

Original Research Article**Barriers To The Second Eye Cataract Surgery****Amongst The Rural Population Of Western Maharashtra, India****Abstract**

Aim: To identify the barriers which prevent the uptake for the second eye cataract surgery (SECS), amongst the rural population.

Study design: A hospital based observational study.

Place and Duration of Study: Department of Ophthalmology, Pravara institute of medical sciences, Loni, Maharashtra, India, from September 2013 to August 2015.

Methodology: 100 patients who had age related senile cataract in second eye and had undergone first eye cataract surgery in past were included in this study. They were clinically examined and interviewed to determine the reasons for delay in seeking SECS.

Results: Amongst the 100 patients, majority were female (65%), farmers (60%) and illiterate (78%). Most common age group involved was 61-70 (44%) years. Visual Acuity in the non-operated fellow eye was $<6/60$ or worse in 84% patients. 60% patients presented with advanced stages of cataract (mature and hypermature cataract) in the second eye, and 12% patients had hypermaturity related complications. The major barriers to the uptake of SECS were 'can see with other eye' in 66% patients and 'cost of surgery' in 54% patients.

Conclusion: Can see with other eye and cost of surgery are important barriers that prevent the uptake for SECS. Dedicated modifications in ongoing cataract surgery programmes and eye care

education camps will be of immense help in overcoming the barriers associated with the second eye cataract surgery.

Keywords: Barriers, Cataract, Second eye cataract surgery.

Introduction

Cataract is the most common cause of preventable blindness and visual impairment worldwide, and is responsible for 75% of all blindness cases.¹ The most recent data provided by WHO reveals that in South Asia region including India, 51% of blindness is due to cataract.² By 2020, the elderly population is expected to double, thereby further increasing the number of blind people.³ Management of cataract revolves around the removal of the opacified lens and correction of the resultant hypermetropia with an intraocular lens implant. The cataract surgery procedure is one of the few surgical interventions, wherein the cost benefit analysis has been extensively studied.⁴

Cataracts are predominantly bilateral,⁵ are known to depress visual field fairly uniformly. Stereo acuity⁶ and binocular contrast sensitivity^{7,8} is improved by surgery to both cataracts. Available studies in this regard show an improvement in visual function after second eye surgery and suggest that better outcomes are achieved if patients undergo surgery in both eyes.⁹⁻¹¹ With the objective of reducing the rates of visual impairment, large-scale cataract surgery programs have been encouraged worldwide, by both governmental as well as non-governmental organizations. However, despite rapid increase in the availability of quality services, surgical acceptance is still poor in our country especially in the rural areas. People's use of health services is influenced by a range of social, economic, psychological, cultural and practical factors.¹²

Even in today's modern era of tremendous advancement in surgical skill and technology and increasing cataract surgery rates globally, we frequently see patients operated for cataract in one eye, presenting with hypermaturity related complications in the second eye. These are the patients who have accessed the eye care facility for the first eye, but have failed to seek it again for the second eye at the appropriate time. Various studies in past have identified and categorized the factors which act as barriers to the uptake of cataract surgery, but they have usually been carried out in relation with the first eye cataract surgery. Dedicated studies for understanding the barriers that prevent the uptake for the second eye cataract surgery are limited. Ours is a tertiary level, teaching hospital that caters mainly to the rural population with poor socio-economic background in the region of western Maharashtra. Despite the fact that the cost of cataract surgery is very minimal or surgery is even done on charity basis, patients still decline to get operated in the second eye. In this light, this prospective study was carried out for determining the barriers which prevent the uptake for the second eye cataract surgery and lead the patients to preventable sufferings.

Material and Methods

This was a hospital based observational study conducted at Department of Ophthalmology, Pravara institute of medical sciences, Loni, a tertiary care teaching hospital located in rural area of western Maharashtra. The study was carried out over a period of two years from September 2013 to August 2015 in 100 patients who had undergone cataract surgery in one eye and have age related cataract in the second eye, attending the OPD during the study period, and fulfilled the selection criteria mentioned below.

Selection criteria

a. **Inclusion criteria** – Unilateral pseudophakic patients with age related cataract in the second eye coming to pravara ophthalmology OPD.

b. **Exclusion criteria** – Patients with best corrected visual acuity $<6/18$ in the first eye, Age < 50 years, other ocular morbidities leading to diminution of vision except age related senile cataract and One eyed patients.

After institutional ethical committee approval, patients were briefed in appropriate local language about the purpose and procedures involved in the study. Information was obtained from the selected patients using a structured proforma about their socio-demographic details that included name, age, sex, occupation, nature and duration of symptoms, history of systemic diseases and addictions if any. A detailed operative history was obtained regarding first eye surgery, which included place of surgery, time since surgery and if known type of surgery.

