

Vitreous and Retinal Detachment

Most of the serious retinal problems that require surgery are caused by problems with the vitreous, the clear jelly-like substance that fills the space in the eye.

Posterior Vitreous Detachment With age, the vitreous becomes more fluid, and less jelly-like. As the eyeball moves, small pockets of liquid vitreous can move around inside the vitreous cavity. This movement causes the vitreous to pull on the retina, and, with time, the vitreous can separate from the retina. This is called posterior vitreous detachment (PVD), because it usually happens at the back (posterior) of the eye. PVD happens in most people eventually, and is rarely a problem.

Flashes and Floaters

When PVD occurs, the detached vitreous can tug on the retina. The brain interprets these tugs as flashes or large spots in the vision. The vitreous can also become stringy, and form visible strands that appear in the field of vision as floating threads or small spots and circles. A patient with these floaters should be examined, to check for other retinal damage. If there are no problems, the patient can fairly easily learn to ignore the floaters.

Retinal Tear and Vitreous Haemorrhage

Where the vitreous is securely attached to the retina, vitreous detachment may cause the retina to tear. If the retina tears across a blood vessel, there will be bleeding into the vitreous - this is called vitreous haemorrhage. Small amounts of bleeding cloud the vision, leading to the sensation of walking through a swarm of insects - more severe bleeding leads to a mass of red or black lines, and vision may become very dark. A retinal tear is a serious problem; vitreous haemorrhage is even more serious. Retinal tears may be sealed with lasers or cryotherapy, or both, to prevent retinal detachment. Both these treatments seal the retina to the wall of the eye, repairing the tear and preventing detachment.

Retinal Detachment

A retinal tear is considered so serious because the vitreous liquid may leak through the tear, and collect under the retina. Gradually, the build up of liquid separates the retina from the wall of the eye, a condition called retinal detachment. The two major treatments for retinal detachment are:

a) scleral buckling - where a sponge or length of silicon plastic is placed on the outside of the eye and sewn in place, pushing the sclera toward the tear in the retina.

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b) Pneumatic retinopexy, a less severe treatment where the surgeon injects a gas bubble inside the vitreous cavity. The bubble pushes the retina against the wall of the eye, allowing the tear to seal against the eye wall.

Vitreous Surgery

If the retinal detachment is too severe for scleral buckling or pneumatic retinopexy, surgery to reattach the retina may be necessary. Under general anaesthetic, the surgeon removes the vitreous entirely, replacing it with air or a fluid compatible with the eye. Over time, the fluid (or air) is absorbed, and replaced with the eye's own fluid. Lack of vitreous does not affect the patient's vision.

Fact sheet

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