

# Massage Therapy Today

Putting Knowledge into Practice

Spring 2022 • www.rmtao.com

## FOCUS: NERVE ENTRAPMENTS

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# Undoing the Damage of Pandemic Living TMJ Dysfunction and Trigeminal Neuralgia

By Anne Käärid,  
RMT

The global pandemic has affected our health in a myriad of ways, from mental health issues to loss of muscle mass. With extended sedentary periods of isolation, makeshift dining-room-table offices, and increased screen time, the effects on our bodies have likely been profound.

Along with the likely deficit in muscle mass for many, in my experience our posture and soft tissues have been in an environment of surviving, not thriving—I am seeing the effect of this on my massage table. I am seeing more complaints of aches, pains, and soreness where there is no obvious sign of injury, and an overwhelming increase in TMJ pain and symptoms of trigeminal nerve impingements.

How can we better serve our patients who are suffering from nerve pain, you might ask? Understanding the correlation between a forward head posture and the effects it has on the structures of the neck, head, and face is a great starting point. So, let's go back to the classroom and review the trigeminal nerve and how it can present as a comorbidity with TMJ dysfunction.



Anne Käärid, RMT has been part of the natural health profession since 2008 as a practitioner and educator. She enjoys facilitating focused workshops, tutoring, and mentoring women in business. Outside of her work as an RMT, Anne enjoys time in nature, appreciating the arts, and spending time with her family. [www.annethermt.com](http://www.annethermt.com)

## What is the trigeminal nerve (CN V)?

The fifth (and largest) cranial nerve is the trigeminal. Its primary function is to provide sensory and motor innervation to the face. CN V is classified into three different branches: the ophthalmic (V<sup>1</sup>), maxillary (V<sup>2</sup>), and the mandibular (V<sup>3</sup>) nerves (see diagram).

The mandibular nerve (CN V<sup>3</sup>) is the only branch that has both sensory and motor components. The motor aspect innervates all of the muscles of mastication. The sensory portion is responsible for pain and temperature

information from the mandibular teeth, buccal mucosa, temporomandibular joint, the anterior two-thirds of the tongue (differentiated from taste, which is carried by CN VII), and the face below the region of the maxillary nerve. It is CN V<sup>3</sup> that we most often assess and work to release.

## CN V<sup>3</sup> sensory supply:

- Mucous membranes and oral floor
- External ear
- Lower lip
- Chin
- Anterior two-thirds of the tongue
- Lower molar, incisor and canine teeth, and the associated gingiva

## CN V<sup>3</sup> motor supply:

- Muscles of mastication, medial and lateral pterygoids, masseter, temporalis
- Anterior belly of the digastric muscle and mylohyoid muscle
- Tensor veli palatini
- Tensor tympani

## CN V<sup>3</sup> parasympathetic supply:

- Submandibular and sublingual glands from the lingual nerve branch
- Parotid gland from the auriculotemporal branch

## What is trigeminal neuralgia?

Trigeminal neuralgia (TN) is a clinical condition characterized by neuropathic pain within the sensory region of CN V. This pain is often described as burning or shock-like, can have a sudden onset, and may last for several minutes to days or months. When CN V becomes

damaged or irritated, eating, talking, or even the blowing of wind on the face can cause excruciating pain. In fact, TN is believed to be one of the most painful conditions we can experience, and can eventually cause disability.

### How does TMJ dysfunction fit with TN symptoms?

TMJ dysfunction occurs when the muscles and ligaments around the jaw joints become inflamed, irritated, or imbalanced. When this group of jaw-guiding muscles experience tension (grinding, clenching, or postural imbalances), the patient may present with neuralgia-like symptoms in the jaw and face. Both TMJ dysfunction and TN can have a sudden onset or a long-lasting effect; pain may be intermittent or constant, acute or chronic, and mild or severe. It may be difficult to differentiate where TMJ dysfunction ends and TN begins, and which pains belong to which condition. Understanding the structures involved in these presentations allows us to assess and treat soft tissue imbalances with the goal of relieving the pressure that may impede CN V.

### What causes TN?

The causes of TN vary widely, but it is most commonly the result of nerve compression. Mechanical compression of CN V can be caused by an aneurysm, arteriovenous malformation, tumour, trauma, surgery, or dental procedures. Additionally, TN is often seen in people with multiple sclerosis.

