

# **Occipital Neuralgia:**

## **A Literature Review of Current Treatments from Traditional Medicine to CAM Treatments**

**By Nikole Benavides**

**Faculty Advisor: Dr. Patrick Montgomery**

**Graduation: April 2011**

# Abstract

**Objective.** This article provides an overview of the current and upcoming treatments for people who suffer from the signs and symptoms of greater occipital neuralgia. Types of treatments will be analyzed and discussed, varying from traditional Western medicine to treatments from complementary and alternative health care.

**Methods.** A PubMed search was performed using the key words listed in this abstract.

**Results.** Twenty-nine references were used in this literature review. The current literature reveals abundant peer reviewed research on medications used to treat this malady, but relatively little on the CAM approach.

**Conclusion.** Occipital Neuralgia has become one of the more complicated headaches to diagnose. The symptoms often mimic those of other headaches and can occur post-trauma or due to other contributing factors. There are a variety of treatments that involve surgery or blocking of the greater occipital nerve. As people continue to seek more natural treatments, the need for alternative treatments is on the rise.

**Key Words.** Occipital Neuralgia; Headache; Alternative Treatments; Acupuncture; Chiropractic; Nutrition

# Introduction

Occipital neuralgia is a type of headache that describes the irritation of the greater occipital nerve and the signs and symptoms associated with it. It is a difficult headache to diagnose due to the variety of signs and symptoms it presents with. It can be due to a post-traumatic event, degenerative changes, congenital anomalies, or other factors (10). The patterns of occipital neuralgia mimic those of other headaches. Terms such as burning, aching, throbbing, lancinating have been used to describe the type of headache. Other characteristics include dizziness and photophobia. The headache is almost always described as starting at the posterior base of the occiput and radiating behind the eye socket. This type of headache can be unilateral or bilateral (6). Since there is a wide variety of characteristics involved in this type of headache, it is difficult to say how many people are affected by it and what types of treatments will work.

Formerly, surgeries and nerve blocks were the primary treatment options for people who suffered from these types of headaches. People are now taking their health into their own hands and turning to more natural and alternative treatments. Due to the vast amount of research, acupuncture has been sought out for treatment for not only occipital neuralgia, but for all headache symptoms. Nutritional supplements and Chinese herbs have their place in the treatment of occipital neuralgia as well. Another alternative avenue for treatment is the use of chiropractic care.

## Discussion

### *Diagnosis*

The diagnosis of occipital neuralgia is one that is not referenced often in text books or literature. Because of this, there is no clear cut way to diagnose this type of headache. The diagnosis is made mostly on clinical findings. Occipital neuralgia is often confused with other types of primary headaches

such as migraine, tension, and cluster. The symptoms for occipital neuralgia include burning pain that starts at the base of the skull and radiates behind the eye. This pain pattern can be unilateral or bilateral. The radiation of pain can also refer into the lateral side of the scalp. Other symptoms include facial pain, pain in the temporomandibular joint, dizziness, sinus pain, shoulder pain, and photophobia (6). In some affected individuals, the trigeminal and cervical nerve dermatomes are involved. In others, multiple cervical nerve branches were affected. A large number of people who are diagnosed with occipital neuralgia have developed it due to a trauma, such as an old whiplash injury. Patients who have had a history of rheumatoid arthritis or other degenerative changes are more likely to develop this type of headache. There have been cases where patients who suffered from occipital neuralgia had a preceding infection. There have been known cases of a preceding physical or mental stress causing occipital neuralgia. This is why it is important to take a thorough history in order to properly diagnose this headache. On examination, a marked decrease in cervical rotation range of motion has been shown. Tinel's test over the occipital nerve has been shown to be positive in patients with occipital neuralgia. Compression tests of the cervical spine have also been shown to reproduce the pain accompanying this type of headache (10). Due to the wide variety of symptoms, one orthopedic test or set of orthopedic tests have not been shown to reproduce the pain in all patients who suffer from occipital neuralgia (6). Along with the history and physical examination, the use of diagnostic imaging may be particularly helpful when diagnosing occipital neuralgia. Diagnostic ultrasound will aid in finding the soft tissue structures involved with occipital neuralgia. There can be hypertonic musculature, congenital anomalies within the musculature or within the occipital nerve itself. A larger than normal occipital nerve can contribute to symptoms of occipital neuralgia. Plain film radiographs have been found useful in detecting postural changes associated with signs and symptoms of occipital neuralgia. A radiographic examination can also be used to find any abnormalities or degenerative changes in the anatomy of the bones in the cervical spine. Computed tomography (CT) and magnetic resonance imaging (MRI) are

