Migraines, Occipital Neuralgia, and Daily Persistent Headaches: Surgical Relief

Nearly 30 million people in the United States suffer from migraines and daily persistent headache symptoms, such as severe pain, nausea, aura, sensitivity to light, loss of appetite, dizziness, and fatigue. Migraine attacks can dramatically interfere with work, school performance and attendance, family events, relationships, and all other aspects of life.

Drugs for migraines may not help chronic sufferers and, furthermore, have adverse effects, including mental sluggishness, nausea, muscle weakness, difficulty in thinking, and trouble functioning.

It has been theorized that migraines and some forms for chronic headaches originate at “trigger points,” where sensory nerves are being stimulated by the surrounding muscles, vessels, or specific contact points in the head and neck. This nerve irritation initiates a cascade of events, leading to the inflammation of the layers surrounding the brain, resulting in a full blown migraine headache. The implicated nerves are located in well-defined areas representing trigger points, and are labeled depending on where the headaches usually start: the frontal, temporal, occipital, and nasal trigger points are the most common.
Migraine surgery/Headache surgery or trigger-point surgery works by releasing the pressure on trigger points and thus reducing the frequency and intensity of migraines or preventing the occurrence of migraines and persistent headaches altogether. The surgery itself, although difficult to perform technically, generates minimum postsurgical down time and complications.

Migraine surgery was initially designed by peripheral nerve surgeons and neurologists at Case Western University in Cleveland, Ohio, in early 2000. Numerous reports in the medical literature published since have supported the efficacy of these surgical procedures, and many patients have experienced relief from their pain. Generally, the reports state that 85% to 92% of patients experience a 50% or more reduction in headache frequency and severity, and more than 50% to 60% of patients are completely relieved of their headaches. Long term results of the surgery over a period of five years have been published by Guyuron et al. Additional studies are being done by neurologist and surgeons both in Cleveland and Dallas. Currently, there are only a handful of migraine surgeons in the world who are trained to correctly identify these trigger points and perform the surgery. These are typically peripheral nerve surgeons and plastic surgeons with specialized training in this field.
Prior to considering surgical management the migraine headaches should be aggressively treated by a neurologist. The first step in surgical management is to identify your trigger points. The offending trigger points may be obvious based on history and clinical examination. Some patients may require prescreening with BOTOX® or nerve blocks injections to pinpoint trigger points. Surgery will then be tailored to the individual patient.

The surgical procedures involve small incisions, hidden in the eyelid or behind the hairlines. The entrapping muscles and fascia will then be either partially or completely removed. In some instances, when the nerve endings are too small, they are sometimes removed without a considerable deficit. This results in soothing the nerve endings, preventing the migraine or persistent headaches from occurring. Rarely, the alleviation of one trigger point results in the unmasking of a second trigger point, however, and further surgery may be needed.

Based on their trigger point location, four types of migraine and daily persistent headaches have been defined.
**Forehead Headaches**

This headache typically starts above the eyebrows, in the glabellar area. The procedure involves skeletonizing the supraorbital and supratrochlear nerves by resecting the corrugator and depressor supercilii muscles using a minimally invasive endoscopic approach similar to that used for a cosmetic forehead lift.

A classic endoscopic forehead lift and mid-face lift for cosmetic effect differs significantly from migraine surgery. The latter removes frown muscles more thoroughly and entails padding the painful nerves with fatty tissue. Close attention is paid to any accessory nerves which may be also be involved.
Temporal Headaches

The pain typically starts in the temporal area, where the zygomaticotemporal branch of the trigeminal nerve passes through the temporalis muscle, a similar endoscopic approach is used but involves removing a segment of the nerve rather than decompressing it. This results in a slight sensory defect over the temporal skin area, but innervation from other sensory nerves helps to limit the deficit over time.

A very small branch of the trigeminal nerve in the temple is excised.
Rhinogenic Headaches

This pain typically starts behind the eye, and it is deeper than that in forehead migraines. A septoplasty and turbinectomy are performed at the nasal trigger points, where often enlarged turbinates are in contact with the nasal septum. Other anatomical anomalies in the septum and turbinates are assessed using a CT scan and may have to be addressed.
Occipital Headaches

This headache originates from the back of the neck. An open surgical approach is used (3-4 cm incision hidden in the hair line) where the greater occipital nerve passes through the semispinalis capitis muscle in the back of the neck. A small segment of the semispinalis muscle is then resected, releasing several compression areas on the occipital nerves and shielding the nerves with a fat flap. The areas involving the lesser and third occipital nerve may have to be addressed as well which are lower on the neck.
Your Migraine Surgery Consultation

You will need to fill out the migraine surgery questionnaire and maintain a headache log provided by our office. Your first visit with Dr Amirlak will determine whether you are a good candidate for surgery. If prescreening with BOTOX® or nerve blocks injections is indicated, you will be asked to follow up in several weeks. During this time, it is important to continue maintaining and recording a headache log.

