

## MEMBRANES ON THE RETINA

### What is an epiretinal membrane?

The retina is the thin light-sensitive layer of tissue that lines the back of the eye; it relays the images that you see to the brain. The central area of the retina, called the macula, is responsible for clear, detailed central vision. Occasionally a thin transparent thickening or membrane can develop on the surface of your retina, specifically at the macula, and this is called an epiretinal membrane. There are many terms for this condition; cellophane maculopathy, premacular fibrosis, and macular pucker. Depending on the stage of the condition and the effect on your visual function, surgical removal of this membrane may be required.

### How do epiretinal membranes develop?

These membranes develop at the interface/junction between the retinal surface and the vitreous gel, especially over the central area of the retina overlying the macula. Cells from the retina extend to the surface and together with fibres of the vitreous gel they form a mostly transparent thin layer or membrane in this space. This layer may thicken and contract, thereby pulling fine creases/folds in the surface layers of the retina. This frequently causes some distortion or change in shape to the retina in this area, with/without thickening or swelling of the underlying retina (oedema).

In most cases, these changes in the retina are not associated with other eye diseases and are therefore considered idiopathic. These changes are also often seen in both eyes, but sometimes only one eye develops symptoms. Less often these membranes are seen in conjunction with other eye diseases, such as retinal vasculitis/vascular occlusions, inflammation (uveitis), or after retinal injury or surgery.

### How do I notice an epiretinal membrane?

The change to the macular shape caused by the swelling and/or the retinal creases or folds results in decreased central vision. Typical symptoms are distorted images (metamorphopsia), “kinking” of straight lines or images with/without double vision, blurred vision, difficulty reading with “breaking up” of words, and a central “grey spot” in your vision (scotoma).

The severity of an epiretinal membrane and its effect on visual function are quite variable, ranging from almost no symptoms/problems at all to the loss of the ability to read. Imaging with optical coherence tomography (OCT) shows cross-sections of the retina, and is very helpful in assessing the severity of the condition.

### What does an epiretinal membrane mean for me?

After recording the changes in the macula with a photo and an OCT scan, these findings will be discussed in relation to your symptoms in every day life. If the symptoms are mild, the further development of the membrane can be observed and treatment only instituted when it causes more serious symptoms. In the case of severe visual disturbance due to such a membrane, surgery is probably necessary. Although modern surgery is routine and very safe, the advantages and disadvantages will be thoroughly discussed specific to each individual case.

Epiretinal membranes are a condition confined to the eye. Other diseases or external factors are not causative or contributory. This condition should not be confused with age-related macular degeneration, which is a totally different condition. Epiretinal membrane and macular hole are also different conditions,

but do have some similarities; in both of these conditions traction develops at the macular area in the form of fine membranes or adhesions.

### **The treatment of epiretinal membrane(s)**

The aim of surgery is the removal of the membrane from the surface of the retina. To achieve this, the vitreous gel is removed by vitrectomy in order to provide access to the macula. With the help of special fine instruments and a dye that stains the abnormal tissue/membrane on the retinal surface, the epiretinal membrane can be carefully and gently peeled off the surface of the retina. By also peeling the surface layer of the retina (internal limiting membrane), a recurrence can be prevented.

The most common complications of an operation to remove the vitreous gel, no matter the condition being dealt with, is the early development of a cataract (especially in older patients). In order to avoid a second operation, we regularly combine the vitrectomy in eyes that still have their natural lens with a cataract operation in the same setting. Other complications are very rare; the most serious of these is that a retinal tear or localised retinal detachment develops during surgery. Fortunately this can usually be effectively managed/treated at the time of surgery, with little risk of consequences.

### **The course of disease with epiretinal membrane(s)**

Modern surgical techniques have made this operation fairly routine and very safe in the hands of specialised surgeons and facilities. The chance of good visual function is excellent; the visual function is stabilised and further visual deterioration is prevented in almost all cases. The disturbing image distortions are reduced significantly or disappear completely in about 90% of cases, and the visual function improves significantly in approximately 60% of cases. It must be noted that the post-operative result is affected by a number of factors such as the duration of the disease/condition, the visual acuity prior to surgery, the amount of retinal distortion and swelling, and the individual capacity of the macula for regeneration. As a result of this, a definite outcome regarding surgical success may be difficult to predict. Surgery should not be delayed too long, and surgical and functional prognosis is generally very good.