useful to detect any degenerative or soft tissue changes that could be interfering with the greater occipital nerve (6). If the cause cannot be detected due to structural abnormalities then diagnosis will be based on symptomatology.

### *Medications*

Western medicine, in the past and still today, employs the use of medications as one of the first lines of defense against headaches. Medications are used for relief, and not to prevent the headache from occurring. Medications are proven effective for pain relief in patients around the world. Medical practitioners employ the use of medications such as non-steroidal anti-inflammatory drugs, anticonvulsants, and muscle relaxers to reduce the frequency of headaches in the population.

Non-steroidal anti-inflammatory drugs (NSAIDs) are the most commonly used medications in America. This type of medication includes Ibuprofen, Tylenol, and Aspirin. NSAIDs have an analgesic and fever reducing effect. NSAIDs work to decrease the inflammatory process by inhibiting the isoenzymes cyclooxygenase-1 (COX-1) and cyclooxygenase-2 (COX-2) isoenzymes. Newer medications work to only inhibit cyclooxygenase- 2 isoenzyme. This eliminates some of the side effects of the medication. Due to the intense pain that goes along with occipital neuralgia, many sufferers seek out NSAIDs to find relief. Unfortunately, it only works for a short period of time. People often will resort to taking more than the recommended dosage due to overuse of the medication. This can cause harmful side effects ranging from gastrointestinal complications to skin rashes. It has been reported that 10-20% of people who use NSAIDs develop dyspepsia (25).

Various seizure suppressors have been implemented into the army of medications to treat occipital neuralgia. Among those include gabapentin, phenytoin, and carbamazepine. Anticonvulsant medications work to lessen the amount of sodium channels open which decreases the number of electrical impulses inside the brain. In low doses, they are useful in the treatment of neuropathic pain

syndromes. A double blind, randomized, placebo-controlled study found gabapentin to be 79% effective for treatment among patients over an eight week period. The placebo treatment was found to be only 73% effective. The patient base was represented by a wide variety of neuropathic pain syndromes (27). Common side effects from the use of anticonvulsant drugs are vision impairment, dizziness, rashes, and transient pain. More serious side effects are the increased risk of suicide, loss of platelets, and hyponatremia (29).

Muscle relaxers are a type of drug that work directly on the brain to provide an overall relaxation of the muscles of the body. Muscle relaxers such as flexeril and soma are used. If a sign of occipital neuralgia includes hypertonic posterior cervical muscles, and all other forms of conservative treatment have been exhausted, muscle relaxers can be prescribed. Some of these medications can be used long term, but most are only prescribed short term. This is due to the ability of these drugs to become habit forming.

It has been shown that a wide variety of medications can be utilized to treat occipital neuralgia, as well as other neuropathic pain syndromes. Patients should be responsible and use the drugs as they are prescribed to avoid frequency of side effects and drug interactions. Overuse of these drugs can lead to worsening of the condition due to the brains inability to make its own natural pain killers (5). Although medication is used as a first line of defense against pain, more conservative treatments should be employed first (6).

### ***Chiropractic***

Chiropractic is based on the principle that the nervous system is in control of the entire body and that blockage of normal nerve flow can result in disease. The use of adjustments and manipulation to the body, mainly the spinal column, aid in correction of abnormal nerve flow. Chiropractors use their hands or other devices to provide an adjustment to correct a subluxation. Subluxation is a term

used to identify a bone that is misaligned or displaced. The early practice of chiropractic dates back centuries ago. It was not until 1895 that D. D. Palmer coined the term chiropractic and modern chiropractic was born. Unlike western medicine, chiropractors are diverse in their styles of practice. There are many techniques that are utilized in practice (23). Some include Diversified technique, Logan Basic, Sacro-occipital technique, Thompson, Activator and various others.

