

Information for patients and carers

Macular Hole



What is a macula?

The back of the eye has a light sensitive lining called the retina, which acts like a film in a camera. Light is focused through the eye onto the retina, allowing us to see. The central part of the retina is called the macula, it is here that the light must be focused for us to see the fine detail and be able to read and see in colour.

What is a macular hole?

A macular hole is a small, circular gap which opens at the centre of the retina. This causes blurred vision and often distorted vision where straight lines or letters look wavy or bowed. There may also be a patch of missing vision at the centre.

Is a macular hole the same as age related macular degeneration?

No, macular holes and macular degeneration are different conditions although they affect the same area of the eye. Sometimes both can be present in the same eye.

Why does it happen?

We do not know why macular holes develop. They most often occur in people aged 60-80 years old and are twice as common in women as men.

Macular holes may also be caused by severe trauma to the eye, by being very short sighted (myopic), by retinal detachment, or because of longstanding swelling of the central retina (cystoid macular oedema).

What would happen if I did not have my macular hole treated?

If untreated, there is a small chance that some macular holes can close spontaneously, with improvement in vision. In most patients, the central vision may gradually get worse to a level where the patients are unable to read even the largest print on an eye test chart. The condition does not affect the peripheral vision, and so patients will not go completely blind from this condition.

Can I develop a macular hole in the other eye?

Careful examination can assess the risk of developing a macular hole in the other eye. Your surgeon will tell you your risk, but this may be from extremely unlikely to 1 in 10 chances. It is very important to monitor for any changes in vision of the fellow eye, and report these to your eye specialist/family/doctor/optician urgently.

What is the treatment and how successful is it?

A macular hole can often be repaired by an operation called a vitrectomy peel and gas. If the hole has been present for less than a year, the operation will be successful in closing the hole in about 90% of the cases. Of these, more than 70% will be able to see two or more lines down a standard vision chart, compared to before the operation. Even if this degree of improvement does not occur, the vision is at least stabilised, and many patients find that they have less distortion. In a minority of patients, the hole does not close despite surgery and the central vision can continue to deteriorate, however a second operation can still be successful in closing the hole. It is important to understand that return to completely normal vision is not possible.

Why does it matter how long I have had the macular hole if I am interested in having surgery done?

Studies have shown that vision improvement may be possible in some patients with long standing macular holes, but there is evidence that relatively early treatment (within months) gives a better outcome in terms of improvement in vision.

What does the operation involve?

Macular hole surgery is a form of keyhole surgery performed under a microscope, using 3 small incisions (1-2 mm size) in the white part of the eye for insertion of very fine instruments. Firstly, the vitreous jelly is removed (vitrectomy), and then a very delicate layer (the inner limiting membrane) is carefully peeled off the surface of the retina around the hole to release the traction forces that keep the hole open. The eye is then filled with a temporary gas bubble, which presses against the hole to help to seal it. The bubble of gas blocks the vision whilst it is present, but slowly disappears over a period of 6-8 weeks.

How long does the operation take and will I need a general anaesthetic?

Macular hole surgery usually takes 45-90 minutes and can be done with the patient awake (local anaesthetic), or asleep (general anaesthetic), often as a day case procedure. Most patients opt for a local anaesthetic which involves a numbing injection around the eye so that no pain is felt during the operation: this is sometimes supplemented with medication to reduce anxiety (sedation).

What is facedown posture and will I need to do it after the operation?

There is evidence that facedown posturing improves the success rate for larger holes but may not be needed for smaller holes. The aim of posturing is to keep the gas bubble in contact with the hole as much as possible to encourage it to close. Whether you are required to posture, and for how long, will depend on the size of the macular hole and the preferences of your surgeon.

If you are asked to do face down posture, your head should be positioned so that the tip of your nose points straight down to the ground. This could be done sitting at a table or lying flat on your stomach on a bed or sofa. You should try to remain in this position for usually 45 minutes in each hour for the duration advised (usually 2-5 days after the operation) A short break of 10-15 minutes can be taken every hour to allow eating and trips to the bathroom etc.

