Background

Radial keratotomy is an elective surgical procedure in which physicians make micro-incisions of a specific depth and length in a radial pattern through the eye’s cornea to reduce its curvature. The resulting flattened cornea is believed to correct myopia, or problems with distance vision. In its clinical guidelines, “Radial Keratotomy for Myopia,” the American Academy of Ophthalmology (AAO) estimates one-fourth of the world’s population is myopic.

Most of the patients who opt for this surgery do so to avoid wearing contact lenses or glasses they find either difficult to manage or cosmetically unappealing. In some instances, contact lenses can also irritate patients’ eyes or cause visual complications. The AAO believes the procedure is not meant for patients with degenerative or worsening myopia, but rather for those with “stable, nonprogressive myopia” and normal corneas “as determined by slit-lamp microscopy.”

A radial keratotomy procedure typically lasts about 15 minutes and physicians perform the procedure using topical anesthesia in private clinics or, in some cases, ambulatory surgery centers. Only a few insurance companies cover the procedure when it becomes medically necessary. For most patients, the expenses are out-of-pocket. Fees can range from $700 to $2,000 per eye depending on the community in which it is offered.

“Several hundred thousand radial keratotomy procedures have been performed by approximately 10% of the ophthalmologists in the United States,” says the AAO. The techniques or instruments these surgeons use vary greatly. Over time the number of incisions has lessened and the instrument commonly used to incise has changed. Physicians once made as many as 16 incisions with steel blades into the optical zone. Today, diamond knives are used, microscopically making between four to six incisions.

On the horizon, however, is a technique called photorefractive keratectomy (PRK). In PRK, surgeons actually remove, or vaporize, corneal tissue using a computer-controlled laser. The excimer laser was just recently given preliminary approval by the Food and Drug Administration (FDA).

PRK is believed to protect the structural integrity of the corneal tissue better than incisions. But it is costly. Henry Pollock, MD, FACS, an ophthalmologist based in Peabody, MA, who has been in practice over twenty years, estimates the purchase price for the necessary equipment—a laser, ultrasound machine, and computer
Radial keratotomy

with software—at approximately $500,000 to $1 million with annual maintenance costs between $100,000 to $200,000. “Because of the capital investment involved and the continuing FDA requirement for paperwork, PRK will most likely be performed in an institutional setting,” Pollock predicts.

Currently, however, given that federal and private insurance does not reimburse for radial keratotomy, the procedure is fairly unregulated even in hospitals. There is little consensus on the amount of training or number of procedures a physician should have completed after residency to claim competency. Most ophthalmologists seeking this special privilege will be required by hospitals to provide documented evidence of radial keratotomy training through either a fellowship or an accredited training course.

Though widely performed over the last 15 years, radial keratotomy is still controversial because it is performed for patients’ convenience or cosmetic purposes and is risky. Unlike contact lenses and glasses, radial keratotomy alters the cornea’s refractive permanently. Undercorrection, overcorrection, glare and fluctuation, infection, and loss of the eye due to secondary infection are just some of the possible complications that can result from the procedure.

In addition to complications that can accompany surgery, patients receiving radial keratotomy cannot be guaranteed they won’t need glasses or contact lenses afterwards to aid their vision or that contact lenses will even fit. Therefore, physicians must make sure patients understand the procedure’s risks and considerations and are themselves aware of patients’ motivations and expectations.

In 1980 the National Eye Institute funded the Prospective Evaluation of Radial Keratotomy (PERK) study, conducted by university-based and private ophthalmologists in nine clinical centers. The study followed the progress of patients receiving radial keratotomy years after surgery. It is the AAO’s current position despite research to date, however, that “techniques of radial keratotomy do not allow accurate prediction of the outcome in individual eyes.”

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**Involved specialists**

Ophthalmologists.

