

## It's never too late to learn new skills

### Can introducing canaloplasty into a practice really make a difference?

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#### In short...

Introducing any new procedure into your practice can be daunting when it involves new skills and change. Canaloplasty is no exception. In this article two doctors describe their experience and learning curves and the success they have seen for open-angle glaucoma patients and hope their experience will encourage others to explore alternative surgical options.

While we have had great success with canaloplasty, and have become comfortable performing this procedure, many of our colleagues are hesitant to adopt canaloplasty because of the skill and challenges it takes to learn. But, as with any new surgical procedure, time and determination are needed to learn and master the surgical technique.

Canaloplasty is a recent advancement in non-penetrating glaucoma surgery that enhances aqueous outflow without forming a bleb. It is a minimally invasive, site-specific interventional ophthalmology treatment that is made possible by the development of the iTrack microcatheter (iScience Interventional). This illuminated beacon-tipped microcatheter (Figure 1) facilitates a 360 degree viscodilation of the Schlemm's canal and is used to place an intracanalicular suture that cinches the trabecular meshwork inwards while permanently opening Schlemm's canal (Figure 2).



Figure 1: Microcatheter with illuminated red tip entering Schlemm's canal.

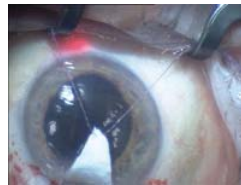


Figure 2: Microcatheter at 5.30 o'clock.

I (Clive Peckar) had been having success with viscocanalostomy in my glaucoma patients since 1997, but wanted improved results and saw that opportunity in canaloplasty. I organised the first European training course featuring Dr Stegmann in 2005, which attracted considerable interest; since then, I have presented a viscocanalostomy/canaloplasty training course each year at the ESCRS. Dr Grieshaber, a former fellow of Dr Stegmann, began using canaloplasty about 18 months ago, in order to have an option for his patients that did not involve the possible complications from 'bleb dependant' traditional surgeries, and we have both had success with this procedure for our open-angle glaucoma patients. We have seen canaloplasty reduce IOP to an average of 12-15 mmHg and it is able to reduce, if not eliminate, the amount of medications the patient takes. A study done together with my colleague, Norbert Körber, published last September,<sup>1</sup> looks at our three year canaloplasty data; the preoperative mean number of medications taken by patients was 2.6 with a mean pressure of 27 mmHg. After canaloplasty, the number of medications dropped to a mean of 0.2 and the mean IOP was 14 mmHg.

#### So how difficult is it?

Canaloplasty has an undeserved reputation for being very difficult to master. Since many surgeons are not used to working with Schlemm's canal, we can see how this may be a little more challenging, but the benefits far outweigh the obstacles. Canaloplasty has the same surgical approach as viscocanalostomy, so anyone who has experience with that procedure, or with deep sclerectomy, will find learning canaloplasty relatively easy and canaloplasty has some advantages over viscocanalostomy. The aim of introducing the tension suture (Figures 4, 5) was to further decrease patients' intra ocular pressure, and reduce the failure rate in viscocanalostomy due to ostia, lake or collector channel closure (Figure 3).

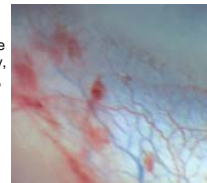


Figure 3: Collector channel microangiography superior nasal vessels.

#### Time investment required

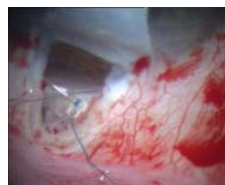


Figure 4: Tension suture on Microcatheter.

As with any new procedure, the user must follow the correct steps and must be prepared to invest the time to master the surgical technique. As the user becomes more comfortable with the approach and the identification of Schlemm's canal, they will find canaloplasty easy to learn. It will greatly help the surgeon if they are able to see the procedure done and learn from an experienced surgeon, as I and Dr Grieshaber have.

Dr Grieshaber found that the most difficult part of this learning process was determining the right amount of tension to put on the suture but I think surgeons

would have the most difficulty becoming comfortable with identifying Schlemm's canal and its dissection together with the creating of the 'Decemet's Window.' No matter what the challenge, we feel once you introduce canaloplasty as an option for your patients, not only will they greatly benefit, but so will your overall practice.

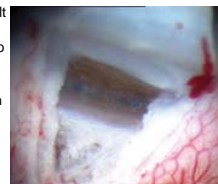


Figure 5: Suture knots in Schlemm's canal.

#### How will your patients benefit?

We all have concerns about using new surgical approaches that we are not accustomed to because we are concerned it may have a detrimental effect on our patients. Trabeculectomy has been the 'gold standard' for open-angle glaucoma treatment despite having all the disadvantages of 'bleb-dependant surgery.' This causes it to suffer from all of the problems of bleb-dependency such as choroidal detachment, flat or shallow anterior chamber, hypotony, cataract, bleb failure and endophthalmitis. We should remember that viscocanalostomy, the parent procedure of canaloplasty was developed in order to overcome the problems of bleb failure which is particularly common in Black African and Afro-Caribbean patients. In both viscocanalostomy and canaloplasty the 'superficial sclerectomy flap' is sutured tight at the end of surgery allowing aqueous to drain directly into Schlemm's canal and out through the collector channels, avoiding these potential bleb complications and resulting in happier patients and surgeons.

#### Future outlook

There is increasing evidence that trabeculectomy, particularly when used with anti-metabolites, causes problems for our patients, and we need, therefore, to examine more physiological surgical procedures that avoid problems associated with fistularising blebs. These new emerging options are gaining credibility both clinically and scientifically, with supported data, and are worth investigating as an alternative surgical option for your patients.

#### Reference

1. *Spektrum der Augenheilkunde*;22,4: 2008