



## Editorial

### Migraine surgery

Élcio Juliato Piovesan 

Neurologist responsible for the Committee on Invasive Procedures of the Brazilian Headache Society.



Élcio Juliato Piovesan  
piovesan1@hotmail.com

**Edited by**

Mario Fernando Prieto Peres

The Brazilian Headache Society hereby states its position regarding migraine surgery, a procedure created by American plastic surgeon Bahman Guyuron and that has been reported over the past months in the Brazilian media. The premise of Guyuron's technique is that there are four trigger sites for headaches in patients with Chronic Migraines, namely: frontal, temporal, occipital and rhinogenic sites<sup>1</sup>. Guyuron suggests that there is a muscle component and a vascular component in these regions. The vascular component (vasodilation) compresses the nerve and causes pain (in the vein-artery-nerve complex), while the muscle component is contracted especially in the sites where nerves go through muscles, also known as X foramen, and promotes pain.<sup>1</sup>

There are numerous scientific studies on the subject, many with deficient methodology and other with more appealing methodology. Professor Rami Burstein (world renowned reference in the field of physiopathology of headaches), in an article evaluating a series of seven patients, showed that some individuals had improvements in post-traumatic headaches and persistent daily headaches since the beginning, while others were non-responsive (chronic migraine). The Professor himself questions if the procedure works or not, suggesting that it should be applied to experimental studies.<sup>2</sup>

A task force from the American Headache Society stated their concern on the subject as such: "Don't recommend surgical deactivation of migraine trigger points outside of a clinical trial. The value of this form of "migraine surgery" is still a research question. Observational studies and a small controlled trial suggest possible benefit. However, large multicenter, randomized controlled trials with long-term follow-up are needed to provide accurate estimates of the effectiveness and harms of surgery. Long term side effects are unknown but potentially a concern."<sup>3,7</sup>

The members believed that this term would make it easier for doctors and patients to recognize the procedures at hand. The idea of a surgical "solution" is inherently attractive to patients. Interest in surgical approaches to headaches has been motivated by the accidental improvement in headaches observed among patients that have undergone several "forehead rejuvenation" surgical procedures. These procedures are based on the premise that the contraction of facial and other muscles collides with branches of the trigeminal nerve.

The procedures are frequently referred to collectively as "headache deactivation surgery", though multiple locations and surgical procedures are involved. These include corrugator supercilii resection with fat grafting, "temporal liberation" procedures, involving dissection of the glabellar region, transection of the zygomaticotemporal branch of the trigeminal nerve and resection of the semispinalis capitis muscle with fat grafting to reduce pressure on the occipital nerve. Finally, some surgeons also conduct nasal septoplasty or try to address possible intranasal trigger sites.<sup>3</sup>

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However, there is limited evidence to support that such surgeries are effective or safe. Several randomized studies have been conducted, but there are methodological deficiencies. Moreover, most studies in the literature were conducted by the same group of surgeons proposing the procedure and published in a single subspecialty journal.<sup>4,7</sup>

Despite the lack of good quality evidence to balance the pros and cons of surgical treatments for headaches, these procedures are becoming more common. Recent research from the Plastic Surgery Society found that 18% of interviewees had conducted a headache surgery. Sixty percent of those that did not conduct the surgery said they were “interested if the patient was referred to them by a neurologist.”<sup>5</sup>

The American Headache Society emitted a statement urging “patients, healthcare professionals and migraine treatment specialists themselves, to exercise caution in recommending or seeking such therapy”. The statement continued declaring that “In our view, surgery for migraine is a last-resort option and is probably not appropriate for most sufferers. To date, there are no convincing or definitive data that show its long-term value. Besides replacing the use of more appropriate treatments, surgical intervention also may produce side effects that are not reversible and carry the risks associated with any surgery. It also can be extremely expensive and may not be covered by insurance.”<sup>6</sup> Given that the value of a headache

migraine is still uncertain, the AHS and Choose Wisely Task Force believe that patients should only undergo this treatment in the context of procedures within clinical trials that seek to develop good quality evidence on the harms and benefits of treatment.

## References

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