Glaucoma Drainage Devices

FACT SHEET

(The term 'glaucoma' refers to a characteristic pattern of damage to the optic nerve)

Glaucoma Drainage Devices (GDDs) are surgically implanted devices designed to control fluid leaving the eye through to its absorption into the tissues around the eye. The surgical options for glaucoma have recently expanded with a number of new procedures available for glaucoma, although many are for relatively easily controlled glaucoma. Glaucoma Drainage Devices tend to be limited to glaucomas which are more severe and where other interventions have not worked or are unlikely to.

There are two GDDs in common use in Australia and New Zealand, although there are others available in the rest of the world. The Molteno® Implant was designed and developed by Professor Tony Molteno and has evolved since its first use over 50 years ago. The Baerveldt® Implant is named after Dr George Baerveldt and is similar to the Molteno, although the drainage plate has a different shape. Both these devices emigrated from South Africa, where much of the glaucoma was complicated to control and traditional glaucoma surgery was more likely to fail.

All forms of GDDs consist of a tube, which allows fluid to exit the eye, and a plate which is placed under the white tissue of the eye. The plate part functions as a spacer - something that fluid from the eye (aqueous) can circulate around and seep into the surrounding tissues to be absorbed. Immediately after surgery aqueous can exit the eye very easily leaving the pressure very low which can damage the integrity of the eye. The surgeon may use an obstruction to the tube using an external tie of absorbable suture, or by stenting the tube (placing something inside to partially block the aqueous movement) with a snugly fitting suture that can be removed or adjusted later, depending on the eye pressure. Later, when resistance around the plate has increased, intraocular pressure rises.

Glaucoma Drainage Devices are mostly used in more complicated glaucomas, or in eyes where there is a high likelihood of failure of standard glaucoma operations. Such glaucomas include those resulting from inflammation, trauma, or some of the complications of diabetes ('neovascular glaucoma'). In some aspects, GDDs are more robust - capable of withstanding certain conditions in

the eye (further inflammation, surgery, etc.) which jeopardise the function of a standard trabeculectomy. GDDs are more challenging to regulate flow and the healing process, and particular care needs to be taken to protect the eye from excessive aqueous outflow, especially in the first month after surgery. The front end of the tube portion (that which remains in the eye) needs to be placed in a particular way so as not to damage the cornea. Erosion of the tube through the covering white eye tissue is a long term problem so often the surgeon will place a small patch of donor tissue over the tube at the point most at risk.

Glaucoma Drainage Devices have increased in popularity over the last decade, partly as a result of a quite famous study, known as the Tube vs. Trab ("TVT") Study which began reporting in 2006. The TVT Study showed that GDDs were mostly as effective at lowering pressure in the eye as the trabeculectomies performed in this study. As with many large clinical studies, there has been a degree of criticism about the studies and outcomes, but the essential findings support the use of glaucoma drainage devices in a wider group of patients than was historically the case.

Although Glaucoma Drainage Devices have a relatively low rate of long-term problems, there are still failures and issues with the operations over time. Patients who have a GDD need long-term follow up with their ophthalmologist to monitor their glaucoma and the function and safety of their GDD.

Our Mission - To eliminate glaucoma blindness

T: 02 9906 6640 F: 02 9439 8736 e: glaucoma@glaucoma.org.au w: www.glaucoma.org.au

MC1708240