Minimally Invasive Glaucoma Surgery (MIGS)

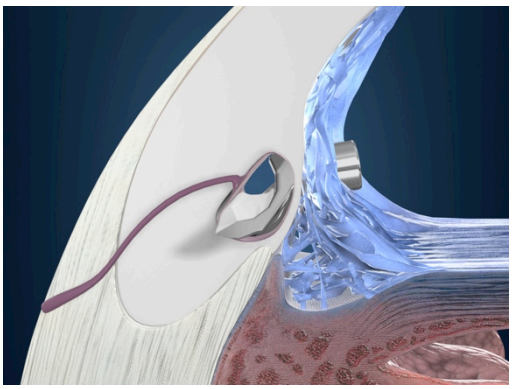
INFORMATION FOR PATIENTS 2018

This information booklet has been compiled by Dr Sohaib Mustafa Glaucoma Specialist at Moorfields Eye Hospital Dubai/Abu Dhabi .

1. INTRODUCTION – WHAT IS MIGS?

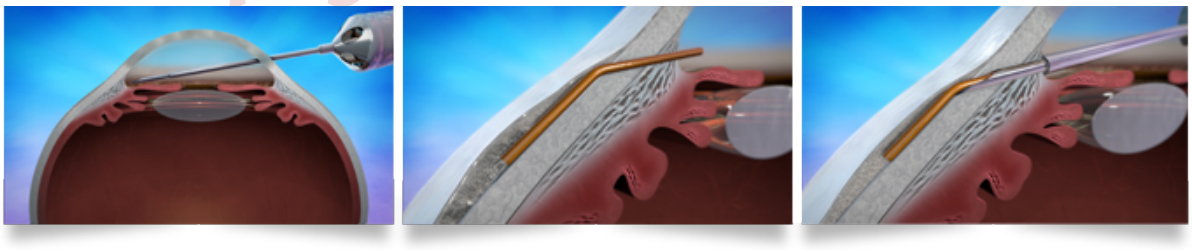
The recent most increased interest in glaucoma surgery has been in Minimally Invasive Glaucoma Surgery (MIGS) with formidable results in mild to moderate glaucoma. These are designed to improve the safety of surgical intervention for glaucoma. Although initially coined minimally invasive, the term micro seems more appropriate because it truly differentiates these microscopic ophthalmic procedures from other minimally invasive surgical procedures (i.e., general surgery). Most MIGS procedures enhance physiologic outflow and are aimed at a different patient population than traditional filtration surgery. As opposed to competing with traditional filtering surgery, MIGS seems to be more of an alternative to medical therapy in an effort to address adherence challenges, adverse events, and quality-of-life (QOL) issues with topical medications.

I-stent



The iStent Trabecular Micro-Bypass Stent (Glaukos, Laguna Hills, CA) received FDA approval in 2012. The device is a heparin-coated, non-ferromagnetic titanium stent with a snorkel shape to facilitate implantation. The device is placed using a single-use, sterile inserter through a 1.5mm corneal incision. The iStent itself is the smallest FDA approved device, measuring at 0.3mm in height and 1mm in length. The iStent is a safe minimally invasive glaucoma surgery (MIGS) procedure that can reduce the need for daily use of glaucoma eye drops. A small (1mm) titanium drainage stent is inserted into the eye's natural drainage channel to lower intraocular pressure. Most clinical trials concluded that iStent implantation with phacoemulsification resulted in a significantly lower, long-term decrease in IOP and number of medications used compared to phacoemulsification alone. No major complications have been reported.

XEN Glaucoma Implant



The XEN Glaucoma Implant (AqueSys Implant) was created by AqueSys Inc acquired by Allergan. The implant itself is made out of a soft, collagen-derived, gelatin that is known to be non-inflammatory. The Xen Gel Stent aims to reduce intraocular pressure by inserting a small drainage tube into the eye. The stent allows fluid to drain from the anterior chamber into a reservoir (bleb) under the conjunctiva. The goal of implantation is to create an aqueous humor outflow path from the anterior chamber to the subconjunctival space. The implant is injected through a small corneal incision with the use of an inserter similar to those used for IOLs. Similar to other implants, it can be performed in conjunction with cataract surgery.

All shunts perform approximately the same function of lowering the eye pressure. It's important to note that no treatment is guaranteed to completely eliminate the need for eye drops, but the strong results seen in the use of either the Istent or XEN Gel Stent give the right patients a very strong choice for eliminating the need for them.

Your Glaucoma specialist will discuss the best one for you.

