
The 1990s will be a complicated decade to navigate through. The economies of the world are sagging, and as a result the business of medicine will suffer. Even the teaching programs will become leaner as the academics must spend more time generating patient income and less time doing teaching and research. How will we in ophthalmology continue to improve our knowledge base and keep up with new techniques? Meetings and courses are one way, but the expenses of travel, hotels, and registration fees could become significant deterrents as our incomes decline.

George Waring, the principal author of Refractive Keratotomy uses this book as a possible solution to this approaching educational dilemma. To give you the proper perspective for this argument, let's first take a look at the subject of radial keratotomy itself.

The operation has been around for about 100 years, starting with the work of Dutch ophthalmologist, Lans. Some 50 years later, the Japanese ophthalmologist, Sato, observed the flattening effect of spontaneous hydrops on a keratoconic cornea and developed a system of posterior corneal incisions to correct myopia. Roughly 15 years later, the Russian ophthalmologist, Fyodorov modified Sato's technique to use only anterior corneal incisions to treat myopia. This technique was then exported to the USA. As of today, well over half a million Americans have had the operation with a personal satisfaction level of 85%. Waring calculates that over 11 million Americans are potential candidates for the radial keratotomy correction of myopia. Assuming a surgical fee of $1200 per eye, the potential market becomes $13.8 billion. Admittedly, the operation lacks precision (about 90% of the results fall within 2.00 diopters of the desired correction and about 20% of the patients experience fluctuating vision). It is also expensive, and of course does have some complications. Nevertheless, two clear trends are emerging. The operation is gaining popularity once again, and the results are improving. Why is this the case? Well, the knives and pachometers are more accurate, and less than eight incisions for lower amounts of myopia are now commonly employed.

If radial keratotomy and its variations are to become an integral part of ophthalmology, then we need proper training. But do we need a book like Waring's with its 1300 pages of text, 1650 illustrations and an index of 25 pages? After all, there are already five other books on the subject on the market.

Now we are ready to see whether this book is a unique educational device. As intimated already, there are a constellation of forces presently at play in refractive surgery.

1. The demand by the active myope for clear vision without optical devices;
2. The publicity in the lay media describing refractive surgery (fueled by the results of excimer laser studies);
3. The high cost of the surgery to the patient (paid out of pocket);
4. The high expectation of the patient for perfect results;
5. The relative imprecision of the surgery;
6. The smoldering opposition of segments within the eye-care professions;
7. The ever-present specter of malpractice suits; and
8. The steady flow of new refractive surgical techniques. These forces define a very complicated subject, and require a very thorough and sophisticated immersion into the subject if we are to become experts. I would contend that Dr Waring and his team of 33 international experts provide such an immersion.

The book opens with a section on myopia itself, giving the incidence, and the relevant anatomy, physiology, optics, and corneal topography needed to understand radial keratotomy.

The second section details the historical development of radial keratotomy. This section also includes its legal history, written by one of the lawyers who defended the PERK Study principals in a landmark lawsuit. The third section discusses patient selection as well as giving detailed examples of present-day marketing programs and informed-consent documents.

The fourth section, which is the most abundantly illustrated, presents the actual surgical techniques. The writing style is almost fatherly. "The surgeon...plunges the knife into the stroma... This is no time to be timid" or "The pulling of the knife across the corneal surface is done in a single motion...taking 3 to 4 seconds per incision." This section on surgery also contains a 75-page chapter on the excimer laser by Seiler, Fantes, Waring, and Hanna and is the best overall discussion of the subject that I've seen.
The fifth section contains a frank and thorough evaluation of the long-term results, including complications and pathologic studies on the healing process.

The sixth section on corneal biomechanics is the weakest part of the book. Although the authors obviously try to avoid too much technical jargon, they only partially succeed in making the subject understandable to the clinician.

The final section on keratotomy for astigmatism is well-balanced and detailed.

Should you buy this book? If this review has a strong influence on that decision, you must know one more fact. George Waring has been a friend and colleague of mine for years. Nevertheless, I have bent over backwards to be fair and objective.

Frankly, I would have expected more colored illustrations for a purchase price of $225.

Having said the above, I would suggest that reading the book is "a must" if you are seriously considering getting involved with radial keratotomy. The users' guide to the different computer nomograms is worth the purchase price alone, as are the explicit examples of informed consent, or the in-depth evaluation of the different commercial pachometers. For the educators of the 90s, this book should stand as an effective model for delivering in-depth instruction on a well-defined surgical subject.

DAVID MILLER, MD
Boston, Mass


This fine book is an updated version of a volume which won the award as the best medical book of 1979 by the American Medical Writers Association.

The present addition adds the important areas of polycarbonate safety lenses, progressive power lenses, the optics of IOLs, and what you should know about a patient who just had a radial keratotomy.

Aside from being a gold mine of refractive information, its witty and poetic style make it truly fun reading, which is unusual for a book on optics.

For example, look at the way the chapter on refractive surgery is introduced:

"Refractive surgery, it is said
Will render glasses obsolescent
Rejoicing myopes look ahead
For them, no world could be more pleasant.
Although the idea sounds enticing,
You could fall short when you are slicing;
Since no one's perfect (let's concede it),
Spectacles could still be needed."

The book is loaded with clinical pearls. For example, "myopes whose radial keratotomy over-

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Clearly, Milder and Rubin know their subject and know how to communicate. If the book has a failing, it is in the paucity of illustrations. These outstanding teachers could well be reminded that one picture is indeed worth a thousand words. All in all, the book is one of the best examples of understandable optics to be found anywhere, and is a worthy addition to every library.

DAVID MILLER, MD
Boston, Mass