

Laser Eye Surgery: Take a Second Look

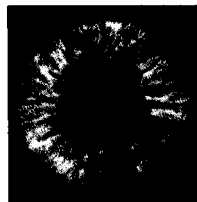
As its popularity grows, so do post-op problems

BY LEWIS BRAHAM

Laser eye surgery has become so routine that ophthalmologists advertise it on billboards and perform the operation at shopping-mall clinics. But the seeming simplicity of the 15-minute procedure to correct nearsightedness can be misleading. In the surgery, called Laser-Assisted In Situ Keratomileusis (LASIK), a laser vaporizes part of the cornea and reshapes it to change the eye's focus. That's not quite as routine as having your teeth cleaned.

Some 2.6 million people have had LASIK surgery since it became available in the U.S. in 1995. Along with that growth has come an increase in complications and botched operations. These can range from minor irritations—dry eyes or poor night vision—to life-impairing conditions, such as double or blurry vision, or worse yet, blindness. Even satisfied customers may find that their vision regresses in a few years, and they need further surgery.

It's hard to pinpoint a precise complication rate. Studies by everyone from LASIK equipment manufacturers to the American Academy of Ophthalmology have shown that anywhere from 1% to 8% of LASIK patients experience post-surgery problems, depending in part on how "complication" is defined. Many studies focus on vision loss, for example, but overlook complaints about dry eyes or double vision. "A vast underclass of LASIK patients are deemed successful because they have 20-20 vision even though their visual quality is poor," says Ronald Link, founder of SurgicalEyes.com, a Web site devoted to LASIK patients with complications. In comparison, face-lift patients have a 2% to 3% complication rate, according to Doctor's Co., the largest



U.S. malpractice insurer for plastic surgeons.

Surgical error is responsible for some LASIK problems. If, for instance, the surgeon cuts the cornea's exterior membrane incorrectly, the eye could suffer vision loss or scarring. To find a qualified practitioner, try the Web site of the American Academy of Ophthalmology, www.aao.org, and go to its "Find an EyeMD" page. Then ask the surgeon if he or she has done the procedure at least 200 times. After that level, the instance of intra-operative complications drops from 4.5% to 0.9%, according to a study published by the LASIK Institute, a division of the American Society of Cataract & Refractive Surgery in Fairfax, Va.

Patients most likely to suffer complications are those who have preexisting conditions that should have precluded them from having LASIK (table). Critics say doctors may not be as diligent as they should be, since fees are high—\$500 to \$2,500 per eye—and patients sign preoperative releases absolving their doctors from complication liabilities. "Complications often stem from the qualifications of the patient," says Everette Beers, chief of the Food & Drug Administration's surgical-devices division. "Physicians need to do a better job screening out poor candidates."

A thorough preoperative screening takes about an hour and should cost \$150 to \$200. "After testing, I reject a quarter to a third of the patients who seek LASIK," says surgeon Douglas Koch, who chairs the ophthalmology department at Baylor College of Medicine in Houston. To avoid conflicts of interest, Koch recommends that patients get screened by a doctor belonging to a different medical group than the one slated to perform the surgery. (Since LASIK is classified as a cosmetic procedure, health insurance generally doesn't cover either the screening tests or the operation.)

The first thing the screening doctor should do is check the thickness of your corneas, using a device called a pachymeter. The FDA recommends that corneas be at least 410 microns thick after LASIK surgery—250 microns of that in the cornea's bed and 160 microns in its flap. So the presurgery cornea should measure 450 to 650 microns. Patients with thin corneas can suffer vision loss.

Operating on an irregularly shaped cornea can also cause vision loss. So in preoperative tests, a surgeon uses a corneal topographer to map the cornea's contours. Conditions such as ectasia, a steepness in the lower part of the cornea, and keratoconus, a bulging cornea, should disqualify the patient

Screen Tests

Are you a poor candidate? Have these evaluations done first, and by a different doctor than the one slated to do the surgery

CORNEAL TOPOGRAPHY Checks for shape irregularities in the cornea. LASIK patients with ectasia, a steepness in the lower part of the cornea, or keratoconus, a bulging cornea, can suffer vision loss.

PACHYETER TEST Measures the thickness of the cornea. If you don't start with enough to leave you with sufficient thickness after surgery, you could suffer vision loss.