Medicine has long been the front runner in the treatment of headaches, but more and more people are turning to chiropractic for relief. In a study performed by Eisenberg, chiropractors are the most common alternative healthcare providers being requested for the management of headaches. Different techniques offer different treatment options for patients. Each doctor will look at the signs and symptoms for the individual patient and recommend a treatment plan based on information given. This treatment can include one technique or many depending on the knowledge and style of practice of the doctor. Nine studies published in the Journal of Manipulative and Physiological Therapeutics showed the effectiveness of using high velocity, low amplitude (HVLA) adjustments versus other modalities, such as amitriptyline, cold packs, and deep friction massage. In each study, spinal adjustments were shown to reduce the amount of pain generated from the different headaches. The studies also reported there were no significant side effects related to the treatment of high velocity, low amplitude adjustments (8). In a case study utilizing chiropractic in treatment of greater occipital neuralgia, a patient was treated first with soft tissue manipulation and cervical stair-step technique. When the patient did not respond to care, the adjustment technique was changed to high velocity, low amplitude. After four and a half weeks of treatment, the patient reported a 95% improvement. The patient stated the neuralgic pain had decreased and only a mild ache at the base of the occiput was noted (10).

Chiropractic gives patients a low risk and cost effective alternative treatment for occipital neuralgia. Chiropractors have shown to be beneficial through patient testimony and numerous studies.

However, more studies need to be implemented to achieve substantial evidence on how chiropractic can help people who suffer from chronic headaches (8).

### *Nutrition*

Nutrition to combat neuralgic pain and provide overall well being to the body has been utilized for centuries. Herbs and supplements can be used for various different conditions and provide little to no adverse side effects. It can be used on its own or in conjunction with other therapies. The reason for neuralgia of the occipital nerve can range from a variety of problems that can be solved with the use of nutrition. Food allergies and intolerances, lack of vitamins and minerals in the body, and dehydration can all cause headaches (5).

Food allergies are a hypersensitivity to a food that can result in many signs and symptoms depending on the tissue that it affects. The mechanism of a food intolerance is different than that of a food allergy and is more common (19). Patients can keep a food diary to help identify foods that may trigger neuralgic symptoms (5).

Even though most nutrients provide overall well-being, there are a wide number of them to choose from and the process can become overwhelming. Because of the inflammatory process associated with occipital neuralgia, anti-inflammatory nutrients can be beneficial for patients who suffer from this type of headache. Calcium/magnesium supplements are most commonly used for their overall anti-inflammatory properties. It is best to take these two nutrients together and find them in a form that can be absorbed by the body such as calcium/magnesium citrate. A suggested daily dosage for adults is 1,500mg and 1,000 mg respectively. Bromelain is an enzyme used to help regulate the inflammatory response. Adults should take 500 mg as needed. Primrose oil is also used to decrease the amount of inflammation in the effected tissues (5).

B-vitamins improve circulation and help the nervous system function at its optimum level. They



also enhance immunity and promote cell growth. B-vitamins are found in a variety of foods, such as whole grains, fish, and bananas. They can also be bought in a supplement form. High doses of vitamin B-2 have been proven to help migraine sufferers (28). Necessary precautions should be taken when taking B-vitamins. A doctor should be notified when taking any supplement so as to prevent drug interactions (5).

There are natural pain relievers that headache sufferers can take if they do not feel comfortable using over the counter or prescription medications. DL-Phenylalanine (DLPA) taken at a dosage of 750 mg daily is used to decrease pain. Glucosamine sulfate is often used in place of NSAIDS (5). It is often used to decrease osteoarthritic pain. It is naturally occurring in the body and deemed safe to use in its current dosage. In a study showing the possibility of side effects in glucosamine versus placebo and NSAIDs, glucosamine was shown to have significantly less common adverse side effects (3). Among the natural pain relievers is Methylsulfonylmethane (MSM). It can be taken in adjunct with glucosamine sulfate. The two aforementioned nutrients should be taken as directed on the label (5).

