

Trigeminal Neuralgia

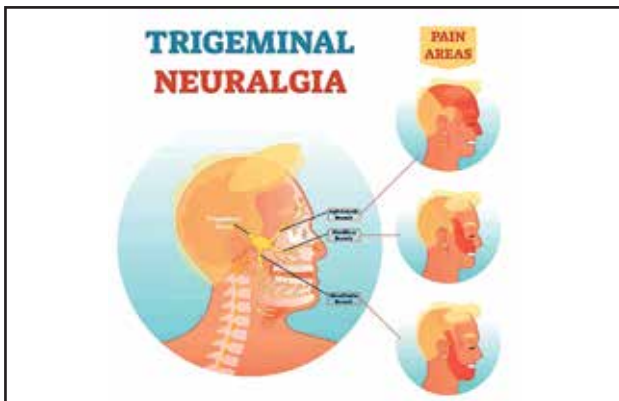
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Key points

- Trigeminal Neuralgia (TN) is a chronic pain disorder that affects the fifth cranial nerve
- There are two types of trigeminal neuralgia namely Primary TN and Secondary TN
- Trigeminal neuralgia can be treated with a combination of medications, surgery, and complementary therapies.

Trigeminal Neuralgia (TN) is a facial pain syndrome. It is a type of chronic pain disorder that affects the fifth cranial nerve or trigeminal nerve that carries sensations from the face to brain. After the trigeminal nerve leaves the brain and travels inside the skull, it divides into three smaller branches, Ophthalmic Nerve (V1), Maxillary Nerve (V2) & Mandibular Nerve (V3). Another name of TN is tic douloureux.



<https://www.hopkinsmedicine.org/health/conditions-and-diseases/trigeminal-neuralgia>

Causes

About 11% of patients with tic douloureux remain without diagnosis of an evident cause.¹

There are two types of trigeminal neuralgia:

1. Primary TN
2. Secondary TN

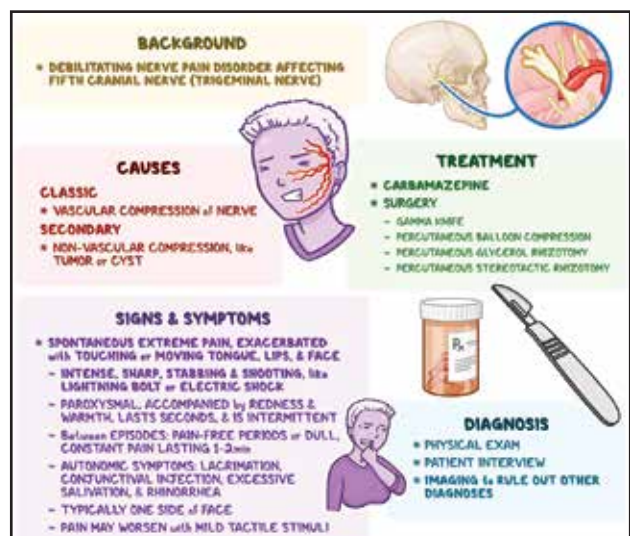
Primary TN is caused due to compression of the nerve generally in the base of the head where the brain meets the spinal cord. A contact between healthy artery or vein and trigeminal nerve place pressure on nerve as it enters the brain and cause the nerve to backfire.

Secondary TN is caused by pressure on the nerve from a tumor, multiple sclerosis (MS), a cyst, facial injury or any medical condition that damages the myelin sheaths.

The average age of onset is 53 years in primary TN and 43 years in secondary TN.²

Symptoms of TN

1. Pain often is first experienced along the upper or lower jaw, so many patients assume they have a dental abscess.
2. Episodes of severe pain that may feel like an electric shock.
3. Burning sensation on one side of the face.
4. Attacks of trigeminal neuralgia can be triggered by certain activities such as talking, smiling, chewing, shaving & while brushing the teeth.
5. Numbness or an insensibility sensation
6. Edema
7. Temporomandibular joint syndrome (TMJ)
8. Significant psychosocial stress
9. Higher rates of anxiety and depression



<https://www.osmosis.org/answers/trigeminal-neuralgia>

Unsurprisingly, tic douloureux can cause psychosocial stress, higher rates of anxiety and depression.³

It is reported that 150,000 people are diagnosed with trigeminal neuralgia (TN) every year. It is most common in people over the age of 50. The National Institute of Neurological Disorders and Stroke (NINDS) notes that TN is twice as common in women than in men.

TN can be very difficult to diagnose because there are no specific diagnostic tests. MRI is not used to diagnose TN. However, it is an effective way to evaluate possible causes of this facial pain syndrome.

Treatment

Trigeminal neuralgia can be treated with a combination of medications, surgery, and complementary therapies.

Anticonvulsant drugs are usually the first choice for treating pain associated with trigeminal neuralgia. These drugs include Carbamazepine, oxcarbazepine, phenytoin, lamotrigine, sodium valproate, gabapentin, clonazepam and topiramate. There are some side effects, including dizziness, nausea, confusion, sleepiness & drug reactions. In women the potential toxic daily dose of carbamazepine and oxcarbazepine is 800 and 1200 mg, conversely the toxic daily dose for men is 1200 mg and 1800 mg.⁴

Anticonvulsant drugs may lose their effectiveness over time. Many of these drugs can have a toxic effect, patients must have their blood monitored to ensure their safety. If medications have proven ineffective in treating TN, several surgical procedures are used including open cranial surgery, lesioning procedures, and Stereotactic radiosurgery.

Open surgery also known as microvascular decompression involves removal of blood vessels that are in contact with the trigeminal root to stop the nerve from malfunctioning. Decreased hearing, facial numbness & facial weakness are some risks of open surgery. Balloon compression involves a needle that is passed through the cheek to the trigeminal nerve. The balloon is inflated where fibers produce pain, compresses the nerve, injuring the pain causing fibers and is then removed. Most people undergoing this procedure experience at least some temporary facial numbness.

Stereotactic radiosurgery includes some procedures such as Gamma Knife & linear accelerator (LINAC). Gamma Knife radiosurgery involves specialized equipment to focus about 200 tiny beams of radiation on a tumor. It is not surgery in the traditional sense because there is no incision. It is usually a one-time therapy completed in a single day.

The Cyber Knife allows patients to lie comfortably on the procedure table without anesthesia while the robotic arm

moves, without touching them, to treat all areas of the tumor. Recovery is often immediate, given its low risk of damage to healthy tissue.

A medical linear accelerator (LINAC) involves high energy x-rays or electrons to conform to a tumor's shape and destroy cancer cells without damaging normal tissue.

Complications of radiosurgery for TN include facial hypoesthesia, corneal damage, and dry eye.⁵

Reference:

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