



## Colleagues Connect

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### Micro-Invasive Glaucoma Surgery: More Options for Less Invasive Treatment

By *Jeffrey Kennedy, MD* | *Glaucoma Consultants NW  
at The Polyclinic*

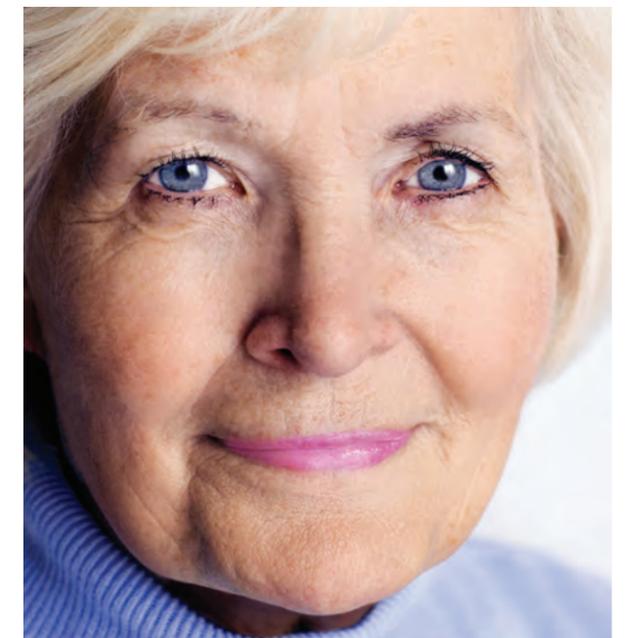
Glaucoma is the leading cause of irreversible blindness worldwide, and an estimated 3 million people in the U.S. have the disease. Most patients are asymptomatic until late in the disease course, so early detection and treatment is crucial to preventing glaucomatous vision loss. There is no cure for glaucoma, but we can reduce the progression of glaucomatous optic neuropathy by lowering the intraocular pressure (IOP). Lowering IOP can be achieved through a combination of topical medical therapy, laser treatment, and surgical interventions.

Traditionally, glaucoma surgery has been reserved for patients with progressive vision loss on maximal medical therapy and those with severe vision loss. Glaucoma filtering surgeries (trabeculectomy and glaucoma drainage tube implants) provide excellent IOP lowering, but require extensive tissue manipulation and carry significant risk of intra-operative and post-operative complications.

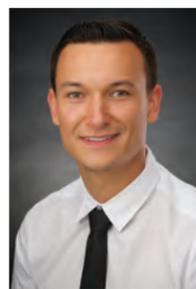
### MIGS Offers Low-Risk, Early Intervention

Most patients with glaucoma have mild to moderate disease and are managed with medical therapy alone. Unfortunately, the efficacy of therapy with eye drops may be limited by cost, side effects, and poor patient adherence. The advent of micro-invasive glaucoma surgery (MIGS) has vastly expanded a patient's options for treating mild to moderate disease.

*Story continued...*



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**Certification:** Hand Therapy Commission

## Micro-Invasive Glaucoma Surgery: More Options for Less Invasive Treatment

*continued...*

Most MIGS procedures can be performed using a clear corneal incision (similar or smaller than that used for cataract surgery) and often use an ab-interno approach to either enhance the existing aqueous drainage pathway or create a new aqueous outflow pathway. MIGS procedures, outlined below, are often performed in conjunction with cataract surgery, but many of them can also be performed as standalone procedures.

### Trabecular Bypass Procedures

The trabecular meshwork is the primary site of resistance to aqueous outflow into Schlemm's canal. There are now several MIGS procedures which aim to either bypass (iStent, Glaucos), remove (Kahook Dual blade, New World Medical), ablate (Trabectome, Neomedix) or tear open (Gonioscopy Assisted Transluminal Trabeculotomy and Trab 360, Sight Science) the trabecular meshwork to enhance aqueous outflow.

### Opening up the Suprachoroidal Space

The uveoscleral outflow pathway contributes over 50 percent of natural aqueous outflow. The Cypass Micro-Stent (Alcon) was approved by the FDA in 2016 for implantation at the time of cataract surgery, and creates an accessory pathway for outflow into the suprachoroidal space.

