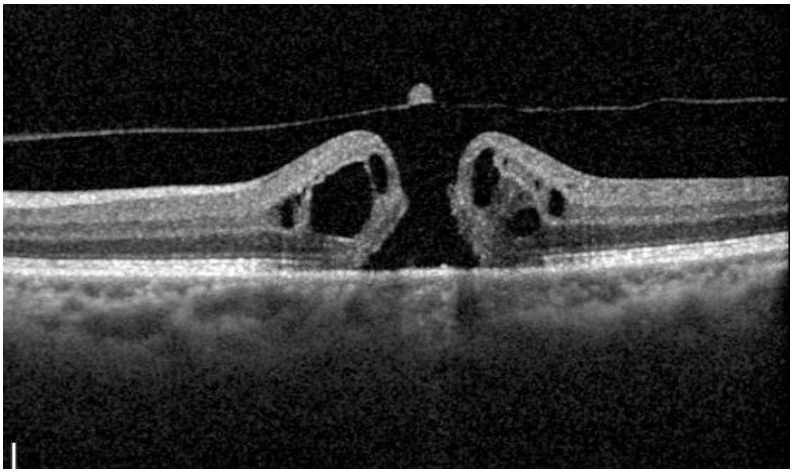
Moorfields Eye Hospital NHS Foundation Trust

Patient Information Leaflet

Macular Hole



Your guide to Macular Hole Surgery

This leaflet gives you information about a macular hole and the surgery to treat it. It should answer some of your questions. You might want to talk about this information with a family member or carer.

If you decide to have surgery, we will ask you to sign a consent form. It's important that you understand everything in this leaflet before you agree to go ahead. If you have any questions, please write them down so you remember to ask one of our staff.

What is macular hole?

Imagine your eye is like a camera. The **retina** is like the photographic film at the back of the camera. It's a very thin layer of tissue that picks up images and sends them to your brain, allowing us to see.

At the very centre of the retina is the **macula**. This is a special area we use for seeing fine detail, like when you're reading or recognising faces.

A macular hole is a small hole or tear in the centre of the macula. This stops the macula from working normally. It affects your central vision, particularly for reading and other tasks that need sharp sight.

A macular hole does not cause total blindness. It only affects your central vision. Your side (peripheral) vision will not be affected.

What causes a macular hole?

Most macular holes happen as part of the eye's natural ageing process. The jelly-like substance that fills the inside of your eye is called the **vitreous gel**. As we get older, this gel can shrink and pull away from the retina. Sometimes, it pulls too hard on the macula, causing a tiny hole to form.

Macular holes are more common in people over 60 and are twice as likely to affect women. In about 1 in 10 cases, it can affect both eyes.

Less commonly, macular holes can also form after:

- An eye injury or trauma
- Severe short-sightedness (high myopia)
- Swelling (inflammation) inside the eye
- Other eye conditions, such as diabetic eye disease.

How might a macular hole affect my vision?

Macular holes often start slowly. In the early stages, you might notice:

- **Slight blurring or fogginess** in the centre of your vision.
- **Distorted or wavy vision:** Straight lines or letters might look bent or crooked.
- **Difficulty reading:** Especially small print, or you might find letters are missing.
- A **dark or blind spot** in your central vision as the hole gets bigger.

How is macular hole treated?

The only way to treat a macular hole is with an operation. **Eye drops, lasers, or glasses will not close a macular hole.**

Sometimes, a very small macular hole might close on its own, or with an injection into the eye, but this is not common. Your eye doctor will help you decide if surgery is right for you. If your symptoms are mild and not affecting your daily life, you might not need surgery straight away. However, if the hole is getting bigger or your vision is getting worse, surgery is usually recommended to prevent further vision loss and improve your sight.

What does the operation involve?

The surgery to repair a macular hole is called a **vitrectomy**. It's done by a specialist eye surgeon.

The procedure usually takes about 30 to 60 minutes. Most often, we do it under **local anaesthetic**. This means your eye is numbed, and you stay awake but comfortable. You won't see the details of what's happening, but you might be aware of bright lights. Sometimes, we may use a **general anaesthetic**, where you are asleep. Your surgeon will discuss the best option for you.

