

# CHAPTER 7

## TRIGEMINAL NEURALGIA: DO WE ALWAYS NEED MEDICATIONS OR SURGERIES?

Trigeminal neuralgia is a chronic pain condition that affects the trigeminal nerve, which is one of twelve cranial nerves that carry sensory and motor information from the face to the brain.

The trigeminal nerve has three branches, and classical trigeminal neuralgia is noted as severe stabbing neuropathic facial pain of the second and third divisions of the nerve. Together, those two branches, or divisions, stimulate the

cheek, maxilla and mandible, top and bottom lip, teeth and gums, and side of the nose.<sup>28</sup>

For people with trigeminal neuralgia, a mild stimulation to the face, such as from brushing their teeth, applying makeup, or even the wind blowing, may trigger a jolt of excruciating pain.<sup>29</sup> At first, patients usually experience short, mild attacks, but these can progress into longer, more frequent bouts of stabbing pain.

Trigeminal neuralgia affects women more than men, and it is more likely to occur in people who are over age fifty. It's estimated that some fifteen thousand people suffer from it but from experience treating this for years, I suspect that number is grossly underestimated.<sup>30</sup>

Betty was one of those afflicted with trigeminal neuralgia. She was seventy years old when she first came in for a consultation. Her chief complaints included symptoms of trigeminal neuralgia along with facial pain, pain when chewing, limited ability to open her mouth, and jaw joint noises.

For Betty, her victory was clear: to find a cause for the pain. She wanted to get rid of the pain because it kept her from being able to babysit her grandkids or even spend a

28 "Trigeminal Neuralgia Fact Sheet," National Institute of Neurological Disorders and Stroke, accessed February 20, 2018, <https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Trigeminal-Neuralgia-Fact-Sheet>.

29 "Trigeminal neuralgia," May Clinic, accessed February 20, 2018, <https://www.mayoclinic.org/diseases-conditions/trigeminal-neuralgia/symptoms-causes/syc-20353344>.

30 "Trigeminal Neuralgia," Johns Hopkins Health Library, accessed February 20, 2018, [https://www.hopkinsmedicine.org/healthlibrary/conditions/nervous\\_system\\_disorders/trigeminal\\_neuralgia\\_134,66](https://www.hopkinsmedicine.org/healthlibrary/conditions/nervous_system_disorders/trigeminal_neuralgia_134,66).

little time playing with them. She could not take care of them alone, and that was killing her.

Betty's first visit was in September 2017. At that time, she had pain on the left side of her face, starting at her ear and extending all the way across her cheek to

the midline. She described the pain as an electrical shock—a sharp, stabbing, debilitating pain. Since her pain was nine on a scale of ten, she said it kept her from feeling alive. She told us she prayed for help and relief, and that's when her physical therapist at a hospital over sixty miles away recommended that she come see me for evaluation. As you will read in a bit, sixty miles was not a big deal for her to travel to see us.

Before being diagnosed with trigeminal neuralgia, Betty had undergone root canals in two teeth—one upper, one lower—on the left side of her face, thinking they were the cause of the pain. She even had one of those teeth extracted, but that still didn't provide any relief. Then, in the spring of 2017, she was formally diagnosed with trigeminal neuralgia at the Mayo Clinic in Rochester, Minnesota. They completed a thorough workup on Betty that included CT scans, an MRI, and a clinical evaluation. It was recommended that she undergo microvascular decompression surgery to address her trigeminal neuralgia.

In May 2017, four months before becoming a patient of mine, Betty underwent the surgery with a titanium mesh

## VICTORY

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cranioplasty. The surgery involved drilling into the occipital bone at the base of the skull and entering the space of the cranial vault, that space inside the skull that houses the brain. Betty's trigeminal nerve was being compressed by the superior and anterior cerebral artery, and the surgeons placed Teflon felt in between the artery and the nerve to reduce compression on the nerve. The surgery went without complication, and titanium mesh was placed with bone wax through the access point of the skull.

The goal of the procedure was to relieve the compression of the trigeminal nerve centrally, within the cranial vault, and eliminate the trigeminal pain in the periphery, or the areas of her face where she was experiencing pain. The procedure involved relocating the blood vessels that were in contact with the nerve root under her brain to prevent the nerve from malfunctioning. If the vein is compressing the nerve, the surgeon may remove it. Part of the trigeminal nerve may also be cut during this procedure in hopes to relieve the pain if once inside, it is noted that the arteries aren't actually pressing on the nerve.

Microvascular decompression can eliminate or reduce pain, but sometimes the pain reoccurs within four years. This is what Betty was told before the surgery. Following Betty's surgery, she reported profound relief for two weeks. Then the pain returned just as before. She returned to the Mayo Clinic, and a second procedure was recommended and completed in August. This second procedure was gamma knife radiation, a.k.a. stereotactic radiosurgery, directed at

the trigeminal nerve. The delivery of radiation to the trigeminal nerve is image guided and completed under sedation. The surgical report I reviewed stated that the procedure went well, without complication.

A month later, Betty was in our office for the first time looking for answers because her pain abruptly returned despite the two surgeries completed by very talented and well-intended surgeons from the esteemed Mayo Clinic.