However, entrapment or peripheral compression of CN V through soft tissue imbalance may also cause TN. It is here that massage therapists can get clues to the source of entrapment through description of pain, assessments, and palpation, and provide pain relief by balancing structures causing nerve compression.

It is here that the tools of our trade and our knowledge of anatomy can shine!

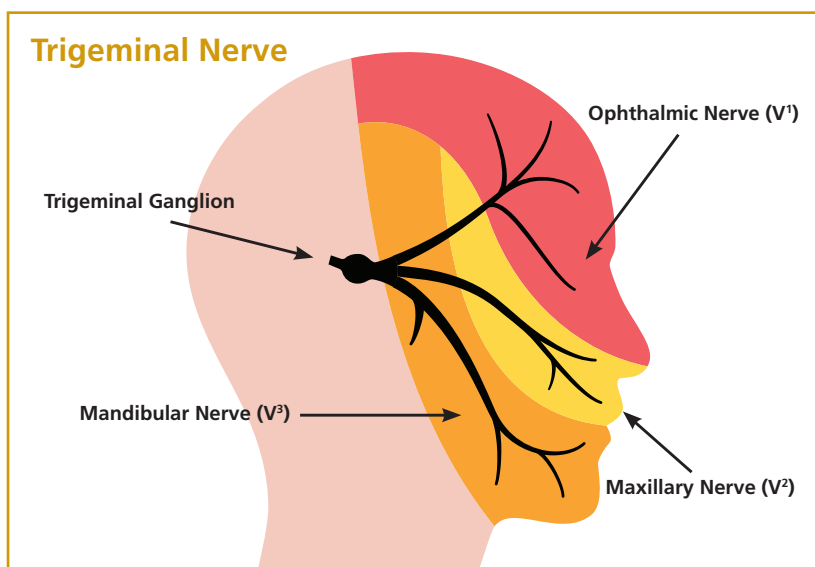
### The great imposters of TN

Sometimes other disorders may present as TN. It is worth noting some of these common conditions.

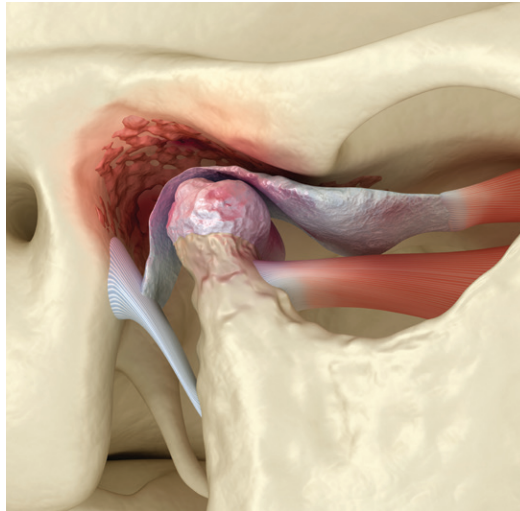
- Cluster headache: a severe headache on one side of the head that affects the territory of CN V.
- Migraine headache: a headache that originates in the brain and then involves CN V fibers. This is often mistaken for TN.
- Wallenberg syndrome (lateral medullary syndrome): a condition associated with brainstem damage, typically due to stroke, resulting in ipsilateral sensory loss (in CN V territory) and contralateral sensory loss in the rest of the body.
- Costen's syndrome: associated with hearing loss, stuffiness in the ears, and tinnitus aurium.
- Postherpetic neuralgia: a neurological condition arising from shingles.
- TMJ dysfunction or disorder: soft tissue inflammation around the jaw joints, affecting the area covered by CN V.
- Sinusitis, ear infections, salivary and parotid gland infections: these may compress CN V when inflamed.

I have seen a pattern emerge over the pandemic period: a rise in patients of all ages complaining of stress, anxiety, headaches, and pain in their upper backs, necks, and jaws. The common denominator has overwhelmingly been an increased forward head posture from extended device use, online work or school, and makeshift home offices. Although much of what I am seeing

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“The most prevalent imbalance I am seeing is the forward head posture. This is a mechanism by which passive tension in the suprahyoid and infrahyoid muscles alters the resting posture of the mandible. The mandible is pulled anteriorly and posteriorly, changing the position of the condyle within the TMJ. This position also facilitates facial and neck muscle tension, kyphosis, protracted scapulae, hyoid bone instability, and over time styloid bone ligament calcification.”



is muscular and postural in nature, it is not to say that these imbalances are not also affecting or impinging CN V. We know that when fascia, muscle, and ligaments are shortened, they can pull our kinetic and muscle chains out of order. With these structural stressors, it is not too far of a reach to assume that the trigeminal and mandibular nerves may experience compression.

