

Trigeminal Neuralgia

Modern treatments for an often dreadful pain

Trigeminal Neuralgia has been described as the most painful condition ever known to humankind. Its exact cause remains unknown, however in majority of patients an offending vessel (usually an artery) can be identified compressing the initial segment of the trigeminal nerve, called the root. This occurs at the base of the brain where trigeminal nerve leaves the brain stem.

Trigeminal neuralgia is initially treated with medications. Most persons respond with improvement and sometimes elimination of pain. However, at least 50% develop tolerance to the medications and pain recurrence, or they develop intolerable side effects. Surgical options are then considered.

The two main types of approaches in used today for treatment of trigeminal neuralgia are **percutaneous** procedures or **open surgical** treatment. In percutaneous procedures, a needle is inserted through the patient's cheek which, under the X-ray guidance, is directed into an opening at the base of the skull called the foramen ovale. The third branch of the trigeminal nerve (mandibular nerve) leaves the skull through this opening. The needle is advanced slightly towards the main ganglion of the nerve located a few millimeters deep to the foramen. One of three different methods is then used to partly lesion the nerve, which often eliminates the pain. One method is to insert a balloon in the vicinity of the ganglion and inflate it to compress the nerve for a couple of minutes. Another method is to inject a small amount of glycerol (an alcohol) in the nerve root. Finally, in thermocoagulation a special electrode is inserted through the needle, connected to a radiofrequency device which heats the tip of an electrode. Percutaneous procedures are usually well tolerated by patients, are performed on an outpatient basis, and have approximately an 85% long-term success. Most patients significantly reduce their medications or discontinue them completely.

Open surgical procedure is called **microvascular decompression**. A small opening is made in the posterior aspect of the skull base. Using microsurgery, the trigeminal nerve on the side of the pain is located and examined. In many cases an offending artery is found pounding against the nerve with each heart beat. The artery is carefully dissected from the nerve and special pledgets, usually made of Teflon, are inserted between the two. This eliminates the constant pulsations of the artery on the nerve. The procedure is very successful and patients frequently wake up pain-free. Research has shown about 85% success lasting at least 10-years. Since this is a major operation performed under general anesthesia, it is appropriate only for patients in satisfactory medical condition.

“Percutaneous procedures are well suited for elderly and for patients with multiple medical problems. For younger, those below 60-65 years of age, craniotomy to eliminate the cause of the pain, usually an offending vessel, is the procedure of choice” – says **Dr. Mark Bryniarski** of St. Anthony Hospital. “At our institution we have a full capability for the diagnosis and treatment of this dreadful condition”.



The trigeminal nerve root leaving the brain stem is being separated by Teflon pledgets (white)