Obstbaum Lecture

‘Time has come’ for glaucoma cure

Canaloplasty has role in restoring aqueous flow when performed early, suggests physician

By Lynda Charters

Reviewed by Robert Stegmann, MD

Chicago—From the perspective of Robert Stegmann, MD, who has spent decades working on a procedure to reverse glaucoma, the time has come for a cure.

Dr. Stegmann spoke about the results of canaloplasty to reestablish aqueous flow in eyes with no flow and severely high IOP values in his delivery of the 2012 Stephen A. Obstbaum, MD Honored Lecture during the annual meeting of the American Society of Cataract and Refractive Surgery. Borrowing a line from Lewis Carroll’s “The Walrus and the Carpenter” in Through the Looking-Glass, Dr. Stegmann entitled his presentation, “The Time Has Come, the Walrus Said . . . to Cure Glaucoma.”

Dr. Stegmann, professor and chairman emeritus, Medical University of South Africa, Pretoria, South Africa, is recognized worldwide by glaucoma colleagues for his contributions to research and treatment in the field of Schlemm’s canal surgery.

“Robert has recognized that someone must step outside tradition and develop a better procedure,” said Murray A. Johnstone, MD, clinical professor of ophthalmology, University of Washington, Seattle, and the Obstbaum lecturer in 2010. “His work has inspired a new generation of innovation in the glaucoma arena.

“Basic scientists have long argued about whether aqueous can flow circumferentially in Schlemm’s canal, a question recognized as an important piece of the puzzle of glaucoma,” Dr. Johnstone continued. “Robert published an in vivo video that settles that controversy by showing that circumferential aqueous flow occurs and such flow is pulsatile. He also was the

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first to observe pulsatile aqueous flow in collector channels, and he demonstrated how blood reflux in Schlemm’s canal provides a prognostic sign for success in noninvasive surgery.”

Dr. Stegmann’s observations of circumferential flow and the eddying currents of blood in the collector channels, as pointed out by Dr. Johnston, were the basis for the Oehrbaum lecture. Those functions are present in a normal healthy eye.

**Take-Home Message**
Performing canaloplasty early in patients with glaucoma can turn the disease around completely, suggested Robert Stegmann, MD. He delivered the 2012 Stephen A. Oehrbaum, MD Honored Lecture during the annual meeting of the American Society of Cataract and Refractive Surgery.

“When this goes belly-up, things go wrong in glaucoma,” said Dr. Stegmann, who explained the absence of circumferential flow with collapse of Schlemm’s canal and atrophied collector channels.

He recounted how in 1989 he stopped performing trabeculectomy and replaced that with viscosocanalostomy to facilitate opening of Schlemm’s canal and the pores in the trabecular meshwork to allow egress of aqueous into Schlemm’s canal.

In about 2004, he began performing canalopectomy, which is essentially the same procedure as viscosocanalostomy. The difference between the two procedures is that viscosocanalostomy opens up only one section of the canal and canalopectomy opens the entire length of the canal.

The key ingredient in canalopectomy is a microcatheter that Dr. Stegmann uses to pass 10-0 or 8-0 prolene suture materials 360° to open up the canal and act as an “internal belt.”

He places a slipknot to supply tension to keep the canal open.

Dr. Stegmann cautioned, however, that he does not know what degree of tension is adequate to do the job.

The microcatheter has a red laser pulse on the end, which allows the surgeon to track the process of the instrument as it makes its way through the canal.

The surgery ends with watertight suturing of the flap and no bleb creation, which reduces complications.

‘The earlier you operate, the better your chances of finding two collector channels.’
Robert Stegmann, MD

When the surgery is performed early enough, particular outflow of sodium hyaluronate, aqueous, and blood can be seen, he noted.

**Presence of two collector channels**
Dr. Stegmann advised surgeons to look for collector channels located nasally.

“We know from experience that these nasal vessels predict successful aqueous egress in the postoperative period,” he said.

The presence of two collector channels on either side of the flap virtually ensures that the patient can achieve IOPs ranging from 9 to 12 mm Hg.

Dr. Stegmann, who describes himself as simply a “bush doctor,” demonstrated in detail the results of canalopectomy and use of the canal expander to restore normal physiologic function to the entire length of Schlemm’s canal in eyes with early glaucoma. Extensive follow-up has shown that with restitution of the physiologic function, normalization of the cup can be realized.

In many of his cases, IOP levels were in the range of 30 mm Hg, and following surgery, they normalized to 9 to 12 mm Hg. He also showed cases in which after 15 or 21 years of follow-up, the cupping has not increased and the IOPs have remained low.

“Early intervention can turn the disease around completely,” Dr. Stegmann said. “Operate early. Determine the diagnosis.

“If you can visualize two collector channels, you can achieve IOPs of 9 to 12 mm Hg,” he said. “If you find only one, you can achieve 16 mm Hg. The earlier you operate, the better your chances of finding two collector channels.”

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Dr. Stegmann has no financial interest in the subject matter.

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