



# MicroShunt

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# Eye words to know

## **Aqueous humour**

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. Increased intraocular pressure or eye pressure is the most important risk factor for deterioration of glaucoma.

## **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.

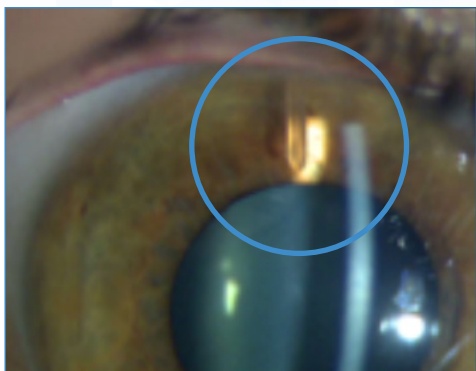
## **Schlemm canal**

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.

# MicroShunt



## Who is suitable for a MicroShunt?

The MicroShunt is suitable for patients with uncontrolled eye pressure and its pressure-lowering effect is generally superior to implants that target the normal drainage channels (iStent, Hydrus or CyPass).

The MicroShunt, in many situations, may be as effective as a trabeculectomy and it is therefore potentially suitable for moderate-to-advanced glaucoma. At the time of writing, the MicroShunt is being tested

## What is a MicroShunt?

The MicroShunt is an 8 millimetre long tube that is inserted into the eye to help lower eye pressure in glaucoma and reduce the need for medication. It is made entirely of a synthetic and biocompatible material called SIBS.

The MicroShunt won't be rejected by the body and will not disappear or disintegrate with time. As it is not metallic, it will not set off airport scanners and is safe if you need to have an MRI or CT scan.

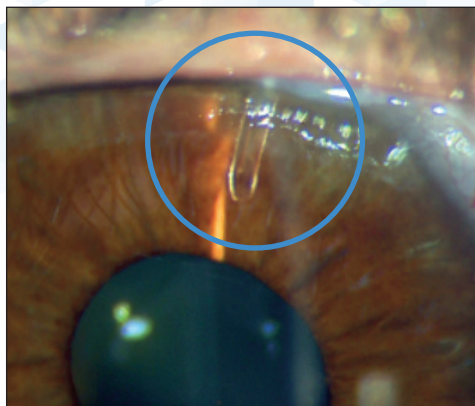


in a large international trial that has not yet reported its results. The MicroShunt became commercially available in Europe in late 2018 but has been available to clinicians involved in trials since spring 2016.

## How does it work?

Glaucoma is most commonly associated with a build-up of fluid pressure inside the eye. This build-up of fluid pressure is caused by partial blockage of the natural drainage channel of the eye. This pressure can damage the optic nerve which carries images from the eye to the brain affecting your vision. This fluid produced inside your eye is called aqueous humour, which is different from your tears.

Like trabeculectomy surgery, the MicroShunt drains fluid from inside the eye to outside, under a thin skin-like membrane covering the white



of the eye called conjunctiva. The fluid is drained and pooled under conjunctiva forming what is called a bleb. Unlike iStent, Hydrus or Cypass, which enhance the normal drainage of the fluid, MicroShunt and XEN implants are similar in a number of respects to trabeculectomy and traditional aqueous implants (Ahmed or Baerveldt) which create a new drainage pathway for aqueous humour. The latter is more effective at lower eye pressure. However, you may not require very low eye pressure if you only have mild glaucoma.

The MicroShunt can only be seen inside the eye under very high magnification.

## What are the benefits?

The MicroShunt will lower your eye pressure and prevent further damage to the optic nerve caused by eye pressure (intraocular pressure).

The MicroShunt could be as effective as trabeculectomy. However, this hypothesis is still currently under formal investigation. Compared to trabeculectomy, MicroShunt has the advantage that the procedure is shorter, less invasive, and requires fewer post-operative visits. In addition, the drainage bleb created by the MicroShunt is usually less obvious than after a trabeculectomy and contact lens wearers are often still able to continue contact lens wear afterwards.

The MicroShunt 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.

Similar to trabeculectomy, a medication called mitomycin C will be applied to reduce scarring. It is designed

to enhance the long term success of the surgery. The thin skin-like membrane covering the white of your eye (conjunctiva) will be opened and the MicroShunt is inserted inside your eye. The conjunctiva will be closed with one or two stitches (in contrast, a trabeculectomy often requires many more stitches). These stitches may either be removed later in clinic or, in some cases, dissolve by themselves. The entire surgery is likely to take no more than 20 – 30 minutes.

## How soon will I recover?

After surgery, your eye may be slightly blood shot and swollen for a few days. Your vision may also be blurry for 1 – 2 weeks. You may read and watch television; these activities will not harm your eye. You will generally have no sensation from the presence of the bleb.

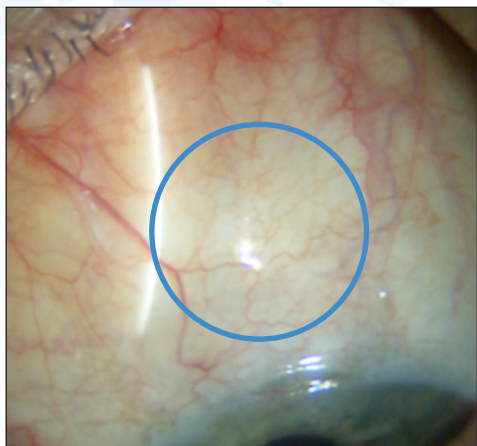
You will be given new anti-inflammatory and antibiotic

eye drops to prevent inflammation and infection. The anti-inflammatory drops will normally need to be continued for up to 3 months.

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

While you should usually be able to go outside, walking and shopping etc., straight after 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. It is safe to fly after surgery, however you will need to be seen a number of times by your surgeon in the first two months.





## What are the risks?

Serious complications are rare. You could have a small amount of bleeding inside your eye. If this happens, your vision could be blurred for one to two weeks or occasionally longer.

Like all glaucoma surgery, the eye pressure lowering effect of MicroShunt may wear off with time. This is most often due to scarring around the MicroShunt. If this happens, you will need to restart your glaucoma medications or have further procedures to control your eye pressure, which would usually be an

aqueous shunt (Baerveldt, Ahmed or Paul Glaucoma implant).

Like trabeculectomy or XEN implants which all create blebs, there is probably a very small life-long risk of infection after MicroShunt surgery and a small risk that the shunt might expose and need to be repaired.

The risk of very low pressure after surgery is much less than after trabeculectomy and persistent very low pressure is rare.

## Are there any alternatives?

The closest alternatives to the MicroShunt will be a traditional trabeculectomy or aqueous shunt implant (Baerveldt, Ahmed or Paul Glaucoma Implant). At this stage, we do not have long term data on MicroShunt as we do with trabeculectomy.

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## References

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- [2] Batlle, J.F., et al., Three-Year Follow-up of a Novel Aqueous Humor MicroShunt. J Glaucoma, 2016. 25(2): p. e58-65.

## Disclaimer

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## Further Information

For further information regarding glaucoma and its treatment we recommend you contact the International Glaucoma Association at: **[www.glaucoma-association.com](http://www.glaucoma-association.com)**