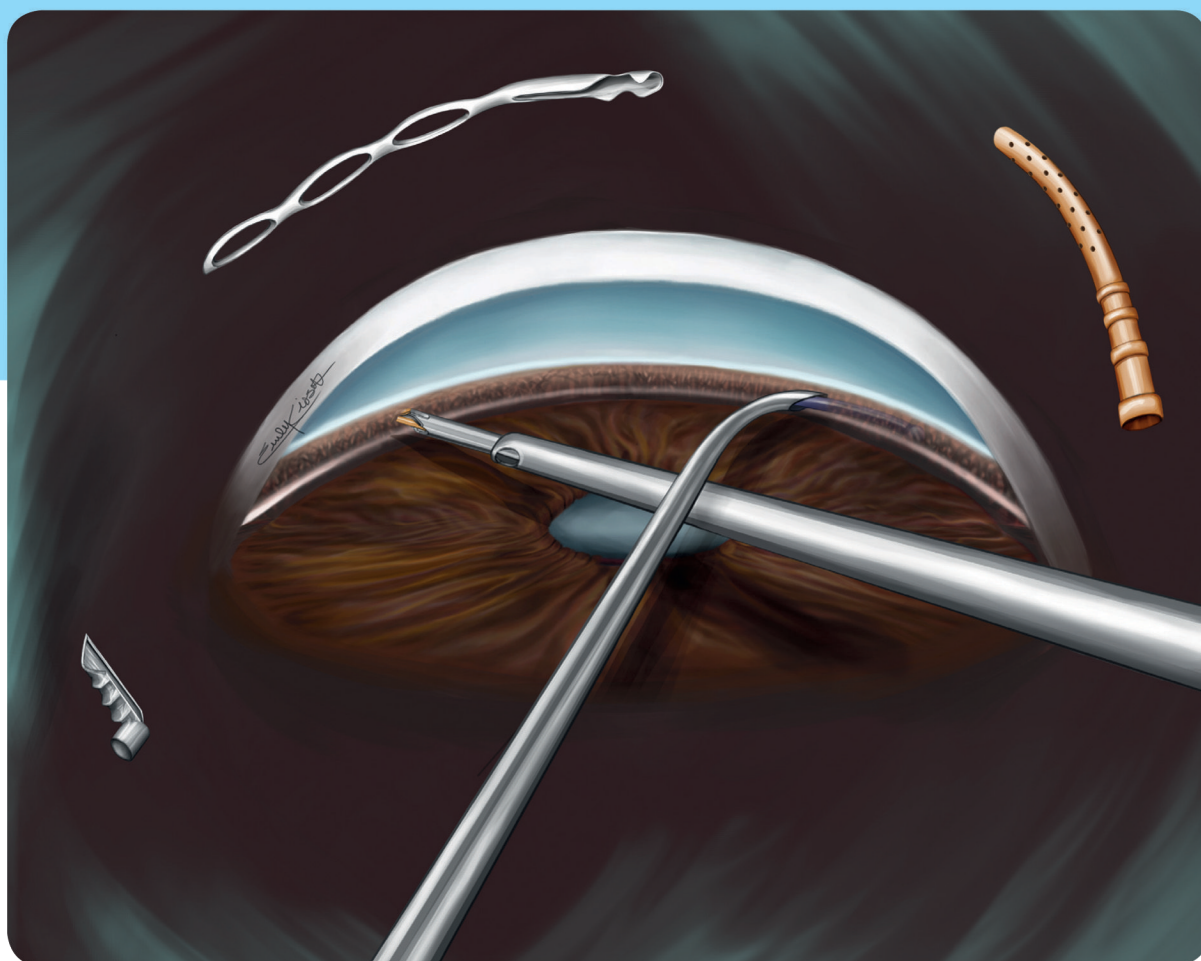


# Minimally Invasive Glaucoma Surgery

A Practical Guide

Brian A. Francis  
Steven R. Sarkisian, Jr.  
James C. Tan

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# Minimally Invasive Glaucoma Surgery

## A Practical Guide

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*To our dear wives and children  
for their encouragement and endless diversions  
as we wrote this book.*



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# Preface

This book is designed to help the established or training ophthalmologist navigate the increasing options available for glaucoma surgical treatment. Glaucoma specialists, or those whose practice involves a large percentage of glaucoma patients, need to be familiar with all of these new surgical approaches. But it is the general ophthalmologists who will find this book most helpful, as they are on the front lines of the battle against blindness from glaucoma, and therefore may be performing MIGS procedures in the early stages of glaucoma management. Glaucoma surgical treatment tailored to the patient requires the ability to use the procedures discussed in this book.

Chapter 1 introduces the new treatment options for glaucoma. Then Section I discusses the basic science of our current understanding of the physiological pathways of aqueous formation and drainage, and what happens when they are exploited surgically to reduce intraocular pressure. In many ways, the surgery is driving the science. Technological advances have enabled miniaturization, technical simplification, and other novel ways to shunt aqueous into ocular compartments such as the suprachoroidal space and Schlemm's canal. Moreover, there are new ways to shunt into the more familiar subconjunctival space. These developments have prompted new (and some older) ques-

tions about the aqueous humor system: How do collector channels respond to increased aqueous flow following trabecular bypass? How does scarring, that age-old enemy of glaucoma surgery, affect the suprachoroidal space? How does fluid drain from the subconjunctival space? What happens to aqueous secretion and the blood–aqueous barrier years after cyclophotocoagulation? Although many questions lack complete answers, a panel of experts has collected and interpreted the evidence, shared their current thinking, and discussed some important issues unearthed by the surgeries.

Sections II, the clinical chapters, discuss each new procedure, from appropriate selection of patients to surgical technique, management, and prevention of complications, as well as an assessment of the results reported in the medical literature.

Glaucoma surgical treatment is a rapidly evolving field. This book provides a foundation on which the new technologies can be understood and assessed. Then the glaucoma practitioner can decide which technologies to incorporate in his or her practice, based on one's previous experience with similar devices and on a sound basic science understanding of how the body responds to the surgical management of aqueous movement.