

RADIOFREQUENCY NEUROTOMY

for facet and sacroiliac joint pain

A radiofrequency neurotomy is a type of injection procedure in which a heat lesion is created on certain nerves with the goal of interrupting the pain signals to the brain, thus eliminating pain.

A *medial branch neurotomy* affects the nerves carrying pain from the facet joints, and a *lateral branch neurotomy* affects nerves that carry pain from the sacroiliac joints. These medial or lateral branch nerves do not control any muscles or sensation in the arms or legs so there is no danger of negatively affecting those areas. The medial branch nerves do control small muscles in the neck and mid or low back, but loss of these nerves has not proved harmful.

Before this procedure is undertaken, the joints and branch nerves will have already been proven to be painful by a diagnostic injection (Medial Branch Block or Lateral Branch Block), and will not have responded to other treatment methods. If effective, the neurotomy should provide pain relief lasting nine to fourteen months and sometimes much longer. After this period of time, however, the nerve will typically regenerate and the pain may return.

Success rates vary, but typically about 30% to 50% of patients undergoing this procedure will experience significant pain relief for as much as two years. Of the remaining patients, about 50% will get some relief for a shorter period. Some patients will not experience any relief from pain as a result of this procedure. If pain relief is going to occur, full pain relief will typically not be experienced until about two to three weeks after the procedure.

Anatomy of facet joints and sacroiliac joints

Facet joints are pairs of small joints that are situated at each vertebral level of the spine. Each facet joint has connections to the "medial nerves" that carry signals (including pain signals) up the spine to the brain. The sacroiliac joints are located at the lowest part of the spine, between the sacrum and ilium in the pelvis, and are also connected to nerves that carry signals to the spine then the brain.

Radiofrequency neurotomy procedure

As with many spinal injections, radiofrequency neurotomy is best performed under fluoroscopy (live x-ray) for guidance in properly targeting and placing the needle (and for avoiding nerve injury or other injury). On the day of the injection, patients are advised to avoid driving and avoid doing any strenuous activities. Patients may continue to take any normal medications except aspirin or any other blood-thinning medications, such as Coumadin.

The neurotomy procedure includes the following steps:

- An IV line may be started so that adequate relaxation medicine can be given, as needed.
- The patient lies face down on an x-ray table and the skin over the painful area to be treated is well cleansed.
- The physician numbs a small area of skin with a local anesthetic, which may sting for a few seconds.
- The physician uses x-ray guidance (fluoroscopy) to direct a special (radiofrequency) needle alongside the medial or lateral branch nerves.
- A small amount of electrical current will then be carefully passed through the needle to assure it is next to the target nerve. This should briefly recreate the usual pain and cause a muscle to twitch in the area of treatment.
- The nerves will then be numbed to minimize the pain while the lesion is being created. This process will be repeated for additional nerves to be treated.

The entire procedure usually takes between 30 and 90 minutes.

Radiofrequency neurotomy results and follow-up

On the day after the procedure, the patient may cautiously return to regular activities. The neck or back will usually be very sore during the next one to four days. This is pain usually caused by muscle spasms and irritability while the targeted nerves are recovering from the heat lesion over the next seven to fourteen days. The provider may instruct the patient to apply ice (or heat or warm towels) to the sore area to alleviate discomfort. Patients usually want to rest for several days before returning to normal activities.

Common concerns about radiofrequency neurotomy

Patients are frequently concerned that, without the ability to feel sensation through these nerves, they may cause an injury to either the joints or the back. There is no scientific evidence to support this happening. In the many years that neurotomies have been performed, this has not been found to occur. Another concern is that by damaging the nerves, pain will be caused rather than relieved. There is a small chance (less than 5%) that the pain will worsen after the procedure. This is believed to be from increased irritation of a nerve that was only partially damaged, not completely destroyed. This can be treated with medication and usually goes away for several months.

Potential complications of radiofrequency neurotomy

As with all medical procedures, there are certain risks and potential complications associated with a radiofrequency neurotomy. Complications are rare with this procedure, but can occur, and include:

- Pain or discomfort around the injection site
- Numbness of skin covering injection site
- Worsened pain due to muscle spasm in the area of the injection
- Rare permanent nerve pain
- Allergies or reactions to medications used
- Infection or bleeding