is a 62 year old Chinese active land surveyor. He had right visual acuity of 6/5 and left 6/9 partly with aphakic contact lens. He had a past history of left cataract extraction done in February 1982. Problems arose after he had lost seven extended wear contact lenses within a period of four months. He had given up getting the eighth contact lens fitted, due to the inconvenience of ordering and waiting for the replacement; in addition to the financial burden. He was finally referred to the author. On 24th February, 1983, an anterior chamber intraocular lens of Choyce Mark IX model was implanted in his left eye. Post-operative course was uneventful. The patient's visual acuity was 6/18 with correction on the fourth post-operative day and had improved to 6/9 two months later. Three months after the operation his distant visual acuity was 6/9 and reading N5 with corrections. He was prescribed bifocal glasses with successful outcome.

**CASE III**

Mr. A.L. is a 49 year old Malay who worked as a welder. He had left and right cataract extraction done in July and November 1982 respectively. His post-operative vision with aphakic spectacles correction was 6/6 in either eye. Even with such good visual acuity in both eyes, the patient had no confidence in driving which in turn affected his family activities. If he had to drive, neckache would occur, because he had to turn his head more than 90° when overtaking or turning into a side road in order to obtain the target field within his clear central vision. In addition to the difficulties involved in adapting to the peripheral distorted field during work, whenever the patient put on his welding shield it scratched his thick aphakic spectacles. As a result he had to change the spectacles lenses every few months. When he came to know about intraocular lens implantation from another patient, he requested for the implantation. The operation (Choyce Mark IX) was done on 3rd February 1983 for the left eye and on 8th March 1983 for the right

eye. Post-operative course was uneventful. Visual acuity of each eye was 6/6 with correction after one month of the respective operations. Three months after the second operation, the patient's visual acuity was 6/12 unaided in either eye and 6/6 with correction. Wearing bifocal spectacles, the patient's life both at home and at work returned to normal.

**CASE IV**

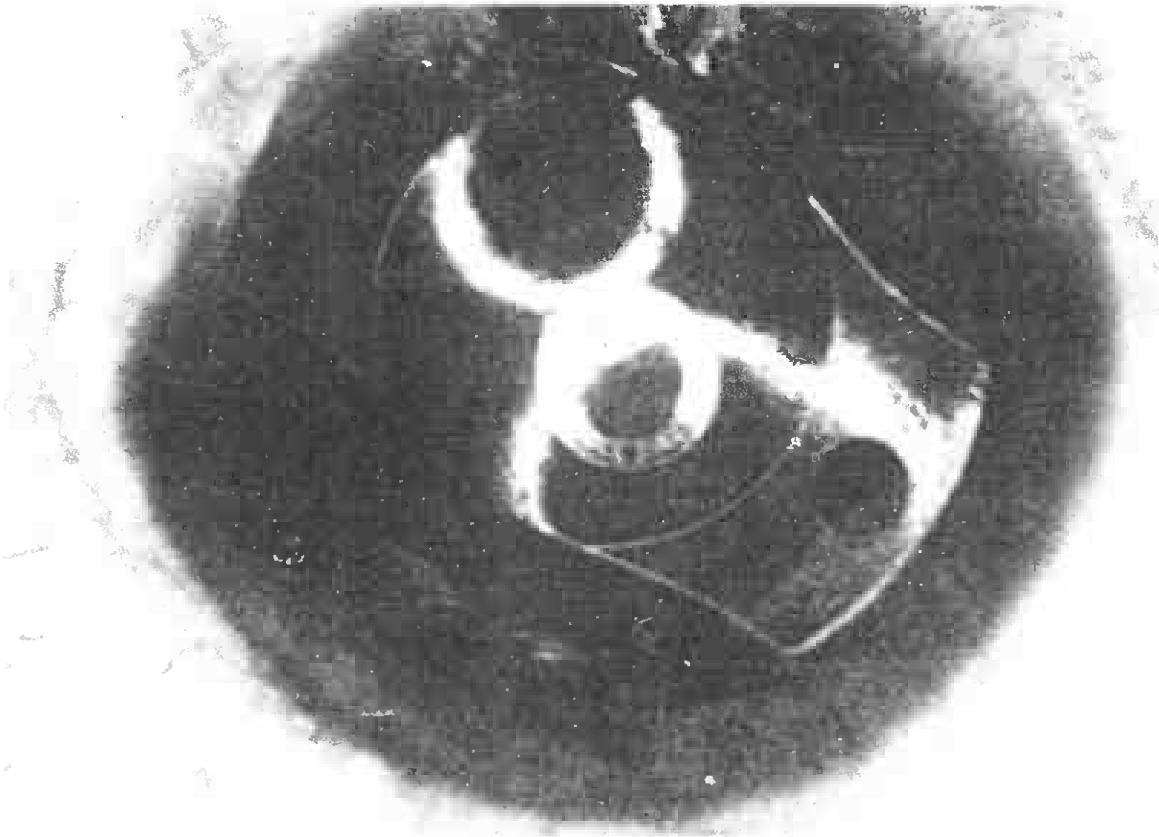
Mr. C.M.J. is a 60 year old Eurasian organist. He had his left unilateral cataract extraction done in August, 1976 and was complicated by small iris prolapse at 1 o'clock position. His unilateral aphakic condition was corrected satisfactorily with a contact lens. In late 1982, he was found to have dense cataract in his right eye with deteriorating vision. He also had secondary concomitant divergent squint of 10° which was not noted before. With deteriorating right vision he found it difficult to insert the daily wear contact lens into his left eye. He was then advised to have primary intraocular lens (Choyce Mark IX) implantation in his right eye. The operation was done on 9th December 1982. Post-operative progress was uneventful. The patient was able to read small prints in the newspaper on the second post-operative day with unaided right vision. 6/6 vision was obtained with correction. Three months post-operatively the patient's right corrected vision was 6/6 and squint was not noted on any occasion. On request he wrote a short passage comparing the differences of the three methods of aphakic correction (see Appendix). Similar satisfaction after implantation was also expressed by other patients (8). Later he requested for intraocular lens to be implanted in his left eye. The outcome was successful.