2. HOW WILL THE SHUNT AFFECT THE APPEARANCE OF THE EYE?

On the outside/inside of the eye

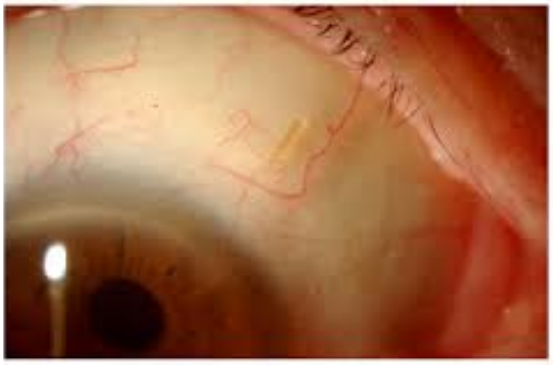


Figure 1: XEN Gel external appearance

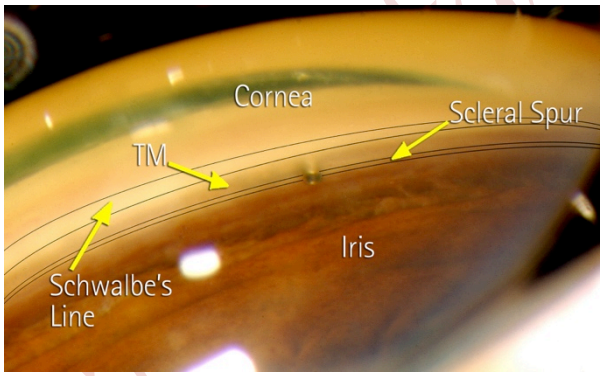


Figure 2: I-stent internal angle appearance

I-stent:
The I-stent does not appear on the outside of the eye and does not create a bleb outside as it relies on the exisiting venous outflow system of the eye to help drain the aqueous fluid out (*see figure 2*).

Initially after surgery, the eye will be red and swollen to a variable degree. The recovery is rapid and redness should be short lived.

XEN Gel Implant:

The XEN implant creates a communication between the inside and outside of the eye.

Hence occasionally a shallow bleb can be seen in extremes of gaze, where the eye is looking very far down and outwards.

Initially after surgery, the eye will be red and swollen to a variable degree. The recovery is rapid and redness should be short lived.

3. THE SURGERY ITSELF

Successful MIGS surgery takes much less time than many other types of Glaucoma surgery, typically lasting 30 minutes at the most. At Moorfields Eye Hospital Dubai/Abu Dhabi, MIGS implantation is usually performed under local anaesthesia, although general anaesthesia is also possible under certain circumstances.

Typically a drug called Mitomycin C (anti-scarring medication) is also used at the time of surgery if indicated to suppress healing.

Complications at the time of surgery

Complications occurring at the time of MIGS surgery are extremely rare with an excellent safety profile. Complications when they do occur, tend to occur during the first 2 weeks after the surgery (see below under *Success rates and complications*).

4. AFTER SURGERY – POSTOPERATIVE CARE

The day of surgery and the next day

You will usually be discharged home from hospital later the same day after surgery. It is usually necessary for the operated eye to be examined again one day after surgery.

The eye is normally patched the first night after surgery and the patch removed the following day. If the un-operated eye does not see well, then the operated eye will not be patched. Instead, a clear shield will be placed on the operated eye so that you will still be able to see to get around after surgery.

What should I expect to feel during the postoperative period?

It is normal for the vision to be blurred and the eye to be uncomfortable after surgery. The period of blurring is variable. The blurring is usually worst for the first 1 to 2 weeks after surgery, and improving slowly afterwards. It takes about 1 month for the eye to feel completely normal though vision would stabilise much earlier.

Eye Drops

Eye drops and tablets to lower the eye pressure are not normally required for the operated eye during the first night after surgery, unless the surgeon recommends that you continue to use them. It is important to continue any eye drops for the un-operated eye unless advised otherwise.

The following day, the postoperative eye drops are usually started after removal of the eye patch and cleaning of the eye. The postoperative eye drops will usually consist of an antibiotic and anti-inflammatory steroid eye drops to use for the first month after surgery. You will be advised if any changes in these are required at each clinic visit.

To start with the steroid eye drop will be used intensively (every 2 hours or about 8 times daily) during the day and the antibiotic four times daily.

Postoperative visits to clinic

As the intraocular pressure may be too high or too low in the first week after shunt surgery, the patient is usually examined in clinic two weekly for approximately the first month, with

visits reducing in frequency after that. If indeed the pressure is too high or too low, rest assured that your specialist will manage this appropriately.

Activity and Instructions of care after MIGS

Following surgery you are able to read and watch television as normal as these activities will not harm your eye. It is however important to avoid strenuous activity during the first few weeks after surgery. The following table is a general guide to do's and don'ts.

IF ANYTHING DO NOT RUB/BUMP/PRESS THE EYE. IN DUSTY ENVIRONMENTS PLEASE WEAR EYE SHIELD OR YOUR OWN GLASSES. DO NOT STOP YOUR EYE DROPS UNLESS THE DOCTOR ADVISES. DO NOT USE ANY OTHER PRODUCTS IN THE EYE.

If in doubt please ask your doctor or nurse in clinic.