Clinical examination include recording of visual acuity, anterior segment examination, grading of cataract using Lens opacities classification system and fundus examination. Retinoscopy was done and refractive status of the patients was recorded and best corrected visual acuity was obtained. Other ocular examinations in the form of ocular motility, ocular position, intra ocular pressure measured using schiotz tonometer, patency of lacrimal passage was also done.

After complete evaluation of the patients, they were asked about the reason for refraining from seeking SECS at an appropriate time which could have prevented their sufferings.

Results & Discussion

This study included 100 unilateral pseudophakic patients (35 men and 65 women) with an operable cataract in the second eye with a mean age of 66.24 years. 44% of the patients were

88 in their 7th decade. Majority of the patients were farmers (60%) with an illiteracy rate of 78%.
 89 Majority of these patients have undergone small incision cataract surgery (SICS), as their first
 90 eye cataract surgery (83%). The socio-demographic data and other characteristics of the study
 91 population are presented in Table 1.

92 **Table 1**
 93 **Socio-demographic profile of patients**

Characteristic		Number of patients
Gender	Male	35 (35%)
	Female	65 (65%)
Age (years)	50 – 60	33 (33%)
	61 – 70	44 (44%)
	71 - 80	17 (17%)
	≥ 81	6 (6%)
	Mean ± SD	66.24 ± 12.25
Occupation	Farmer	60 (60%)
	Housewife	32 (32%)
	Labourer	5 (5%)
	Maid	3 (3%)
Literacy status	Illiterate	78 (78%)
	Literate	22 (22%)
Type of surgery in first eye	Small incision cataract surgery	83 (83%)
	Extra capsular cataract extraction	11 (11%)
	Phacoemulsification	6 (6%)

94
 95 During clinical examination, it was observed that 84% of the patients had a visual acuity
 96 of <6/60 or worse, in the second eye at the time of presentation. 60% of the patients presented

97 with advanced stages of cataract (mature and hypermature cataract). 12% patients had
 98 hypermaturity related complications in the second eye at the time of presentation. The findings
 99 of clinical examination are depicted in Table 2.

100 **Table 2**

101 **Clinical examination details**

Characteristic		Number of patients
Visual acuity of second eye	<6/60 or worse	84 (84%)
	6/60 – 6/24	12 (12%)
	6/18 – 6/6	4 (4%)
Stage of cataract in second eye	Immature senile cataract	40 (40%)
	Mature senile cataract	33 (33%)
	Hypermature senile cataract	27 (27%)
Hypermaturity induced complications	Lens induced Glaucoma	10 (10%)
	• Phacomorphic	4
	• Phacolytic	6
	Subluxation of lens	1 (1%)
	Dislocation of lens	1 (1%)

102
 103 The major barriers for not seeking surgical intervention for the second eye were ‘can see
 104 with other eye’ in 66% patients and ‘cost of surgery’ in 54%. Table 3 presents a complete list of
 105 barriers observed in the present study.

106 **Table 3**

107 **Barriers to the uptake of second eye cataract surgery**

Barriers	Number of patients
Can see with other eye	66 (66%)

Cost of surgery	54 (54%)
Ignored by family	15 (15%)
Waiting for maturity	13 (13%)
Fear of surgery	12 (12%)
Distance	10 (10%)
Escort deficiency	9 (9%)
Lack of awareness	8 (8%)

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109 The time interval between the cataract surgery of first and second eye, as observed in the
 110 present study is depicted in Table 4. The average time lag between the first and second eye
 111 cataract surgery observed in the present study was 2.64 years.

112 **Table 4**

113 **Time interval between first and second eye cataract surgery**

Time interval (years)	Number of patients
0 - 2	56 (56%)
3 to 4	25 (25%)
5 to 6	13 (13%)
7 to 8	5 (5%)
9 to 10	1 (1%)

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115 Second eye cataract surgery improves visual capacity, general health status, and patient's
 116 satisfaction.^{9,10} Patients are more satisfied after SECS in comparison to the first cataract
 117 surgery.¹³ There is a greater need for SECS in patients who need binocular vision for maintaining
 118 an active occupational, personal and social life.^{14,15} SECS has a unique effect on quality-adjusted
 119 life years and is an extremely cost-effective procedure. There has been a global increase in the

120 number of cataract surgeries being performed. SECS constitute an important share in this
121 increment.^{16,17}

122 It is evident from the results of the present study, that the study patients have faced
123 multiple barriers which prevented them from undergoing SECS at an appropriate time.
124 Identification of these barriers and appropriate modification of eye care programmes is prudent
125 in expanding the surgical coverage. The major barriers encountered in our study were – can see
126 with other eye (66%), cost of surgery (54%). Other barriers observed were – Ignored by family
127 (15%), waiting for maturity (13%), fear of surgery (12%), distance (10%), escort deficiency
128 (9%) and lack of awareness (8%).

