

Hydrus

By Nathan Kerr and Keith Barton

What is a Hydrus Microstent?



The Hydrus Microstent is a small flexible scaffold inserted into the natural drainage channel of the eye to

lower eye pressure and reduce the need for eye drop medication.

The Hydrus Microstent is a tiny scaffold about the size of an eyelash that is inserted into the main drainage channel of the eye to help lower eye pressure and reduce the need for medications. It is so small you will not see or feel it after the procedure.

The device is made from a super-elastic alloy of nickel and titanium. This material will not cause an allergic reaction and has been used in over a million medical implants. It will not set off airport scanners and is safe if you need to have an MRI scan.

Eye words to know

Aqueous: A clear fluid that circulates inside the front portion of the eye.

Conjunctiva: A thin membrane that covers the white part of the eye.

Cornea: A clear, dome-shaped window at the front of the eye.

Drainage angle: The area between the iris and cornea where the drainage pathways are located.

Intraocular pressure: The fluid pressure inside the eye.

Iris: The coloured part of the eye that controls the size of the pupil.

Glaucoma: A condition that damages the optic nerve of the eye, often associated with high eye pressure.

Pupil: The opening at the centre of the iris.

Schlemm canal: A circular canal into which aqueous drains after passing through the trabecular meshwork.

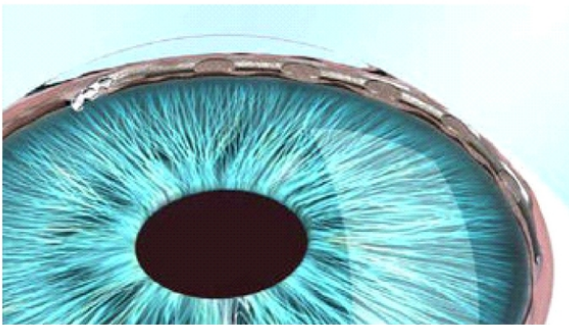
Trabecular meshwork: A sieve-like meshwork through which aqueous drains before entering Schlemm canal.

Who is suitable for a Hydrus Microstent?

The Hydrus is best suited to patients with mild to moderate open-angle glaucoma taking glaucoma drops who are undergoing cataract surgery and wish to reduce their need for glaucoma medications.

The Hydrus is not suitable for advanced glaucoma or where the natural drainage system of the eye is damaged.

How does it work?




Glaucoma is most commonly associated with a build-up of fluid pressure inside the eye. Eye pressure increases because the eye's fluid drainage channels become blocked. The tiny Hydrus Microstent scaffold is designed to be

inserted into the primary fluid canal of the eye and open the channel to allow blocked fluid to flow more freely, thus lowering eye pressure. The fluid drained from inside the eye is different from tears.

What are the benefits?

The Hydrus helps to reduce the pressure in the eye and may reduce the need or dependence of eye drop medications in patients with mild to moderate glaucoma. The procedure to insert the Hydrus is faster, more straightforward, and less invasive than traditional operations for glaucoma.



Following combined Hydrus Microshunt insertion and cataract surgery 7 out of 10 patients were medication free at 2 years after surgery compared to only 3 out of 10 patients who had cataract surgery alone.¹


The Hydrus Microstent will not cure your glaucoma, reverse any damage already caused by glaucoma, or bring back any lost vision.

What does the operation involve?

The operation is usually performed under a local anaesthetic, meaning that you are awake but your eye is numb so you will not feel anything. Your eye will be numbed with eye drops and then a small injection will be given around your eye. The injection may cause a pressure sensation and brief discomfort. You will have the option of requesting light sedation. The local anaesthetic takes several hours to wear off and may affect your vision during this time.

The Hydrus Microstent is usually implanted at the end of cataract surgery via the same micro incisions needed for cataract surgery, meaning no additional incisions are necessary. A special injector is used to insert the device into the main fluid drainage canal of the eye, called “Schlemm’s canal”.

At the end of the procedure your operated eye will be padded and covered with an eye shield. If your unoperated eye does not see well, your operated eye may not be padded and instead covered with a clear plastic shield.



You will usually be able to go home the same day as your operation. Most patients will need to be examined in the first week after surgery.

How soon will I recover?

Following surgery your eye may be slightly blood shot and swollen for a few days. Your vision may also be blurry for 1 – 2 weeks after the procedure. You may read and watch television; these activities will not harm your eye.


You will be given new anti-inflammatory and antibiotic eye drops to prevent inflammation and infection.

The Hydrus Microstent will begin to work straight away to lower your eye pressure and you can stop taking your glaucoma drops in the operated eye. Any drops you use in your other eye must be continued as normal.

As with all eye surgery, you should avoid strenuous activity for the first month including swimming, tennis, jogging, and contact sports. Most people take 1 – 2 weeks off work after surgery, however the length of time will depend on the nature of your work.

You should avoid wearing eye make-up for approximately 4 weeks after surgery.

You will be asked to wear a shield over your eye at night for the first week or so, to prevent accidental injury to your eye whilst you are asleep.



It is safe to fly after surgery, however you will need to be seen regularly by your surgeon in the early post-operative period.

What are the risks?

It is normal for there to be a small amount of bleeding inside the eye during the operation but this resolves within a few days. There is a risk the stent could become blocked or come out of position, however this is rare.

In some cases the Hydrus Microstent may not lower eye pressure or its effect may wear off with time. If the Hydrus Microstent fails to lower your eye pressure it will not create any additional harm to your eye. However, you may need to restart your glaucoma medications or have further procedures to control your eye pressure.

Are there any alternatives?

The iStent, Trabectome, CyPass, and XEN Gel Stent are alternative minimally invasive procedures that can be performed at the time of cataract surgery to lower eye pressure in patients with primary open angle glaucoma.

Non-surgical alternatives include continuing to use eye drops to lower eye pressure or a laser procedure called selective laser trabeculoplasty.



References and Disclaimer

1. Pfeiffer, N., Garcia-Feijoo, J., Martinez-de-la-Casa, et al. (2015). A randomized trial of a Schlemm's canal microstent with phacoemulsification for reducing intraocular pressure in open-angle glaucoma. *Ophthalmology*, 122(7), 1283-1293.

This leaflet is for information only and should not be used for the diagnosis or treatment of medical conditions. Consult your ophthalmologist for further information.