



Patient Information Leaflet – Glaucoma Procedures

Selective Laser Trabeculoplasty (SLT Laser)

What is Selective Laser Trabeculoplasty (SLT)?

SLT is a laser therapy used to treat patients with glaucoma. It is a safe, quick and relatively non-invasive procedure that aims to lower the pressure inside the eye (intraocular pressure). The procedure does not require admission to hospital and is carried out as an outpatient procedure.

How does SLT work?

Glaucoma is often caused by raised pressure in the eye. This is due to insufficient drainage of fluid (aqueous) through the eye's natural drainage channels. SLT uses an advanced laser to target cells in the drainage channels (the trabecular meshwork). Short pulses of low energy light are used to target only those cells containing melanin, a natural pigment. The exact mechanism of SLT is not known but the laser appears to boost the trabecular meshwork drainage cells. This improves drainage of the fluid from the eye and so lowers intraocular pressure. As the laser therapy uses low energy, SLT does not appear to cause collateral damage. Some patients can have an early response to the SLT but in most cases it can take up to 6 or 8 weeks for the effects to be apparent. Following the laser, it is important to continue to use your medications for glaucoma as normal, including on the day of treatment.

What happens on the day of treatment?

Expect your visit to take about 1 hour. You will be asked to attend the clinic in advance of the treatment time to have some drops instilled in the eye to prevent a pressure rise in the eye from the treatment. There will be an opportunity to ask questions before the treatment. Anaesthetic drops will be put in to numb the eye during laser therapy. The laser is delivered through a specially designed microscope. It is very similar to the slit-lamp microscope you sit at in clinic to have your eye examined. A special lens will be placed against the front surface of your eye for better viewing. This lens also holds your eyelid open and keeps the eye still, so you don't need to worry about blinking or moving your eye. During the laser treatment, you may see some flashes of light and hear clicking sounds as the laser pulses are delivered. The laser treatment is generally painless, although some patients experience mild discomfort.

Following the laser, you will be asked to wait so that your intraocular pressure can be checked a final time. Occasionally SLT can cause a spike in intraocular pressure, which is usually temporary. You will then receive an appointment to come back to the clinic usually in about 6-8 weeks. There are no activity or work restrictions after SLT.

Are there any risks or side effects of this treatment?

Your vision may be slightly blurred for a few hours following your laser treatment. This will settle but it is advisable that you do not drive yourself to the laser clinic appointment as you might find it difficult to drive home. If you are concerned that your vision is not returning to normal, please contact the hospital.

Your eye may feel slightly bruised afterwards or be a little red. This may be due to

the lens used for viewing at the time of the SLT and should settle overnight. You may wish to take a mild painkiller, for example Paracetamol, to relieve this discomfort. If you are already taking painkillers for a different condition continue with these, but do not take both.

It is possible for the pressure in your eye to increase immediately after the treatment. To prevent this, we put in some special drops beforehand. A pressure rise would normally be detectable when we check the intraocular pressure following SLT. Occasionally we need to prescribe additional drops to lower the pressure in the short term until the pressure spike resolves. There is a very tiny risk that your pressure may not respond and require further intervention or that it will cause a change or reduction in your vision.

How successful is it in lowering the pressure?

The most important study examining the use of SLT was the LIGHT study, which was published in the Lancet in 2019. The LIGHT study examined 718 patients who had just been diagnosed with glaucoma or high pressure in their eyes. They had not received any treatment before. Patients were randomly assigned to be treated either with eye drops first or SLT first. 3 years after laser, 74.2% of patients who had SLT first remained free of any eye drops. Patients treated with SLT also tended to have slightly better control of their pressure and were less likely to require glaucoma surgery. No patients in the SLT group required surgery compared to 11 in the eye drops group. The conclusion of the study was that SLT should be offered as a first line treatment option.

The success of SLT can though vary on an individual basis and as the effects wear off over time, continued monitoring is important. Eye drops may also still be

required. As the laser does not damage the tissues of the drainage meshwork, laser can be repeated if the effects wear off.