

ONE EYE OR TWO?

Is bilateral cataract surgery indicated, and will it be covered by insurance in a patient with a history of vitrectomy in her left eye?

BY NEDA NIKPOOR, MD; GILLES LESIEUR, MD; PAUL DUPEYRE, MSC; MAGDA RAU, MD; AND BLAKE K. WILLIAMSON, MD, MPH, MS

CASE PRESENTATION

A 55-year-old woman is referred for a cataract surgery evaluation by her optometrist. The patient has a history of retinal detachment (RD) and vitrectomy in the left eye.

As expected, an examination reveals asymmetric cataract progression. A moderate nuclear and posterior subcapsular cataract is present in the vitrectomized left eye. The right eye has a mild nuclear sclerotic cataract. Her BCVA is 20/20 OD and 20/50 OS with a manifest refraction of -5.00 D OU.

The patient states that she is bothered by glare in the right eye but that she is more troubled by the blurry vision and glare in the left eye.

The patient and her optometrist expected that she would undergo bilateral cataract surgery, but her retina specialist cautioned her to postpone cataract surgery on the right eye for as long as possible.

How would you counsel the patient about the

risks of cataract surgery? Would you operate on one or both eyes? If you elect to perform cataract surgery on one eye only, what refractive options would you offer to the patient for the unoperated eye? If you elect to remove both cataracts, how would you answer the patient's question about whether surgery on both eyes will be covered by insurance?

—Case prepared by Neda Nikpoor, MD



GILLES LESIEUR, MD,
AND PAUL DUPEYRE, MSC

The risk of RD is higher in eyes that have undergone cataract surgery than in those that have not. A review of the literature found an incidence of 0.36% to 2.9% within 10 years of phacoemulsification.¹ A retrospective cohort study found an overall cumulative risk of 0.39%.²

My (G.L.) preference for the left eye would be an extended depth of focus (EDOF) IOL (Lucidis IOL model 124M or 124MT, Swiss Advanced Vision) to optimize the patient's intermediate visual acuity and correct astigmatism. If, however, OCT reveals that the left eye experienced a macula-off RD with ellipsoid rupture, I would favor a monofocal IOL. In that situation,

the refractive target would be plano if it is the patient's dominant eye and residual myopia if it is the patient's nondominant eye.

I (G.L.) would discuss with the patient two options for the right eye. The first is contact lens wear until the cataract matures. This strategy could be successful if the patient is hesitant to proceed with surgery on the eye and is willing to wear a contact lens. With time and posterior vitreous detachment (PVD), the RD risk after cataract surgery will decrease.

The second option is to proceed with cataract surgery; the RD risk will be lower if the eye has experienced a total PVD. I would choose the same EDOF IOL for both eyes.

Reimbursement for cataract surgery on the fellow eye varies by country. In France, where I (G.L.) practice, surgery would be reimbursed because of anisometropia if only the left eye undergoes surgery and because a nuclear cataract is present in the right eye.

The patient would be monitored closely for retinal tears after surgery in an effort to avoid an RD.



MAGDA RAU, MD

More information on the retinal pathology that necessitated the vitrectomy would be useful for determining the patient's visual prognosis. Was there macular involvement in the RD? Does the patient have diabetic retinopathy with or without macular edema? Does she have a history of ocular trauma or high myopia?

During the ophthalmologic examination, the diameter of the pupils would be measured. The left eye would be evaluated for phacodonesis and iridonesis. If macular edema is present, the necessity of an intravitreal injection before or during cataract surgery would be assessed. I

would advise the patient that cataract surgery will improve the visual acuity of her left eye but that visual rehabilitation will be limited by her retinal comorbidities.

The risk of complications during and after cataract surgery increases after vitrectomy. Surgery may be complex owing to intraoperative variations in anterior chamber depth, poor pupillary dilation, damaged zonules, posterior synechiae, tears in the posterior capsule, a mobile lens-iris complex, and altered intraocular fluid dynamics. I would discuss these factors and the risks of tearing or rupturing the capsule during cataract surgery with the patient, and I would inform her that it could become necessary to perform IOL implantation as a second operation at a later date. After cataract surgery, the risk of capsular phimosis and IOL dislocation is higher in vitrectomized eyes. Additionally, IOL power calculations tend to be less predictable in vitrectomized eyes.³ A recent retrospective study found hyperopic outcomes in vitrectomized eyes with all of the traditional and next-generation formulas evaluated except for the Kane formula.⁴

I would offer the patient delayed sequential bilateral cataract surgery, and I would operate on the vitrectomized left eye first. An aspheric IOL that filters blue light such as a Lentis LS-312Y (Teleon Surgical) or an EyeCee One Preloaded (Bausch + Lomb), both with C-loop haptics, would be my preference, but a three-piece IOL for implantation in the ciliary sulcus would be available as a backup. If the macula is stable and the patient desires spectacle independence, I would be comfortable offering a Tecnis Eyhance (Johnson & Johnson Vision), Lentis Quantum (Teleon Surgical), or Acunex Vario/Variomax (Teleon Surgical). I would avoid a plate-haptic lens because it might put stress on the zonules. I would also avoid a trifocal IOL because it requires

precise centration and it could reduce visibility during vitrectomy, should one be required in the right eye in the future. A capsular tension ring would be placed to stabilize the capsular bag. The IOL power calculation for the second eye would be adjusted based on the refractive outcome of the first eye.

