Microvascular decompression for trigeminal neuralgia

In the hands of experienced neurosurgeons, MVD for TGN can achieve high long-term curative effects. In addition, Microvascular decompression for trigeminal neuralgia complications are uncommon and usually transient. The results indicate that MVD is an effective and safe treatment for patients with TGN, including elderly patients [1].

Microvascular decompression is a first-line neurosurgical approach for classical trigeminal neuralgia with neurovascular conflict, but can show clinical relapse despite proper decompression. Second-line destructive techniques like radiofrequency thermocoagulation have become reluctantly used due to their potential for irreversible side effects. Subcutaneous peripheral nerve field stimulation (sPNFS) is a minimally invasive neuromodulatory technique which has been shown to be effective for chronic localised pain conditions.

The most frequently used surgical management of trigeminal neuralgia is Microvascular decompression (MVD), followed closely by stereotactic radiosurgery (SRS). Percutaneous stereotactic rhizotomy (PSR) , despite being the most cost-effective, is by far the least utilized treatment modality [2].

Microvascular decompression (MVD) via lateral suboccipital approach is the standard surgical intervention for trigeminal neuralgia treatment.

Teflon™ and Ivalon® are two materials used in MVD for TN. It is an effective treatment with long-term symptom relief and recurrence rates of 1-5% each year. Ivalon® has been used less than Teflon™ though is associated with similar success rates and similar complication rates [3]

Although microvascular decompression (MVD) is the most effective long-term operative treatment for TN, its use in older patient populations has been debated due to its invasive nature. The symptoms and surgical findings presented in a cohort for young-onset TN are similar to those reported in elderly adults. MVD appears to be a safe and effective treatment for young patients with TN [4].

see Microvascular decompression for trigeminal neuralgia and multiple sclerosis

see Awake Microvascular Decompression for Trigeminal Neuralgia.

Endoscope assisted microvascular decompression for trigeminal neuralgia

see also Endoscope assisted microvascular decompression for trigeminal neuralgia.

Compared with the standard microscope-assisted techniques, the 3D exoscopic endoscope-assisted MVD offers an improved visualisation without compromising the field of view within and outside the

surgical field [5].

Fully endoscopic microvascular decompression for trigeminal neuralgia

Fully endoscopic microvascular decompression for trigeminal neuralgia

Systematic Review and Meta-Analysis

Using preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines, PubMed, Cochrane Library, and Scopus were queried for primary studies examining pain outcomes after MVD for TN published between 1988 and March 2018. Potential biases were assessed for included studies. Pain freedom (ie, Barrow Neurological Institute score of 1) at last follow-up was the primary outcome measure. Variables associated with pain freedom on preliminary analysis underwent formal meta-analysis. Odds ratios (OR) and 95% confidence intervals (CI) were calculated for possible predictors.

Outcome data were analyzed for 3897 patients from 46 studies (7 prospective, 39 retrospective). Overall, 76.0% of patients achieved pain freedom after MVD with a mean follow-up of 1.7 ± 1.3 (standard deviation) yr. Predictors of pain freedom on meta-analysis using random effects models included (1) disease duration ≤5 yr (OR = 2.06, 95% CI = 1.08-3.95); (2) arterial compression over venous or other (OR = 3.35, 95% CI = 1.91-5.88); (3) superior cerebellar artery involvement (OR = 2.02, 95% CI = 1.02-4.03), and (4) type 1 Burchiel classification (OR = 2.49, 95% CI = 1.32-4.67).

Approximately three-quarters of patients with drug-resistant TN achieve pain freedom after MVD. Shorter disease duration, arterial compression, and type 1 Burchiel classification may predict a more favorable outcome. These results may improve patient selection and provider expectations [6].

Technique

Microvascular decompression for trigeminal neuralgia technique.

Outcome

Microvascular decompression for trigeminal neuralgia outcome.

Complications

Microvascular decompression for trigeminal neuralgia complications

Case series

Microvascular decompression for trigeminal neuralgia case series.

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