

## ***Trigeminal Neuralgia - Nerve Lesioning***

### **Introduction**

Trigeminal neuralgia is a condition that affects about 40,000 patients in the U.S. every year. Its treatment is mainly medical, and consists of oral medications. If medications are not successful in controlling the pain, the doctor may suggest surgery.

This reference summary will help you understand the disease, and the benefits and risks of peripheral nerve lesioning.

### **Anatomy**

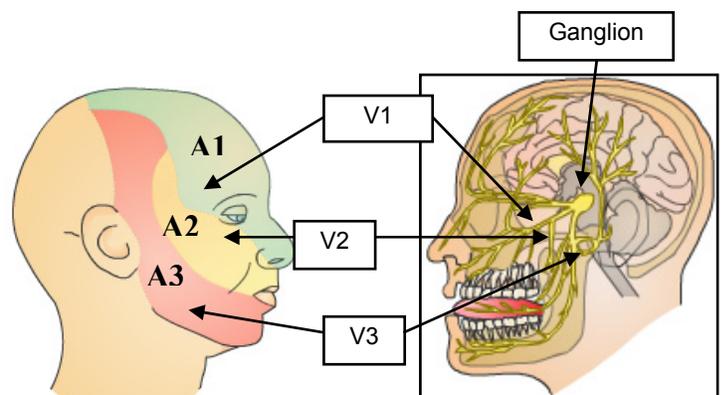
The trigeminal nerve is responsible for most of the sensation in the face. There is a trigeminal nerve on both sides of the face. The main part of the nerve, or “ganglion,” is located at the base of the brain.

From there it divides into three branches.

The first division, known as V1, provides sensation to the eye, upper eyelid, and forehead, as shown in the green area A1.

The second division, known as V2, provides sensation to the cheek, lower eyelid, nostril and upper lip, and gum, as shown in the yellow area A2.

The third division, known as V3, provides sensation to the area of the jaw, the lower lip, and gum, as shown in the red area A3. V3 also controls some of the muscles responsible for chewing.



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## Symptoms and Their Causes

Trigeminal neuralgia is characterized by severe pain in the face. The pain lasts for a few seconds and can spread to the rest of the face. However, it is usually limited to one division of the trigeminal nerve. Between bouts of severe pain, the patient is usually pain free.



Specific sites in the patient's face, such as the corner of the mouth, gum, or lip, can act as a trigger point. The pain can be set off when one of these sites is touched. The pain can be so severe that the patient may refrain from eating or speaking for fear of eliciting the pain.

It is still not clear what causes this pain. Trigeminal neuralgia is most often thought to be caused by abnormal compression of the ganglion of the trigeminal nerve. This can be caused by a normal blood vessel that has become more rigid because of advanced age.



Other reasons for trigeminal neuralgia include tumors, multiple sclerosis, and abnormal blood vessels. However, these are very rare.

## Medical Treatment

Medications taken by mouth usually relieve the symptoms of trigeminal neuralgia. These include medications usually taken for seizures, such as carbamazepine (Tegretol™), or phenytoin (Dilantin™).

Other medications such as baclofen (Lioresal™), usually used to help patients relax their muscles, could be tried.

If these medications, used alone or in combination, fail to reduce pain or are not tolerated by the patient because of their side effects, an operation may be needed.



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## Procedure

This reference summary explains the treatment of trigeminal neuralgia using peripheral nerve lesioning. Peripheral nerve lesioning is usually done under local anesthesia.

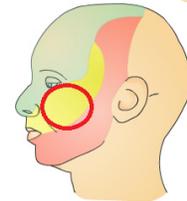
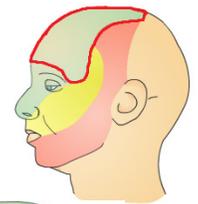
The nerve sending the pain can be cut as it exits the skull so that it does not reach the skin. This is usually done through a small skin incision. Alternatively, absolute alcohol could be injected in the nerve to destroy it.

This results in complete numbness in the part of the face supplied by the nerve that was either cut or injected. When a nerve is cut, the numbness is permanent. Depending on the ability of the nerve to regenerate, the numbness after alcohol injections could be permanent or temporary.

For example if the nerve over the eye is cut, the area you see on this diagram will be numb.

If the nerve under the eye is cut, the area shown becomes numb.

Some patients cannot tolerate this numb feeling. Before the operation, the surgeon may be able to inject the nerve with a numbing medication such as Novocain®. This numbness usually lasts for a short time but could help the patient decide whether he or she could tolerate the loss of sensation.



## Risks and Complications

This procedure is safe. There are, however, several possible risks and complications. These are unlikely, but possible. You need to know about them just in case they happen. By being informed, you may be able to help your doctor detect complications early.

The risks and complications include those related to anesthesia and those related to any type of surgery. Allergy to the numbing anesthetic used may be a problem. Inform your surgeon of any previous allergies. Even though rare, allergies to numbing medications could be fatal.



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Some of the risks are seen in any type of surgery. These include:

1. Infection, deep or at the skin level. Infections can involve the face incision.
2. Bleeding, either during or after the operation.
3. Skin scars.

Other risks and complications are related specifically to these procedures. These are also very rare. However, it is important to know about them. There is always the possibility that the chosen procedure may not help the pain. The procedure may have to be repeated or a different one may have to be done.

In the case of facial numbness, a condition known as “anesthesia dolorosa” can occur. In this condition, pain may persist in spite of the numbness. This may lead the patient to repeatedly touch and scratch the involved area of the face, leading to sloughing of the skin and disfigurement. Because of this and because of the loss of sensation, patients need to inspect their faces daily to make sure no infections or injuries are affecting the numb area of the face.



There are other risks related to this specific procedures. Injecting alcohol around the nerve could lead to sloughing of the skin around the injection area. This is usually of no consequence and improves on its own. Sometimes, however, severe scarring can occur, and plastic surgery may be needed.

### **After the Surgery**

You will probably go home the day of the surgery. After the surgery, you will probably still be on your trigeminal neuralgia medication. You will wean off them over time. It may take a few days to a week to know whether the operation was successful.

You should refrain from any heavy lifting or bending until your follow-up visit. At that time, your surgeon will decide whether or not you can return to your usual activities. You should also make sure to call your doctor if you develop any severe headache, fever, or visual problems. All these may be signs of serious complications.



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## Summary

Trigeminal neuralgia is best treated medically. When medications fail, surgery may be considered. Surgical procedures are usually successful in alleviating the pain and improving the patient's symptoms.

This procedure is safe. Risks and complications are rare. Knowing about them will help you detect and treat them early.



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