Epiretinal membrane (macular pucker)

Epiretinal membrane can also be known by other names: macular pucker, pre-retinal membrane, cellophane maculopathy, surface wrinkling retinopathy, and pre-macular fibrosis.

How the eye works

Light passes through the cornea at the front of your eye, and is focused by the lens onto your retina. The retina is a delicate tissue that lines the inside of your eye. The retina converts the light into electrical signals that travel along the optic nerve to your brain. The brain interprets these signals to “see” the world around you.

Light from the object you are looking at directly is focused onto a tiny area of the retina called the macula at the back of the eye. The macula is about 4mm across and is responsible for detailed central vision and most colour vision. It provides the vision you need to read, recognise faces, drive a car, see colours clearly, and any other activity that requires detailed, fine vision. The rest of the retina gives you side vision (peripheral vision).

What is an epiretinal membrane?

An epiretinal membrane is scar tissue that has formed on the macula which can cause blurred and distorted central vision.

Most of the eye’s interior is filled with vitreous, a jelly-like substance that fills about 80 percent of the eye and helps it maintain a round shape. The vitreous contains millions of fine fibers that are attached to the surface of the retina. As we age, the vitreous slowly shrinks and pulls away from the retinal surface. This is called a vitreous detachment, and is normal. In most cases, there are no adverse effects, except for a small increase in floaters, which are little “cobwebs” or specks that seem to float about in your field of vision.

However, sometimes when the vitreous pulls away from the retina, there is microscopic damage to the retina’s surface (note: this is not a macular hole). When this happens, the retina begins a healing process to the damaged area and forms scar tissue, or an epiretinal membrane, on the surface of the retina. This scar tissue is firmly attached to the retina surface. When the scar tissue contracts, it may cause the retina to wrinkle, or pucker, usually without any effect on central vision. However, if the scar tissue has formed over the centre of the macula, our sharp, central vision becomes blurred and distorted.
What causes epiretinal membrane?

Most epiretinal membranes are related to vitreous detachment, which usually occurs in people over age 50. As we age, there is an increased risk of epiretinal membrane.

Epiretinal membrane can also be triggered by certain eye diseases and disorders, such as a retinal tear or detachment, and inflammation of the eye (uveitis). Also, people with diabetes sometimes develop an eye disease called diabetic retinopathy, which can cause epiretinal membrane. An epiretinal membrane can also form following eye surgery or eye trauma.

What are the symptoms of epiretinal membrane?

Vision loss from epiretinal membrane can vary from no loss to severe loss, although severe vision loss is uncommon. People with epiretinal membrane may notice that their vision is blurry or mildly distorted, and straight lines can appear wavy. They may have difficulty in seeing fine detail and reading small print. There may be a dull area in the centre of vision.

For most people, vision remains stable and does not get progressively worse. Epiretinal membrane usually only affects one eye.

Is a macular pucker similar to a macular hole?

A macular pucker and a macular hole are different conditions, although they both result from a similar cause: the pulling on the retina from a shrinking vitreous. When the “pulling” causes microscopic damage, the retina can heal itself; scar tissue, or an epiretinal membrane, can be the result. If the shrinking vitreous pulls too hard, it can tear the retina, creating a macular hole, which is more serious. Both conditions have similar symptoms - distorted and blurred vision. Also, a macular pucker will very rarely “develop” into a macular hole.

How is epiretinal membrane treated?

In many cases of epiretinal membrane, the symptoms of vision distortion and blurriness are mild, and no treatment is necessary. People usually adjust to the mild visual distortion, since it does not affect activities of daily life, such as reading and driving. Neither eye drops, medications, nor nutritional supplements will improve vision distorted from epiretinal membrane.

Sometimes, vision deteriorates to the point where it affects daily routine activities. When this happens, surgery may be recommended. This procedure is called a vitrectomy, in which the vitreous gel is removed to prevent it from pulling on the retina and replaced with a salt solution. (Because the vitreous is mostly water, you will notice no change between the salt solution and the normal vitreous). Also, the scar tissue which causes the wrinkling is removed. A vitrectomy is usually performed under local anesthesia.
After the surgery, you will be given eye drops to use for several weeks. Your surgeon will also provide further instructions regarding any restrictions on your activity in the postoperative period.

**How successful is this surgery?**

Surgery to repair an epiretinal membrane is very delicate, and while vision improves in most cases, it does not usually return to normal. On average, about half of the vision lost from a macular pucker is restored; some people have significantly more vision restored, some less. In most cases, vision distortion is significantly reduced. Recovery of vision can take three to six months. Patients should talk with their eye care professional about whether treatment is appropriate.

**What are the risks of surgery?**

The most common complication of a vitrectomy is an increase in the rate of cataract development. Cataract surgery is usually needed within a few years after the vitrectomy. Other, less common complications are retinal detachment either during or after surgery, and infection after surgery. Also, the epiretinal membrane may grow back, but this is rare.

### Managing vision loss

When managing vision loss, a key priority is maintaining quality of life and independence. Contacting a low vision organisation can be helpful as they can work with you to assess your individual needs and determine which aids and technologies can help. There are many excellent solutions to help you live well with low vision. Fortunately it is very uncommon for vision loss from epiretinal membrane to be so severe as to require low vision services.

Contact Macular Disease Foundation Australia to discuss your low vision needs and to receive free information on low vision.
Macular Disease Foundation Australia Resources

Macular Disease Foundation Australia has developed a comprehensive range of publications on macular degeneration, diabetic eye disease and other macular diseases. Information and advice on living well with vision loss is also available. Call the Foundation for a free information kit or to register to receive newsletters and invitations to attend education sessions and events.

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