Herbs are plants that can have a medicinal purpose. Like nutrients, herbs do not have a high percentage of adverse effects. If taken in large doses, however, herbs can become toxic to the body . Unfortunately, there is not a lot of research to quantify the adequacy of herbs. Herbs have been used in Traditional Chinese medicine for centuries. There is no doubt for the many people who seek herbal remedies, that they work. In Traditional Chinese medicine, patterns of signs and symptoms are examined in order to find a proper treatment for the condition (21). Even though herbs are have been used mostly in Eastern medicine, Western medicine has caught on to the growing popularity and they are easily accessible in the United States. Herbs that produce anti-inflammatory properties include meadowsweet (5). Animal studies have shown Chinese skullcap to be useful in the treatment of inflammation. It is also used to aid in the relaxation of muscles (14).More research is needed to fully understand the usefulness of this herb. Chamomile yields the same effects of muscle relaxation (5).

Today's diet is made up of a high percentage of processed foods. Additives in these foods can cause many inflammatory responses in the body (28). This can cause muscle tension and inflammation of the nerves, leading to headaches. Simple changes to a person's diet can have a vast effect on how they function. Anti-inflammatory diets have been proven to decrease the frequency of headaches and improve overall body function. The diet includes keeping your body hydrated. Drinking plenty of water is essential to maintaining cellular health. Avoiding foods that are processed is necessary (4). This is difficult to do in the fast paced world we live in. The availability of processed foods has only become more prominent over the last 25 years (11). Increasing the number of whole grains and decreasing the number of refined sugars allows for a subsequent decrease in inflammation. Implementing fruits and vegetables into a daily diet has many benefits. They are rich in vitamins, minerals, and antioxidants. All of which help combat disease. Foods rich in omega-3's, such as fish, are recommended for the anti-inflammatory diet (4). Patients who experience degenerative changes within the bones have stated that this type of lifestyle change has made a substantial difference in the quality of their lives.

Although there is not an adequate amount of research to accompany the treatment of occipital neuralgia with nutrition, patients have found the use of it beneficial. Research is showing, however, that a chronic state of inflammation can contribute to disease processes within the body. Whether it be with supplements, herbs, or a change in diet, nutrition is showing promise in the fight against disease.

### *Acupuncture*

Acupuncture is the stimulation of specific points on the body to alter biochemical and physiological conditions in order to balance the energy flowing throughout the body. Traditional Chinese Medicine states there are fourteen major channels or meridians running through the body that connect specific points on the body to different organs. The stimulation of these points can be made through insertion of a thin needle into the skin, pressure on a certain point of the body, or electricity.

Counseling on subjects such as diet, exercise, and stress management are also components of an acupuncture treatment (22). Acupuncture has been widely used in China since 1000 B.C. It has since made its way over to the United States in the 1970's (21). Since then it has been the most widely used form of alternative therapy in the states.

Due to the growing interest in the practice, there have been numerous research studies discussing the effectiveness of acupuncture treatments for many conditions. One of those conditions being chronic headaches (21). A study published in the Journal of Traditional Chinese Medicine, noted that out of the fifty subjects presenting with various types of headaches, 98% of them treated with scalp acupuncture experienced fewer and less severe headaches in the six months following the procedures (9). It is normally used as a preventative measure in the treatment of diseases. Acupuncture practitioners take various aspects of the disease into consideration before administering treatment. The location and type of pain the patient is experiencing are critical pieces of information needed by the practitioner. When assessing a patient who suffers from occipital neuralgia, everything from timing of the headache to the persons diet will be noted and examined (22). These details will help the practitioner choose which meridian is involved. The meridian or channel that is associated with the signs and symptoms of occipital neuralgia is the bladder meridian. Acupuncture points GB 20, UB 60, and SI 3 are used (2). The points BL 10-17 can be used as well (18). Depending on the signs and symptoms of the patient, other points can be added to the treatment to restore the energy in the body. In the Journal of Acupuncture and Tuina Science, a study was published on the treatment of occipital neuralgia in fifty-six patients. The main points used for this study were BL 10 and GB 12. Other points were added if additional symptoms were present. Out of the fifty-six patients treated, thirty-one of those showed no signs or symptoms of the condition. Twenty four of the cases showed improvement with acupuncture treatment and only one case was ineffective. The study did not mention how long the signs and symptoms subsided, but with a 98.3% effectiveness rate, acupuncture has proved to be an

adequate form of treatment (20).

