Endoscopic Forehead Muscle Resection for Nerve Decompression: A Modified Procedure

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During the last few years, multiple studies have demonstrated the efficacy of migraine and tension-type headache trigger site deactivation surgery, hence expanding the indications of endoscopic techniques and also increasing the therapeutic potentiality of plastic surgery.[1–5]

These procedures are performed based on headache onset location: 4 trigger points that may cause the compression of the trigeminal branches have been described.[3] Intranasal abnormalities (headaches with an intranasal origin) are currently treated with septoplasty and turbinectomy; for patients whose headaches start in the temporal region, a segment of the zygomaticotemporal branch of the trigeminal nerve is resected; for the occipital trigger point, a portion of the semispinalis capitis muscle is removed and the underlying nerve is shielded using a subcutaneous flap to isolate it from surrounding muscles; finally, hyperactive muscles from the glabellar group are dissected in patients with forehead headaches. Currently, forehead headache triggers deactivation is performed through endoscopic surgical decompression of the peripheral branch of trigeminal nerve under general anesthesia. It relies on 3–5 1.5-cm-long access incisions, and it is performed by means of 2 distinct surgical instruments: an endoscope and a dissector.

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The aim of this study was to demonstrate the efficacy of surgical decompression by means of an innovative minimally invasive endoscopic selective myotomy technique, with the purpose of reducing the invasiveness of the currently adopted techniques.

METHODS

Fifty-four patients (18–75 years) who complained of either frontal chronic migraine or frontal chronic tension-type headaches underwent a frontal bilateral selective myotomy procedure of procerus, depressor supercilii, and corrugator supercilii muscles by means of video-assisted endoscopic surgery. Patients were asked to complete a 36-item short questionnaire before surgery and a 29-item short questionnaire 6 months and 2 years after surgery.

RESULTS

Of the 54 patients included in the study, 51 were followed up for 6 months and 29 of these 51 were followed up for 2 years. After 6 months, we gathered the following results: 21 of 51 patients (41.2%) observed complete elimination, 22 (43.1%) experienced significant improvement (at least 50% reduction in intensity or frequency), and 8 (15.7%) did not notice any change. The minimally invasive approach yielded positive response in 43 of 51 patients (84.3%), confirming the validity of the procedure. In the group of 29 patients followed up for 2 years, 26 patients (89.6%) reported a positive response to the surgery. Nine patients out of 29 (31%) confirmed complete elimination, 17 of 29 (58.6%) kept a significant improvement (at least 50% reduction in intensity or frequency), and 3 of them (10.4%) did not notice any change in their headaches.

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CONCLUSIONS

This study confirmed previous data in literature,[6] strengthening the role of a peripheral mechanism (trigger points) in migraine headaches. Because the operation has not caused any serious complication or side effects, it can be recommended to patients who suffer from moderate to severe chronic migraine not responding to medications. Moreover, the minimally invasive procedure we described proved to be easy, fast, and cost-effective, relying on the use of a single instrument, also reducing the numbers of postoperative scars from 5 to 1. More studies are needed though, with a major number of patients, to assess statistical results with a proper and more consistent population and with the purpose of comparing our data with those obtained by previous authors.

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