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Kingston Hospital NHS
NHS Foundation Trust

Macular hole

Patient information leaflet

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What is a macular hole?

If you compare your eye to a camera, the retina is the photographic film within the camera; it is sensitive to light and sends information to the brain. The macula is the central part of the retina and is responsible for central, fine and discriminating vision. It allows us to see fine detail for things such as reading, computing and driving. A macular hole is a condition where a small gap develops right in the centre of the macula.

Why does a macular hole occur?

We do not know for sure why macular holes develop, but some people are more prone to developing macular holes than others, especially women and those above the age of 60. Other risk factors for developing a macular hole are: significant trauma to the eye, retinal detachment, macular oedema (swelling/waterlogging of the macula) and high high degree of short sightedness (myopia).

One of the main changes that happen as we get older is the detachment of the vitreous gel from the retina. In some patients the gel pulls on the central part of the macula as it detaches and, being the thinnest part of the retina, it easily breaks as a result of the traction forces from the detaching gel.

What are the symptoms of a macular hole?

An early macular hole can cause distortion, where straight lines may appear wavy or bowed. Vision can also become blurry, which may make it difficult to perform fine detailed visual tasks such as reading.

If the hole enlarges, you may notice a missing black patch in the centre of your vision. It is important to note that a macular hole on its own does not lead to total blindness.

How is a macular hole diagnosed?

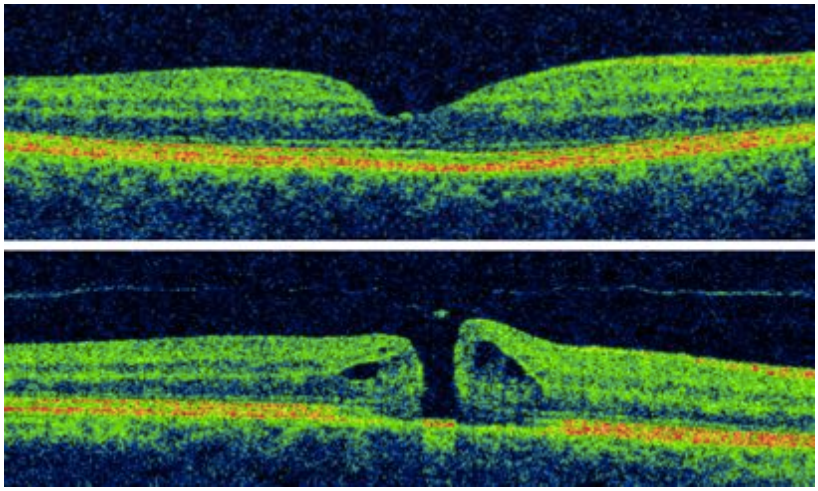
A macular hole is diagnosed with:

1. **Slit lamp examination**

   This is the examination performed by your eye doctor in the clinic. Dilating eye drops will be instilled to help the doctor examine the whole of the retina.

2. **Optical coherence tomography (OCT) laser scan**

   A retinal scan using OCT is performed and would help assess the location, extent and size of the hole. This is a non-invasive scan, and uses laser light energy to produce detailed images of the back of the eye.



OCT scans showing a normal healthy macula (top), and a macular hole (bottom).

What is the treatment for a macular hole?

1. **Vitrectomy**

   The majority of macular holes are treated with an operation called a vitrectomy where by the vitreous gel in removed through 3 small holes (1mm each) and an scar tissue on the retina that is keeping the hole open peeled off. Surgery succeeds in closing macular holes in 90% of patients, especially if the hole has been present for less than a year.

   If the macular hole closes, most patients experience an improvement in their vision, especially if the hole is small in size and the surgery is performed shortly after the hole develops. In patients with long-standing holes, there is a small chance that the vision may not improve even if the hole closes. It is also unlikely that the vision will return to being completely normal again.

