# Macular Hole: What It Is, Who Gets It & Face-Down Recovery

By Dr Chee Wai Wong, Vitreoretinal Surgeon

Of all the conditions I treat, a macular hole is one that patients often find confusing. The name itself sounds alarming: a "hole" in the most important part of your eye? But understanding what it actually is, and what modern surgery can achieve, can go a long way in easing that anxiety.

## What Is the Macula, and What Is a Macular Hole?

The macula is a small, specialised area at the very centre of the retina, about the size of a pinhead. Despite its small size, it is responsible for your sharp, central vision: the vision you use to read, recognise faces, and see fine detail. The rest of the retina handles your peripheral (side) vision.

A macular hole is a small, round defect that develops in the centre of the macula. When this occurs, central vision becomes blurred and distorted. You might notice that straight lines appear bent or wavy, or that there is a dark or missing spot in the centre of your vision. Your peripheral vision, however, remains intact.

## What Causes a Macular Hole?

The most common type is an idiopathic macular hole, meaning it develops on its own without an obvious external cause. Here is what happens:

The vitreous gel that fills the inside of your eye is normally attached to the retinal surface. As we age, the vitreous gradually shrinks and pulls away from the retina. This natural process is called posterior vitreous detachment (PVD). In most people, this separation happens cleanly and without problems. But in some cases, the vitreous is particularly adherent to the macula and exerts traction (pulling force) on it as it separates. This traction can stretch the macular tissue and eventually create a hole.

Macular holes can also develop in association with:

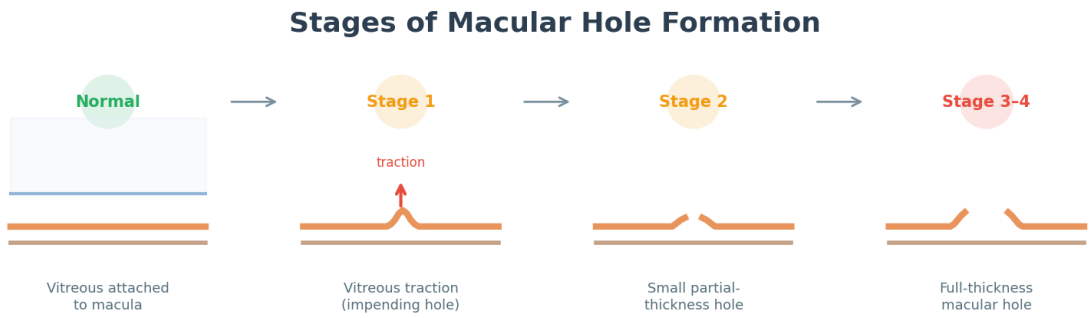
- High myopia (short-sightedness): The stretching of the eye in high myopia can predispose to macular holes. In highly myopic eyes, the mechanism is often different. The elongation of the eye itself, combined with traction from internal membranes, can cause the retinal layers to split (foveoschisis) and eventually progress to a full-thickness macular hole.
- Eye trauma: A sudden blow to the eye can create a macular hole.
- Other retinal conditions: Diabetic eye disease, retinal vein occlusions, and epiretinal membranes can occasionally be associated with macular holes.

## Who Gets Macular Holes?

Idiopathic macular holes are most common in people over 60 years of age, and women are affected more frequently than men. The risk of developing a macular hole in the other eye is estimated at around 10–15%, so if you have had a macular hole in one eye, your doctor will want to monitor the other eye as well.

In my practice, I also see macular holes in younger patients with high myopia. These are particularly challenging cases because the elongated eye and thinned retina can make surgical repair more complex.

## How Is a Macular Hole Diagnosed?






Your eye doctor can usually see a macular hole during a dilated eye examination. However, the diagnosis is confirmed and the hole is precisely characterised using optical coherence tomography (OCT), a non-invasive imaging technique that produces high-resolution, cross-sectional images of the retina. OCT allows us to assess the size and stage of the macular hole, which helps guide treatment decisions and predict visual outcomes.

