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- Set of tips:  
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**GLAUCOMA**

OCULAR SURGERY NEWS U.S. EDITION May 10, 2009

## Gold standard trabeculectomy challenged by new procedures

**Tube shunts and non-filtering blebless techniques give physicians more ways to lower pressure.**

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While filtration surgery remains the gold standard in glaucoma treatment, experts say that surgical alternatives and medical therapy are reducing the number of trabeculectomies being performed and could possibly change the glaucoma surgical treatment paradigm.

In a telephone interview with *Ocular Surgery News*, L. Jay Katz, MD, said trabeculectomy has historically been the best option for optimal, sustained pressure-lowering in glaucoma surgery. The filtration procedure, which has been in use since the late 1960s, has been refined over the years to its current "new and improved" technique, Dr. Katz said.

However, more non-filtration procedures and devices have presented alternative ways of lowering pressure, he said. Those alternatives include canaloplasty, deep sclerectomy, viscocanaloplasty, tube shunts, the iStent (Glaukos), the Ex-PRESS miniature glaucoma shunt (Optonol), the Trabectome (NeoMedix), the DeepLight Gold Micro-Shunt (Solx) and endoscopic cyclophotocoagulation.



**L. Jay Katz**

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"There are certain situations where a higher baseline pressure following surgery is acceptable and you really don't want a filtration bleb — those other operations are very attractive," Dr. Katz said. "We're gaining more and more experience with them and will learn more and more how to do them successfully."

The introduction of prostaglandin analogues more than a decade ago has also most likely reduced the number of trabeculectomies performed.

Despite blebless alternatives, trabeculectomy is still cited as the standard in glaucoma surgical studies and is the most commonly performed glaucoma surgery because surgeons are familiar with the procedure and know its likely outcomes, Dr. Katz said. While trabeculectomy poses risks, the surgery has consistently lowered IOP, allowing some patients to be medication-free and thus avoiding adherence or tolerability issues with medications, he said.

"We have a pretty good understanding of its long-term success, and stacked up with some of the other newer procedures, it seems to hold up well in terms of long-term success," he said. "It's nice to keep people on no medications, or as few medications as possible, and you're more likely to do that with a well-functioning trabeculectomy than any of the other newer procedures that are out there."



**Richard A. Lewis**

Clinicians have been seeking alternatives to trabeculectomy to help prevent complications related to the creation of a filtering bleb, Richard A. Lewis, MD, an OSN Glaucoma Board Member, said in a telephone interview. Dr. Lewis, who has extensively studied canaloplasty, said the number of trabeculectomies that he performs has decreased in recent years because of alternative non-filtration procedures.

Trabeculectomy still has an important role in glaucoma treatment because it effectively lowers pressure in patients with closed-angle disease. Many of the new procedures treat only open-angle disease, so trabeculectomy is still necessary, he said.

"We're all trying to push the field forward," Dr. Lewis said. "[Trabeculectomy] still plays a role, and I think it will continue to play a role. ... Right now, we're lumping everything into primary open-angle glaucoma, and if [those patients] need surgery, it often enough is a trabeculectomy. Some day that's going to pass. I think that's going to happen soon."

**TVT Study**

According to OSN Glaucoma Board Member Douglas J. Rhee, MD, clinical data have also prompted a re-evaluation of trabeculectomy's place in the surgical treatment paradigm.

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Dr. Rhee said he performs fewer trabeculectomies in his practice for various reasons, but a key one is the results of the Tube Versus Trabeculectomy (TVT) Study. The TVT Study examined 212 eyes of 212 patients, with 105 receiving trabeculectomy with mitomycin C and 107 receiving a Baerveldt glaucoma implant (Abbott Medical Optics).



**Douglas J. Rhee**

In the first year after surgery, the researchers found that nonvalved tube shunt surgery had more consistent IOP control and less persistent hypotony or repeat operation than trabeculectomy with MMC. At 3 years, continued good results were seen for tube shunts, indicating a higher incidence of postoperative complications after trabeculectomy.

"I think the TVT Study has, in my opinion, presented very strong — if not convincing — levels of evidence that after one failed trabeculectomy, you shouldn't do a second trab. I would go right to a tube," Dr. Rhee said. "But still, given my experience with the new procedures, I think trabeculectomy remains the gold standard in the majority of situations."

#### Individualized surgery

New procedures could lead to more individualized surgical treatment without the complications of a bleb, Dr. Lewis said. Breakthroughs in genetic research could help determine the cause of subsets of the disease, so physicians might be able to specifically treat patients based on genetic causes, he said.

In the future, Dr. Rhee said, a single type of surgery might not be the gold standard in all glaucoma cases. Multiple procedures could present more options for the best results in each glaucoma patient.

"I think we will have different subsets of patients in which one procedure will be more superior than another," he said. "So in certain scenarios, trabeculectomy would be the best option. That's probably going to be the majority of situations. There will be other situations where something else would be better."

He cited the change in the treatment of neovascular glaucoma — from trabeculectomy to tube shunts in many cases — as evidence that the surgical treatment paradigm can be altered.

"Nothing has been shown to be superior to [trabeculectomy], and even with all of its inherent problems and issues, it's still the best thing we've got. Tubes really do have a chance to play an integral role. And in certain situations, some of the newer technologies do, too," he said.

Dr. Lewis said there are still many impediments to non-filtration procedures gaining more prominence, including regulatory, coding and reimbursement issues; obtaining research funding; and general acceptance of changes to established procedure.

But he remains positive about the outlook for safer, more effective alternatives to filtration surgery.

"We're at the beginning of this new era, and I think it's an exciting time," he said. "You welcome all the new companies, new ideas and new investigators. I think we're going to look back on this as a very exciting time in glaucoma." — by *Erin L. Boyle*

To see the Guide to Glaucoma Lasers and Implants, [click here](#).

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- L. Jay Katz, MD, can be reached at Glaucoma Service, Wills Eye Institute, 840 Walnut St., Suite 1110, Philadelphia, PA 19107; 215-928-3197; fax: 215-928-0166; e-mail: [ljkatz@willseye.org](mailto:ljkatz@willseye.org).
- Richard A. Lewis, MD, can be reached at Grutzmacher & Lewis, 1515 River Park Drive, Suite 100, Sacramento, CA 95815; 916-649-1515; fax: 916-649-1516; e-mail: [rlewiseyemd@yahoo.com](mailto:rlewiseyemd@yahoo.com).
- Douglas J. Rhee, MD, can be reached at Massachusetts Eye and Ear Infirmary, 243 Charles St., Boston, MA 02144; 617-573-3670; fax: 617-573-3707; e-mail: [dougrhee@aol.com](mailto:dougrhee@aol.com).

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