

# New approaches make retinal detachment highly treatable

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Retinal detachment, a condition that afflicts about 10,000 Americans each year, puts an individual at risk for vision loss or blindness. In a new study in today's issue of the *New England Journal of Medicine*, a leading ophthalmologist at New York-Presbyterian Hospital/Weill Cornell Medical Center writes, however, that a high probability of reattachment and visual improvement is possible by using one of three currently available surgical techniques.

"Although no randomized trials have been conducted that show definitively that one procedure is best for every situation, improvements in these surgical techniques have led to effective treatments for most patients," says Dr. Donald J. D'Amico, ophthalmologist-in-chief at New York-Presbyterian Hospital/Weill Cornell Medical Center, professor and chairman of ophthalmology at Weill Cornell Medical College, and an international leader in vitreoretinal surgery.

Although relatively rare, retinal detachment can occur when holes, tears or breaks appear in the light-sensitive retina as a result of trauma or pulling away of the gelatinous mass, known as the vitreous, that fills the back of the eye. Retinal tears occur most often in adults over age 60, but may occur much earlier, particularly in those with high myopia. The sudden onset of light flashes and "floaters" could be the warning signs of an impending retinal detachment, although these symptoms do not always mean that a retinal tear has occurred. Surgery is the only treatment for a retinal detachment.

In the article "Primary Retinal Detachment," Dr. D'Amico offers his recommendations for treating a 57-year-old man who experiences sudden flashes and floaters in one eye, progressive loss of vision and a retinal detachment.

The three surgical options currently in use to treat such a case are:

1. **Scleral Buckling.** A common way to treat a retinal detachment, scleral buckling surgery has been performed with success for several decades. In this procedure, a piece of silicone is sutured onto the outside wall of the eyeball and left in place permanently to create an indentation, or buckle, that restores contact with the detached retina. The individual tears are then closed by a localized scar that is induced with a freezing probe or laser. According to Dr. D'Amico, scleral buckling is a relatively involved procedure and requires the use of a hospital operating room. It is usually performed on an outpatient basis with local anesthesia with intravenous sedation, and the overall success rate for reattachment is about 90 percent.

2. **Pneumatic Retinopexy.** A newer and less invasive procedure than scleral buckling, pneumatic retinopexy is usually done in the retina specialist's office under local anesthesia. The procedure involves injecting a gas bubble into the vitreous cavity of the eye, then positioning the patient's head so that the bubble floats to the break in the detached retina. The bubble spans and closes the retinal break, and this allows the natural forces in the eye to reattach the retina. The break is permanently sealed by the application of a freezing probe or laser to create a scar around the break. The gas bubble then resolves over several days, and in successful cases, the retina is left reattached without a trip to the operating room, and with no permanent buckling material applied to the eye. According to Dr. D'Amico, pneumatic retinopexy is not suitable for every patient and has a somewhat lower success rate with initial treatment than does scleral buckling or vitrectomy. Nevertheless,

he says, because of its minimally invasive attributes, and the fact that an attempted pneumatic does not reduce the ultimate chance for success if additional surgery is required for recurrent detachment, patient and surgeons increasingly select pneumatic retinopexy for suitable primary retinal detachments after a careful discussion of the limitations.

3. Vitrectomy. In contrast to scleral buckling, vitrectomy is a surgery within the eye in which the vitreous gel is removed. Because vitreous traction is the typical cause of the retinal tears in a detachment, this approach has the advantage of directly attacking the underlying cause of the detachment. Vitrectomy surgery -- a few decades old -- is a newer surgery than scleral buckling, and it is continually improving due to innovations in instrumentation and technique. Recent studies have shown success rates comparable to those of scleral buckling. Dr. D'Amico notes that there is a very strong shift toward vitrectomy, and away from buckling, for retinal detachment, particularly by younger surgeons and for patients that have detachment after cataract surgery. Vitrectomy for detachment may be associated with a higher risk of postoperative cataract, and this appears to be its main disadvantage compared to buckling, which has lower risk of cataract but higher risk of other complications. In cases where bleeding in the vitreous gel is present with the detachment, a vitrectomy approach is clearly preferred to remove the vitreous hemorrhage in order to gain better visualization to find and repair tears or holes in the retina. Vitrectomy, like scleral buckling, is typically done on an outpatient basis with local anesthesia with intravenous sedation.

For the patient described in the vignette who went to his ophthalmologist with classic symptoms of primary retinal detachment, including flashing lights, floaters and progressive loss of vision, Dr. D'Amico's first recommendation would be to perform a pneumatic retinopexy. "I would select this option for this patient because this specific detachment is well-suited to pneumatic retinopexy by virtue of the retinal breaks being

located close together in the superior retina, which is the easiest location to treat with an intraocular gas bubble. Furthermore, the procedure can be done immediately in the doctor's office at lower cost and with fewer risks of complications, compared to buckling or vitrectomy, and it also compares quite favorably with the other procedures with having a 75 percent chance of restoring vision to 20/50 or better after this minimally invasive procedure," Dr. D'Amico says.

As with any surgery, there are risks associated with each of these techniques. For example, vitrectomy can cause cataract or elevated pressure inside the eye, especially in people with glaucoma; scleral buckling can cause a change in the shape of the eye that may require alteration of the eyeglass prescription; and pneumatic retinopexy often requires more than one surgery to reattach the retina.

"The benefits of surgery, however, far outweigh the risks," says Dr. D'Amico, who performs all of these procedures. "No matter which procedure the surgeon chooses, there is a very good chance today that a patient's retina can be reattached and his or her vision preserved."

Source: New York- Presbyterian Hospital

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