



## Operation Information

### Laser Surgery of the Eye

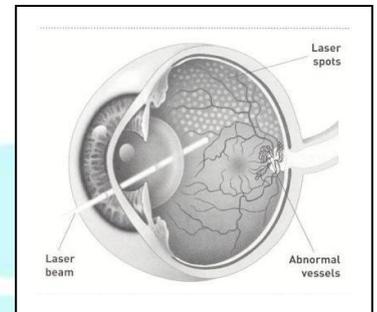
#### Introduction

The word LASER stands for “Light Amplification by Stimulated Emission of Radiation.” Laser is a mechanism that emits a small concentrated beam of light which is converted into heat or thermal or mechanical energy, achieving a therapeutic effect.

#### Outcomes

The expected outcomes of this operation are determined on different indications. In the eye, laser is commonly used to:

- Seal blood vessels to stop bleeding or leakage of fluid
- Bond the retina to the back of the eye (e.g. seal off retinal holes before the retina is actually detached)
- Create an opening in the iris for treatment of narrow angle glaucoma
- Open the eye’s filtration system for glaucoma treatment
- Destroy of part of the ocular structure responsible for aqueous production to lower the intraocular pressure for better glaucoma control
- Create an opening in the posterior capsule of the lens for treatment of posterior capsular opacification
- Destroy abnormal tissue such as some form of intraocular tumours
- Cuts or sculpt the tissue, or to change the shape of tissues e.g. corneal surface.



Source:  
<http://www.canovision.com/info/laser.htm>

#### Laser Surgery in Eye Diseases

##### 1. Retinal Diseases

###### 1.1 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 bond the retina to the wall of the eye to prevent detachment.
- Laser will not decrease the symptoms of floaters as the purpose of performing laser is to secure the retina.

###### 1.2 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 on the retina. These vessels are brittle and may leak fluid (macular edema) or bleed inside the eye leading to swelling of the macula and bleeding in the vitreous.
- Laser is used to seal the leaking blood vessels and reduce macular edema to prevent further vision loss. However, laser itself cannot improve vision. It only aims to slow or stop abnormal blood vessels growth to reduce the chance of bleeding inside the eye. Usually more than one laser session is required.

###### 1.3 Macular degeneration

- The macula is the small, central area of the retina that allows us to see fine details clearly. Macular degeneration causes blurring or distortion of central vision.
- “Wet” macular degeneration is related to the growth of 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.

Other retinal problems that can be treated with laser include:

- 1.4 Retinal vein occlusions
  - 1.5 Central serous retinopathy
  - 1.6 Some types of tumors of the eye
2. **Glaucoma:** Glaucoma damages the optic nerve, usually due to elevation of fluid pressure inside the eye. Further vision loss may be prevented or slowed down if the problem is treated before severe damages occur in the optic nerve. Laser may be used to lower the pressure; such procedures include 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. YAG laser can be used to open up the cloudy membrane and restore clear vision.
  4. **Oculoplastic Surgery:** Laser can be used to treat certain eyelid diseases and lacrimal drainage problems.

## **Possible Risks and Complications**

### **Laser Surgery in Retinal Diseases**

1. Deterioration in vision, dimming of vision, and visual field defects
2. Loss of accommodation or refractive error changes
3. Bleeding in the retina or vitreous
4. Accidental burn to macula and optic nerve leading to visual loss
5. Enhance growth of retinal fibrous tissue
6. Retinal detachment
7. Blindness

### **Laser Surgery in Glaucoma**

1. Transient blurring
2. Transient elevation of eye pressure
3. Retinal detachment
4. Glare and seeing double or multiple images
5. Injury to the cornea or lens
6. Bleeding
7. Iritis
8. Hypotony
9. Blindness

### **Laser Surgery after Cataract Surgery**

1. Transient elevation of eye pressure
2. Retinal detachment
3. Macula edema
4. Damage to the intraocular lens producing glare and seeing multiple images
5. Intraocular lens subluxation / dislocation (rare)

\*\* The risks listed above are in general terms and the possibility of complications is not exhaustive. Please understand that even though all operations are carried out with utmost professionalism and care, this does not rule out the possibility of complications arising.

## **Pre-operative Preparations**

1. Good hygiene can prevent infection.
2. The procedure and possible complications will be explained by the doctor and a consent form must be signed prior to the operation.
3. Please inform the doctor and nurse all your past medical history, previous surgical operations, current medication and any complication with drug or anaesthesia.
4. No food or drink six hours before operation. (Depend on the type of surgery)
5. Please change into a surgical gown after removing all clothing including undergarments, dentures, jewellery and contact lenses. Do not put creams, lotions, or makeup on the face or around the eyes.
6. Please empty your bladder before the operation.
7. Pre-medication and prescribed eye drop or ointment may be given as doctor's prescription.

## **Post-operative Instructions**

### **General**

1. After general anaesthesia, you may:
  - experience discomfort in the throat after tracheal intubation.
  - experience side effects of anaesthesia includes feeling tired, drowsy, nausea or vomiting. Inform the nurse if symptoms persist or worsen.
2. Please inform the nurse of wound pain. Proper pain relief treatment by injection or oral medication may be prescribed by the doctor.

### **Wound Care**

1. The eye is usually patched with eye pad overnight.
2. You should use the eye drops or ointment as prescribed by the doctor.
3. Rubbing or getting water into the affected eye(s) should be avoided.
4. You are advised to wear clothing with buttons instead of pullovers to avoid contact with the affected eye(s) and causing infection.

### **Diet**

A normal diet may be resumed as instructed after recovery from anaesthesia.

### **Advice on Discharge**

1. Please use medication as prescribed by the doctor.
2. Getting water, soap or shampoo into the operated eye should be avoided.
3. Please avoid wet hair washing in the first post-operative week to prevent infection.
4. It is advisable to have adequate rest after laser treatment and avoid eye contusion. At least 12 weeks, please avoid swimming, contact sports and high platform diving (especially for patients with retinal tears) after laser treatment.
5. Laser treatment is not 100% effective and safe. After laser surgery, regular follow up is required to look at the treatment results and to monitor for possible complications. Some patients may need more than one session of laser treatment.
6. In most situations, laser surgery helps to control the disease and prevent further loss of sight, but it cannot improve or restore vision already lost.
7. Immediately consult your doctor or return to hospital for professional attention in the event of experience acute symptoms like persistent fever, sudden eye pain, abnormal discharge from an affected eye or blurring of vision after laser treatment.
8. Any follow-up consultations should be attended as scheduled.

Should there be any enquiries or concerns, please consult the attending doctor.

Under the professional care of the doctor, you will gradually recover. We wish you all the best during your treatment and recovery.

If you have any questions after reading the entire leaflet, please write them down in the spaces provided in order for the doctor to further follow-up.

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Compiled by Union Hospital Operating Theatre (OT) Governance Committee

The above information is for reference only, please enquire your physician for details  
Our Hospital reserves the RIGHT to amend any information in this leaflet without prior notification

