

letters to the editor

Evaluating Astigmatic Results

To the Editor:

I read with interest the article by Dr. Masket on his one year astigmatic results for a 4.0 mm scleral pocket incision.¹ His observation that introducing a radial component into a tangential suture technique fails in the long term to prevent against-the-rule decay agrees with my own findings with a 5.1 mm incision (Ocular Surgery News, January 1, 1993, page 41).

However, the scientific value of Dr. Masket's conclusions would be enhanced by employing vector analysis using Naeser's formula for polar values to which he refers in the text and references. The simple subtraction method used in this paper is useful but only as a "rule of thumb" guide to incision performance. The deficiencies of this method are obviously recognized by Dr. Masket as, in this series, he attempts to "vectorize" his results by excluding all patients whose preoperative axis lies obliquely between 20 and 70 degrees and 110 and 160 degrees. This omission makes it necessary for a significant but unquoted proportion of the population sample to be excluded from the study. Using Naeser's formula for studying the effects of incisions and suture techniques in a polar orientation would enable the inclusion of all eyes regardless of astigmatic orientation, thereby providing valid comparisons of incision and closure techniques.

These data are complementary to the information provided by calculating surgically induced astigmatism as described by Jaffe and Clayman, also referred to in the article. Both analyses together provide the comprehensive but essential information required for the analysis of cataract incisions when the surgeon's goal, as in Dr. Masket's series, is astigmatic neutrality.

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REFERENCE

1. Masket S. One year postoperative astigmatic comparison of sutured and unsutured 4.0 mm scleral pocket incisions. *J Cataract Refract Surg* 1993; 19:453-456

Samuel Masket, M.D., replies:

Dr. Alpíns and I are in full agreement regarding the astigmatic behavior of sutured incisions. Additionally, we agree that the analysis of induced changes in astigmatism must account for alteration of cylinder axis.

Unfortunately, however, Dr. Alpíns misinterprets the method of astigmatic analysis used in the study.¹ He suggests that the method is one of "simple subtraction." The subtraction method compares the magnitude of preoperative and postoperative astigmatism without regard to cylinder axis. As an example, using the subtraction method, an eye with 1.0 diopter (D) of preoperative with-the-rule (WTR) cylinder that develops 1.0 D of against-the-rule (ATR) cylinder postoperatively would have no net change in corneal astigmatism. However, in the system used in the study,¹ a method that I refer to as algebraic analysis, the same case example would be reported as having 2.0 D of induced ATR cylinder, more appropriate to the surgical outcome.

Similar to polar analysis,² the algebraic system is designed to discern induced WTR and ATR changes. It assumes an equal value for all positive cylinder between 70 and 110 degrees as being WTR; likewise all positive cylinder between 20 and 160 degrees is treated equally as ATR cylinder. In simple terms, the method evaluates changes in corneal cylinder as an algebraic rather than as a trigonometric function. Nevertheless, it is wholly unrelated to the "simple subtraction method," an arithmetic system. Cases with oblique cylinder are avoided since the incisions (placed superiorly in the study) would be off axis.

It should be apparent that Dr. Alpíns and I share similar thoughts regarding the objectives for the evaluation and study of postoperative astigmatism.

REFERENCES

1. Masket S. One year postoperative astigmatic comparison of sutured and unsutured 4.0 mm scleral pocket incisions. *J Cataract Refract Surg* 1993; 19:453-456
2. Naeser K. Conversion of keratometer readings to polar values. *J Cataract Refract Surg* 1990; 16:741-745

Origin of the Scleral Tunnel Method

To the Editor:

I congratulate Dr. Masket on his article "One Year Postoperative Astigmatic Comparison of Sutured and Unsutured 4.0 mm Scleral Pocket Incisions." This is a subject about which I spoke at the Welsh Cataract Congress in September 1992. The scleral tunnel incision was first described by Girard and Hofmann in 1982 at the Welsh Cataract Congress and published in 1984.¹ The incision, actually a sclero-corneal tunnel, has become a