

# Loss of Intermediate Vision With Multifocal IOLs

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## CASE PRESENTATION

A well-informed 55-year-old male underwent uneventful cataract surgery with the implantation of bilateral AcrySof Restor IOLs (Alcon Laboratories, Inc., Fort Worth, TX) approximately 2 years ago. His postoperative UCVA was 20/20 OD, 20/20-3 OS, and J1+ near OU. His manifest refraction was plano OD and -0.50 D sphere OS.

Although the patient was initially satisfied with his vision, he returns 1 year later to report that he misses his intermediate vision more than he expected. An examination confirms that his capsules are clear and show well-centered IOLs in excellent anatomical position bilaterally. He has no other ocular pathology.

How would you address the patient's dissatisfaction with his intermediate vision? Would you recommend further treatment, and, if so, what would you recommend? If the patient elects to undergo further treatment, would you bill him, his insurance company, or neither?

## LISA BROTHERS ARBISSER, MD

In my experience, an ounce of prevention is worth a pound of cure. This adage guides all of my preoperative communications with potential candidates for multifocal IOLs. Patients need to learn about all of the possible alternatives preoperatively. If they choose the AcrySof Restor IOL, they receive a demonstration of the lens' near point for fine focus. I explain that patients generally adapt to the IOL's shortcoming by changing the position of their body, using different fonts on their computer screen, or learning to tolerate a slightly blurred 20/40 image for intermediate work. I emphasize that some patients may require glasses to

achieve optimal comfort and vision at intermediate distances. If patients receive all of this information preoperatively, they should not be surprised at the suggestion that they use spectacles to work at intermediate distances after the implantation of this multifocal IOL.

I usually offer patients who receive multifocal lenses +1.50 D reading glasses free of charge during the immediate postoperative period. If they continue to complain about their intermediate vision, I will perform a manifest refraction at this visual range and consider providing spectacles of an equivalent refraction but in a minus format. Some patients prefer the effect of pushing the near image out farther with a minus lens instead of bringing the distant image closer with a plus lens. If a patient decides he likes the minus-format spectacles better, I will provide them at my usual fee.

I would not offer LASIK to this patient, because the procedure would require either making one of his eyes extremely hyperopic for distance or leaving him with a weird, very near second image if I aimed to make the manifest refraction -1.50 D. I also would not recommend a unilateral IOL exchange as a way to restore the patient's intermediate vision. Reasonable individuals who understand the risks involved in additional intraocular surgery tend to appreciate that their eyes are healthy and stable despite their refractive shortcomings. If the patient insisted on a surgical intervention, we would discuss replacing one of the AcrySof Restor IOLs with a monofocal lens targeted to between -1.25 and -1.50 D, a ReZoom multifocal IOL (Advanced Medical Optics, Inc., Santa Ana, CA), or a Crystalens accommodating IOL (Bausch & Lomb, Rochester, NY). The Crystalens would be my first choice, although its implantation might be precluded by the state of the capsular bag

after the AcrySof Restor IOL's explantation. I would not bill the patient for a lens exchange or any refraction performed during the first year after the implantation of his premium IOLs, because these services are included in his initial surgical fee.

#### **WILLIAM J. FISHKIND, MD**

I am always amazed when "well-informed" patients question their decisions long after the irrevocable result. I guess that is part of human nature.

During every preoperative assessment, we refractive cataract surgeons are obligated to inform patients of the strengths and weaknesses of multifocal IOLs. The difficulty with intermediate vision with the AcrySof Restor IOL is notable and requires a clear discussion.

This patient has a perfect outcome with excellent vision at near and distance. Since his surgery, however, he has forgotten the decisions he made that led him to choose an AcrySof Restor IOL instead of the other available alternatives.

I would review the options that were available at the time of this patient's surgery and gently remind him why he decided to have that particular lens implanted. I would then remind him that his near and distance vision are remarkable and that he probably does not require spectacles 90% of the time, a noteworthy achievement. Finally, I would suggest that he purchase a pair of +1.00 or +1.25 D over-the-counter reading glasses to use when he works at his desk or computer. Considering the alternatives such as intraocular surgery or LASIK, which may not help, wearing reading glasses for intermediate tasks is a small compromise.

I would reassure the patient that his eyes are healthy, that the problem with his intermediate vision is related to the IOL, and that additional treatment is not only unnecessary but contraindicated (additional discussions about alternative treatments and cost would then be unnecessary). I would add that, because the patient is relatively young, his problem might be solved in the future by ingeniously designed IOLs that are not yet available.

