

## Entropion

Entropion is an inward turning of the eyelid and lashes toward the eye, usually caused by relaxation of the eye muscles and tissue due to aging.

Entropion usually affects the lower lid. The skin and eyelashes rub against the eye and cause discomfort and tearing. The irritated eye can produce mucus and become red and sensitive to light and wind. If entropion is not treated, rubbing of the skin and eyelashes can lead to infection or scarring of the eye, which can cause vision loss.

Surgery can be performed to tighten the eyelid and return it to its normal position. The eyelid then protects the eye properly, and irritation and other symptoms subside.

Eyelid surgery to repair entropion is usually performed on an outpatient basis under **monitored anesthesia care (MAC)**. Following surgery, your ophthalmologist (Eye M.D.) may prescribe antibiotic ointment and will instruct you to avoid heavy bending, lifting, and straining for seven days.

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## Tattoo Removal

Tattooing is the ancient art of permanent body painting, accomplished by inserting various pigments into the skin with a needle. These pigments, or inks, sometimes last much longer than we wish they did. Attempts at removing tattoos have generally not been as successful as the initial tattooing efforts.

Dermabrasion and the use of either argon or carbon dioxide lasers can be used to remove tattoos, but these methods often cause scarring. Tattoo removal is most effective using a type of laser called a **Q-switched laser**, which removes most tattoos with less associated scarring. There are three types of Q-switched lasers: Ruby, Alexandrite, and Nd:YAG.

The laser emits very short flashes of light called pulses. Each pulse may produce discomfort similar to the snap of a rubber band against the skin. The laser uses light to disperse the pigment within the skin, permitting the body to reabsorb some of the pigment. Lasers are designed to produce light at very specific wavelengths. The tattoo pigment better absorbs the wavelength of light produced by the laser than the surrounding skin. The light absorption fades the tattoo pigment without injuring the surrounding skin.

Multiple treatments are typically required to remove a tattoo. Professional tattoos may require six to 10 treatments, while amateur tattoos may only require 4 to 6 treatments. The number of treatment sessions depends on the amount and type of ink used, and the depth of the ink in the skin. Dark blue, black, and red inks respond best to treatment. Orange and purple inks respond well. Green and yellow inks are the most difficult to remove, although additional treatments can produce significant fading. Complete tattoo removal is rare.

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## Eyelid Surgery

Eyelid surgery is a common method of treatment for entropion (inward turning of the eyelid), ectropion (outward turning of the eyelid), ptosis (drooping of the eyelid), and some eyelid tumors.

Eyelid surgery is usually an outpatient procedure performed under local anesthesia. Risks of surgery are rare but can include bleeding, infection, and eyelid asymmetry due to uneven wound healing.

Differences in healing between the eyes may cause some unevenness after surgery.

After eyelid surgery, bruising or a black eye is common but resolves quickly. It may be difficult to close your eyelids completely, making the eyes feel dry. This irritation generally disappears as you heal.

Serious complications are rare but can include vision loss, scarring, and infection. To most people, the improvement in vision, comfort, and appearance after eyelid surgery is very gratifying.

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## Thyroid-Related Ophthalmopathy

The thyroid gland, located in the front of the neck, produces hormones that regulate your body's metabolism (the process by which the body transforms food into energy).

In a small number of people, the thyroid gland produces either excessive hormone, inadequate hormone, or it inadequately regulates thyroid hormones. An overproduction of thyroid hormone is often associated with a condition known as **Graves' disease**; an underproduction is associated with a condition known as **Hashimoto's disease**. Atypical regulation of the thyroid hormone can cause problems associated with the structure surrounding the eye and the area within the orbit, and it also can cause subsequent vision problems.

Some eye problems associated with the disease are:

- **Eye protrusion:** This occurs when the muscles around the eyes swell, which pushes the eye forward. People with this condition look as if they are staring.
- **Eyelid retraction:** The combination of eyelid swelling and eye protrusion sometimes causes the eyelids to retract and reveal the sclera (the white part) of the eye.
- **Dry eye:** Because of protrusion and eyelid retraction, the eyes are more exposed to the environment. This causes blurred vision, light sensitivity, dry eye, excessive tearing, irritation, and inflammation.
- **Double vision:** Muscle swelling may cause double vision.
- **Eye bags:** Eyelid swelling can cause tissue around the eyes to bulge forward.

