

## PLASTIC **EYE** SURGERY ASSOCIATES, PLLC

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### **ORBITAL DECOMPRESSION FOR THYROID EYE DISEASE**

Once the "active" inflammatory phase of thyroid eye disease has subsided, an individual may be left with structural changes, such as eye protrusion, eyelid retraction, and in some cases, double vision. Luckily, there are corrective procedures that can be performed to address these problems.

In most people the build-up of tissue and swelling behind the eye is not severe enough to damage the optic nerve, but it may cause a striking forward protrusion of the eye (proptosis/exophthalmos) which in itself is a distressing situation, not only from the standpoint of exposure of the eye, but also because of the disfigurement that it produces.

Fortunately, orbital decompression can often address proptosis. With orbital decompression, the eye socket is enlarged to accommodate the extra tissue that the thyroid disease has deposited behind the eye. This allows the eye to settle back into a more normal position.

Around the orbit (the bone socket in which the eyeball sits) there are a number of sinus cavities that can be used to surgically expand the orbit. The sinus below the eye is called the maxillary sinus, and the sinus toward the nose is called the ethmoidal sinus. A maxillary-ethmoidal decompression is the most frequently used procedure for accommodating the extra tissues behind the eye. However, in some cases, the outside wall of the orbit (lateral wall) can also be removed; and finally, orbital roof, frontal sinus, or sphenoid sinus surgery may be helpful. Most people, however, require only a two wall maxillary-ethmoidal decompression.

We have perfected a new technique called "Small Bone Decompression" that is now commonly used in patients with only moderate proptosis. This technique provides outstanding results with much faster recovery and minimal risks.

The method used to perform most orbital decompressions requires only a very small incision in the skin on the outside corner of the eye, and this incision heals very well into the normal laugh lines around the eye. Using magnification, specific portions of the orbit bones are carefully removed, allowing communication between the orbit and the nearby sinuses. There is a nerve of sensation that runs through the bone underneath the orbit. This nerve provides sensation to the cheek, the lip, and some of the upper teeth on that side. Great care is taken to nibble the bone away from this nerve so that the nerve is preserved. Despite extreme caution, and the use of microsurgical techniques, some numbness almost always occurs.

#### REHABILITATIVE ORBITAL DECOMPRESSION

However, in more than 90% of cases, this numbness is only temporary. Additional hidden incisions inside the nose may also be used to more safely approach the very deep portions of the orbit and sinuses. After the bones of the sinuses are removed, the tissues which have built up behind the eye (usually fatty tissue or fat infiltrated eye muscles) are permitted to expand into the newly created spaces. In most cases, if the orbital tissues are soft, an immediate effect will be noted with the settling of the eye into a more normal position. In some cases, however, time is required for final settling to take effect. In fact, most people will observe a progressive effect for up to 12-24 months. Tiny absorbable stitches are placed on the inside of the eyelid and in the small incision of the skin at the outside corner of the eye. After surgery, ice compresses are used continuously along with medications to minimize swelling. Antibiotics are also given.

#### RESULTS

The average amount of retroplacement of the eye (moving of the eye backwards to a more normal position), is about 4-5mm with the maxillary-ethmoidal decompression.

#### ANESTHESIA

Orbital decompression is performed under general anesthesia, and patients may expect to remain in the hospital for 0-1 days after surgery. Once at home, patients may need assistance during initial recovery. Any non-absorbable sutures are removed one week postoperatively. A 4-6 weeks check-up may also be needed.

#### ADDITIONAL FACTORS AND RISKS YOU SHOULD KNOW ABOUT

##### I. DOUBLE VISION

Some patients who undergo decompression already have some double vision. In most patients, orbital decompression does not adversely alter the pattern of double vision; however, in some people the double vision is helped and in some people it may be made worse. Nationally, the average risk for double vision after orbital decompression is about 33%. In our hands, the risk is 5-8% for standard decompression techniques and approaches 0% for "Small Bone Decompression" technique. Treatment of double vision, should it occur, might require prism glasses, further orbital surgery or eye muscle surgery.