2. **Ocriplasmin injection**

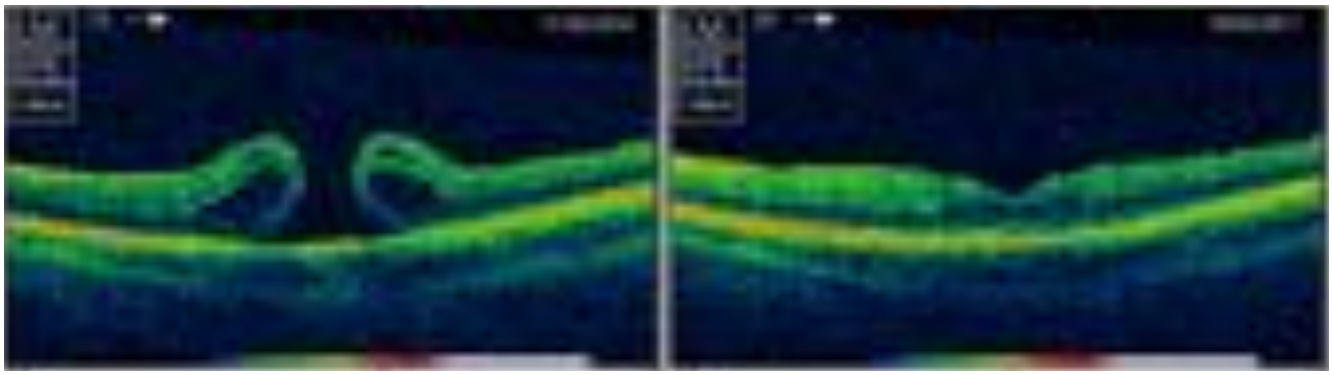
   This is a new form of treatment where an enzyme is injected into the vitreous cavity to help separate the gel from the macular if it is still attached and if the hole is small (less than 400 microns). The injection works in 40 to 50% of cases but is an easy and shorter form of treatment.

   If the injection is not successful at closing the macular hole, patient may still have vitrectomy surgery to help close the hole.

How successful in the treatment?

Over 90% of patients have the hole closed and the vision improved after only one vitrectomy surgery. Some patients may need more than one operation and rarely, the hole never closes.

Ocriplasmin works only in 40 to 50% of patients.



OCT scan of patient with a macular hole before treatment (left), and after treatment (right). You can see that the macular hole has been successfully closed.

What happens if the macular hole is not treated?

If the macular hole is not treated, your central vision will remain impaired. However, if you are happy with your current level of vision, no treatment is required. There is a possibility that the hole may get larger with time and subsequently cause further distortion and blurring of vision. It is important to note that macular hole does not lead to complete blindness in the eye.

How is vitrectomy surgery performed?

The surgery is performed under local anaesthetic, often with some sedation (medication to help you feel more relaxed). The operation usually takes 45-60 minutes, and involves removal of the vitreous gel at the back of the eye

and an injection of a gas bubble into the eye. More specific information regarding the surgery can be found in the leaflet titled “Vitrectomy”.

What are the risks of vitrectomy?

Vitrectomy has a good success rate. However there can be some risks associated with the surgery. The main risks include:

- Red eye, soreness and gritting feeling – due to mild bruising or disturbance of the surface of the eye. These usually get better in 1 to 2 weeks.
- Serious eye infection (endophthalmitis) (<1 in 2000).
- Retinal tears or detachment requiring more than one operation (<1:100).
- Transient increase in eye pressure, inflammation or bleeding in the eye.
- Cataract (unless you have already had the cataract surgery) will develop quicker in almost all the patients, requiring surgery within a year or two after vitrectomy surgery.

What is posturing?

We may ask you to perform posturing in the first week after macular hole surgery. This is where you have to keep your head in a face down position (the reading position or looking at the ground) for 50 mins of each hour in the day. This helps the gas bubble (injected into the eye at the end of the surgery) to float upwards and keep the area of the hole dry until it closes.

What are the side effects of ocriplasmin injections?

- Immediately after injections, patients may experience seeing flashing lights and increased floaters
- Serious side effects include bleeding, retinal tears or detachment and infection. These occur in less than 1:1000.

Contact details

Royal Eye Unit

Mon-Fri 8.30am to 5pm

0208 934 6404

Moorfields at St Georges' Hospital (Duke Elder Ward)

Mon-Fri 5pm to 8.30am, weekends and Bank Holidays

020 8672 1255 ext 2064/0638