## THE CONNECTION TO SBD

I decided to include this chapter because we routinely see patients presenting with trigeminal neuralgia or with symptoms indicating that it may be present. Every case I have personally seen and treated in my office has met these two criteria: patients are in the fifth decade of life, and they are suffering from sleep breathing disorder (SBD). Often they don't know they have SBD, so we have to order appropriate testing, but in my practice, we have always found that to be present in these cases. As Dr. Olmos eloquently explains in his paper "Chasing Pain: Diagnosing and Treating Trigeminal Neuralgia in General Dentistry," if the problem is a peripheral entrapment, we must treat the nerve in the periphery. That's where intraoral orthotics and photobiomodulation therapy (PBMT) are potential solutions, versus medications and surgeries.<sup>31</sup>

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31 Steven Olmos, "Chasing Pain: Diagnosing and Treating Trigeminal Neuralgia in General Dentistry," *DentalTown*, January 2016, <http://>

In Betty's case, two quite invasive surgeries, one which involved boring a hole through the base of the skull behind the ear, proved to be ineffective, since the problem wasn't residing in the cranial vault or in the base of the skull. Instead, it was residing as an entrapment of the nerve as it coursed through the muscles of the face.

In considering the connection between trigeminal neuralgia and SBDs, it's also important to note that 26 percent of the American population is reportedly at high risk for SBD.<sup>32</sup> The case study with Betty illustrates these incident relationships between SBDs and trigeminal neuralgia, so we encourage those suffering with facial pain not only to get an accurate diagnosis, but to have a treatment plan that's tailored to addressing where the pain is coming from. Now I'm not saying there is no role for these surgeries, as specific cases may certainly require them, but in my patient population, I have not seen the need given the patients who have presented to me for treatment.

## BETTY'S VICTORY

During that first visit with Betty, we completed our comprehensive exam and imaging. Our exam revealed quite substantial findings. Betty was suffering from osteoarthritis in both

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[www.dentaltown.com/Images/Dentaltown/magimages/0116/PAINpg34.pdf](http://www.dentaltown.com/Images/Dentaltown/magimages/0116/PAINpg34.pdf)

- 32 "Rising prevalence of sleep apnea in U.S. threatens public health," American Academy of Sleep Medicine, news release, September 29, 2014, accessed February 20, 2018, <https://aasm.org/rising-prevalence-of-sleep-apnea-in-u-s-threatens-public-health>.

condyles of her mandible, she had a severe dental abscess on one of her back teeth, and she had a deviated nasal septum to the left, which impeded her ability to breathe through her nose. We immediately referred her to an ENT physician and an endodontist for further evaluation of these findings.

Our evaluation also revealed profound risk indicators for SBD. These included snoring, fatigue, tongue scalloping, bruxism, narrow airway, nasal blockage and congestion, and frequent awakening.

We wholeheartedly agreed with the diagnosis of trigeminal neuralgia. Donna's symptoms certainly fit the classical description without a doubt, but we also referred her for a diagnostic sleep study since we felt that her chronic sleep disturbance and bruxism were associated with her trigeminal neuralgia and impingement of the nerve.

Although with Betty we arrived at the same diagnosis as Mayo Clinic, our treatment plan was quite different. We elected to treat her in the face (the periphery), rather than with the centrally directed surgeries that proved not to be effective. We surmised that her bruxism, or constant clenching and grinding throughout the night, was so aggressive that it destroyed the bone in her TM joint. If it was aggressive enough to destroy the bone, it was completely plausible that the nerves were impinging her trigeminal nerve, producing the pain. After all, what did she have to lose—we weren't going to do another brain surgery.

Our treatment plan consisted of oral appliance therapy to decompress the TM joints and reduce her strong contrac-

tion forces at nighttime. The Mayo Clinic had treated the trigeminal nerve as it exited the brain, but the problem was an impingement in her face through the masseter muscle, where the nerve courses. We treated it at the source of the entrapment in the face rather than at the base of the skull. In this case, that proved to be effective almost immediately.

We also planned PBMT to help create an ideal environment for healing and repair of her damaged nerve. PBMT is also known as laser therapy, low-level therapy, or cold laser therapy. I'll share more details about PBMT in Chapter 8.

Betty's treatment began in mid-October with delivery of the sleep orthotic and PBMT directed at the trigeminal nerve. The sleep orthotic was designed to stabilize her TM joint to treat the arthritis there and to take pressure off the nerve entrapment. As we initiated treatment, we ordered a sleep study to investigate her suspected SBD.

At her first follow-up visit two weeks later, Betty reported that her pain was reduced from a nine to a four on a ten-point scale. Specifically, she reported a 75 percent reduction of her trigeminal neuralgia, facial pain, and pain when chewing. She also reported a 60 percent improvement of her limited range of motion when opening her mouth. Fast-forward to mid-November 2017, Betty reported her pain level to be a one out of ten, and all her symptoms were reduced by 90 percent.

Betty is now in treatment with a sleep physician for her SBD, and she continues to wear the orthotic we created for her every night. Thankfully, within a month, we were able to



resolve her trigeminal neuralgia without the use of medications or surgery.

Best of all, Betty can now babysit her grandkids and get down on the floor with them and play. “I feel alive again,” she told us at her last appointment—nothing beats that feeling for us as well.

As I complete this book in May 2018, Betty’s pain has been completely resolved since November, with no flare-ups or recurrences. That assures us that we treated the source of the problem and that Betty will be able to continue playing with her grandkids—and living a wonderful life—free of debilitating facial pain.