Activity	Advice
Hair Washing	No need to avoid but back wash advised to avoid getting shampoo into your eye. It may be easier to have someone else wash your hair for you.
Showering/Bathing/Wadhu	No need to avoid but don't allow soapy/dirty water to go into your eye
Sleeping	Try to sleep on your un-operated side. Tape the plastic eye shield provided over your eye every night for two weeks to avoid accidentally rubbing your eye whilst asleep.
Walking	No restrictions
Wearing glasses/sunglasses	Do not change the prescription of your glasses until the doctor advises. You may wear sunglasses for comfort and UV protection.
Driving	Your doctor shall advise you. If advised against driving and you continue to do so, this shall be at your own risk.
Flying	No restrictions
Going away on holiday	Discuss with your doctor/nurse as it is very important to attend your follow up appointments.
Wearing eye makeup	Avoid for one month then use new makeup. Never share eye make up with anyone else.
Household chores e.g. cleaning, ironing, hovering	Avoid for 1 – 2 weeks
Sexual Activity	Avoid for 1 – 2 weeks
Gym workout	Avoid for 1 months
Playing any sport	Avoid for 1 months
Running/jogging	Avoid for 1 months
Swimming	Avoid for 1 months, after which you must use goggles
Prayers (Salah)	You may continue prayers but do the

rockoo/sajdah in a chair, your head must not go below your heart level.

When can I go back to work?

The duration of time off work will depend on a number of factors such as the nature of your employment, the state of the vision in the other eye and the pressure in the operated eye.

Typically someone working in an office environment would require 1 week off if the postoperative course is smooth. Someone whose occupation involves heavy manual work or work in a dusty environment may require 2 weeks or upto 1 month (e.g. builders, working in dessert).

When is the eye back to normal?

It takes 1 month for the eye to feel completely normal in most cases, and sometimes longer in more complicated cases. At that point, the patient will usually have a refraction (spectacle) test as often the spectacle prescription will be slightly different than before surgery.

5. SUCCESS RATES AND COMPLICATIONS

Success rates

Most glaucoma surgical studies examine success rates over a 5 year period. The I-stent and XEN gel implant are showing good results with 80-90% qualified success in most studies. Although a sizable proportion of patients achieve good pressure control without the need for continued glaucoma medication, many patients still require some medication to assist the shunt in controlling the pressure especially if they are on more than one drop. In such circumstances, the medication required is usually less than that required before the surgery.

Complications

As with any surgery, there is a potential for complication or problems to arise. Complications can occur during the surgery, shortly after the surgery or many months after surgery.

Severe complications are rare and may happen either if the eye pressure drops very low, or very quickly during the early postoperative period, or if the eye becomes infected.

Bleeding

The most serious problem that can occur is bleeding inside the eye. This can lead to loss of vision and even blindness but occurs in less than 1 in 1000 patients. There are measures taken to prevent this but this is not a predictable complication.

Infection

An infection inside the eye can be very serious and also cause loss of vision or blindness. This also happens in less than 1 in 1000 patients. Measures are taken and aseptic techniques used to prevent this complication.

Pressure

After the operation the eye pressure may be too high or too low. This may require additional treatment in the outpatient clinic or sometimes further surgery is required.

Inflammation

This can occur inside the eye and is usually treated with eyedrops.

Droopy lid

This can occur after the operation and some patients can be aware of the drainage bleb under the upper eyelid but this usually settles down with time.

Astigmatism, Change in glasses & Cataract

As your eye settles and heals and stitches removed you may need a change in glasses, to get your best vision. About 10% of patients notice that their vision is reduced by one line on the eye chart a year after the operation. This is often due to cataract formation which may be increased by trabeculectomy surgery but is easily manageable and treatable.

Double vision

This is very rare even with the bigger Baerveldt implant and usually the eye gets use to the implant over a few months.

Malposition/Obstruction of implant/tube

This is very rare in its entirety and is further reduced by using specialised instrumentation for direct visualisation of the angle.

Obstruction can be treated with simple YAG laser to the istent opening and Needling to the drainage bleb for Xen gel implants.

What if I don't have the operation?

The advice that has been given to you by the Glaucoma specialist is based on the balance of risk and benefits and if an operation has been recommended then the benefits outweigh the above risks of surgery.

If the operation is not performed in a timely manner then there is potential for further irreversible visual loss due to high pressure/fluctuating pressure in the eye leading to blindness.

However the informed decision rests with the patient and your Glaucoma specialist will be available and very happy to discuss your concerns and expectations before proceeding with surgery.

1. CONTACT DETAILS AS PER WEBSITE

2. DISCLAIMER

Accuracy

While every step has been taken to compile accurate information and to keep it up to date, we cannot guarantee its correctness and completeness. The information provided in this information sheet is designed as an adjunct to, and not a substitute for professional healthcare advice, by a qualified doctor or other healthcare professional, which will be tailored to a patient's individual circumstances. Dr Sohaib Mustafa and Moorfields Eye Hospital Dubai/Abu Dhabi cannot take responsibility if you rely solely on the information in this information sheet.