In Germany, where I practice, insurance would cover cataract surgery on both eyes, but an outpatient clinic fee would be paid for only one eye if immediate sequential bilateral cataract surgery were performed.



BLAKE K. WILLIAMSON, MD, MPH, MS

This is an interesting situation and one that I encounter routinely. The patient might do well with an EDOF IOL in the vitrectomized eye, but my preference would be to implant an IOL that will transmit as much light as possible to the retina. I would favor a monofocal or toric IOL or possibly a Light Adjustable Lens (RxSight).

Because the contralateral eye does not yet have a visually significant cataract, insurance likely would not cover cataract surgery in the United States, where I practice. Moreover, the patient has minimal trouble with the vision in this eye other than glare. It is necessary, however, to address the patient's anisometropia. Glasses would be an inadequate solution. I would refer her to my practice's contact lens specialist. If the patient can tolerate a contact lens on this eye, I would expect her to do well. Contact lens intolerance would warrant a discussion with her retina specialist. If a thorough retinal examination rules out retinal pathology, I expect that she would do well with cataract surgery. Again, I would favor a monofocal lens, a toric lens, or a Light Adjustable Lens.

Detailed informed consent is required for cataract surgery on each eye. The patient should expect to wear reading glasses for near tasks. The signs and symptoms of retinal tears and RD should also be reviewed, and I would emphasize that she should contact her retina surgeon immediately if she experiences any of these signs or symptoms.



WHAT I DID: NEDA NIKPOOR, MD

Whenever patients have high myopia, I explain to them that they are at increased risk of a retinal tear and RD during their lifetime. I also explain that studies have shown that individuals with a history of RD are at increased risk of experiencing an RD in the fellow eye.⁵ I emphasized to the patient that these risks exist with or without cataract surgery but that the risk of a retinal break generally increases with cataract surgery.

A PVD had already occurred in the right eye, and I noted that the condition is thought to lower the risk of retinal breaks after cataract surgery. As part of the consultation, I described the signs and symptoms of a retinal tear and an RD, and I instructed her to call the office immediately if she noticed any of them regardless of when and whether she chose to undergo cataract surgery.

We also discussed anisometropia and the options for her right eye. I explained that, if she chose observation for the right eye, it was likely that spectacle correction would be insufficient and that a contact lens, laser vision correction, or an IOL would be required for binocular vision without anisometropia. I added that laser vision correction could limit her IOL choices in the future, and we discussed her mild contact lens intolerance. The

patient stated that she did not want to wear a contact lens on the unoperated eye during all waking hours and that she did not wish to experience anisometropia with glasses. She also believed that cataract surgery on the right eye would ultimately be required and that the increased risk of a retinal tear or RD was therefore inevitable.

The patient decided to proceed with delayed sequential bilateral cataract surgery and understood that a final decision about surgery on the right eye would be made 1 week after surgery on the left eye. She wanted to maximize her range of vision, and I explained that a nondiffractive EDOF lens would be preferable to a diffractive multifocal lens because of her risk of developing a retinal tear or RD in the future. The patient therefore opted to receive an AcrySof IQ Vivity IOL (Alcon) in each eye.

Surgery on the left eye was routine. One week later, she decided to proceed with cataract surgery on the right eye. Anisometropia when not wearing a contact lens was listed as the medical indication for cataract surgery,

which facilitated insurance coverage of the procedure.

Postoperatively, her uncorrected distance and intermediate visual acuities were 20/20 OU, and she achieved functional uncorrected near visual acuity. ■

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DIGITAL EXCLUSIVE

Laser Cataract Surgery for the Management of a White Cataract

Does this approach offer advantages over conventional phacoemulsification?



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- ▶ According to Dr. Yeoh, the main utility of a femtosecond laser in eyes with a white cataract is its ability to create a more predictably sized and round capsulotomy.
- ▶ Rapidly performing a laser capsulotomy in these eyes may offer three distinct advantages, which are a lower risk of the Argentinian flag sign; a better-sized (4.5-5 mm) capsulotomy, which would allow a one-piece IOL to be implanted in the bag with reverse optic capture or a three-piece IOL to be implanted in the sulcus if a posterior radial extension of the tear occurs; and the lysis of unseen fibrous bands in the anterior lens capsule.
- ▶ Dr. Yeoh also shares that, for a laser capsulotomy to offer advantages over a continuous curvilinear capsulorhexis, the former would have to be a better size, more centrally located, and more uniform in shape.