If facedown posturing is not prescribed, you may instead be advised not to lie on your back for two weeks after the surgery. Some surgeons may recommend sleeping in a chair, or at 45 degrees in a bed supported by pillows for the same period.

Am I able to travel after macular hole surgery?

You must not fly, or travel to high altitudes on land for 12 weeks whilst the gas bubble is still in the eye. If you do so, the bubble will expand at altitude, causing very high pressure which will result in severe pain and permanent loss of vision. In addition, if you need a general anaesthetic whilst gas is in your eye, then it is vital that you tell the anaesthetist this fact, so they can avoid certain anaesthetic agents, which can cause similar expansion of the bubble. None of these exclusions apply once

the gas had fully absorbed. You will notice the bubble shrinking and will be aware when it has completely gone.

What are the potential complications of macular hole surgery?

There are risks involved with any procedure and you should discuss these fully with your consultant prior to your operation, however it is unlikely that you will suffer harmful effects from a macular hole operation. In a small minority, the vision may end up worse than before the surgery, and there is even a tiny chance of total loss of sight. There are six specific complications of macular hole surgery, which you must be aware of and are as follows:

- Failure of the macular hole to close: this occurs in 1 out of 10 patients. In most circumstances, it is possible to repeat the surgery, If the hole fails to close, then the vision may be a little worse than prior to the surgery
- Cataract: this means that the natural lens in the eye has gone cloudy. If you have not already had a cataract operation, you will almost certainly get a cataract after the surgery, usually within a year but it can happen rapidly. A cataract is inevitable, you may be offered combined surgery with cataract extraction at the same time as the macular hole repair
- Retinal detachment: the retina detaches from the back of the eye in 1-2% of the patients undergoing macular hole surgery. Most retinal detachments are repaired, but further surgery is required, and this can be a potentially blinding complication
- Bleeding: this occurs very rarely, but severe bleeding within the eye can result in blindness

- Infection: this is also very rare and would be expected to occur in about 1 in 1000 patients, but if it occurs needs further treatments and can lead to blindness
- Raised pressure: an increase in pressure within the eye is quite common in the days after macular hole surgery, usually due to the expanding gas bubble. In most cases it is short-lived and controlled with extra eye drops and or tablets to reduce the pressure, preventing any harm coming to the eye. If high pressure is extreme or becomes prolonged, there may be some damage to the optic nerve consequently. In the majority, this damage does not adversely affect the vision, but some patients require long term treatment to keep the eye pressure controlled

Will I have to use eye drops after the operation?

Three types of drops are usually prescribed after surgery: an antibiotic, a steroid and pupil-dilating agent. Patients are seen in the clinic on day one after surgery and around two weeks after surgery. If all is well, then the drops can be reduced over the following 2-4 weeks. If the eye pressure is raised following surgery, additional eye drops and/or tablets may be prescribed to treat this.

When will I need to be seen again after surgery?

Post-operative review is usually performed the next day, then 1-2 weeks after surgery and around 6 weeks later providing all is well.

How much time will I need off work?

Most people will need two weeks off work. Your vision is reduced while the gas bubble is in the eye, and this also affects depth perception.

However, it depends on the type of work you do and the speed of recovery. This should be discussed with your surgeon.

Will I have to get my glasses changed?

Most people will need to change their spectacles prescription at some point after surgery. This would normally be around 3 months following the operation, after the gas bubble has gone. As each case is different, please check with your surgeon before visiting an optician.

Contact details

Eye Triage telephone: **01257 245346**

Sources of further information

www.lancsteachinghospitals.nhs.uk

www.nhs.uk

www.accessable.co.uk

www.patient.co.uk

Information taken from and adapted from:

BEAVRS British and Eire Association of Vitreoretinal Surgeons (2024)

The RNIB have further information on macular holes, especially some practical advice: telephone helpline **08452412041**.

www.rnib.org.uk

www.macularsociety.org

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