

# Retinal Detachment

To be read together with the information leaflet for vitreoretinal surgery

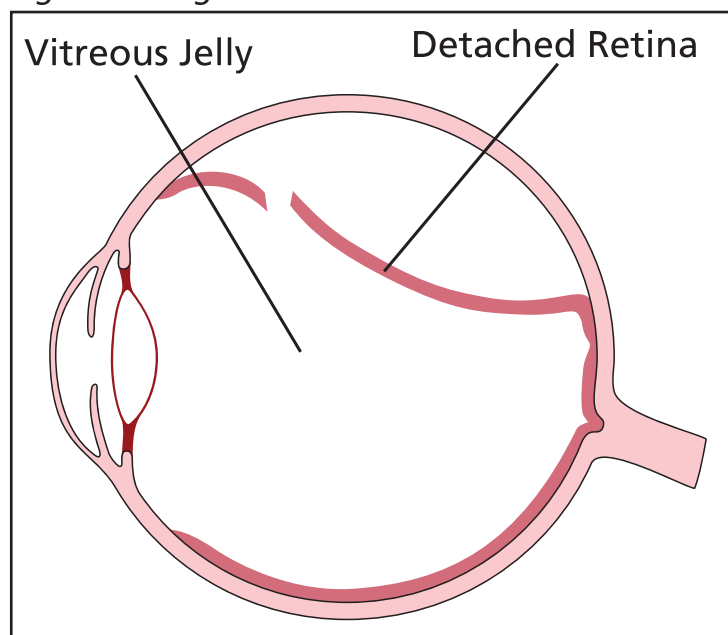
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## What is a retinal detachment?

The retina is a light-sensitive nerve layer that lines the inside of the back of the eye. It sends messages to our brain via the optic nerve telling us what we are seeing. If the eye were a camera the front part would be like the focusing lens and the retina would be the film at the back. When the retina becomes separated from the back of the eye it is said to be 'detached' (figure 1) and is unable to function. Retinal detachment is a serious condition which can lead to blindness in the affected eye if left untreated. Retinal detachment affects around 1 in 10,000 people each year.

Figure 1. Diagram of a Retinal Detachment



### Risk factors for retinal detachment

- Increasing age
- Myopia (short-sightedness)
- Retinal detachment in the fellow eye
- Family history of retinal detachment
- Trauma
- Cataract surgery

## Causes of retinal detachment

Most retinal detachments are caused by a tear or hole in the retina. This allows fluid to pass through between the retina and the underlying layers breaking the suction that normally holds the retina in place. Tears most commonly occur spontaneously and are due to the jelly (vitreous) in the eye pulling on the retina. Occasionally this can follow trauma or cataract surgery. Other causes of retinal detachment include severe diabetic eye disease and rare inflammatory eye conditions.

## Symptoms of retinal tear & detachment

Retinal tears or holes may bleed at the time they occur. This will usually cause a sudden onset or 'shower' of floaters – blobs, streaks or specks floating around in the vision of one eye. They may be grey, black or red and can represent blood in the vitreous jelly. These symptoms usually occur before retinal detachment develops. Sometimes flashes of light may also be seen in the affected eye.

When the retina detaches, a corresponding area of vision is lost in that eye. This appears as a dark or grey shadow progressively enlarging from the edge of your vision. As the detachment spreads so does the shadow until the centre of the vision is affected. At that stage the central vision may become distorted (bent). Some patients describe an appearance like "oil on water". Ultimately the entire retina may detach, resulting in complete loss of sight in the affected eye.

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## Treatment of retinal tears

If one or more retinal tears is found before retinal detachment develops, it may be suitable for laser treatment (*Fig. 2*) or cryotherapy (*Fig. 3*) to seal the tear and prevent retinal detachment. Both procedures are quicker and simpler than a retinal detachment operation, so treatment of a tear before retinal detachment occurs is desirable. Neither procedure guarantees prevention of retinal detachment, and you should report worsening or new symptoms immediately. You will normally be reviewed within a week or so to ensure adequate treatment of the tear or tears. In general, retinal tears usually need treatment.

