



Procedure Information Sheet

Introduction

Laser is commonly used to control/ to treat retinal diseases or glaucoma in ophthalmology. High intensity laser light reaches the eye tissue to induce thermal, chemical and other photochemical effects for treatment. Laser therapy can be done in outpatient clinic and does not require hospital admission.

Indication

1. Retinal Diseases

- A. Retinal tears or holes (if untreated may develop into retinal detachment)
 - The retina is the inner layer of the eye that senses light and helps you see things. If the retina tears, it can separate from the back wall of the eye that leads to vision loss. This is called retinal detachment.
 - If retinal tears are found before the retina detaches, most of them can be treated with laser. The laser helps to seal off the tear and bond the retina to the wall of the eye to reduce the chance of a later retinal detachment.
- B. Diabetic retinopathy
 - Eye diseases due to diabetes is a major cause of vision loss. Diabetes can cause retinal ischaemia and the growth of abnormal blood vessels in the retina. These vessels are brittle and may leak fluid (macular edema) or bleed inside the eye leading to swelling in the macula and bleeding in the vitreous.
 - Laser is used to seal the leaking blood vessels, reducing macular edema to prevent further vision loss. However, laser itself cannot improve vision. It slows or stops abnormal blood vessels growth to reduce the chance of bleeding inside the eye. According to the study, in patients with severe diabetic retinopathy, it has been shown that laser treatment is effective in decreasing the risk of severe visual loss in 50% - 60% of patients. However, not every patient responds to laser the same way. Some patients respond poorly to laser and may subsequently develop vitreous haemorrhage, as laser fails to halt the natural deterioration in visual function caused by the retinopathy. Others suffer from different degrees of visual deterioration and constriction of the field of vision. Usually more than one laser sessions are required to achieve the regression of the growth of the abnormal blood vessels.
- C. Macular degeneration
 - The macula is the small, central area of the retina that allows us to see fine details clearly. Macular degeneration affects the central or reading vision.
 - "Wet" macular degeneration is the abnormal blood vessels which cause bleeding and scarring of the macula. In certain cases, it may be treated with laser to seal the blood vessels and prevent further damage. A special group of patients having a particular type of macular degeneration (age-related macular degeneration) may need to have special medication injected into the vein to assist the effects of laser.
- D. Retinal vein occlusions
- E. Central serous retinopathy
- F. Some Types of eye tumors

2. Glaucoma

- A. Glaucoma damages the optic nerve, usually caused by the fluid pressure inside the eye that becomes too high. Further vision loss may be prevented or slowed down if the problem is treated before severe damages occur in the optic nerve.
- B. Laser may be used to lower the pressure such as laser iridotomy, laser iridoplasty, laser trabeculoplasty and ciliary body destruction.

3. After Cataract Surgery

After a cataract is removed, the capsules of the lens may sometimes become cloudy. The YAG laser can open up the cloudy membrane and restore clear vision.

Patient's Label

Patient Name: _____
Hospital No: _____
Episode No: _____



4. Oculoplastic Surgery

Laser can be used to treat certain eyelid diseases e.g. trichiasis ablation and lacrimal drainage problems.

Risk and Complication

1. Retinal Diseases

- Decrease vision and causing dimming and visual field defects
- Loss of / decreased accommodation, refractive error changes
- Bleeding in the retina or vitreous
- Accidental burn to macula and optic nerve leading to visual loss
- Enhance growth of retinal fibrous tissue
- Retinal detachment / break if the reaction to the laser treatment is too excessive
- Corneal injury
- Lens injury
- Blindness

2. Glaucoma

- Failure to penetrate the iris
- Closure of laser iridotomy
- Transient blurring
- Temporary eye pressure elevation
- Glare and seeing double or multiple images
- Corneal or lens injury
- Bleeding
- Iritis
- Hypotony

3. After Cataract Surgery

- Failure to open up the cloudy membrane
- Residual / recurrence of posterior capsule opacification
- Transient rise of eye pressure
- Retinal detachment
- Macula edema
- Damage to the implanted intraocular lens producing glare and seeing multiple images.
- Rarely causes implanted intraocular lens subluxation / dislocation
- Vitreous floater

The Operation / Procedure

1. You will be seated in front of the slit-lamp biomicroscope laser unit.
2. A special contact lens will be attached during the laser treatment.
3. You have to keep your head and eyes still during laser treatment.
4. Treatment usually lasts for 10 to 30 minutes. Longer time may be required for the treatment of diabetic retinopathy. Inform your doctor immediately if you experience serious discomfort or pain during laser treatment.

Before the Operation / Procedure

1. Local anaesthesia in the form of eye drops will be applied. Eye drops for pupil dilation will also be applied to treat retinal diseases.
2. Mild discomfort or pain may be experienced when the laser beam passes through the eye ball.

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After the Operation / Procedure

1. It is advisable to have adequate rest after laser treatment and avoid eye contusion. Avoid contact sports and high platform diving (especially patients with retinal tears) after laser treatment.
2. Laser treatment is not 100% effective and safe. After laser surgery, regular follow up is necessary to look at the treatment results, possible complications and to monitor the progress. Some patients may need more than one session of laser treatment.
3. In most situations, laser surgery helps to control the disease and prevent further loss of sight, but it cannot provide restoration or great improvement in vision.
4. If you have acute severe eye pain, vomiting or significant blurring after laser therapy, please consult your doctor immediately or go to nearby Accident and Emergency Department for treatment.

Disclaimer

This leaflet only provides general information pertaining to this operation / procedure. While common risks and complications are described, the list is not exhaustive, and the degree of risk could also vary between patients. Please contact your doctor for detailed information and specific enquiry.

Reference

Smart Patient Website by Hospital Authority: Laser Surgery of the Eye (6/2023)

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Patient Name: _____

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Episode No: _____

Patient's Signature: _____ Date: _____