These problems are treated by non-surgical and surgical methods. Non-surgical methods include taking steroid medications by mouth to control swelling and inflammation, wearing sunglasses to relieve light sensitivity, and applying lubricating ointment to relieve dry eye. Surgical methods include repositioning the eye muscles, removing scarred tissue, and relieving compression on the optic nerve to preserve sight.

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## Squamous Cell Carcinoma

A tumor is an abnormal growth of any tissue or structure; it can be either benign or malignant. A tumor can affect any part of the eye, such as the eye socket, eyeball, eye muscles, optic nerve, fat, and tissues.

**Squamous cell carcinoma** is a malignant eyelid tumor, occurring in approximately 5% of malignant eyelid tumors. The most common location is the lower eyelid, particularly in elderly, fair-skinned people. This tumor appears as a raised nodule, and it can lead to loss of eyelashes in the involved area.

When detected and treated early, the outcome for this type of tumor is excellent. However, if the tumor is neglected, it can spread to the lymph nodes in the neck. Surgery is the most effective treatment.

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## Sebaceous Cell Carcinoma

A tumor is an abnormal growth of any tissue or structure; it can be either benign or malignant. A tumor can affect any part of the eye, such as the eye socket, eyeball, eye muscles, optic nerve, fat, and tissues.

**Sebaceous cell carcinoma** is a type of tumor that originates in the eyelid glands of elderly individuals. It is relatively rare but still accounts for 1% to 5% of malignant eyelid tumors. These highly malignant tumors may recur, invade the eye socket, or spread to the lymph nodes. The tumor may look like a chalazion or sty, making it difficult to diagnose.

Immediate surgical intervention is usually necessary for this type of tumor. In some cases, radiation therapy may be an alternative or may be used in conjunction with surgery.

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## Laser Skin Resurfacing

Laser skin resurfacing is a relatively new laser procedure used to improve the appearance of the skin. With great control and precision, the laser removes the sun-damaged superficial layers of the skin in order to treat wrinkles, superficial scarring, or facial pigment abnormalities. When the skin heals, the new skin layers are tighter and the wrinkles are less apparent.

The laser can be used to treat the entire face or can be limited to the fine wrinkles around the eyes and mouth. Aging, cigarette smoking, and a lifetime of sun exposure are some of the factors associated with wrinkles. Laser skin resurfacing can be used in conjunction with a face-lift procedure in order to tighten and reposition loose skin on the face and neck and diminish fine wrinkles. Younger patients who are not yet candidates for a face-lift may be candidates for the laser procedure.

Laser resurfacing can be done as an outpatient procedure using local anesthesia. If the entire face is treated or if this procedure is combined with other cosmetic procedures, intravenous sedation or a general anesthetic might be necessary. The procedure can last from a few minutes to two hours depending on the treatment area.

After surgery, the treated skin must heal, much like any wound that removes skin. There is significant swelling of the treated skin, especially around the eyes and lips. New skin layers take five to ten days to grow, depending on the depth of treatment with the laser.

Laser skin resurfacing has advantages over traditional resurfacing methods such as chemical peels and dermabrasion. Healing is generally quicker and there is less postoperative discomfort. While there is similar redness and swelling after surgery, there is less chance of scarring or skin pigment changes.

You will need a consultation with your physician to determine if you are a candidate for laser skin resurfacing in combination with other types of cosmetic surgery or as an alternative to other procedures. It is important to tell your doctor if you have had previous cold sore infections, are using the drug Accutane, or have any other conditions that might interfere with the normal healing process.

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## Ptosis

Ptosis is drooping of the upper eyelid. The eyelid may droop only slightly or it may cover the pupil entirely. In some cases, ptosis can restrict and even block normal vision.

**Congenital ptosis**, or ptosis that is present at birth, requires treatment in order for normal visual development to occur. Uncorrected congenital ptosis can cause **amblyopia** or “lazy eye,” which is an impaired visual development. If left untreated, amblyopia can lead to permanently poor vision.

Except in mild cases, the treatment for childhood ptosis is usually surgery to tighten the **levator muscle**, the muscle that lifts the eyelid. In severe ptosis when the levator muscle is extremely weak, the lid can be attached or suspended from under the eyebrow so the forehead muscles do the lifting. Whether they have had surgery or not, children with ptosis should be examined annually by an ophthalmologist (Eye M.D.) for amblyopia, refractive disorders, and associated conditions.

Ptosis in adults is commonly caused by separation of the levator muscle from the eyelid as a result of aging, cataract or other eye surgery, an injury, or an eye tumor. Adult ptosis may also occur as a complication of other diseases such as diabetes that involve the levator muscle or its nerve supply.