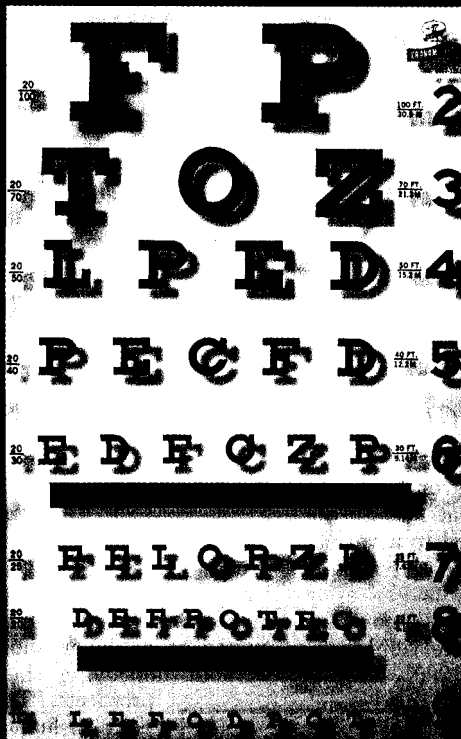
PATHOLOGY EXAM Patients with glaucoma, diabetes, AIDS, cataracts, or herpes simplex inflammation are not ideal LASIK candidates. Diabetics and AIDS patients are slow to heal.

PUPILOMETER TEST Measures pupil size—4 to 6 millimeters is normal. At 8 and above, you could experience side effects known as GASH: ghosting, arching, starbursts, and halos.

What Can Go Wrong?

Complications can include vision loss, blurriness, and dry eyes, as well as the problems pictured here:

Double vision or ghosting



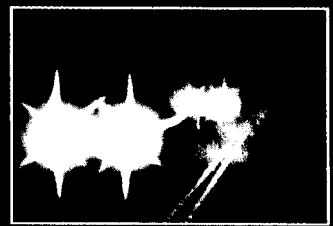
Starbursts



Halos



Starbursts and halos



from laser surgery. Patients with these irregularities may see so poorly after LASIK that they need corneal transplants.

Oversize pupils are also a problem. They can lead to a group of complications known as GASH—ghosting, arching, starbursts, and halos—in which objects seem fuzzy at the edges and light sources seem to burst like the sun. “Every light is like the Fourth of July for me, with fireworks shooting out of it,” says Frank Boydston, a San Diego financial analyst who had LASIK last year. The problem arises because LASIK lasers are built to operate on eyes with pupil diameters of 6 to 8 millimeters. Boydston discovered after the fact that his pupils exceed that limit.

Dry eyes, which sting from a lack of tears, are tolerable for most patients. But for those who already have dry eyes, the condition can become so debilitating after surgery that they can no longer be in a dry environment—such as on an airplane—without excruciating pain. The Schirmer tearing test detects dry eyes by using paper filters to measure tear production. A tear spot less than 8 millimeters in diameter is a sign that the patient has dry eyes and may want to avoid LASIK.

Painful abrasions on the eye can become a recurring problem for LASIK patients who have epithelial basement membrane dystrophy (EBMD), a disease of the cornea’s membrane, which causes it to erode. “It’s one of the most painful things I’ve

ever experienced,” says Thomas LaMark, a freelance musician in Andover, Mass., who has EBMD and had LASIK. “The eye becomes extremely bloodshot, swells up, and almost closes.” To test for EBMD, the surgeon should stain the eye with a chemical called fluorescein and examine it under a lamp. The stain will have a different color in regions of the eye with abrasions, an EBMD indicator.

A common condition known as presbyopia can present another problem after LASIK surgery: difficulty in reading. The eye’s lens hardens with age, and adjustments in focus from near to far-away points are difficult. LASIK simply reverses the problem, so the person can see distances better but not up close. The test for presbyopia is a basic visual-acuity exam to measure the level of impairment. Presbyopic patients will need reading glasses after LASIK, though they should be able to drive their cars without glasses or contact lenses.

If you’re considering LASIK surgery, you’d be wise to understand its risks and trade-offs, especially since it is possible that the positive effects of the surgery may not last. Generally speaking, the worse your vision is prior to LASIK, the more likely it is your eyesight will regress afterward. Then you will need to have LASIK a second time—a so-called “enhancement surgery.” That’s something not to lose sight of before you go under the beam. ■

Patients sign complication-liability releases, so doctors may not be as diligent as they should be in screening out unsuitable candidates

SLIT-LAMP EXAM Detects epithelial basement membrane dystrophy (EBMD)—irregularities in the cornea’s membrane. This condition could lead to painful abrasions after surgery.

SCHIRMER TEARING TEST Detects dry eyes, a condition that can be exacerbated by laser surgery. A tear spot on the test paper that is less than 8 millimeters wide indicates dry eyes.

VISUAL ACUITY Patients who have either severe astigmatism or presbyopia, a rigidity of the lenses that causes focusing problems, are not ideal candidates.