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### Symptoms

**Before the pandemic, I would see:**

- ligamentous instability in the mouth (jaw popping, clicking),
- overuse of mastication muscles (bruxism, clenching), tension headaches, particularly over the temporalis,
- shortened anterior chest and neck muscles, and
- overstretched and weak upper back and shoulder muscles.

**Since the pandemic, I'm seeing:**

- migraine-like headache experienced after eating,
- tinnitus, ear stuffiness, or inability to tune out sound,

- jaw pain from wearing a mask,
- tunnel vision or vertigo,
- occipital and back-of-head “headaches,”
- prickly or stabbing pain in the inner ear, mouth, or tongue, and
- muscle twitching and tingling (within the CN V regions).

### Assessments—piecing together the puzzle

The most prevalent imbalance I am seeing is the forward head posture. This is a mechanism by which passive tension in the suprahyoid and infrahyoid muscles alters the resting posture of the mandible. The mandible is pulled anteriorly and posteriorly, changing the position of the condyle within the TMJ. This position also facilitates facial and neck muscle tension, kyphosis, protracted scapulae, hyoid bone instability, and over time styloid bone ligament calcification.

Assessing the cause of this forward head position will help us direct our treatment plans, and also provide us with a wonderful teaching opportunity for our patients. We must rule out the following (as reported by the patient and diagnosed by a qualified doctor):

- Any neurological disorders, nerve damage, or trauma from surgery; concussive trauma to the head
- Upper cervical trauma or malformation which impedes CN V
- Any intra-articular malformations in the TMJ itself

These conditions require an approach outside of our scope. However, as RMTs, we may become part of the treatment plan to address soft tissue imbalances.

### Postural

It is an important first step to assess posture and see how it is affecting the mandible's resting position. The interrelationship with the upper cervical spine and TMJ position is important. There is also a great correlation between imbalanced feet and the jaw, and fascial relations between the pelvic floor and the TMJ. This might be a great opportunity

to review kinetic chains and the deep and superficial front and back lines.

### Palpation

Inflammation and incorrect position of the upper spine can cause impingement of CN V. We must remember to check for tactile sensory competence of the face, any swelling or edema, temperature and tone of soft tissues, and the bony landmarks of the skull and cervical spine.

### Motor

It is important to take the time to do orthopedic, gait, and ROM testing. These quick tests are great to do pre- and post-treatment so we can see the improvement, as can our patients.

### Can we treat neuralgia, or are we just treating TMJ dysfunction?

I would like to be so bold as to say that, in many cases, we can treat both. The mutual relationship between TN and TMJ dysfunction allows us to affect both simultaneously. However, we must keep in mind that this is only the case if the impingement of the nerve is caused by soft tissue, allowing us to release the restriction through massage therapy.

Many that suffer with TN are working with healthcare practitioners specializing in their particular imbalance, including practitioners of the following disciplines:

- Orofacial myofunctional therapy
- Neuromuscular dentistry




- Buteyko and speech therapies
- Chiropractic—specializing in upper cervical spine
- Craniosacral therapy
- Osteopathy

Getting to know practitioners of these disciplines in your area is a great way to network, especially if you are interested in offering TMJD treatments at your practice. If TMJ is not your area of choice to work in, connecting with them is still valuable for referral purposes. After all, sometimes this is the best care we can offer our patients.

### In closing

Being part of a patient's circle of care is a rewarding experience. Our part in offering manual therapy for the soft tissues is collaborative remedial exercise and education, which gives another layer of healing, support, and resources to patients that are suffering from TMJ dysfunction and trigeminal neuralgia.

As we continue to move through these times of uncertainty, change, and upheaval, massage therapists can be reassured that we are playing a big part in bringing relief and comfort to our patients, as well as empowerment through their healing. I believe we will see a rise in comorbidity of TN and TMJ dysfunction in the months and years ahead. As massage therapists, we can help fight the battle and bring balance back to those we treat.

So, chin up (not forward and out), and carry on! 

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