### *Other*

Because headaches are one of the top musculoskeletal conditions being treated today, second only to low back pain, a wide range of treatments have been discovered and put to the test. Massage being one of the most commonly used form of therapies for occipital neuralgia. The proprioceptive property of massaging the muscles of the neck can be therapeutic to people who do not experience a high level of sensitivity. It also helps the flow of blood and oxygen through the muscles to alleviate tension. Exercises that range from full body workouts to correcting head position can be employed to regain synergy of the related musculature. The practice of yoga focuses on bringing harmony to the mind and body. It consists of meditation, deep breathing, and exercises to gain that unity. All of which help to decrease stress and subsequently muscle tension. Exercises to help support posture can be implemented into the daily lifestyle of a patient. The doctor should be able to identify which muscles need to be stretched and which need to be strengthened. In the case of some headache sufferers, head posture can create an abnormal pull on the posterior cervical muscles. This creates tension on the muscles and nerves. It can also cause a decrease in the range of motion within the cervical vertebrae. Isometric exercises to help strengthen the identified weak muscles should be integrated into the patients rehabilitation treatment (18). One study conducted found that physical therapy, manipulation, and mobilization were more effective when combined with an exercise program (26). A lesser known technique of headache treatment is the Feldenkrais method. It is a practice similar to that of yoga. An instructor guides students through a series of movements. Dr. Moshe Feldenkrais developed this method in the mid-20<sup>th</sup> century. He based it on the principle that if you retrain the body then you can also retrain the brain. A concept known as neuroplasticity (16). Today, there are numerous studies reporting the efficacy of neuroplasticity. A study published in 2004, uses functional magnetic resonance

imaging to develop the theory of an actual structural change in the brain when subjects were given a physical task to learn (7). The Feldenkrais method is a belief that we have only partially tapped into our body's ability to move and perform. The technique offers the brain as a doorway that can be unlocked to provide our bodies with room to function more efficiently. With this comes the idea that we will learn to move more adequately and decrease the amount of pain associated with aberrant motion of joints. Thus, decreasing the amount of headaches (17).

## **Conclusion**

Medications being prescribed by doctors to treat occipital neuralgia offer a substantial amount of research to backup their effectiveness. However, even with little research, alternative methods are becoming more popular among the public. The mentioned alternative techniques of treatment seem to produce positive results on a case by case basis. Further testing should be done to rule in/out potential risks and side effects of these treatments. Although there is only a small amount of research, alternative treatment options look promising and the growth potential seems likely.

## References

1. *Acupuncture*. (2011, February 28). Retrieved from  
<http://healthlibrary.epnet.com/GetContent.aspx?token=e0498803-7f62-4563-8d47-5fe33da65dd4&chunkiid=155244>
2. *Acupuncture migraine*. (1998). Retrieved from  
[http://www.holisticonline.com/remedies/migraine/mig\\_acupuncture.htm](http://www.holisticonline.com/remedies/migraine/mig_acupuncture.htm)
3. Anderson, JW., Nicolosi, R.J., & Borzelleca, JF. (2004). Glucosamine effects in humans: a review of effects on glucose metabolism, side effects, safety considerations, and efficacy. *Food and Chemical Toxicology*, 43(2), 187-201.
4. *Anti-inflammatory diet: road to good health?*. (2008, September 11). Retrieved from  
<http://www.webmd.com/diet/guide/anti-inflammatory-diet-road-to-good-health?page=3>
5. Balch, PA. (2010). *Prescription for nutritional healing: fifth edition*. New York, New York: Penguin Group.
6. Barna S, Hashmi M.(2004). Occipital neuralgia. *Pain Management Rounds*, 1(7), Retrieved from [www.painmanagementrounds.org](http://www.painmanagementrounds.org)
7. Bogdan, D., Christian, G., Volker, B., Gerhard, S., & Ulrich, B. (2004). Neuroplasticity: changes in gray matter induced by training. *Nature*, 427, 311-12.
8. Bronfort G, Assendelft W, Evans R, Haas M, Bouter L. Efficacy of Spinal Manipulation for Chronic Headache: A Systematic Review. *Journal of Manipulative and Physical Therapy* 2001; 24:457-464.
9. Changqing, P., & Guangbo, T. (2008). Forty-two cases of greater occipital neuralgia treated by acupuncture plus acupoint-injection. *Journal of Traditional Chinese Medicine*, 28(3), 175-177.

