

INFORMATION STATEMENT

CATARACT SURGERY IN THE SECOND EYE

Revised February 2007

Indications for Surgery

The primary indication for surgery is visual function that no longer meets the patient's needs and for which cataract surgery provides a reasonable likelihood of improved vision. Other indications for a cataract removal include clinically significant anisometropia in the presence of a cataract; lens opacity that interferes with optimal diagnosis or management of posterior segment conditions; the lens causes inflammation (phacolysis, phacoanaphylaxis); or the lens induces angle closure (phacomorphic or phacotopic).

The outcome of surgery on the first eye may affect the timing of second eye surgery. In some patients, a byproduct of reducing ametropia in the first operated eye may be anisometropia. This may result in impaired stereoacuity and a reduction in a patient's ability to perform daily activities. In patients whose anisometropia interferes with visual function, second-eye surgery may be appropriate at an earlier stage of cataract development.¹⁻³

Benefits of Second Eye Surgery

Clinical studies have provided convincing evidence that binocular summation occurs in individuals who have similar visual acuities in the two eyes and occurs at low illuminance levels.⁴⁻⁹ In addition, these studies have demonstrated that binocular gain or summation is less likely when the visual acuities in the two eyes are dissimilar or when the individual is older. Indeed, these individuals with dissimilar acuities in the two eyes may exhibit binocular inhibition. Patients with a cataract and dissimilar vision in the two eyes (or one eye with cataract extraction and the second eye with a cataract) have demonstrated binocular inhibition.⁸ A large epidemiological study demonstrated that persons who exhibited binocular inhibition were more likely to have driving difficulties compared with those who did not have binocular inhibition.⁴ These data taken together suggest an improvement in binocular visual function and quality of life if cataract surgery in the second eye provides similar visual acuities in the two eyes.

Studies comparing the outcomes of first- and second-eye cataract surgeries concluded that patients who

had surgery in both eyes had greater improvement in functional status than those who underwent surgery

in only one eye.^{2, 3, 10-13} Patients who had surgery in both eyes were significantly more satisfied with their visual function than patients who had surgery in only one eye.^{11, 14} Another study demonstrated that the cataractous eye interfered with the visual function of the pseudophakic eye and that, after second-eye surgery, complaints of visual disability were eliminated.¹⁵ One study found that stereoacuity increased from 32% of patients after first-eye surgery to 90% after second-eye surgery. Also, binocular horizontal field of vision improved in 36% of patients. The number of patients able to meet the driving standard increased from 52% after first-eye surgery to 86% after second-eye surgery.¹⁶ Cataract surgery for both eyes is an appropriate treatment for patients with bilateral cataract-induced visual impairment.^{2, 3, 11, 13, 17}

Timing

Determining the appropriate interval between the first-eye surgery and the second-eye surgery is influenced by several factors: the patient's visual needs and preferences, visual acuity and function of the second eye, the medical and refractive stability of the first eye, and the degree of anisometropia. Prior to performing second-eye surgery, the refractive error of the first eye should be determined to assist in selecting the appropriate IOL power for the second eye. Sufficient time should elapse to diagnose and treat any early postoperative complication such as endophthalmitis, which has a peak occurrence of between 4 to 6 days,¹⁸⁻²⁰ and for the patient and the ophthalmologist to be satisfied with the recovery and outcome of the first-eye surgery.

Simultaneous Bilateral Cataract Surgery

Most ophthalmologists do not perform bilateral simultaneous cataract surgery. The rapid visual recovery associated with small-incision cataract surgery under topical anesthesia has led to increased interest in this approach in some international centers,²¹⁻²⁸ particularly in health care delivery systems with long waiting times for cataract surgery.²¹ Assuming that it is the preference of a patient anticipating cataract surgery in both eyes,

bilateral simultaneous surgery has advantages and disadvantages that must be carefully weighed. Foremost is the risk of potentially bilateral blinding complications, such as infectious endophthalmitis. In published reviews of simultaneous bilateral cataract extraction, however, no complications that resulted in bilateral visual loss were reported.²¹⁻²⁷ Another disadvantage of this approach is the inability to adjust surgical plans for the second eye on the basis of results from first eye surgery.

In addition to an unanticipated refractive outcome in the first eye, IOL selection for the second eye may also be altered because the patient decides on a different target refraction based on his or her experience with the first eye.

Indications reported for simultaneous bilateral cataract surgery include the need for general anesthesia in the presence of bilateral visually significant cataracts; rare occasions where travel for surgery and follow-up care is a significant hardship for the patient; and when the health of the patient

may limit surgery to one operation.^{22,25} If bilateral simultaneous surgery is considered as an option, the patient should be carefully informed of the potential disadvantages.

Conclusion

Patients receiving second-eye cataract surgery experience significant improvement in visual function. The indications for second-eye surgery are the same as for the first eye. In some patients, a byproduct of reducing ametropia in the first operated eye may be anisometropia, which may result in impaired stereoacuity and a reduction in a patient's ability to perform daily activities. In these patients, second-eye surgery may be appropriate at an earlier stage of cataract development. Before performing cataract surgery on the second eye, the ophthalmologist should discuss the risks, benefits, and expected outcomes of surgery, including anticipated refractive outcome and the surgical experience with the patient.

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