**DISCUSSION**

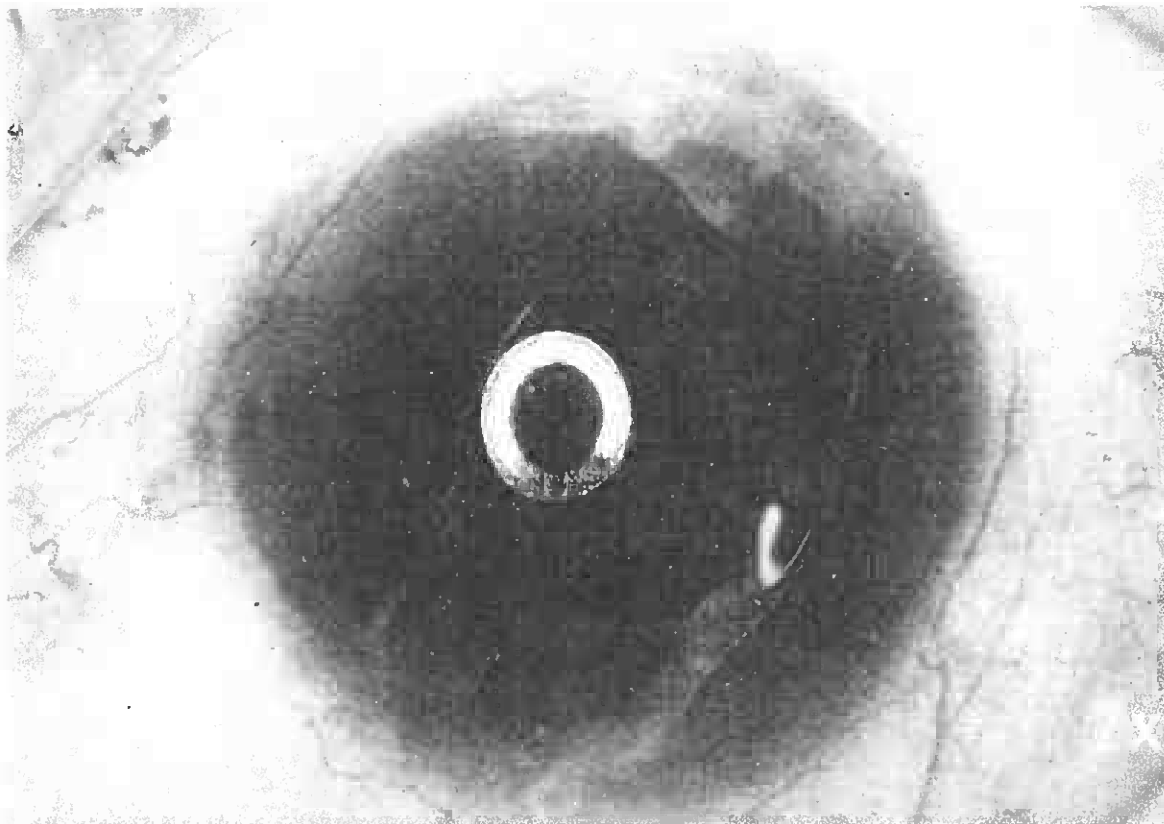
The disadvantages and problems associated with aphakic correction either in the form of spectacles or contact lens are well demonstrated by the four cases described. They also serve to demonstrate the importance of normal binocular vision and normal visual field.