Laser treatment is delivered to the retina by a light shone through the pupil – similar to the examination of your eye in clinic. You may have some discomfort during the procedure. Cryotherapy is a freezing treatment delivered to the retina through the outside wall of the eye by a special instrument or 'probe' while the ophthalmologist is viewing the retina through the pupil. A local anaesthetic is given for laser and cryotherapy.

Figure 2. Laser treatment for Retinal tear

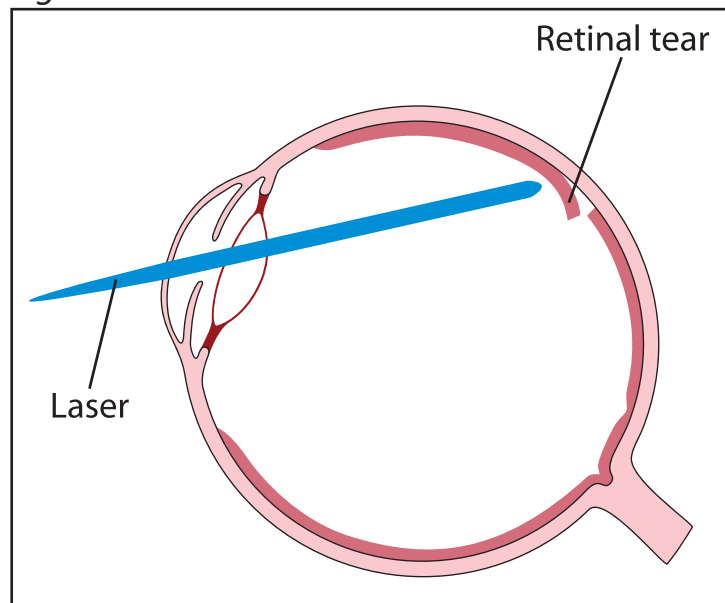
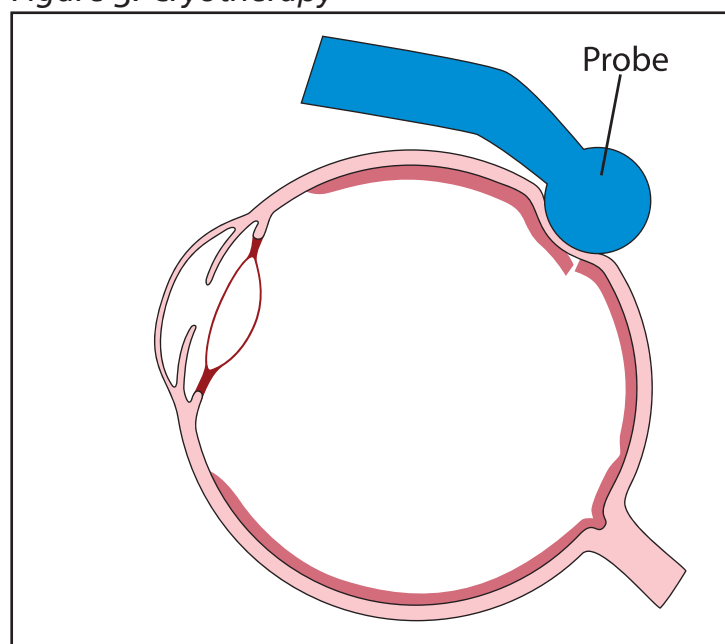


Figure 3. Cryotherapy



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## Treatment of retinal detachment

Occasionally a longstanding retinal detachment can be observed without treatment, but most cases will require surgery to prevent permanent visual loss. Retinal detachment surgery is performed in a specialist centre by ophthalmologists trained in retinal surgery. In many cases the surgery is urgent.