**Positions of societies and academies**

The American Society of Cataract and Refractive Surgery (ASCRS) recommends that ophthalmologists wishing to perform radial keratotomy successfully complete at least eight hours of didactic training, between eight and 16 hours of wet lab, or mini-fellowship with at least four cases in conjunction with a qualified surgeon observer. In addition, the ASCRS recommends surgeons continually participate in continuing education courses “because of the rapid evolution of this new procedure.”
In its “Statement on Radial Keratotomy,” the ASCRS states that “in the hands of a skilled surgeon, radial keratotomy is a successful procedure that can be of great benefit to appropriate myopic (nearsighted) patients.” The procedure can result in decreased dependence on corrective spectacles or contact lenses, and yet, the ASCRS stresses, “a successful outcome cannot be guaranteed.” Given this fact, the organization believes it is the individual physician’s responsibility to educate patients about all potential risks and benefits of surgery so as to allow patients to make a final, informed decision regarding surgery.

Although the AAO sponsors educational courses in radial keratotomy, neither it nor the American Ophthalmological Society (AOS) has recommendations on privileging physicians for this procedure.

According to Sara R. Sirkin, MD, FACS, an ophthalmologist with her own private practice in Tonawanda, NY, training for radial keratotomy is obtained through residency and fellowship programs as well as courses given in short periods of time by a number of radial keratotomy surgeons.

Sirkin suggests credentials committees obtain from an ophthalmic surgeon who teaches radial keratotomy a reference letter stating that the applicant is knowledgeable in the techniques and complications of radial keratotomy and that he or she can attest to the applicant’s competency after observing him or her performing the operation.

Prior to developing criteria for granting credentialing privileges to perform radial keratotomy surgery, hospitals should determine if they will offer this procedure. The CRC advises hospitals, managed care organizations, and surgical centers to consider community need, efficacy, safety, and economics before making this determination.

In the event an organization determines that the procedure will not be offered, the “privileging issue” need not be considered. If, however, it does wish to permit radial keratotomy, criteria for granting the privilege must be developed. The following draft criteria are intended to serve solely as a starting point for the development of an institution’s policy regarding this procedure.
Minimum threshold criteria for requesting radial keratotomy privileges

Education: MD or DO
Minimum formal training: The successful applicant must be able to demonstrate successful completion of an approved residency program in ophthalmology, followed by a fellowship in refractive or corneal surgery. In lieu of a fellowship, a physician should have obtained radial keratotomy training through a postgraduate training course approved by the Accreditation Council of Continuing Medical Education.
Required previous experience: The successful applicant must be able to demonstrate successful performance of radial keratotomy.

Note: A letter of reference must come from the physician's residency director or chief of ophthalmology and a refractive surgeon who has instructed and overseen the physician in any accredited training programs or courses.

For more information

For more information regarding privileging this procedure, contact:

American Academy of Ophthalmology
655 Beach Street, P.O. Box 7424
San Francisco, CA 94109
Telephone: 415/561-8500
Fax: 415/561-8533

American Ophthalmological Society
Duke University Eye Center
Box 3802
Durham, NC 27710
Telephone: 919/684-3343
Fax: 919/681-6474

American Society of Cataract and Refractive Surgery
4000 Legato Road, Suite 850
Fairfax, VA 22033
Telephone: 703/591-2220
Fax: 703/591-0614
Privilege Request Form
Radial keratotomy

In order to be eligible to request clinical privileges for radial keratotomy, a practitioner must meet the following minimum threshold criteria:

- Education: MD or DO

- Minimum formal training: The successful applicant must be able to demonstrate successful completion of an approved residency program in ophthalmology, followed by a fellowship in refractive or corneal surgery. In lieu of a fellowship, a physician should have obtained radial keratotomy training through a postgraduate training course approved by the Accreditation Council of Continuing Medical Education.

- Required previous experience: The successful applicant must be able to demonstrate successful performance of radial keratotomy.

- References: A letter of reference must come from the physician's residency director or chief of ophthalmology and a refractive surgeon who has instructed and overseen the physician in any accredited training programs or courses.

I understand that in making this request I am bound by the applicable bylaws or policies of the hospital and hereby stipulate that I meet the minimum threshold criteria for this request.

Physician’s signature: ______________________________________________

Typed or printed name: ____________________________________________

Date: ____________________________________________________________

The information contained in this document has been designed and is intended for use by hospitals and their credentials committees in developing their own local approaches and policies for various credentialing issues. These materials, opinions, and draft criteria should not be adopted for use without careful consideration, discussion, and additional research by physicians in local settings. The Credentialing Resource Center does not provide legal or clinical advice; for such advice, the counsel of competent individuals in these fields must be obtained.

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