During the vitrectomy:

1. **Tiny incisions:** The surgeon makes three very small cuts (less than 1mm) in the white part of your eye. These usually don't need stitches.
2. **Removing the vitreous gel:** A tiny instrument is used to remove the jelly-like substance (vitreous gel) from the middle of your eye. This is replaced with a clear saline solution during the surgery.
3. **Peeling the membrane:** The surgeon may peel a very thin, innermost layer of the retina called the internal limiting membrane (ILM). This helps to relieve any pulling forces on the macula and encourages the hole to close.
4. **Gas bubble:** At the end of the surgery, a special gas or air bubble is put inside your eye. This bubble acts like an internal bandage, gently pressing on the edges of the macular hole to help it close and heal. The gas bubble will gradually disappear over time (see 'Types of Gas and What to Expect').
5. **During the vitrectomy** procedure the medicine Triamcinolone Acetonide *may* be used as an aid to visualise the vitreous. This medicine is being used as an “unlicensed product” but has been used at Moorfields for this purpose for decades. For more information on unlicensed medicines, please visit https://www.moorfields.nhs.uk/for-patients/pharmacy/unlicensed-medicines or discuss with your clinician if you have any questions.

What are the benefits of surgery?

The main aim of surgery is to close the macular hole and improve your central vision, especially your reading vision.

- **High success rate for closure:** For most macular holes, there is a very high chance (around 90-95%) that the hole will close after one operation. Success rates are generally better for smaller holes and those that haven't been present for a long time.
- **Improved vision:** Many patients (over 70%) experience an improvement in their central visual acuity, often by 2 or 3 lines on a vision chart.
- **Reduced distortion:** The wavy or distorted vision often improves significantly once the hole is closed.
- **Stabilisation:** Surgery prevents the hole from getting larger and your vision from getting worse due to the macular hole.

Vision improvement can be slow. It may take many months, sometimes up to a year, to see the full benefit of the surgery. Complete restoration of vision is not possible, especially for larger or long-standing holes.

What are the risks of surgery?

All surgery carries some risks, but serious complications are rare with macular hole surgery. Your surgeon will explain these risks fully.

Common and less serious risks:

- **Temporary discomfort and redness:** Your eye might feel gritty, watery, and look red for a few days or weeks. Paracetamol can help with any mild pain.
- **Bruising around the eye:** This is common and will go away quickly.
- **Temporary blurred vision:** Your vision will be very blurry straight after surgery due to the gas bubble.
- **Increased eye pressure:** This is usually temporary and often controlled with eye drops. Rarely, some people may need ongoing eye drops or further treatment to manage it.
- **Cataract formation:** Vitrectomy surgery almost always speeds up the development of a cataract (clouding of your eye's natural lens), especially if you are over 50. This usually happens within 6 to 12 months. You may need cataract surgery in the future.
- Sometimes, your surgeon might suggest removing the cataract at the same time as your macular hole surgery.

More serious (but rare) risks:

- **Retinal detachment:** This is a serious problem where the retina comes away from the back of the eye. It can lead to severe vision loss if not treated quickly. The risk is low, about 1 to 2 in 100 people. If this happens, you would need another operation to fix it.
- **Infection (endophthalmitis):** A very rare (about 1 in 2,000 cases) but serious complication that can cause severe vision loss. We give you antibiotic drops to reduce this risk.
- **Bleeding inside the eye:** This is rare.
- **Macular hole does not close (failure):** In about 5-10% of cases, the macular hole may not close after the first surgery. This risk is higher for larger holes. If this happens, further surgery might be considered.
- **Macular hole re-opening:** Rarely, a closed macular hole can re-open weeks or months after surgery.
- **No improvement or worsening vision:** In some cases, vision may not improve, or it could even get worse, especially if the macula was severely damaged before surgery. The risk of vision being worse than before surgery is low (less than 1 in 50 people).
- **Loss of the eye:** This is extremely rare.

Before your surgery

- **Pre-operative assessment:** You will have a full eye and general health check to make sure you are ready for surgery.
- **Medications:** Tell your surgeon about all medicines you are taking, especially blood thinners. You may need to stop some of them for a short time before surgery.
- **Fasting:** If you have a general anaesthetic or sedation, you will get clear instructions about when to stop eating and drinking.
- **Travel arrangements:** You will not be able to drive yourself home after surgery, so please arrange for someone to collect you. If you have a general anaesthetic or sedation, you must have someone to accompany you home and stay with you overnight.