## 2. MINIMAL SURGICAL EFFECT

Other than bone removal, the main condition that affects the swelling of the eye in orbital decompression is how "stiff" the tissue is which has built up behind the eye. Many people have very soft tissue, and this tissue will settle easily allowing a good retroplacement of the eye. In some people, however, the tissue is very stiff and scarred, and in these individuals, even though the surgery is performed correctly, the tissue simply will not move easily into the new spaces. In such situations, the effect of orbital decompression might be less than expected. Usually, it is difficult to determine before surgery what the consistency of the tissue behind the eye will be; however, in general, people who have good eye movements will have softer more pliable tissue behind the eye. In some patients, in which both eyes are operated, there may be some asymmetry in the final eye position (protrusion) before surgery. Most asymmetry, should it occur, can be compensated for with surgical adjustments of eyelid position. Rarely, further orbital surgery is helpful.

## 3. NUMBNESS OF THE LIPS AND GUMS

The sensory nerve, contained within the floor of the orbit, supplies feeling to the upper lip and gum, and most of the time a temporary numbness occurs in the lips and upper gums. This is nothing that is visible, but it can be somewhat of a nuisance, and in most cases, it dissipates within several months. In some people with severe protrusion of the eyes, the nerve may actually have to be removed in order to allow the eyes to settle completely. In these cases, there will be permanent numbness just below the eye and in the upper lip, gums, and maybe even teeth.

## 4. SEVERE BRUISING AND SWELLING

The operation takes place in an area that is very vascular with a large number of blood vessels, and it is imperative that a person undergoing orbital decompression take NO medication that would prevent blood clotting. Drugs containing aspirin or aspirin-like medication (many arthritis medications) should NOT be taken for 10 days before surgery. Many over-the-counter medications contain aspirin-derivatives. Please check with a physician about all your medications, including over-the-counter cold remedies and decongestants. People with hypertension should have their blood pressure controlled adequately before undergoing surgery. Severe bruising and swelling can impair a successful result and cause additional scar tissue to form. Excessive bleeding and swelling of an extremely severe nature could conceivably cause loss of vision.

## 5. LOSS OF VISION

We have not had a single patient who has lost any vision at all as a result of orbital decompression. However, any time there is surgery around the eye, especially in the orbit behind the eye, there is always a risk of vision loss.

## 6. SINUS BLOCKAGE

Orbital decompression is an operation that essentially borrows part of the sinuses to allow the eye to settle into a more normal position. Sinus decongestants are used before, during and after surgery to minimize sinus swelling and optimize sinus drainage. Patients who already have a tendency to develop sinus blockage may experience sinus obstruction after orbital decompression. These patients, and there is no reliable way to predict which patients, can develop sinus problems even years later. Therefore, in order to avoid such problems, a surgical sinus drainage procedure is performed at the time of orbital decompression using an endoscope (microscope) through the nose, in most cases.

## 7. NEED FOR ADDITIONAL EYELID SURGERY OR EYE MUSCLE SURGERY

After a patient has passed into the "inactive" phase of their thyroid eye disease, there are three groups of surgical reconstructive procedures which can be offered to reverse the destructive effects of this disease.

The first is orbital decompression. (1, 2, 3, or 4 wall decompression, with or without fat resection) when necessary. These procedures must be performed first, as changing the position of the eye may

alter the functions of the eye muscles and change the relative positions of the eyelids.

Second, in patients with double vision, adjustments can be made to the eye muscles after orbital rearrangement, but before any eyelid corrections.

Finally, many patients with thyroid eye disease have some degree of eye protrusion and eyelid retraction. After orbital decompression, the eye does settle backward and slightly downward so that there is often a marked improvement in the lower eyelid position. The upper eyelids, however, in most cases, continue to "hang up" and require surgery to loosen them. In general, eyelid surgery can be done as an outpatient under local-sedated anesthesia.

Thyroid eye disease and its treatments are very complicated, but it is important for you to understand as much as you can about your disease. If you have any further questions about thyroid eye disease, its treatment, or your options, please be sure to ask. We are also happy to supply the names of other experienced physicians if you desire another opinion. The more informed you are, the more you are able to make important decisions about your care, and the better you will feel about your disease and its treatment.