

SLT (Selective Laser Trabeculoplasty)

What is SLT?

SLT is a laser treatment for glaucoma. It can be used as primary treatment, as a substitute or an addition to glaucoma eye drops. Worldwide this is an extremely commonly used treatment modality for glaucoma and has been in place for several years. It is a procedure done in consulting rooms and usually takes about 5-10 minutes per eye to complete.

What is it used for?

It is used primarily to lower the pressure in your eyes in Primary open angle glaucoma. Lowering the eye pressure is the major way Glaucoma is treated and SLT can be an excellent treatment choice due to its low side effect profile and avoidance of continued daily use of eye drops which can come with their own side effects. There have been some studies suggesting SLT should be used as a first line therapy before the use of the commonest eye drops called prostaglandins as it may be more effective prior to the use of these drops. There are other studies which suggest there is no difference in the eventual outcome if drops or SLT are used first.

What happens before the procedure?

When you have your eyes examined your doctor uses an instrument called a slit lamp. The laser treatment is performed in the normal way your eyes are examined. Before the laser is performed two to three drops of local anaesthetic are instilled in the eye(s) undergoing treatment. A contact lens with a jelly like substance is then carefully placed on the surface of your eye. The procedure can now start.

What happens during the procedure?

During the procedure multiple laser spots are applied to a structure called the trabecular meshwork. As the name suggests this is a sieve-like structure which has a very important role in glaucoma. The normal trabecular meshwork is fairly permeable to fluid at the front of the eye called Aqueous humour. In patients with glaucoma the trabecular meshwork can get clogged and cause the eye pressure to rise. SLT works by “kick starting” the trabecular meshwork to improve the drainage of fluid from the

front of the eye and lower the eye pressure. The exact mechanism is still uncertain, but it is thought the laser works through a combination of mechanical and biochemical effects.

What are the common side effects?

SLT is very well tolerated, but like any medical procedure it is not without risk. The main risks tend to be fairly short-lived including:

- Post laser eye ache or pain which usually settles over 24-48 hours
- Inflammation in the eye which usually settles spontaneously over 5 days
- A temporary rise in the eye pressure
- A temporary reduction in vision

What are the rarer side effects?

Rare side effects of SLT include persistently raised intraocular pressure requiring glaucoma surgery, this is more of an issue with a particular type of glaucoma called pigmentary glaucoma.

A transient swelling of the cornea called corneal oedema, the incidence of this is 0.8%. This usually settles on its own after the procedure.

SLT induced keratitis which is inflammation of the cornea is another rare side effect which can have an effect on the focus or refraction of the eye itself.

When do I need to be seen again?

Most patients with SLT are reviewed 2 weeks after the procedure to check on the eye pressure and health of the eye. If you have pigmentary glaucoma you will be seen 1 week after the procedure. Further follow up will be organised depending on the Intraocular pressure and your risk profile.

How good is laser long term?

Approximately 80% of patients respond well to SLT with a reduction in Intraocular pressure. This effect can last up to several years after the initial treatment. The effect of SLT wears off in roughly half of patients who have SLT at 5 years after treatment.

If this is the case, further SLT can be performed due to its low side effect profile. With third and any subsequent treatments it is possible to treat the same area that has already been lasered.

20% of patients do not respond well to SLT in that their eye pressure does not reduce. There is no real way of predicting if someone will or will not respond to laser before the procedure.

Useful Resources

<https://www.glaucoma.org.au/detection-treatment-and-care/treatment/selective-laser-trabeculoplasty-slt/>