

## Discussion: Five-Year Outcome of Surgical Treatment of Migraine Headaches

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The latest installment to the literature on the surgical treatment of migraine headaches by Dr. Guyuron and colleagues once again adds important, relevant, and robust information to our existing knowledge and understanding of this disease. Up to this point, the concept has been elucidated, the anatomy described in detail, the algorithm for treatment suggested, and 1-year follow-up reported.<sup>1</sup> However, for those of us who perform migraine surgery, we have always had to advise our patients up front that the longevity of the surgical benefit is unknown. Although theoretically the surgical intervention should result in permanent improvement, assuming a complete release of the involved trigger points, we have not had reported published data to back up this theory. That is, until now. With this article, we can now report to our patients *with confidence* that the surgical results can last up to 5 years and the clock is still ticking. Apprehensive patients who may have been reluctant to pursue surgery may have their fears allayed, given this new information. This is especially poignant given that “a bridge is burned” by transitioning from chemodenervation with botulinum toxin to surgical intervention, given that the target of the botulinum toxin (that is, the neuromuscular junction) is removed during the surgical decompression of the nerve through muscular resection. When weighing the pros and cons of proceeding with surgery in the hopes of making a temporary improvement permanent, the lack of convincing data on the longevity of the surgical effect has proven to be a major psychological hurdle for the patients. This report will help many patients jump that hurdle.

Although the intent of the study was to report on the long-term results of surgical decompression in the same cohort of patients initially reported on in 2005, there are several other important items mentioned within the study that deserve

highlighting. The first is Guyuron et al.’s explanation as to why the results of their surgical decompressions have improved over time. Although new trigger points have been described, such as the auriculotemporal nerve intersection with the superficial temporal artery,<sup>2</sup> perhaps the greatest ground has been gained with improved understanding of existing trigger points.<sup>3-7</sup> Through this clarity, more complete, thorough, and successful decompressions have been performed, which have improved the percentage of patients who not only obtain significant improvement (>50 percent in frequency, intensity, and/or duration of their migraines) but also complete elimination. For instance, Guyuron et al. make the point to resect the “glabellar muscle group” and not just the corrugator supercillii muscle. Given that most of the patients were diagnosed with a frontal trigger point in this location (93 percent), this technical modification is paramount to the success of the surgery both in the short term and now the long term as reported in this article. Furthermore, a more complete release of the greater occipital nerve, now that we are aware of at least six points of possible compression (including the occipital artery), has led to improved outcomes not only for Dr. Guyuron’s group but for others as well.<sup>8</sup>

It should also be emphasized that most patients have more than one trigger point. In Guyuron et al.’s series, 63 of 69 patients (91.3 percent) had two or more. This will help guide the practitioner in examining for and isolating all trigger points in a given patient. In this article, Guyuron and colleagues reported that 10 of 79 patients followed for 5 years required additional surgery. It may be helpful to see a breakdown of what trigger

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points were addressed in these subsequent operations, to gain a better appreciation for what sites may be missed more often than others, or even perhaps if additional surgery was required on the same triggers points due to suspected incomplete release. As all surgeons are aware, we frequently learn more from our failures than we do from our successes. In this case, we can learn meaningful information from both.

In sum, as we gain more experience with the surgical treatment of migraine headaches, and as longer follow-up periods are reported and more surgeons report their results, the peripheral trigger point theory of migraine headaches is validated. Through the reporting of data, the reproducibility is established and the techniques used to address the trigger points are refined to deliver consistent results to a population of patients whose lives, and the lives of their loved ones, are significantly affected by their disease.

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