If treatment is necessary, it is usually surgical. Sometimes a small tuck in the levator muscle and eyelid can raise the lid sufficiently. More severe ptosis requires reattachment and strengthening of the levator muscle.

The risks of ptosis surgery include infection, bleeding, and reduced vision, but these complications occur very infrequently. Although improvement of the lid height is usually achieved, the eyelids may not appear perfectly symmetrical. In rare cases, full eyelid movement does not return.

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## Eyelid and Orbital Tumors

A tumor is an abnormal growth of any tissue or structure; it can be either benign or malignant. Benign tumors often remain localized, while malignant tumors often spread into surrounding structures. A tumor can affect any part of the eye, such as the eye socket, eyeball, eye muscles, optic nerve, fat, and tissues. Sometimes tumors grow into the eye area, or tumors from other parts of the body travel to the eye. Most tumors of the eye are benign.

### Eyelid Tumors

**Basal cell carcinomas** are the most frequently encountered kind of malignant tumor affecting the eyelid, making up 85% to 95% of all malignant eyelid tumors. The most common location is the inner portion of the lower eyelid, particularly in elderly, fair-skinned people. Prolonged exposure to sunlight seems to be a risk factor for developing this kind of tumor.

There are many different types of basal cell carcinomas, but the nodular variety is one of the most common. It appears as a raised, firm, pearly nodule with tiny dilated blood vessels. If the nodule is in the eyelash area, some lashes may be missing. The nodule may have some superficial ulceration and crusting and look like a chalazion or sty. Although these tumors are malignant, they rarely spread elsewhere in the body. For most of these tumors, surgery is the most effective treatment. In severe cases when the tumor has been neglected for a long time, it can spread into the eye socket, which may ultimately require removal of the eye and adjacent tissue.

**Squamous cell carcinoma** is the second most common kind of malignant eyelid tumor (occurring in approximately 5% of malignant eyelid tumors). As with basal cell carcinoma, the most common location is the lower eyelid, particularly in elderly, fair-skinned people. This tumor also appears as a raised nodule that can lead to loss of eyelashes in the involved area. When detected and treated early, the outcome for these tumors is excellent. However, if the tumor is neglected, it can spread to the lymph nodes in the neck. Surgery is the most effective treatment.

**Sebaceous cell carcinoma** originates in glands of the eyelid in elderly individuals. It is relatively rare but still accounts for 1% to 5% of malignant eyelid tumors. These are highly malignant tumors that may recur, invade the eye socket, or spread to lymph nodes. The tumor may look like a chalazion or sty, making it difficult to diagnose. Surgery is usually necessary for this kind of tumor.

**Malignant melanoma** makes up almost 1% of all malignant eyelid tumors but accounts for many of the deaths from malignant eyelid tumors. As with any other type of malignant melanoma, these tumors on the eyelid can arise from a pre-existing nevus or mole or may arise with no other pre-existing cause. Again, these tumors tend to occur in sun-exposed areas of elderly, fair-skinned people. Any areas of unusual or altered pigmented should be examined, especially if it is growing or changing color. Surgical removal is usually the recommended treatment.

## Orbital Tumors

The orbit is the bony socket that contains the eye, the muscles that move the eye, the optic nerve, and all the related nerves and blood vessels. The different kinds of orbital tumors include:

- **optic nerve glioma**, a benign tumor often associated with neurofibromatosis;
- **orbital meningioma**, a tumor growing from the tissue covering the brain;
- **hemangioma**, a benign tumor made up of blood vessels or vessel elements;
- **lymphangioma**, a tumor made up of enlarged lymphatic vessels;
- **neurofibroma**, a tumor made up nerve cells;
- **sarcoma**, a malignant tumor growing from connective tissue; and
- **metastasis**, a malignant tumor that spreads to the orbit from other parts of the body.

Signs of an orbital tumor include bulging of the eyeball, visual loss, double vision, or pain.

Once the tumor is discovered and imaged with magnetic resonance imaging (MRI) or computerized tomography (CT scan), it is usually necessary to perform a biopsy or remove the tumor in order to diagnose the tumor. If necessary, surgery is usually sufficient for most orbital tumors, including optic nerve glioma and meningioma. Some orbital tumors may require different or additional treatments. For malignant tumors including sarcomas and metastases, radiation therapy and sometimes chemotherapy are necessary.

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