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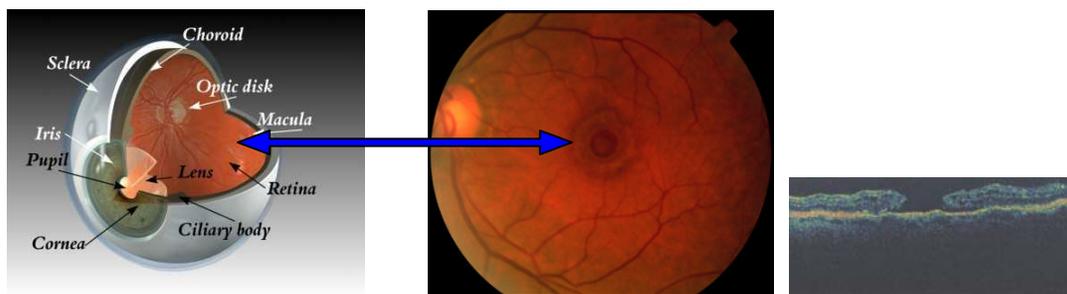
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The central picture shows a macular hole with the left most OCT scan showing the defect in the macula.

If you think of your eye as a camera, the eye has two lenses (Cornea, Lens), a camera film at the back (Retina) with a jelly filling the eye in-between (Vitreous). In structural terms, think of your retina as wallpaper lining the inside of the eye. In functional terms, think of your retina as a soccer pitch with a centre spot where the kick off is taken from. The eye has a centre spot called the macula that is responsible for your eyes ability to see colours, recognise faces, and read. The remainder of the retina near the sidelines, corner flags and goal posts is only responsible for movement vision. A macular hole is a defect in the centre spot that is torn as the jelly in front of it contracts. Why the jelly contracts in this way in some people and NOT others is not clearly known. Macular holes occur more commonly in women than men. People with macular holes in one eye also have a greater risk of developing a hole in their fellow eye than unaffected individuals. It is not certain how many people develop a macula hole in their fellow eye and reports range from 5-20%. The macular hole results in difficulty seeing faces, reading and distorted vision. Many people unfortunately do not become aware of the problem till they cover their good eye and realise how disturbed the vision is in their affected eye. Lastly remember that macular hole is NOT the same as macular degeneration which is much more common and is an aging change of the structures under the camera film.

What are the treatment options?

Do nothing

Have an operation to heal the macular hole

Wait and then decide

Do Nothing

If nothing is done a very small number of patients can undergo spontaneous healing of the hole, something that would routinely be checked for immediately before proceeding to surgery. The majority slowly lose the central vision and the attendant functions of the centre spot described before. The movement vision in the periphery would remain unaffected.

Have an operation to heal the macular hole

With surgery 90% of patients with one operation can expect the hole to heal. With further surgery the holes that fail to close can usually be repaired.

Wait and then decide

The benefits of the surgery are variable and best if the surgery is performed within a year of the onset of the problem. It is possible to close a macular hole anatomically at later presentations but the visual results are not as good although occasionally a patient will surprise us with the result of delayed surgery. Usually therefore it is best not to wait too long before deciding to proceed with an operation

How is a macular hole treated?

A vitrectomy operation is required that removes the jelly and any membranes keeping the hole open. Local anaesthesia is what is normally used but there is the choice to have a general anesthetic. The eye is held open with a clip and 3 small keyhole incisions are made into the eye. Once incision is used to illuminate inside the eye, the second incision is used for infusing fluid to keep the eye inflated and the third incision is used for cut and suction clearance of the jelly.

Various staining agents are used to help visualise these delicate transparent structures to facilitate quicker safer surgery. Experimental studies suggest that some of these staining agents can cause problems but clinical experience suggests otherwise. Repairing the hole is analogous to repairing a crack at the bottom of a fish tank. If the tank is refilled with water before the glue applied to the crack it will not mend. Likewise a macular hole needs to be kept dry after the jelly is removed. This is achieved by replacing the fluid with either gas(usual) or silicone oil. When these agents disappear or are removed the hole usually remains closed. Dissolvable stitches are used to close the surface lining of the white of the eye (Conjunctiva).

What are the benefits of surgery?

About 80 to 90% of the time, the macular hole closes after surgery. In most cases that close, the distortion of vision improves and there is a modest (2 lines on the eye chart or more) improvement in vision. Some patients have a big improvement, and some have no improvement. A few get worse.

If the vision is good in the unaffected eye, a realistic expectation should be for the vision of the affected eye to improve or stabilise such that one has an insurance policy against a blinding problem with the unaffected eye.

What are the risks of surgery?

- Those of the anaesthesia

Rare but serious complications

- Infection & bleeding into the eye (1:1000). Many of these problems are treatable but blindness is possible in the worst-case scenario.
- Sympathetic Ophthalmia(1:1500-1:800). This is an extremely rare inflammation of the un-operated eye that can result from any operation that involves opening the eye but is said to be a little more frequent with repeat vitreous surgery. It can usually be successfully treated with steroid tablets or injections into and around the eye.
- Retinal detachment (1:200). This is a condition where the retina peels off from the back of the eye and can result in loss of movement vision. Usually it is possible to treat this complication but the goal of management changes from trying to improve central vision to maintaining the peripheral movement vision.

More common but less serious complications are:

- Cataract. At 2 years following vitrectomy 75-80% of patients will develop a cataract that is considered by most eye surgeons as a treatable complication.
- Glaucoma. Usually temporary and treatable medically but occasionally requiring operative intervention.
- Eye redness and grittiness.

Before macular hole surgery

You will have a pre-assessment visit with our nursing staff. They will take baseline information including a measurement of the eye to determine the strength of a lens implant should there be a need to remove a cataract while the vitrectomy is being performed.

You should practice and prepare your house for the post operative need to posture for 10 days following surgery: every hour of every day for 10 days with 10-15 minute rest periods every hour.

Please visit a US website that offers some excellent and ingenious ways of planning for the surgery from a patient who has had the operation:

<http://macularholemanuel.tripod.com/MyStory.htm>

[After macular hole surgery](#)

With a gas or silicone oil filled eye the vision is usually much worse post-operatively for at least 3 months. Patients often find it helpful to block off the vision in that eye using a pirate's patch or masking tape over a spectacle lens. There is often a pricking gritty sensation around the eye. With the posturing there can be a lot of eyelid swelling almost as though you have been 10- rounds with Frank Bruno.

While conventional wisdom is that one needs to posture for 10 days there is evidence emerging that may make this practice obsolete. Time will tell. It is crucial that if you have a gas filled eye that you do NOT fly in an aircraft until all gas has disappeared. Depending on the gas type used you should NOT fly for between 2 weeks to 3 months following surgery. It is also crucial that if you are to have a general anaesthetic shortly after this surgery for other elective or emergency operations that you discuss your previous eye surgery explicitly with an anaesthetist who will modify his/her methods to avoid blinding complications during such anaesthesia.

Once the posturing is completed it is possible to resume everyday activities. You are allowed to drive if the unoperated eye has appropriate vision, the operated eye is occluded and you have become accustomed to being one-eyed. You will be seen routinely 1-2 weeks, 6 weeks, and 3 months postoperatively. It is NOT usually possible to assess the success of the surgery until the gas has disappeared.