

Retinal Detachment

The eye is like a camera, with a lens in the front and a sensor or film in the back. The retina is the sensor that lines the inside back of the eye and receives the image that the eye sees. The space in between the lens and retina is called the vitreous cavity. If a defect forms in the retina, vitreous fluid can pass through the defect into the space behind the retina. This causes the retina to separate from the wall of the eye, potentially causing loss of vision.

What is a retinal detachment?

A retinal detachment occurs when the retina pulls away from the wall of the eye. The retina cannot function normally when it is detached from the wall of the eye, which is why a retinal detachment can limit the vision to varying degrees depending on how much of the retina is detached.

There are different kinds of retinal detachments: rhegmatogenous, tractional, and exudative. This handout addresses the most common kind, a rhegmatogenous retinal detachment, which occurs when fluid moves through a retinal hole or tear into the space under the retina, causing the retina to detach.



Treatment of retinal detachment

The goals of treatment are to get the fluid out from under the retina and to seal the tears or holes that caused the problem in the first place. Removing the fluid allows the retina to reposition itself (reattach) against the wall of the eye and thereby regain its nourishing blood supply and restore vision. Sealing the tears or holes in the retina helps make sure that the retina does not re-detach in the future. Fortunately, over eighty to ninety percent of retinal detachments can be repaired with only one procedure. The following are the most commonly used methods to repair a retinal detachment.

Scleral Buckle

Scleral buckling entails sewing a piece of silicone to the outside wall of the eye. The silicone material indents (buckles) the wall of the eye and pushes the wall of the eye closer to the retinal tear. The tear is treated with freezing therapy which causes local tissue damage and controlled scarring which seals the tear. The fluid already under the retina is either absorbed by the body or actively drained from under the retina and the retina is thereby reattached.

Micro-incisional vitrectomy surgery

Micro-incisional/sutureless vitrectomy surgery takes place through three very small openings in the white part of the eye. The surgeon uses fine instruments and an operating microscope to remove the vitreous gel inside the eye and drain the fluid out from under the retina. The surgeon may use a laser to seal the retinal tears or holes. A bubble of gas or oil is commonly placed inside the eye in order to hold the retina in place while it heals. The patient may be asked to maintain a specific head position for several days after surgery.



Diseases & Surgery of the Retina and Vitreous

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Pneumatic Retinopexy

Unlike scleral buckling and vitrectomy, which are performed in the operating room, pneumatic retinopexy is performed in the office with only local anesthesia. The surgeon will determine whether this is a reasonable option based on the characteristics of the retinal detachment. Pneumatic retinopexy consists of at least three parts. 1) The tear in the retina needs to be sealed to the eye wall. This is usually done with cryotherapy, a freezing treatment applied to the outside of the eye after numbing medications are given, or laser may be applied at a later date in some cases. 2) Gas is injected into the back part of the eye (vitreous cavity). When the head is then positioned appropriately, this bubble pushes the fluid out from under the retina and pushes the retinal tear closed. Proper positioning by the patient immediately after this procedure is critical. 3) Fluid is removed from the eye in order to make place for the gas. This can be done before the gas is injected, after the gas is injected, or both before and after.

Laser Surgery

In certain selected cases it may be advisable to “wall off” the detachment to prevent the detachment from spreading. Laser (or freezing treatment) creates a controlled scar which serves as a barrier, and the detachment remains fixed in its position. This technique is most often used when the area of detachment is very small. This technique is also sometimes used for patients who cannot safely undergo any other procedure due to severe medical illness.

Surgical and Visual Results

While anatomic success rates (success at reattaching the retina) for retinal detachment repair are generally high (over 90% in simple cases), the statistical success rate decreases for detachment that are chronic, detachments that affect a large percentage of the retina, detachments with multiple tears or very large tears, or detachments that have scar tissue present before surgery. Your BARA surgeon will discuss the expected success rate with you based on the specific characteristics of your retinal detachment. When retinal detachment surgery fails, the redetachment is usually due to the formation of scar tissue called proliferative vitreoretinopathy (PVR) which is described in a separate handout.

The vision after retinal detachment repair often takes a few months to stabilize depending on the type of surgery and whether a gas or oil bubble was placed in the eye. Your BARA surgeon will let you know if an updated refraction (prescription for glasses or contact lenses) may be appropriate after the initial healing period. Even after an updated prescription, the vision may be limited by damage from the original retinal detachment, particularly if the original detachment involved the center of the retina. Vision after surgery may also be impacted by cataract progression, which can be addressed with cataract surgery. Expectations after surgery are highly dependent on the characteristics of the detachment; the type of surgical repair performed; and the post-operative healing process. Your BARA surgeon will review expectations based on your particular case. surgery is needed later in order to achieve the best possible vision.



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Bay Area Retina Associates is a group practice of retinal surgeons. All members of the group are board certified by the American Board of Ophthalmology and have completed fellowship training in the medical and surgical care of retinal diseases. All BARA surgeons have expertise in the treatment of common diseases such as AMD, diabetic retinopathy and retinal detachment, as well as rare diseases. BARA physicians see patients in eight offices around the East Bay, a community we have served for almost 40 years.