Percutaneous stereotactic rhizotomy (PSR)

Usually performed by a neurosurgeon as an outpatient procedure in a radiology department or an operating room. The procedure typically takes about 1 to 2 hours.

PSR can relieve neuralgia (nerve pain) by destroying the part of the nerve that causes pain and by suppressing the pain signal to your brain. The surgeon passes an electrode introducer (hollow needle) through the skin of your cheek into the selected nerve at the base of the skull. A heating current, which is passed through the electrode, destroys some of the nerve fibers. The entire nerve is not destroyed. Who is a candidate?

PSR can provide pain relief for many patients with trigeminal neuralgia, glossopharyngeal neuralgia, or other neurological diseases (e.g., cluster headache) when medications become ineffective. PSR can be effective in treating patients of all ages including those with multiple sclerosis and those with some types of tumors. Patients often choose to undergo PSR because it poses lower surgical risks than those of a major operation such as microvascular decompression (MVD). Although facial numbness results, PSR is one of the most effective procedures because it provides lasting pain relief with few risks of serious side effects.

What happens before treatment?

A history and physical is performed to assess your overall health condition. Several routine tests (e.g., blood tests, electrocardiogram, chest X-ray) may also be performed. In the doctors office you will sign consent forms and complete paperwork to inform the surgeon about your medical history (i.e., allergies, medicines, anesthesia reactions, previous surgeries). Discontinue all non-steroidal anti-inflammatory medicines (Naproxin, Advil, etc.) and blood thinners (coumadin, aspirin, etc.) 1 week before the procedure.

Patients are admitted to the outpatient clinic several hours before the procedure. No food or drink is permitted past midnight the night before undergoing PSR. The surgeon will give you specific instructions about taking your medications the day of the procedure. What happens during treatment?

There are 5 steps of the procedure, which generally takes 1 to 2 hours.

Step 1: prepare the patient Several points are marked with a pen on your cheek, which is then washed with an antiseptic. Sterile drapes cover your neck and chest. Your will receive a shot of atropine to help dry your mouth. A nurse assists the surgeon during PSR in checking your blood pressure and heart rate and administering medications through an IV in your arm

Step 2: insert the electrode As short-acting anesthesia is given, you will feel a slight burning sensation as you fall asleep. For trigeminal neuralgia, the surgeon guides the electrode introducer through your cheek into an opening at the base of the skull, called the foramen ovale, where the mandibular division (V3) of the trigeminal nerve exits the skull.

The correct placement of the introducer is verified by fluoroscopy (a type of X-ray).

For glossopharyngeal neuralgia, the surgeon inserts the introducer into the skull base at the jugular foramen where the glossopharyngeal nerve exits the skull.

see Percutaneous radiofrequency trigeminal rhizotomy