After your surgery: Important things to know

- **Eye patch/shield:** You will have a patch or shield over your eye to protect it. This is usually removed the day after surgery. You should wear a plastic shield at night for at least one week to protect your eye while you sleep.

- **Eye drops:** You will get a prescription for several eye drops (antibiotics, anti-inflammatories, and sometimes drops to control eye pressure). It's very important to use these exactly as prescribed to prevent infection and help with healing.
- **Discomfort:** It's unusual to have severe pain. Your eye might feel gritty, watery, or itchy for a week or two. Regular pain relief like paracetamol (as advised on the packet) should help. **Do not rub your eye.**
- **Activity:**
    - Avoid rubbing or pressing your eye.
    - Avoid strenuous activities.
    - You can usually return to light daily activities within a few days.
    - You should avoid getting water or soap directly into your operated eye for the first two weeks.
- **Work:** Most people need at least two weeks off work. This depends on the type of work you do. Discuss this with your surgeon.
- **Driving:** You **must not drive** while there is a gas bubble in your eye. Your vision will be very blurry, and judging distances will be difficult. Your surgeon will tell you when it is safe to drive again. This can be several weeks or months.

The Gas Bubble: What to expect

A gas bubble is essential for successful macular hole surgery. It acts as an internal splint, gently holding the edges of the hole together so it can heal.

- **Blurry Vision:** Your vision will be very poor and blurry immediately after surgery due to the gas bubble filling your eye. You won't be able to see clearly through it.
- **The "Spirit Level" Effect:** As the gas bubble slowly gets smaller and is replaced by your eye's natural fluid, you will start to see a horizontal line across your vision. This line will look like a "spirit level" or a wobbly line. You will be able to see above this line, but the vision below it will still be blurry or appear as if looking through water. The line will gradually move downwards in your vision until only a tiny bubble is left at the bottom, which will then disappear completely.
- **Duration of Gas Bubble:** The time it takes for the gas bubble to disappear depends on the type of gas used. Your surgeon will tell you which gas was used and how long it is expected to last.

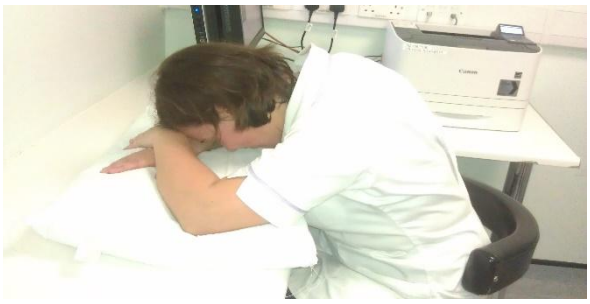
Here are the three main types of gas used and their typical duration:

1. **SF6 (Sulphur Hexafluoride):** This is a shorter-acting gas. The bubble usually lasts for **2 to 4 weeks**.
2. **C2F6 (Perfluoroethane):** This is a medium-acting gas. The bubble usually lasts for **4 to 8 weeks**.
3. **C3F8 (Perfluoropropane):** This is a longer-acting gas. The bubble usually lasts for **6 to 12 weeks**.

Important warnings about the gas bubble:

- **No Flying/High Altitudes:** You **must not fly in an aeroplane or travel to high altitudes** (e.g., mountains over 1,000 feet / 300 meters) while there is any gas bubble in your eye. Changes in air pressure will cause the bubble to expand rapidly, leading to severe pain and potentially permanent damage to your eye. Your surgeon will tell you when it is safe to fly again. You will often be given a wristband to alert others that you have gas in your eye.
- **Nitrous Oxide (Laughing Gas):** If you need any other surgery, dental work, or pain relief (for example, in A&E or during childbirth) while there is gas in your eye, you **must tell the anaesthetist or medical staff** that you have gas in your eye. Nitrous oxide, a common anaesthetic gas, can react with the gas bubble and cause it to expand dangerously.
- **Sleeping Position:** For a few weeks after surgery, you should **avoid lying flat on your back** while sleeping. This helps to keep the gas bubble in the correct position. Your surgeon may advise sleeping on your side or face down.