Macular holes are classified into stages:

- Stage 1: An impending hole, where the vitreous is pulling on the macula, creating a small elevation or cyst, but the hole has not yet formed. Some of these resolve spontaneously.
- Stage 2: A small, partial-thickness hole has formed.
- Stage 3: A full-thickness hole has developed. The vitreous is still attached to the macula.
- Stage 4: A full-thickness hole with complete separation of the vitreous from the macula.

## How Is It Treated?

### Surgery: Vitrectomy with Internal Limiting Membrane Peel

The standard treatment for a full-thickness macular hole is pars plana vitrectomy. This is a microsurgical procedure performed under local or general anaesthesia. During the surgery:

1. The vitreous gel is removed from the eye using tiny instruments inserted through small incisions in the white of the eye.
2. The internal limiting membrane (ILM) (the thin, innermost layer on the retinal surface) is carefully peeled away from around the macular hole. This step is important because it removes any residual traction and appears to stimulate the edges of the hole to come together and close.
3. A gas bubble is placed inside the eye. This bubble acts as a temporary internal tamponade, gently pressing against the macula to hold the edges of the hole in place while it heals.

The gas bubble gradually absorbs on its own over the following weeks, and is replaced by the eye's own fluid.

### The Face-Down Position: Why It Matters

After macular hole surgery, you will likely be asked to maintain a face-down (prone) posturing position for a period of time: typically five to seven days, though this varies depending on your surgeon's preference and the characteristics of your particular hole.

The purpose of face-down posturing is to keep the gas bubble in contact with the macular hole, which is located at the back of the eye. Since gas rises, positioning your face downward ensures the bubble floats upward and presses against the macula.

I will be honest with patients: face-down posturing is the most challenging part of the recovery. It means spending most of your waking and sleeping hours with your face directed toward the floor. You will need to eat face-down, sleep face-down, and rest face-down. It is uncomfortable, and it can be quite isolating.

Here are some practical tips that my patients have found helpful:

- Rent or purchase a face-down support system. These include special pillows, adjustable tables, and face-down chairs that make the posturing more tolerable.
- Prepare your home in advance. Set up a comfortable posturing station with audiobooks, podcasts, or a phone mount that allows you to look at a screen while face-down.
- Arrange for help. You will need assistance with meals, household tasks, and getting around during the posturing period.
- Take breaks as advised by your surgeon. Most surgeons allow brief breaks for bathroom use and meals.

The good news is that this inconvenience is temporary, and there is strong evidence that face-down posturing improves the closure rate of macular holes.

## What Results Can You Expect?

Modern vitrectomy with ILM peeling achieves macular hole closure in over 90% of cases with a single surgery. For smaller holes that are treated early, the closure rate approaches 95–100%.

Visual recovery after macular hole surgery is gradual. It takes time for the retinal layers to reorganise and heal after the hole closes. Most patients notice progressive improvement in vision over three to six months, and improvement can continue for up to a year. The final visual outcome depends on several factors:

- The size of the hole: Smaller holes generally have better visual outcomes.
- How long the hole has been present: The longer a macular hole exists, the more the photoreceptor cells at the edges of the hole degenerate, and the harder it is to recover fine central vision even after successful closure.
- Whether this is a primary or reopened hole: First-time surgeries tend to have better outcomes than repeat operations.

Even with successful closure, some patients notice that their central vision is not quite as sharp as before the hole developed. There may be a subtle residual distortion or a slight dimming in central vision. However, most patients experience meaningful improvement and are able to return to activities like reading and driving.

## What If the Hole Does Not Close?

In a small percentage of cases, the macular hole does not close after the first surgery. In these situations, a second operation can be considered, often with a different technique or a longer-acting gas or silicone oil tamponade. The success rate for repeat surgery is lower, but closure can still be achieved in many cases.

## The Bottom Line

A macular hole is a treatable condition. With modern vitrectomy surgery and ILM peeling, closure rates are excellent, and most patients experience meaningful improvement in their central vision. The face-down posturing after surgery is demanding, but it is a temporary phase that plays an important role in the success of the procedure. If you notice distortion or blurring of your central vision, see an eye doctor promptly. Early diagnosis and treatment give you the best chance of a good outcome.

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