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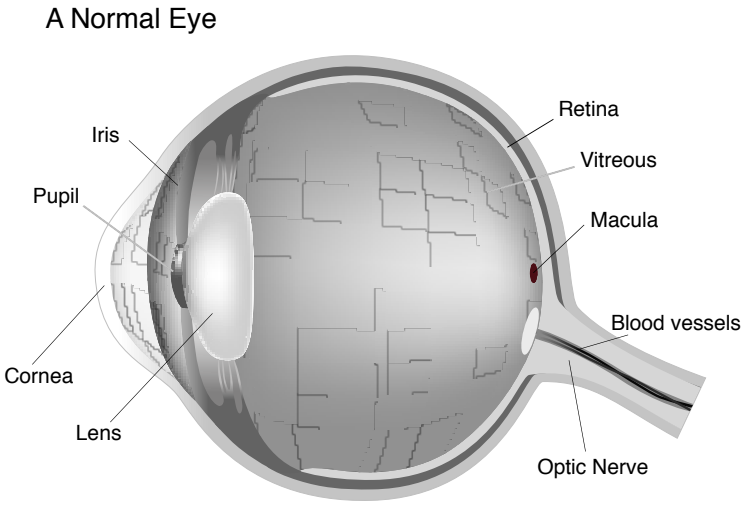
Patient Information: Macular Holes

What is the macula?

The retina lines the inside of the back of the eye. It works a bit like the film in the back of a camera, absorbing light to form an image of the outside world. The most important part of the retina is the macula - this is the part of the retina that the light is focused on. The macula gives the central vision that is important for fine visual tasks such as reading and driving.



What are macular holes?

As the name suggests, a macular hole is a hole in the macula. Macular holes usually produce blurred or distorted vision.

What is the treatment for macular holes?

There are currently two main management options – observation or eye surgery.

Observation

The vast majority of macular holes need treatment, but not all. Very early macular holes may sometimes get better and therefore treatment may not be necessary. Also, some longstanding macular holes respond poorly to treatment and so intervention may not necessarily be justified. Without surgery, most established macular holes remain much the same. They do not go on to cause total loss of vision, but central vision remains blurred.

Some macular holes are not “full-thickness”. This means the hole does not go fully through the macula. These “partial-thickness” or “lamellar” holes may or may not need surgery.

Macular hole surgery

For most patients the best chance of visual improvement is with an eye operation called vitrectomy, internal limiting membrane (ILM) peel and gas.

Dealing with each surgical step in turn. Vitrectomy involves a microsurgical procedure to remove the clear gel that fills the eye (the vitreous). This gel is 99% water and the body will refill the eyeball with water again after surgery. Internal limiting membrane peel involves removal of the very fine innermost layer of the macular - this is thought to promote closure of the macular hole. Lastly, a temporary gas is injected into the eye, to help close the hole. This gas will gradually be absorbed into the body and replaced with your body’s natural fluid.

The operation can be performed under a local anaesthetic (awake, but with an injection to numb the eye), light sedation (awake, but with intravenous medication to relax you and reduce awareness) or general anaesthetic (asleep). It takes about 45-60 minutes.

What are the potential benefits of macular hole surgery (vitrectomy)?

In about 80-90% of patients the macular hole closes after surgery. Macular holes present for more than a year have lower success rates, for example, those present for more than a year may have a success rate of about 50%. About two-thirds to three-quarters of patients experience a useful improvement in vision but few obtain 100% normal vision. If the hole fails to close after the first operation it is usually possible to re-operate. The second operation is technically simpler as the vitreous and ILM have already been removed, but the success rate for repeat surgery is lower than the first operation.

What are the risks of surgery?

All eye operations carry a small risk of loss of vision and further surgery. Serious, sight-threatening complications such as bleeding or infection inside the eye are thankfully extremely rare and occur in only about 1 in 500 patients.

In those who have not previously had cataract surgery the macular hole surgery is likely to cause a cataract that will require cataract surgery within the next few years. One option is therefore to do cataract surgery together with macular hole surgery. Further details about cataract surgery are available in a separate patient information leaflet.

Other complications such as tears in the retina or retinal detachment occur in less than 5% of cases but they can usually be treated, albeit with further surgery and a risk of loss of vision.

Retinal tears detected at the time of surgery, or weak spots in the retina, are usually treated during surgery using a freezing probe (cryotherapy) or laser (retinopexy) and tend not to cause any problem or affect the outcome.