Figure 4. Scleral Buckle

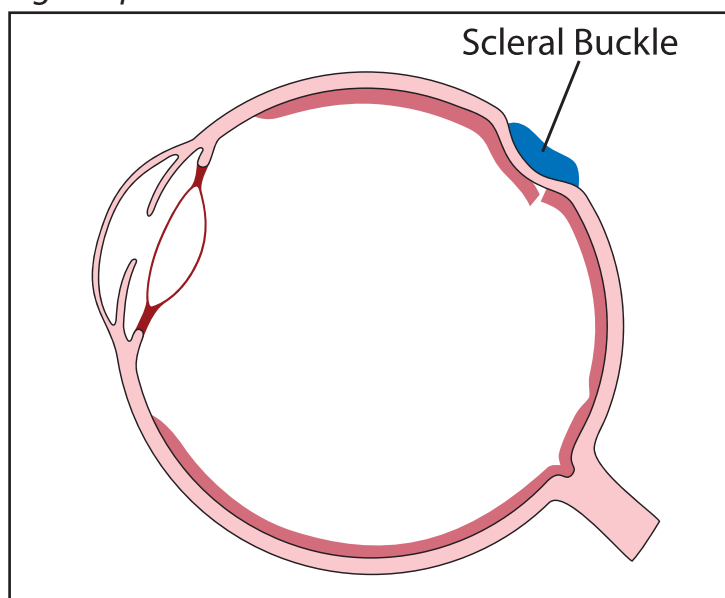
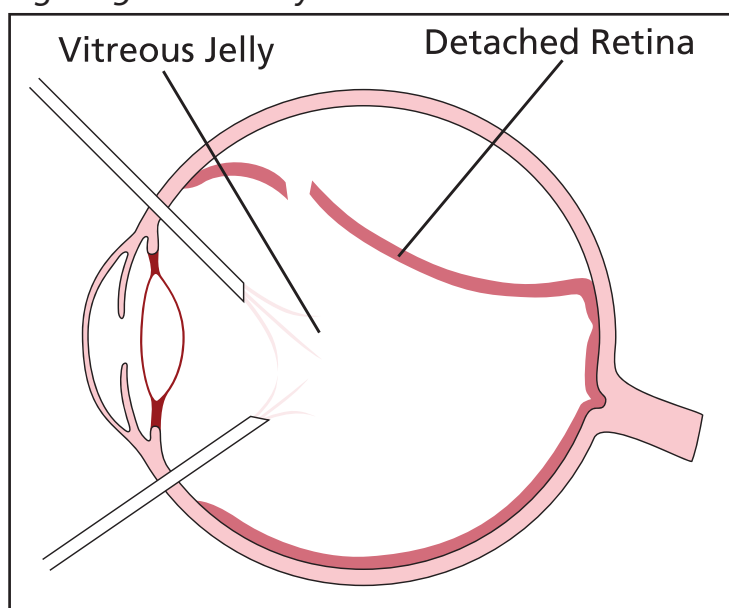


Figure 5. Vitrectomy



The choice of the type of surgery is complex and depends on the individual situation. In general there are two main approaches: Scleral buckling (*Fig. 4*) or vitrectomy (*Fig. 5*).

Sometimes the two are combined. Your retinal surgeon will inform you of the most suitable approach for your circumstances.

Scleral buckling surgery involves sewing a silicone band or 'buckle' to the outside of the eye in the area of retinal detachment. This indents the wall of the eye and enables the retina to flatten. The buckle is not visible to other people as it is under the skin of the eye and is usually permanent. Sometimes the surgeon will inject a gas bubble into the eye to help the retina to flatten.

Vitrectomy is an operation to remove the vitreous jelly through tiny incisions in the white of the eye. The jelly is eventually replaced by the body's own clear fluid. The retina is flattened and the tears treated with laser or cryotherapy. At the end of the operation, the vitreous cavity is filled with gas or silicone oil. The gas is slowly absorbed by the eye and replaced with fluid. Silicone oil is commonly removed in 3 to 6 months but in some cases is left in the eye long term.