129 ‘Can see with the other eye’ – the main barrier observed in this study, has also been
130 reported by Malik C et al.¹⁸ Individual visual demands vary as per individual’s vocational and
131 personal needs. In our study 84% of the patients had a visual acuity of <6/60 or worse, in the
132 second eye at the time of presentation and 27% of the patients presented with hypermature
133 cataract. This is surprising, as even struggling with such a level of vision, these patients did not
134 feel the need of surgery in the second eye. Such patients tend to develop coping mechanisms
135 depending upon their own visual requirements. They do not realize the fact that by adopting such
136 a behavior they themselves make the situation worse. ‘Cost of surgery’ is the second major
137 barriers noticed in this study. Regular follow-up of patients even after first eye cataract surgery
138 and counseling about the disease process can prevent the second eye from going into
139 complications.

140 Cost has also been cited as a major barrier in the studies conducted by Malik C et al¹⁸ and
141 Jadoon Z et al.¹⁹ The cost of surgery to a patient can be studied in two heads namely, the direct
142 cost and the indirect cost. The direct cost includes the cost of surgery, intra ocular lens,

medicines, hospital stay including food and travel expenses. The indirect cost covers the loss of pay days at work, management of household duties, transport and food costs of the escort.²⁰ Affordability is largely dependent upon an individual's income, which is a major concern among the rural dwellers of any developing country like ours. Dedicated efforts towards reducing the cost of consumables used during surgery and modification of health programmes by providing special opportunities to the economically weak sections of the society can help in overcoming this obstacle.

Another barrier observed in our study was the patient being 'Ignored by family'. In a rural area of any developing country, a vast majority of population is financially weak, illiterate and is largely hand to mouth on daily basis. In such a scenario, an individual tends to overlook the perceived need of others. They are unwillingly forced to make compromises with certain necessities of life including health.

'Waiting for maturity' as reported by other researchers,^{18,19} is of important concern as a barrier. Quite frequently patients are referred back from hospital with an advice to come at a later date for the surgery, since the lens hasn't completely opacified yet. Economical and educational paucity, in conjunction with an advice to wait for maturity makes matters worse, allowing patients to return only once the complications supervene.¹⁸ Technological advancement now allows treating cataract, even in its early stages. Hence depending upon the situation, an appropriate use of surgical technique should be utilized to treat a preventable suffering.

'Fear of surgery' is attributable to inherent fear of undergoing any surgical procedure and also includes the bad experiences related with the first eye surgery. Bad experiences can be due to surgical complications resulting from either surgeons or patients fault. Detailed discussion about the surgical plan and precautions to be observed by the patient can help in reducing the

patient anxiety and hesitation to opt for SECS. 'Distance' and 'Escort deficiency' can be considered as inter-related barriers. A patient has to travel a distance to reach a health care facility and presence of an escort helps in managing the transit difficulties and it also eases the hospital stay by fulfilling the responsibilities as an attendant. The company of an escort also helps in relieving anxiety and psychological fear in a patient. Efforts directed towards establishing health care facilities in close proximity of the settlements and improving the transport facilities would be of immense help in dealing with the problem of distance as a barrier.²¹

'Lack of awareness', observed as a barrier in the present study is an indirect result of illiteracy. Awareness about the causation and treatment of disease is a principle of paramount importance in preventive medicine. Role of dedicated eye care health camps arranged in remote rural areas is indispensable. The village level social workers, community health workers from anganwadi/ASHA staff can be trained to spread awareness about blindness and its implications amongst the uneducated rural population.²² They can also be involved in survey teams to detect early cataracts and motivating people to seek treatment for it.²³

The advantages of second eye cataract surgery are greater when the time lag between the two surgeries is shorter. The concern with delay in the second eye surgery relates to the complications that might ensue.

Conclusion

The findings of this study are in agreement with other studies from developing regions. Can see with other eye, poverty and ignorance appear to be important barriers that prevent the uptake for SECS. Dedicated community level eye care education campaigns and appropriate modifications in the ongoing mass scale cataract surgery programmes will be of immense help in

189 overcoming the barriers associated with the second eye cataract surgery thereby preventing
190 complications and limiting morbidity.

191 **Ethical Approval**

192 This study was approved by the Institutional ethical committee, Pravara institute of
193 medical sciences Loni, Maharashtra, India.

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