Eye pressure is often high or low after surgery, but this is essentially a normal post-operative feature. Low pressure usually resolves without treatment within a few days. Likewise, high eye pressure usually resolves over time, but it may require some extra eye drops to control the pressure, typically for a few days or weeks.

How do I prepare for surgery?

If you take medications to thin your blood such as warfarin, clopidogrel, aspirin or rivaroxoban please tell Professor Jackson in advance of surgery. Sometimes (though not usually) you may need to stop these medications, or reduce the dose, before your eye operation.

You should continue all other medications as normal, including on the day of surgery. If you take regular eye drops these should usually continue before and after surgery, including on the day of surgery, but please check with Professor Jackson. Avoid eye makeup on the day of surgery.

If you are having the operation under local anaesthetic you can eat and drink normally, but please avoid alcohol and heavy foods.

If you are having a general anaesthetic *you need to stop eating and drinking 6 hours before surgery, with the exception of still water which you can drink until 2 hours before surgery*.

How long will I be in hospital?

The operation takes about an hour, but the whole process takes about 3-4 hours. Before surgery you will be checked-in by the nursing team, including some health checks such as blood pressure. The nurses will either instill a small pellet in your eye, or give you a series of eye drops over the course of an hour, to dilate your pupils. After surgery the nursing team will give you time to recover, and ensure you are fit to go home.

Assuming your vision is sufficient in the unoperated eye, you can head home by yourself in a taxi, but ideally you should ask someone to collect you after surgery and escort you home. If you have had sedation or a general anaesthetic you will need someone to escort you home and you should have someone remain with you for 24 hours.

The operation does not require you to stay in hospital overnight although some patients elect to stay one night. Patients are typically seen a day or two after surgery, and then at about 1 week, and 1, 3 and 6 months after that.

What happens during surgery?

Professor Jackson will usually see you briefly before surgery. If you have any questions or concerns, please raise them. He will draw a small mark on your forehead above the eye that is undergoing surgery, to confirm the correct side.

If you are having a local anaesthetic, the anaesthetist, or sometimes Professor Jackson, will give you the local anaesthetic injection around your eye before surgery commences. This stings for a few seconds as the anaesthetic goes in, but thereafter your eye should be comfortable. Professor Jackson will usually warn you if anything uncomfortable is to be expected, as there a few points in the operation when you may briefly feel some discomfort. If your eye is painful, let Professor Jackson know, as he can easily top-up the anaesthetic.

Professor Jackson will clean around your eye with iodine (if you have an iodine allergy let Professor Jackson know in advance of surgery). Don't worry if you can feel this, as the anaesthetic aims to numb the eye more than the skin around it. For surgery you will lie flat on your back with a sterile cloth draped over your face. It can feel a bit claustrophobic as the drape is initially placed over your face, but Professor Jackson will lift it off your face as much as possible. There will be oxygen pumped under the drape so even if it feels a bit stuffy, there will be plenty of air to breath.

As the eye is anaesthetised you do not need to worry keeping your eye still or blinking during surgery. However, you should try and keep you head and gaze still during the operation and try not to speak, unless you need to raise a concern. If you feel a cough or sneeze coming, let Professor Jackson know.

You will often feel water running down the side of your face and your hair may get wet during the operation. You will hear what is going on in theatre and Professor Jackson will speak to you at certain points in the operation. You may see light, but you will not see the instruments or the operation itself.

How do I care for my eye the morning after surgery?

You will have a plastic shield covering the eye, and a soft pad underneath that. You should remove both the morning after surgery. Discard the soft pad but keep the plastic shield and tape it onto the eye at night for a week, to avoid banging your eye in your sleep. Orient/position the shield as it was the night after surgery. After the first night you will not need anything covering the eye by day.

When you remove the pad and shield you may find that your eyelids are stuck together with dried bloody tears. This is normal, as are a few bloody tears escaping from under the eye pad (for this reason sleep on a pillow that you don't mind getting slightly stained with blood). If needed, you can use some sterile saline or cooled boiled water and clean tissue or gauze to moisten the lids to help prise them gently apart.

Following surgery you will be given eye drops to use in the operated eye for a few weeks. These will help the eye recover from surgery and reduce the risk of infection. These commence the morning after surgery, after removing the eye pad.