Case I, being a housewife, had difficulties in doing housework before the implantation. Without aphakic correction unilateral aphakic vision gave rise to "double vision" (according to the patient's description) which resulted in headache. She was unable to view the surrounding with binocular vision and this accounted for the difficulty in moving about the house. She was worried about falling when approaching steps. Her activities became restricted and she was psychologically depressed. It is clear in this case the visual result of the unilateral cataract extraction alone gives rise to other problems.

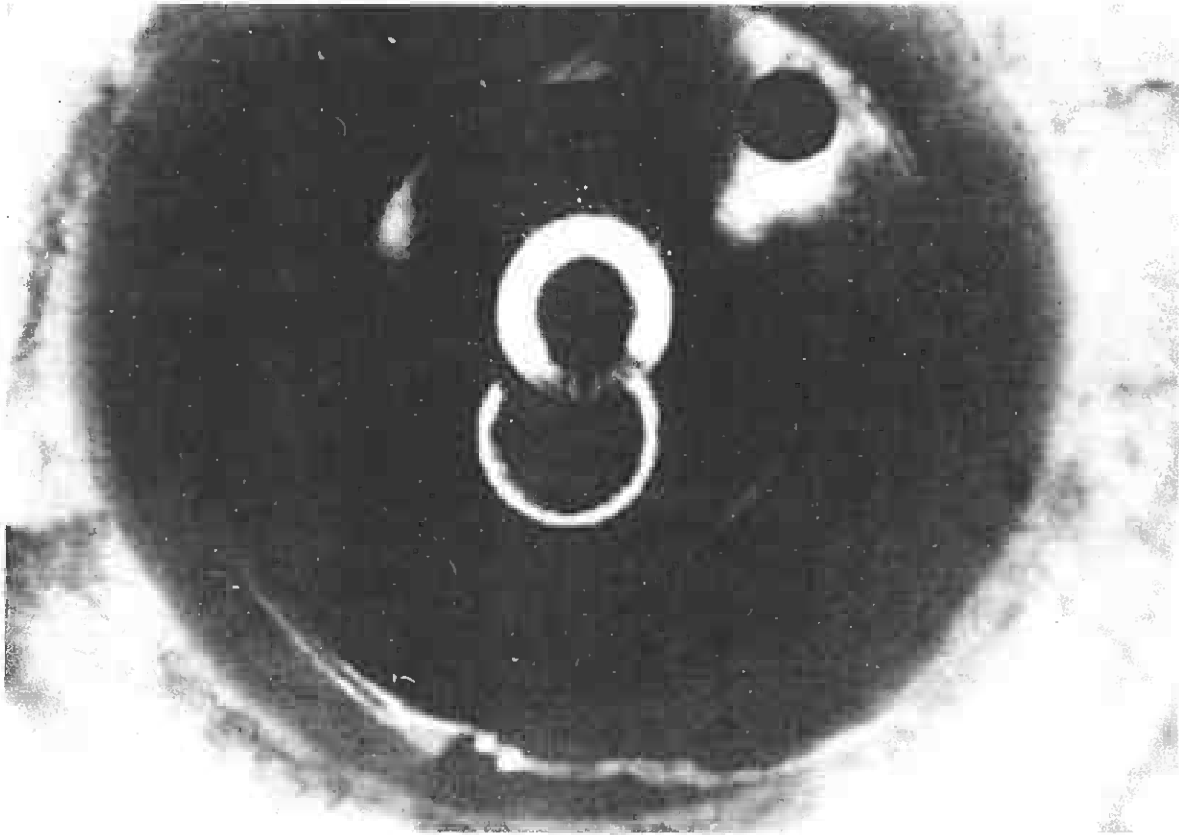
Case III had great difficulty in driving with aphakic glasses, due to its limited visual field, and a similar complaint was made by Case II and IV. Case III had to give up driving and his wife was upset about having no transport to go marketing and shopping. The patient's work was also affected because of the difficulties in adapting to aphakic spectacles vision and the frequent changes of spectacles lenses as a result of scratches from the welding shield. Case II was an active land surveyor. The frequent loss of his contact lens resulted in difficulties in carrying out his daily work. Reading the score (music note) with the contact lens while playing organ was a problem to Case IV because it always gave rise to intermittent blurring due to poor