Pneumatic retinopexy is a third option for retinal detachment repair which is suitable for a few selected cases. It combines cryotherapy (freezing the retinal tear) with injection of a gas bubble, without removal of the vitreous or use of a scleral buckle. Strict postoperative positioning (see below) is critical to the success of this procedure.

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## After the surgery

Please also refer to the patient information leaflet on vitreo-retinal surgery for advice on post-operative care.

### Important Posturing Information

The use of a gas bubble is very common with retinal detachment surgery and the success of the operation is dependent upon positioning yourself correctly as instructed by the surgeon.

The gas bubble in the eye after vitrectomy will blur the vision a great deal. This bubble will gradually shrink and you will see a fluid level coming down from the top of your field of vision. Eventually you will see over the bubble and it will continue to shrink, sometimes breaking up into a cluster of smaller bubbles at the bottom of your vision before going completely. It is replaced by your own body fluid. This process takes between a week and 2 months depending on the type of gas used.

Silicone oil does not blur the vision as much as gas in the eye, and you will not see a fluid level as the oil does not disappear. The oil does however affect focusing, especially if you have not had previous cataract surgery. The oil will often be removed at a later date depending on the circumstances.

## If you have a Gas Bubble in your eye

It is vital that you do not fly or rapidly ascend to high places (over 1000 ft) when there is a gas bubble in the eye. This leads to expansion of the bubble causing very high pressure in the eye which can result in permanent blindness. SCUBA diving must be avoided.

You should leave hospital with a wrist band stating that there is a gas bubble in the eye. This will also alert an anaesthetist in case you require a general anaesthetic for another reason – the anaesthetist will know to avoid using nitrous oxide gas, which can also cause expansion of the gas bubble in the eye. Dentists also occasionally use this gas for pain relief.

The wrist band should not be taken off until the bubble of gas has gone from your eye. The band will usually be removed by your ophthalmologist at a clinic visit when the gas has gone. If you are unsure if you have a gas bubble in your eye, please ask your doctor.

## What is the likely outcome of the surgery?

Between 80 and 90% of retinal detachments will be successfully treated with a single operation. The remaining patients may require further surgery to correct the problem. Overall 95% of retinal detachments can be eventually re-attached and some vision restored.

The main factor determining the quality of your eye's vision after surgery is damage to the macula, the central part of the retina. If the macula is detached prior to surgery the eye will usually not regain the fine detailed vision required for reading small print and seeing small objects. Eyes that have had longstanding, extensive retinal detachments may have very limited vision even after successful reattachment of the retina.

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## Risks of the surgery

Most retinal detachments will cause blindness if left untreated. However all operations on the eye carry risks of complications including infection or bleeding which, when severe, can cause profound loss of vision in that eye. Fortunately these severe complications are rare (between 1 in 500 and 1 in 1000 operations). Other complications can occur including cataract and glaucoma, depending on the situation and type of surgery used. Very rarely retinal surgery on one eye may cause inflammation in both eyes but this is treatable. The potential risks relevant to your surgery will be discussed with you in detail before your operation. You should be satisfied that these have been explained to you, and that you understand them, before you sign the consent form for your operation.

Specific risks of scleral buckle surgery:

- Double vision,
- Near-sightedness,
- Infection or
- exposure of the buckle.

Rarely these require removal of the buckle.

## Problems

Watch out for signs of a problem after the operation. The main symptoms to be aware of are:

- Severe pain
- Worsening of your vision
- A shadow (other than the gas bubble) appearing at the side of your vision

These are not expected, and indicate a problem which may be serious. You should contact the hospital emergency department through switchboard urgently: (02) 93827111. It is important to explain that you have had recent surgery at the Hospital.