#### **CHRISTOPHER KHNG, MD**

To address this patient's concerns about his vision at intermediate distance, I would discuss the feasibility of his wearing spectacles with a low-powered add (+0.75 D) for intermediate tasks such as computer work. I would assess the suitability of this solution by fitting him with a pair of trial spectacles. I would also advise him to try increasing the size of the font on his computer screen or sitting closer to the monitor. Other environmental adjustments that could improve the patient's ability to read

print include increasing the intensity of the light in the room or bringing the material closer to his near focus (33 cm), especially if he is accustomed to holding the newspaper at arm's length.

If the patient found these modifications undesirable, I would use -1.25 D trial lenses to push back his near focus and vividly illustrate how his near focus will degrade if we optimize his intermediate vision. I often reinforce the result of this experiment by asking the patient to read a business card or magazine or to use a mirror at close range while he is wearing the trial lenses. My goal is to demonstrate some of the problems that are caused by poor near vision and to force the patient to choose his visual priorities. He may decide that he prefers the status quo of imperfect intermediate vision to the appalling near vision he experienced with the trial lenses.

The rare patient who prefers his intermediate vision after using the trial lenses could exchange the diffractive AcrySof Restor IOL in his dominant eye for a ReZoom multifocal IOL, which has a true intermediate zone. I would emphasize, however, that this option carries a certain amount of risk and that there is no guarantee that he will be any happier with the new IOL. If the patient elected to proceed with the exchange, I would bill him for the procedure, because his decision reflects a lifestyle-based rather than a therapeutic choice.

The implantation of multifocal IOLs always involves a compromise. Counseling patients preoperatively about the effect of these lenses on intermediate vision may help avert situations like this one, especially in patients who frequently use computers.

#### **SAMUEL MASKET, MD**

In my experience, patients who receive AcrySof Restor IOLs demonstrate improved uncorrected near, distance, and intermediate vision over time, probably due to neuroadaptation. In fact, neuroadaptation has been well documented by Souza et al, who demonstrated that patients who received the AcrySof Restor IOL had improved UCVA for near and distance by approximately 4 months postoperatively.<sup>1</sup> The same results were not observed among the control patients who received monofocal IOLs.

The patient described in this case seems to deviate from the expected course of postoperative improvement. One cannot definitively attribute his dissatisfaction with his postoperative vision to the AcrySof Restor IOL, however, because his level of intermediate vision or the value he placed on it preoperatively is unknown. Soliciting this information is an integral part of presurgical counseling, planning, and patient selection. All

prospective surgical patients must be aware of the strengths and weaknesses of the various presbyopia-correcting IOLs, because none of them provides seamless vision from infinity to near. Patients should be aware that the bimodal distribution of light with the AcrySof Restor IOL explains why they may have excellent visual acuity at distance but a reduction in the quality of their intermediate vision. Nonetheless, most of my patients enjoy a high degree of satisfaction and good uncorrected vision with the AcrySof Restor IOL, particularly the AcrySof Restor Aspheric IOL.

I would openly discuss with the patient how his problem with intermediate vision affects his lifestyle. I would assure him that I recognize the issue and would attempt to evaluate and ameliorate the problem. First, I would offer him a trial with a +0.50 D soft contact lens for his left eye. Although the lens would introduce a small optical error, it might improve the patient's overall quality of vision. If the patient noted improvement in his intermediate vision with the contact lens, I would offer him laser vision correction.

Should the contact lens trial fail to remediate the patient's problem, I would consider performing a wavefront analysis to look for higher- and lower-order aber-

rations. I have noted that some patients who report reduced visual quality with multifocal IOLs actually have optical errors that are unrecognized until they undergo wavefront analysis. These patients have reported markedly improved vision when their optical errors have been corrected with laser vision correction.

If neither of the above strategies were successful, I would recommend that the patient use low-powered near spectacles for tasks requiring intermediate vision. I would not consider exchanging the patient's IOL, because the risks of that procedure far outweigh any potential benefits. Premium IOL patients in my office only pay for laser vision correction after their initial cataract surgery. ■

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1. Souza CE, Muccioli C, Soriano ES, et al. Visual performance of AcrySof ReSTOR apodized diffractive IOL: a prospective comparative trial. *Am J Ophthalmol.* 2006;141:827-832.