**Fig. 1**  
Right eye of Case I with intracocular lens  
in situ.



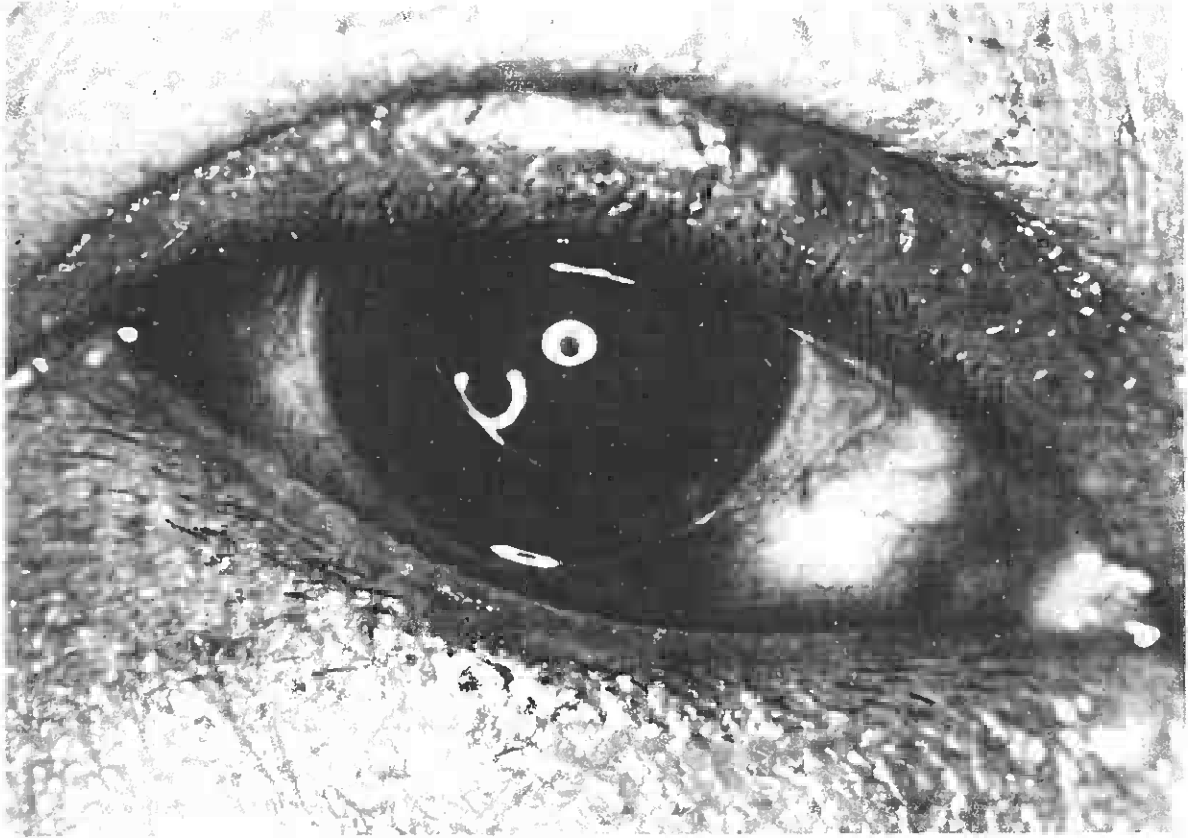
**Fig. 2**  
Left eye of Case II with intraocular lens  
in situ



