

## **Radio Frequency Ablation for the Treatment of Refractory Occipital Neuralgia: A Case Report**

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**Background/Introduction:** Occipital neuralgia is described as a paroxysmal stabbing or shooting pain in the posterior scalp that causes a headache sensation in the lesser, greater, and/or third occipital distributions. The pathophysiology of occipital neuralgia is uncertain. The most accepted hypothesis is a chronic entrapment of the occipital nerves by the posterior neck and scalp muscles. Occipital neuralgia develops spontaneously in most cases. The incidence and prevalence of occipital neuralgia are conflicting; this stems from a lack of consensus regarding the diagnostic criteria for occipital neuralgia. Current treatment strategies are widely variable in their effectiveness and often escalate overtime. Conservative management often consists of heat/cold packs, carbamazepine, pregabalin, and baclofen. Local occipital nerve block is often needed and provides a therapeutic as well as a diagnostic benefit. After conservative management has failed there is no clear next step. There are reports of botulinum toxin type A injections, and surgical decompression without a definitive conclusion of their efficacy. Our case report is of a 49-year-old female with refractory right sided occipital neuralgia who saw great benefit from a novel treatment modality: radio frequency ablation. Our patient's history is also notable for trigeminal neuralgia, glossopharyngeal neuralgia, myofascial pain syndrome, and depression with anxiety. She had failed conservative treatment for her occipital neuralgia while taking Gabapentin, Norco, baclofen, escitalopram, and lorazepam prior to the radio frequency ablation.

**Methods:** Our patient was first trialed on conservative management for her various ailments which did not provide any meaningful relief for her occipital neuralgia. We discussed the pros and cons of the different treatment modalities and decided together to proceed with a therapeutic and possibly diagnostic occipital nerve block. She had significant pain improvement and elected to repeat the block once the pain returned. Once the pain returned again, we proceeded with an occipital nerve radiofrequency ablation. The right occipital artery was palpated at the level of the superior nuchal ridge and prepped. A radio frequency insulated needle was inserted just medial to the artery and advanced perpendicular to the periosteum of the underlying occipital bone. Then the needle was redirected superiorly to target the greater occipital nerve. Lesser occipital nerve was covered by placing a needle laterally and inferiorly. Following the placement of the needle, sensory stimulation was done to confirm the location before radio frequency ablation was carried out in lesion mode. The patient then followed up on a 3-6-month basis for her various conditions.

**Results:** The patients right occipital neuralgia pain flares were described as a 9 out of 10 while on conservative treatment. After the first greater and lesser occipital nerve block done on 11/26/2014 an improvement of 40% was reported for 2 months. Once the pain returned another greater and lesser occipital nerve block was performed on 2/4/15; this time yielding a 60% improvement for 2 months. On 7/1/2015 radio frequency ablation was performed on the right greater and lesser occipital nerve yielding a 70% improvement. On routine follow-up she reports continued 70% improvement from her baseline making her occipital neuralgia "much more tolerable" and stable for nearly four years.

**Conclusion:** In conclusion, occipital neuralgia is a progressive cause of posterior headaches that is not easily treated with conservative management. Although there are several potential treatment modalities for refractory cases, they lack support and reliability in their current studies. Radio frequency ablation is a promising treatment option that needs to be thoroughly trialed to establish its role in treating refractory occipital neuralgia.