In some cases, the test trigger point that is injected improves. However, new trigger points may be unmasked, causing the headaches. In this case, the new trigger points will be injected, and a new evaluation performed to clearly identify all potential surgical sites.

In the case of migraines or daily persistent headaches related to intranasal pathology, you will need to have a CT (computed tomographic) scan of the sinuses, which will be arranged by our office.

It is important to have a neurologist or pain management physician as part of your treatment team. Our office will communicate with them regarding your care and any medication adjustment that may be needed.

If you live out of town, an initial phone consultation can be arranged if it is determined that you do not require prescreening and injections as described above. Also, depending on the individual patient and travel arrangements, the consultation and surgery can be scheduled for the same visit to Dallas.
Your Recovery after Migraine Surgery

Surgery can take from 1 to 6 hours depending on the number of trigger point, and most patients can go home the same day. Some discomfort is normal after surgery; however, there is usually not much post-surgical pain. It is not uncommon to get a migraine headache after surgery, and migraine medications may be taken. When you are discharged, you will be given prescriptions to keep you more comfortable. You may shower the next day. Most patients return to work after 1 to 2 weeks, but physical activity must be limited, and exercise is prohibited for at least 3 weeks.

You will need to return 1 to 2 days after surgery to have the drains removed. This process is very simple and pain free. In case you have intranasal surgery, the nasal stents are removed in 7 days. During your postoperative visits, Dr Amirlak will review your activity limitations, incision care, and any concerns that you may have. Typically it is expected that the recovery for this operation is very short but we encourage patients to refrain from heavy activity and exercise for 3 weeks. Your next check-up will be 5 to 7 days after surgery. You will then return in approximately 3 weeks, 3 months, 6 months, and 1 year for routine checkups. For out-of-town patients, the schedule can be adjusted.

You may experience mild side effects depending on the location of the surgery. These may include some temporary numbness in the back of your head and temple areas, which generally get better in a few weeks. Soreness in the back of the neck usually improves within a week. The
result of forehead surgery, coincidentally is also a more rejuvenated appearance, with fewer wrinkles.

It is important to remember that migraine surgery is not a “miracle cure.” You may still have some headaches after surgery, but they should be much less frequent and nowhere near as intense as the migraines you had before. As mentioned, some patients experience complete resolution of their headaches. And in some patients, the surgery unmask[s] new trigger points resulting in full or partial failure of the surgery. Further surgery may be needed in select cases to address these new trigger sites.

Other issues that may have to be addressed postoperatively include proper stress management, medication adjustment or medication overuse, and neck muscle tightness, which can result from increased movement. It is therefore important for you to involve your neurologist or pain management doctor or other specialist in your postoperative care to maximize the effect of surgery. If you have any underlying depression or anxiety we highly encourage the involvement of a specialized therapist and appropriate medication adjustment.

**How much does migraine surgery cost?**

We will send you some paperwork to fill out so that we can find out whether your insurance carrier will cover the BOTOX® injections for migraine treatment or whether they will cover the migraine surgery. After your initial consultation, you will be quoted a price that will include the surgery fee as well as the operating room and any anesthesia fees. Financing options are available if your insurance does not cover these procedures.
You’re Surgeon

Dr Bardia Amirlak has worked closely with the team of surgeons and neurologists who designed these surgeries at Case Western University.

Presently a double–board-certified plastic surgeon and peripheral nerve surgeon at UT Southwestern Medical Center specializing in migraine and headache surgery and treatment, Dr Amirlak has been an integral part of this research and is actively running several studies. He has performed numerous surgeries for migraine headaches, new daily persistent headaches, occipital neuralgia, and sinus headaches.

His work has been published in the *Journal of Plastic and Reconstructive Surgery* and the *Journal of Anesthesia and Pain Management*. He has lectured worldwide and has held workshops to train pain specialists, anesthesiologist, neurologists and plastic surgeons on new methods in BOTOX® injection and migraine surgery.

To find out whether you are a good candidate for this procedure, please contact Dr Amirlak's office.
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