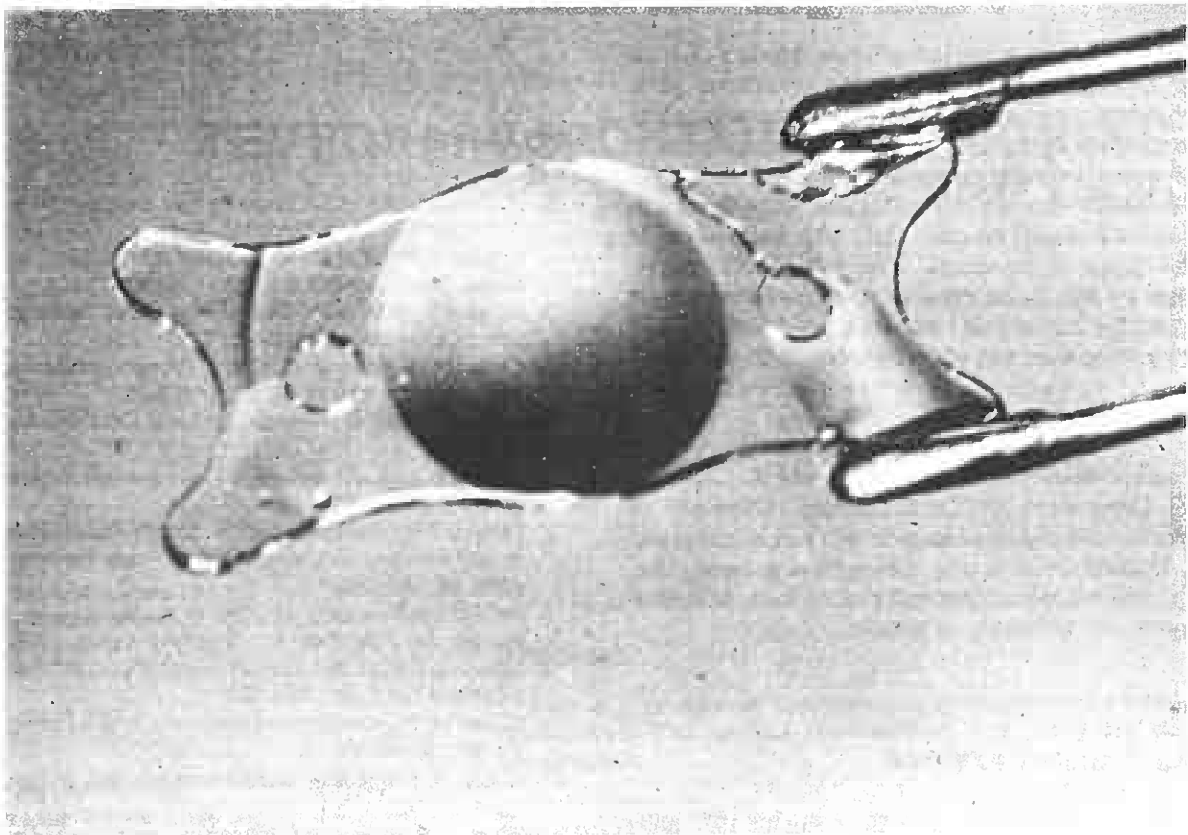
**Fig. 3**  
Left eye of Case III with intraocular lens  
in situ



**Fig. 4**  
Patient of Case III wearing aphakic glasses



**Fig. 5**  
Right eye of Case IV with intraocular  
lens in situ



**Fig. 6**  
Anterior Chamber intraocular lens of Choyce  
Mark IX Model

centration.

Contact lens does not appear to be a satisfactory solution to the correction of unilateral aphakia. Studies had shown that many patients ceased wearing contact lens within 3 years (9, 10). Case II ceased wearing his contact lens due to the problems arising from frequent losses. Case IV was unhappy with intermittent blurring of vision due to the sagging of the contact lens. Another problem was his failing vision of the fellow eye which gave rise to difficulties in handling the small aphakic contact lens. The idea of inserting and removing the contact lens daily did not appeal to Case I. Other problems which may be encountered include contact lens intolerance, difficulty or incapability in inserting the contact lens due to hand tremor, arthritis, paralysis, and complications from contact lens wearing (11). Moreover, the potential wearer should be capable of alert co-operation, have easy access to an ophthalmic service and be fairly mobile in order to attend frequent follow ups and lens cleaning procedure in extended wear aphakic contact lens rehabilitation (12, 13).

All the four patients above are satisfied with the result of intraocular lens implantation even though their visual acuity is the same before and after the operation. This demonstrates the superior quality of vision with intraocular lens. It gives patient both a stable vision and an adequate visual field. Cosmetic appearance, weight and thickness of the aphakic glasses are no longer an embarrassment to these patients. The daily routine of cleaning, inserting and removing contact lens is eliminated. The above advantages have contributed to a more confident outlook in life. In fact, increased engagements after implantation was commented upon by the wife of Case II.