### A Safer Route to the Subconjunctival Space

The subconjunctival space provides a significant potential space for aqueous outflow, and is the target of traditional glaucoma surgeries such as trabeculectomy. The Xen gel stent (Allergan), approved by the FDA in 2016, lowers IOP by opening an outflow pathway into the subconjunctival space and creating a bleb.

The Xen stent is implanted using an ab-interno approach, and requires significantly less tissue manipulation than a traditional trabeculectomy. Xen implantation also has the benefit of reduced operative time, and reduced post-operative complications when compared to traditional trabeculectomy.

## Benefits of Micro-Invasive Glaucoma Surgery

- **Fast visual recovery**
- **Excellent safety profile**
- **Significant IOP reduction**
- **Reduced need for glaucoma medications**
- **Reduced operative time**
- **Spares conjunctiva and sclera**

### MIGS is not for Everyone

MIGS procedures are recommended for patients with mild to moderate glaucoma, and should be performed with caution in patients on anticoagulants. Not all patient's ocular anatomy is conducive to MIGS procedures, and should be carefully assessed preoperatively. Though these procedures do provide significant IOP lowering, they may not be adequate for patients who require very low IOP targets.

If you have questions about glaucoma therapy, or have patients with glaucoma and/or cataracts who need further management, please feel free to contact my office at **206.682.3447**.

## Using Scleral Contact Lenses for Medical Management

*By Noha Seif, OD, FAAO, FSLC | Optometry*

Contact lenses are primarily used for vision correction or for cosmetic indications. However, many patients benefit from specialty custom contact lenses for therapeutic use. Scleral contact lenses are an effective tool for managing the integrity and health of ocular surfaces affected by multiple systemic diseases, such as eyelid abnormalities or autoimmune diseases.

### What are scleral lenses?

Scleral lenses are large-diameter, gas-permeable contact lenses that differ from conventional lenses in that they land on the sclera of the eye without touching the cornea at any point. The area between the cornea and the contact lens is known as the vault. This vault is filled with a reservoir of preservative-free saline solution, or sometimes with preservative-free lubricant eye drops. This creates a bowl of tears to constantly bathe the cornea and promote healing of the ocular surface. This also creates a shield for a sensitive or compromised cornea.

### Conditions that benefit from scleral lenses include:

**Inflammatory autoimmune diseases:** Sjogren's Syndrome, Rheumatoid Arthritis, Systemic Lupus Erythematosus (SLE), Keratoconjunctivitis Sicca/Dry Eye Syndrome

- With many autoimmune conditions, decreased tear production and inflammation of the ocular surface results from the dry surface, which leads to a cycle of more inflammation and dryness. A scleral lens can be fitted to replace a patient's own ocular surface with essentially a prosthetic ocular surface. This helps decrease the constant use of artificial tears and promotes healing of the surface.

### **Bell's palsy or other incomplete eyelid closure abnormalities** (Exposure keratitis)

- With lid abnormalities, consider a scleral lens consultation before sending a patient to oculoplastics for surgery. In many cases, scleral lenses may eliminate the need for eyelid surgery by keeping the eyes bathed in tears, and enable proper blinking.

### **Neurotrophic keratitis secondary to acoustic neuroma resection, herpes simplex, congenital cranial nerve V defects, or other post-surgical trauma or post-viral infections**

- Unfortunately with these conditions, corneal innervation is injured and the feedback system for the lacrimal gland to produce tears is impaired. This commonly leads to non-healing epithelial defects and corneal scarring. A scleral lens on the eye provides more than a bandage lens can—it allows time for the epithelial cells to regenerate and heal while also creating an artificial tear film for the patient.

Other severe conditions that benefit from the therapeutic treatment of scleral lenses include graft-versus host disease, cicatricial pemphigoid, and toxic epidermal necrolysis.

Medical management with these lenses is rewarding since, the effects are often immediate. This approach is always an option for patients with chronic conditions that would prefer self-management techniques rather than surgery or medications. If you have a patient who may benefit from a scleral lens device, I am happy to provide a consultation or contact my office to discuss a specific patient case at **206.323.3937**.