Posturing after surgery: Face-down positioning



Your surgeon will advise you if you need to posture after your surgery. For some macular holes, face-down posturing is very important to help the gas bubble press against the macula and maximise the chance of the hole closing.

- **How long?** If advised, you will typically need to maintain a face-down position for between **3 and 7 days**, usually for 45 to 50 minutes of every hour during the day. You can take a 10 to 15-minute break each hour for things like eating, using the toilet, and gentle stretching.
- **What it means:** Face-down means your nose is pointing towards the floor. This can be achieved by:
    - Sitting at a table with your head resting on your arms or a cushion.
    - Lying on your stomach (prone) in bed with your face looking towards the floor off the end of the bed, or into a special face-down pillow.
    - Walking with your head looking towards your toes.
- **Importance:** Although challenging, following posturing instructions carefully may be very important for the success of the surgery.
- **Tips for posturing:** Whilst generally not required, you can hire or buy special equipment to help with posturing, such as face-down chairs or support pillows. Make sure you have things you need (books, remote, phone) within easy reach, you can watch screens and read whilst you are posturing.
- **Night-time:** At night, try to maintain the instructed position as much as possible, but getting good sleep is also important. Your surgeon will advise you on the best sleeping position.

Current understanding: While traditionally strict face-down posturing was universally recommended for long periods, recent research suggests that for many common macular holes, a less strict or shorter period of posturing (e.g., a few days, or avoiding lying on your back) may still be effective. Your surgeon will discuss the most appropriate posturing regimen for your specific macular hole based on its size and type.

When to contact Moorfields immediately

Call us straight away or seek urgent medical attention if you experience any of the following symptoms after surgery:

- **Severe or worsening eye pain** that isn't relieved by paracetamol.
- **Sudden decrease in vision** (beyond the expected blur from the gas bubble).
- **New flashes of light or a significant increase in floaters** (small spots or squiggly lines in your vision).
- **A new dark shadow or "curtain" coming over your vision.**
- **Pus or increasing discharge** from the eye.
- **Increasing redness or swelling** of the eye.

You can contact us on **Moorfields Direct Nurse Helpline** on **0207 566 2345**. The helpline is staffed by knowledgeable ophthalmic nurses from:

- 9am to 9pm, Monday to Friday.
- 9am to 5pm on Saturdays.

Or the virtual emergency platform on https://www.moorfields.nhs.uk/ae/emergency-care-video-consultation#call

Or attend Moorfields Eye Hospital A&E, which is open 24 hours a day, seven days a week, at City Road, London EC1V 2PD.

When to expect in the long term

- **Vision recovery is gradual:** It can take many months for your vision to stabilise, and you may continue to see improvements for up to a year.
- **Residual distortion:** Some patients may still notice a small amount of residual distortion even after successful surgery and hole closure.
- **Cataract development:** It's very likely you will develop a cataract in the operated eye if you haven't already had cataract surgery.
- **Glasses prescription:** Your glasses prescription may change after surgery. We usually recommend waiting about 3-6 months before getting new glasses.
- **Regular eye checks:** Continue to have regular eye examinations as advised by your ophthalmologist.

Important note:

This leaflet provides general information. It's not a substitute for a detailed discussion with your eye doctor. Please ask any questions or share any concerns you have before deciding on your treatment.

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Moorfields Direct telephone helpline

Phone: 020 7566 2345
Monday-Friday, 8.30am-9pm
Saturday, 9am-5pm
Information and advice on eye conditions and treatments from experienced ophthalmic-trained nurses.

Patient advice and liaison service (PALS)

Phone: 020 7566 2324 or 020 7566 2325
Email: moorfields.pals@nhs.net
Opening hours: Monday to Friday, except bank holidays
Moorfields' PALS team provides confidential advice and support to help you with any concerns you may have about the care we provide, guiding you through the different services available at Moorfields. The PALS team can also advise you on how to make a complaint.

Your right to treatment within 18 weeks

Under the NHS constitution, all patients have the right to begin consultant-led treatment within 18 weeks of being referred by their GP. Moorfields is committed to fulfilling this right. For more information about your rights and responsibilities, please visit the Moorfields website and search 'Referrals to treatment (RTT)'. To learn more about your rights under the NHS constitution, visit www.nhs.uk/choiceinthenhs