Trigeminal Neuralgia (Tic Douloureux)

Trigeminal neuralgia (TN), also known as tic douloureux, is a condition affecting cranial nerve V, the trigeminal nerve. It is characterized by episodes of severe, stabbing facial pain, often followed by a burning ache that can last from several seconds to minutes. These symptoms occur in the sensory regions served by the branches of the trigeminal nerve.Most cases of TN are caused by compression of the trigeminal nerve, which leads to demyelination at the site of compression. While the exact mechanism by which demyelination causes the symptoms of TN is not fully understood, one hypothesis suggests that the demyelinated lesion may generate ectopic impulses. These impulses can lead to ephaptic transmission, where electrical conduction occurs between neighboring neurons through extracellular spaces, bypassing traditional synapses and neurotransmitters.The first-line treatment for TN is carbamazepine, often combined with other muscle relaxants or antiepileptic drugs. Surgery is typically considered only as a last resort.



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Tic Douloureux
Tic Doodle-Roo
Trigeminal neuralgia is also know as tic douloureux. The term "Tic Douloureux" originates from French, where "tic" refers to a sudden, involuntary muscle contraction or spasm, and "douloureux" means "painful." The phrase literally translates to "painful tic," reflecting the sudden, intense, and painful facial spasms that characterize the condition. The name emphasizes the excruciating nature of the facial pain experienced by individuals with this condition.

Cranial Nerve V - Trigeminal Nerve
Brainstem Grabbing (5) Face with Three Gems
Cranial nerve V, the trigeminal nerve, originates in the pons and has both motor and sensory innervations in the face. Its three main branches, V1 (ophthalmic), V2 (maxillary), and V3 (mandibular), provide sensation to the upper third, middle third, and lower third of the face, respectively. CN V also provides sensation to the temporomandibular joint, teeth, and anterior 2/3 of the tongue.

Characteristics

Stabbing Unilateral Facial Pain
Stabbing Pain-bolt on Face
Severe, sharp, stabbing facial pain on one side of the face in the distribution of one or more branches of the trigeminal nerve is characteristic of trigeminal neuralgia. These episodes often occur from minor stimuli, e.g., wind blowing on the face, brushing teeth, or applying face lotion, and last for several seconds to minutes.

Facial Spasms
Face Space-ship
Facial spasms of muscles in the face can occur in response to severe pain.

Psychological Disturbances
Psychic Disturbed
Secondary to the neurologic facial pain, psychological distress within a broad spectrum can occur. Symptoms can range from dysphoria to severe depression with suicidal ideation.

More Common in Women > 60 Years Old
Female (60) Min-reporter
Trigeminal Neuralgia is rare. However, it is more common in women (2:1), who are usually >60 years old.

DIAGNOSIS

Diagnosis by Clinical Impression
Diagnostic-computer displaying Clinical Impression
Trigeminal neuralgia is a clinical diagnosis and must include all of the following criteria, per the International Classification of Headache Disorders:
- Severe, acute, stabbing/electric shock-like, unilateral episodes of pain in the area innervated by one or more divisions of CN V.
- Episodes of pain last

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no more than 2 minutes.
- Pain triggered by innocuous stimuli.
- There is no other better explanation for the symptoms.

MRI

M-R-eyes Machine

Neuroimaging, specifically MRI, is used to classify cases of trigeminal neuralgia according to their etiology. All patients with trigeminal neuralgia should have at least one MRI performed at diagnosis to determine the etiology. Up to 15% of cases have secondary causes of trigeminal neuralgia.

Treatment

Carbamazepine

Car-bomb-maze-pine

Carbamazepine is a first-line treatment for trigeminal neuralgia. Another option is oxcarbazepine. The efficacy of these anticonvulsants has been proven in several randomized controlled trials. However, these drugs are not always well tolerated and may cause hepatotoxicity or leukopenia. All patients should have intermittent labs, including CBCs and LFTs, to monitor for it.

Surgery As Last Resort

Surgery Last Resort

Surgery may be indicated if pharmacological treatment fails. Procedures like transcutaneous or microvascular decompression aim to treat vascular compression of CN V nerve roots (classic trigeminal neuralgia) by injuring the sensory fibers of the trigeminal nerve, cutting off their transmission of pain.

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