## CONCLUSION

The four cases presented demonstrate dramatic change in visual experience. Nevertheless experience of other implant patients may be less dramatic. Intraocular lens has provided the best solution to date for aphakic correction in terms of working condition, social activity and family life. Intraocular lens implantation is a relatively complex operation which demands specific skill and experience in individual design of intraocular lens and should only be undertaken by eye surgeons after appropriate training. In this respect, the author was fortunate to work with Dr. D.P. Choyce for more than two years between 1980 and 1982.

## ACKNOWLEDGEMENT

The author would like to thank Professor S. Chandran Head of Department of Ophthalmology, University of Malaya for the use of patient material and for his advice and referral, Medical Officers who referred the patients, Miss Yap for typing the manuscript and staff of Medical Illustration Department, University of Malaya.

## APPENDIX

### Mr. C.M.J., ORIGINAL PASSAGE

I had my cataract left eye operated in August 1976 and I was advised by the eye doctor to wear contact lenses. Since 1976, I had been wearing contact lenses in both eyes. I was quite satisfied with wearing them until I started losing them and since 1976 until recently I had lost six

lenses and each spare lens cost me between \$50/- to \$75/-.

Although it was better wearing contact lenses than cataract spectacles I had to also wear spectacles for reading, and even with reading spectacles, I had difficulty in reading the small letters and I could not even read the Telephone Directory. Each time I wanted to see the Telephone Directory I had to use the magnifying glass. Sometime in 1982, the Eye Optician told me that my contact lens had to be altered because it was not moving freely in my left eye. It took more than a month for it to be sent to Japan for making a hole in the centre of the lens. Meanwhile the Optician advised me to use cataract spectacles which costed me \$150/-. It did not serve me well because I could not drive my car when using it and I had to be contented wearing it when only looking at TV programmes.

My right cataract eye was to be operated in December 1983 and Dr. Lim suggested if I would like to have a lens implanted. I requested for this sort of operation and it was my desire to have this done but no eye doctor had told me about the intraocular implant lens before. After the implant lens was inserted I could read the papers on the next day after the operation. I could even read the telephone directory very well.

For long distance I can see very well with my spectacles which I did not wear for more than ten years. Now with the implant lens I can read the papers with or without my old spectacles and there is no difficulty in reading the Telephone Directory and I can drive my car with ease. There is also no difficulty in reading the music notes while playing the electric organ. Before I went for the right cataract eye operation I could not read the music notes at all.

Signed by the patient  
February 1983.

## REFERENCE

1. M J Roper Hall, eds. Stallard's Eye Surgery, Sixth Edition, Bristol John Wright & Sons Ltd. 1980.
2. Choyce D P: 25 years of pseudophakic surgery. A personal review. *Trans Ophthal Soc U.K.* 1981; 101; 51-5.
3. Abrams D. eds: Duke-Elder's Practice of Refraction, Ninth Edition, Churchill Livingstone, 1978.
4. Oliver H D: Defects of Vision through aphakic spectacle lenses. *Ophthalmology* 1979; 86; 352-79.
5. Editorial: Symposium Intraocular Lens. *Ophthalmology* 1979; 86; 195-6.
6. Jaffe N S : Intraocular lenses — current status. *Ophthalmology* 1978; 85; 52-8.
7. Choyce D P: The evolution of the Anterior Chamber Implant up to, and including the Choyce Mark IX. *Trans Am Acad Ophthal* 1979; 86; 197-206.
8. An Ophthalmologist's reaction to his own intraocular lens implant. *Am J Ophthal* 1981; 91:114-7 (Letter).
9. Lobasher D et al: Soft Contact lenses in cases of aphakia. *Brit J Ophthal* 1974; 58:1009-15.
10. Ruben M; The Contact lens in aphakia, *Trans Ophthal Soc U K* 1981; 101:48-50.
11. Ruben M: Textbook of Contact Lens Practice, Bailliere Tindell London 1975.
12. Bernth P P, Sorensen T: Intraocular lenses versus extended-wear contact lenses in aphakic rehabilitation. *Acta Ophthal* 1983; 61:382-91.
13. Ruben M: The use and abuse of soft contact lenses in aphakia. *Trans Ophthal Soc U.K.* 1982; 102:413-5.