10. Comley, L. Chiropractic Management of Greater Occipital Neuralgia. *Clinical Chiropractic* 2003; 6: 120-8.
11. Cutler, DM., Glaeser, EL., & Shapiro, JM. (2003). Why have americans become more obese?. *The Journal of Economic Perspectives*, 17(3), 93-118.
12. Dugan, M., Locke, S., & Gallagher, JR. (1962). Occipital neuralgia in adolescents and young adults. *The New England Journal of Medicine*, 267, 1166-72.
13. Ehni, G., & Benner, B. (1984). Occipital neuralgia and the C1-2 arthrosis syndrome. *Journal of Neurosurgery*, 61(5), 961-65.
14. Ehrlich, SD. (2011). *Skullcap*. Manuscript submitted for publication, University of Maryland Medical Center, Baltimore, MA. Retrieved from <http://www.umm.edu/altmed/articles/skullcap-000273.htm>
15. Evans, R., & Mathew, N. (2005). *Handbook of headache*. Philadelphia, PA: Lippencott, Williams, and Wilkins.
16. *Feldenkrais method*. (2011). Retrieved from <http://www.nationalpainfoundation.org/articles/529/the-feldenkrais-method>
17. Feldenkrais method, . (1999, June). *The Feldenkrais Method: An Introduction*. Retrieved from [www.feldenkrais.com](http://www.feldenkrais.com)
18. *Finando, D., & Finando, S. (2005). Trigger point therapy for myofascial pain. Rochester, VA: Healing Arts Press.*
19. *Food allergy symptoms, causes, treatments*. (2011). Retrieved from [http://www.medicinenet.com/food\\_allergy/page2.htm](http://www.medicinenet.com/food_allergy/page2.htm)
20. Huang, Q., & Zhang, Q. (2006). Treatment of 54 cases of greater occipital neuralgia by acupuncture plus manipulation. *Journal of Acupuncture and Tuina Science*, 4(2), 114-15.

21. Joswick, D. (2010). *Acupuncture treats headaches and migraines*. Retrieved from [www.acufinder.com](http://www.acufinder.com)
22. Kaptchuk, T. (2002). Acupuncture: theory, efficacy, and practice. *Annals of Internal Medicine*, *136*(5), 374-381.
23. Kaptchuk, T., & Eisenberg, DM. (1998). Chiropractic: origins, controversies, and contributions. *Archives of Internal Medicine*, *158*, 2215-2224
24. Kuhn, WF., Kuhn, SC., & Gilberstadt, H. (1997). Occipital neuralgias: clinical recognition of a complicated headache. a case series and literature review. *Journal of Orofacial Pain*, *11*(2), 158-65.
25. *Nonsteroidal anti-inflammatory drugs (nsaids)*. (2010, February 3). Retrieved from <http://www.webmd.com/pain-management/nonsteroidal-anti-inflammatory-drugs-nsaids>
26. Sanchez, A. (2010). Headache, Tension. *Rehabilitation Reference Center*. Retrieved February 17, 2011, from <http://bigbrother.logan.edu:2057/login.aspx?direct=true&db=rrc&AN=5000008681&site=rrc-live>
27. Serpell, MG. (2002). Gabapentin in neuropathic pain syndromes: a randomised, double-blind, placebo-controlled trial. *Journal of the International Association for the Study of Pain*, *99*(3), 557-66.
28. Smiley, SD. (2010). *Find migraine headache relief here*. Retrieved from <http://www.chiropractor-today.com/migraine-headache-relief.html>
29. Taliani, U, Rosetti, A, Bonati, PL., & Prati, G. (1988). Hyponatremia during therapy with low doses of carbamazepine: report on a clinical case. *Acta Biomed Ateneo Parmense* , *59*(1-2), 35-9.