Most commonly, Professor Jackson prescribes Maxitrol eye drops four times daily for one week after surgery, then reducing to three times daily for one week, then twice daily for one week, then stop; and Cyclopentolate (also called Mydrilate) three times daily for 10 days.

What will my eye and vision be like immediately after surgery?

It is normal for your eye to have some bruising following surgery. This bruising can affect the skin around the eye, but also the white of your eye might be bright red from blood under the skin of your eye. Like all bruises, this will gradually change colour and fade over the next few days

Your eyelid may be a bit droopy from the anaesthetic. Your eye may also be a bit tender and gritty. If so you can take your usual painkillers (paracetamol or ibuprofen). If the pain does not settle or you have severe pain or ache inside the eye (rather than irritation on the surface of the eye) please call Professor Jackson.

Expect your vision to be very blurred the day after surgery. Your vision will remain blurred until the gas bubble goes, in about 2-8 weeks. You should be able to vaguely see your hand moving in front of your eye, and be able to tell light vs dark (if you cannot please let Professor Jackson know immediately), but do not expect to see much more than this. You will see the bubble of gas moving in your eye. Most patients describe it as a very strange visual experience. As the gas bubble gets smaller the area you can see increases.

If you experience any of the following you should contact Professor Jackson without delay on 020 7060 1968 (NB. Out of office hours, the voice message will give an emergency mobile phone number for you to call):

- moderate to severe, or worsening pain
- increased redness or feelings of pressure in or around the eye
- rapid deterioration of vision

If your surgery was at The London Clinic you can also contact Matron's Office out of hours via the switchboard 020 7935 4444 and they will advise and contact the doctor for you.

If you cannot contact Professor Jackson for any reason you should attend a walk-in eye emergency clinic, such as Moorfields Eye Hospital or the Western Eye Hospital.

Can I resume normal activities after surgery?

Gas bubble and head positioning (posturing)

You are likely to be advised to assume a face down position after surgery, to float the gas bubble onto the macula. The benefit (or not) of face down posturing is hotly debated amongst retinal surgeons, particularly for small holes. Given that head positioning may help close the macular hole Professor Jackson does usually advise posturing, but this is very much your choice.

If you choose to posture, then you should be face down for 50 minutes out of every hour, by day, for five days. You might like to alter the timings, for example, be face down for twice the time (100 minutes) and take double the break (20 minutes). You do not need to posture overnight, although it might increase the chance of success if you do so for the first night, and if you can, avoid sleeping on your back (accepting that when asleep you will have little control over your head position).

There are head supports available to rent from private companies and these may make it easier to position face down. However, it may be more comfortable to mix and match how you posture, to vary the position of your body. For example, you might spend some time lying face down in a bed with your head in a pillow, and some time sitting in a chair with your head on your crossed arms resting on the top of a table. Some people sit on the sofa with their head in their lap (on a pillow) and a mirror by their feet, so they can watch television.

Using your other eye will not strain or damage either eye.

For the time you are not posturing try and move around a bit, as keeping still for too long may risk you developing a clot in your legs (DVT).

Flying after surgery

It is very important that you *do not fly whilst you have a bubble of gas in your eye*, as it will expand at altitude and can seriously damage your eye. Likewise, avoid high altitude (such as mountain passes) until the gas leaves the eye. If you have a general anaesthetic you should inform the anaesthetist that you have gas in your eye, as it will alter the anaesthetic gases that they can use.

Other daily activities

Aside from when you are posturing, you can do most normal daily activities although you should avoid unhygienic environments and swimming for two weeks. If you want to swim thereafter, wear swimming goggles or keep your eye out of the water for a month after surgery. You can shower and bath as usual, but avoid water going into your eye for a month. Avoid very vigorous exercise and intense straining for two weeks, but gentle exercise is allowed. Look out for injury to the eye. Also be sure to take extra care when carrying out everyday tasks, such as using steps or pouring hot drinks, as you may find it difficult to judge distances until the vision recovers. Do not drive until you are told it is safe to do so.

Most people will need about two weeks off work after surgery. The amount of time off work will depend on the kind of work you do. If you want to return to work sooner it is unlikely to harm your eye, but you may not feel well enough to work for about two weeks.

Any further questions?

Professor Jackson will go through the pros and cons of surgery at your consultation, but if you have any further questions please do not hesitate to book a further appointment or call our office on 020 7060 1968. It is important that you understand the risks, benefits and alternatives to surgery so please do not hesitate to ask questions.