

Cataract Surgery in Diabetic Patients

Excellent outcomes can be achieved in these patients with appropriate attention to details.

BY UDAY DEVGAN, MD, FACS, FRCS(GLASG)

Diabetes is an increasingly common systemic disease, and many patients seeking cataract surgery have coexisting diabetic eye disease. In an otherwise healthy eye, modern cataract surgery can restore excellent vision and correct myopia, hyperopia, and astigmatism. But when there is coexisting diabetic eye disease, cataract surgery may put additional stress on the eye and can lead to macular edema, progressive retinopathy, and limited vision.

Although it is still possible to deliver excellent results from cataract surgery in diabetic patients, these patients are at increased risk of complications and subsequent limitation of vision. With careful preoperative planning, attention to detail during phacoemulsification, and close postoperative supervision, diabetic patients can achieve excellent vision after cataract surgery.

PREOPERATIVE EVALUATION

Diabetic patients receive the same type of preoperative evaluation as other cataract patients but with more emphasis placed on the presence and extent of diabetic eye changes. Diabetic patients tend to develop cataracts earlier and may be more prone to developing posterior subcapsular cataracts than other patients, so they often present with cataracts at an earlier age. It is important to establish that the degree of cataract seen corresponds to the patients' visual acuity and reported visual dysfunction. If the patient reports severe vision problems but the exam shows mild cataracts, one must look carefully at the retina for other causes of visual loss.

Diabetic retinopathy can be broadly divided into two categories: background diabetic retinopathy and proliferative diabetic retinopathy. One of the key differentiating factors is the presence of harmful neovascularization. The growth of new vessels can lead to a host of subsequent problems, including vitreous hemorrhage, tractional retinal detachment, and neovascular glaucoma. Diabetics at any stage of the spectrum of retinopathy are susceptible to



Figure 1. This patient has a quiescent retina with a preserved macula due to successful and extensive panretinal photocoagulation performed nearly 20 years earlier. After cataract surgery she recovered excellent vision with a central acuity of 20/20.

macular edema, which is one of the principal causes of central visual loss in these patients. A detailed dilated fundus examination can reveal many of these pathologies, but additional tests such as optical coherence tomography (OCT) or fluorescein angiography can reveal more subtle lesions.

Significant diabetic ocular pathology should be treated before cataract surgery is considered. This involves a multifaceted approach with argon laser panretinal photocoagulation as the primary treatment for proliferative retinopathy (Figure 1) and focal macular laser for clinically significant macular edema. Additional treatment often involves intravitreal injection of vascular endothelial growth factor (VEGF) inhibiting medications and steroids. The patient should also be counseled to achieve tight control of systemic blood glucose, and this should be demonstrated in the patient's hemoglobin A1c level. For patients with significant diabetic retinopathy, my preference is to work with my vitreoretinal colleagues. Once the diabetic eye disease is sufficiently controlled, the patient is referred back to me for cataract surgery.

The anterior segment can also be negatively affected by poorly controlled diabetes. Effects can include neovas-

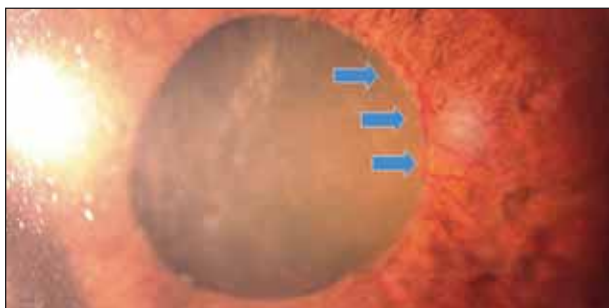


Figure 2. Anterior segment neovascularization such as the rubeosis iridis pictured here is a sign of ischemia and typically accompanies ocular comorbidities such as neovascular glaucoma and proliferative diabetic retinopathy.

cularization of the iris and angle, which often leads to neovascular glaucoma. Aggressive treatment of neovascular glaucoma must take priority over cataract treatment because prolonged increase in intraocular pressure can cause permanent damage to the optic nerve and severe visual loss. Teamwork with a retinal colleague is often the best approach in these complex patients.

SURGICAL TECHNIQUE AND FOLLOW-UP

Once the diabetic retinopathy is quiescent and the macula is dry, cataract surgery can be planned. Intraocular lens (IOL) preference should lean to monofocal, toric, or sometimes accommodating IOLs. Multifocal IOLs should be avoided in eyes with a history of macular lesions or the likelihood of developing macular pathology. Acrylic IOLs are preferred for patients who are likely to undergo vitrectomy for proliferative diabetic retinopathy in the future, whereas silicone IOLs may be a reasonable choice in patients with well-controlled diabetes and mild retinopathy.

Steps to make cataract surgery less traumatic include minimizing phaco energy, running less fluid through the eye, and avoiding contact with the iris. Efficient surgical technique is important to achieve optimal results of cataract surgery in diabetic patients. These complex patients do better when surgery is performed by a more experienced surgeon rather than a novice. Diabetic eyes often have poor pupillary dilation, particularly when active rubeosis iridis (Figure 2) or even regressed neovascularization is present. Pupil stretching should be avoided because these vessels can rupture and cause intraocular bleeding. In some cases, intravitreal injection of triamcinolone or anti-VEGF medications is given at the time of or before cataract surgery. For diabetic patients with nonclearing vitreous hemorrhages or tractional retinal detachments, cataract surgery can be combined with a pars plana vitrectomy in a team approach with a vitreoretinal colleague.

In eyes with very significant diabetic retinopathy, cataract

surgery may lead to progression and worsening of retinopathy, which can have detrimental effects on vision. In eyes with minimal diabetic changes, cataract surgery is not as likely to cause progression of retinopathy. Therefore, performing cataract surgery at an earlier stage is often beneficial for diabetic patients because it is associated with fewer complications and better postoperative recovery of sharp vision. In my practice, I advise diabetic patients to address their cataracts early, when their retinal status is more likely to be normal.

THE POSTOPERATIVE COURSE

Postoperatively, topical steroids and nonsteroidal anti-inflammatory drugs (NSAIDs) are prescribed because they control inflammation and may play a role in the prevention and treatment of macular edema. Macular thickness can be evaluated at serial postop visits via OCT before the topical medications are stopped. Patients should aim to keep their systemic blood glucose levels controlled during the postoperative period to aid with healing.

Development of posterior capsular opacification and persistent postoperative inflammation may be more common in diabetics. Despite a beautifully performed cataract surgery, diabetic retinopathy can become exacerbated in the postoperative period, so patients should be monitored closely with serial dilated funduscopy examinations and referred to retinal colleagues as needed.

Diabetic patients with visually significant cataracts pose unique challenges during surgery, and they may be prone to a more difficult postoperative recovery. However, with careful pretreatment of the diabetic retinopathy, minimally traumatic surgical techniques, and appropriate postoperative medications, these patients can do very well and recover excellent vision just like other cataract patients. ■

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For further reading:

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