Microvascular decompression for trigeminal neuralgia complications

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) 2)].

see Cerebrospinal fluid fistula after microvascular decompression for trigeminal neuralgia.

(In addition to usual craniotomy complications), Cerebrospinal fluid fistula, hearing loss (≈ 10%), facial numbness, pain near incision (occipital neuralgia or lesser occipital neuralgia), rarely: diplopia, facial paralysis, failure of the procedure

---

Although microvascular decompression (MVD) is a durable treatment for medically refractory trigeminal neuralgia, hemifacial spasm, or glossopharyngeal neuralgia attributable to neurovascular conflict, few national studies have analyzed predictors of postoperative complications.

Patients who underwent MVD have extracted from the prospectively collected National Surgical Quality Improvement Program registry (2006-2017). Multivariable logistic regression identified predictors of 30-day adverse events and unplanned readmission; multivariable linear regression analyzed predictors of a longer hospital stay.

Among the 1005 patients evaluated, the mortality was 0.3%, major neurological complication rate 0.4%, and 2.8% had a nonroutine hospital discharge. Patient age was not a predictor of any adverse events. Statistically significant independent predictors both of any adverse event (9.2%) and of a longer hospitalization were American Society of Anesthesiologists (ASA) classification III-IV designation and longer operative duration ($P \leq 0.03$) The 30-day readmission rate was 6.8%, and the most common reasons were surgical site infections (22.4%) and Cerebrospinal fluid fistula (14.3%). Higher ASA classification, diabetes mellitus, and operative time were predictors of readmission ($P < 0.04$).

In this National Surgical Quality Improvement Program analysis, postoperative morbidity and mortality after MVD was low. Patient age was not a predictor of postoperative complications, whereas higher ASA classification, diabetes mellitus, and longer operative duration were predictive of any adverse event and readmission. ASA classification provided superior risk stratification compared with the total number of patient comorbidities or laboratory values. These data can assist with preoperative patient counseling and risk stratification [3)].

Bartek et al., conducted a retrospective review of 98 adult patients (≥16 years) treated with MVD between 1 January 1994 and 1 June 2013. Adverse events occurring within 30 days were classified according to the Landriel Ibañez classification for neurosurgical complications: grade I represents any non-life threatening complication treated without invasive procedures; grade II is complications requiring invasive management; grade III is life-threatening adverse events requiring treatment in an intensive care unit (ICU); grade IV is death as a result of complications. We sought to compare our results with reports from the literature.

Patients' median age was 61 years (range 26-83), and 64 (65 %) were females. Indications for MVD were trigeminal neuralgia (n = 77, 79 %), glossopharyngeal neuralgia (n = 4, 4 %), hemifacial spasm (n = 16, 16 %) and combined trigeminal neuralgia and hemifacial spasm (n = 1, 1 %). The overall 30-day complication rate was 20 %, with 14 % grade I complications, 5 % grade II complications and 1 % grade III complications. The comparison with the literature was hampered by the diverse and unsystematic way of reporting complications.

They provide a standardized report of postoperative complications in a consecutive patient series undergoing MVD. Due to the heterogeneous and non-standardized reporting of complications in the literature, it is difficult to know if the 20 % complication rate is low or high. Standardized reporting is a necessity for meaningful and more valid comparisons across studies. The safety of MVD, a fairly standardized neurosurgical procedure, is well suited for comparisons across centers provided that complications are reported in a standardized manner [4)].

6: Chadwick GM, Asher AL, Van Der Veer CA, Pollard RJ. Adverse effects of topical papaverine on auditory nerve function. Acta Neurochir (Wien). 2008 Sep;150(9):901-9; discussion 909. doi: 10.1007/s00701-008-0004-8. Epub 2008 Aug 23. PubMed PMID: 18726058.

7: McFadden LR, O'Donnell JM, Rose CE. Dental guards: helpful or hazards?–a case report. AANA J. 2000 Apr;68(2):127-30. PubMed PMID: 10876459.

1)
Olson S, Atkinson L, Weidmann M. Microvascular decompression for trigeminal neuralgia: recurrences and complications. J Clin Neurosci. 2005 Sep;12(7):787-9. doi: 10.1016/j.jocn.2005.08.001. PMID: 16165362.
2)
Mizobuchi Y, Nagahiro S, Kondo A, Arita K, Date I, Fujii Y, Fujimaki T, Hanaya R, Hasegawa M, Hatayama T, Inoue T, Kasuya H, Kobayashi M, Kohmura E, Matsushima T, Masuoka J, Morita A, Nishizawa S, Okayama Y, Shigeno T, Shimano H, Takeshima H, Yamakami I. Microvascular Decompression for Trigeminal Neuralgia: A Prospective, Multicenter Study. Neurosurgery. 2021 Jul 29:nyab229. doi: 10.1093/neuros/nyab229. Epub ahead of print. PMID: 34325470.
3)
Cote DJ, Dasenbrock HH, Gormley WB, Smith TR, Dunn IF. Adverse Events After Microvascular Decompression: A National Surgical Quality Improvement Program Analysis. World Neurosurg. 2019 Aug;128:e884-e894. doi: 10.1016/j.wneu.2019.05.022. Epub 2019 May 11. PubMed PMID: 31082546; PubMed Central PMCID: PMC6825526.
4)
Bartek J Jr, Gulati S, Unsgård G, Weber C, Förander P, Solheim O, Jakola AS. Standardized reporting of adverse events after microvascular decompression of cranial nerves; a population-based single-institution consecutive series. Acta Neurochir (Wien). 2016 Sep;158(9):1775-81. doi: 10.1007/s00701-016-2856-7. Epub 2016 Jun 4. PubMed PMID: 27260489.