

Trigeminal Neuralgia - Radiofrequency Rhizotomy

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.

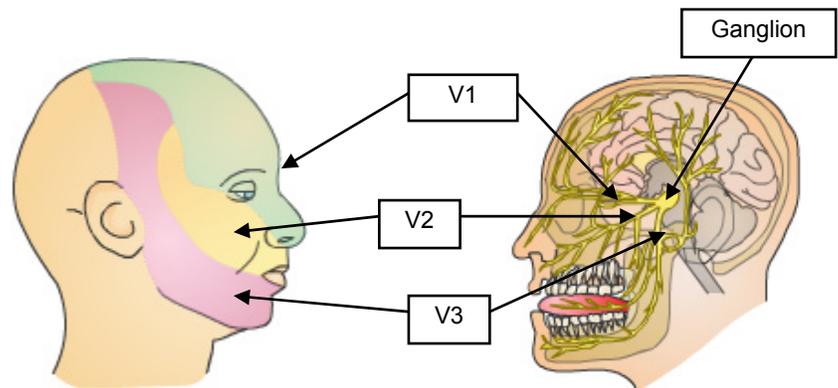
This reference summary will help you understand the disease, and the benefits and risks of Radiofrequency Trigeminal Rhizotomy.

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 A.

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.

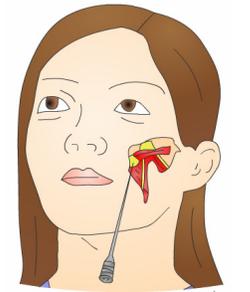
Procedure

This reference summary will discuss a procedure known as Radiofrequency Trigeminal Rhizotomy. This procedure aims at destroying the part of the nerve causing the pain. This is known as an “ablative procedure.” This procedure is done under a combination of local and general anesthesia.



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Using x-ray control, also known as fluoroscopy, a surgeon places a long needle through the cheek all the way to the base of the brain, through a small opening in the skull to reach the ganglion. The nerve is then stimulated with a small electric current to see which part of the nerve is close to the needle. This is usually not painful. It helps the surgeon move the needle until he or she is satisfied with its placement.



Fluoroscopy

The patient is then put to sleep briefly while the lesion is performed. The patient is then allowed to wake up and is tested for sensation loss to make sure the patient has lost sensation in the targeted area. More than one lesion may need to be done before taking the needle out.

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. Risks of general anesthesia include nausea, vomiting, urinary retention, cut lips, chipped teeth, sore throat, and headache. More serious risks of general anesthesia include heart attack, stroke, and pneumonia. Your anesthesiologist will discuss these risks with you and ask you if you are allergic to certain medications.



Blood clots in the legs can occur due to inactivity during and after the surgery. These usually show up a few days after surgery. They cause the leg to swell and hurt.

Blood clots can become dislodged from the leg and go to the lungs, where they will cause shortness of breath, chest pain and possibly death. It is extremely important to let your doctors know if any of these symptoms occur. Sometimes the shortness of breath can happen without warning. Getting out of bed shortly after surgery may help decrease the risk of blood clots in the legs.

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

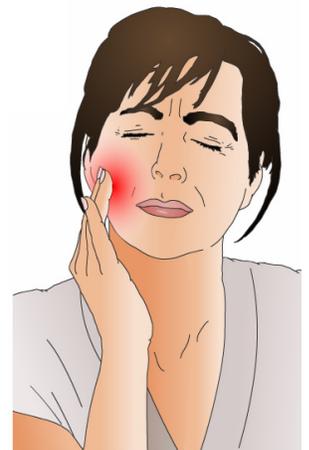
1. Infection, deep or at the skin level. Infections can involve the face. Deep infections may involve the brain or the fluid that circulates around the brain. This is known as meningitis. Treating deep infections may require long-term antibiotics and possibly surgery.
2. Bleeding, either during or after the operation. This may require a blood transfusion.
3. Skin scars.

Other risks and complications are related specifically to this procedure. 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 procedure may have to be done.

Rarely, the loss of sensation can involve the eye itself. In this case, the eye may get injured, specifically the cornea, or the clear coating of the eye. This is known as corneal abrasions. This rarely leads to permanent visual problems or blindness.

The muscles of the side of where the operation is performed may become weaker, and cause some pain and difficulty with chewing. This is usually very well tolerated by patients.

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 cause 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.



The needle itself could cause bleeding inside or around the brain. This kind of bleeding could be fatal and may require another operation to remove the blood clot.

In rare cases, the needle could also injure other nerves in the vicinity, such as the nerves responsible for vision or movement of the eye. In extremely rare cases, this could result in blindness or double vision.

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After the Surgery

This is an outpatient procedure. Patients go home the same day. 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, visual problems, or fluid leak from the incision. All these may be signs of serious complications.

Summary

Trigeminal neuralgia is best treated medically. When medications fail, surgery may be considered.

Trigeminal rhizotomy is 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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