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Supplemental material

Prognostic factors for long-term outcomes of microvascular decompression in the treatment of glossopharyngeal neuralgia: a retrospective analysis of 97 patients

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Supplementary Table 1. Surgical and radiologic anatomical classification of the different severity grades of NVC

Grade	Surgical anatomical classification	Radiologic anatomical classification
0	Absence of neurovascular contact	Presence of interposed CSF layer or the neurovascular relation is vague and hard to be evaluated
I	Simple contact without visible distortion/indentation	Simple contact without visible interposed CSF layer
II	Distortion/Indentation of the root	Deviation/Indentation of the root

Veins were graded on the same scale as arteries.

Modified with permission from Sindou M, Leston J, Decullier E, Chapuis F. Microvascular decompression for primary trigeminal neuralgia: long-term effectiveness and prognostic factors in a series of 362 consecutive patients with clear-cut neurovascular conflicts who underwent pure decompression. *J Neurosurg.* 2007;107(6):1144-1153; and Hardaway FA, Gustafsson HC, Holste K, Burchiel KJ, Raslan AM. A novel scoring system as a preoperative predictor for pain-free survival after microsurgery for trigeminal neuralgia. *J Neurosurg.* 2020;132(1):217-224.

Supplementary Table 2. Preoperative MRI evaluation and surgical findings of NVC

		MRI evaluation		
		0	I	II
Surgical exploration	0	9	3	1
	I	7	16	4
	II	3	4	63

Kappa value (measure of agreement) = 0.63. Kappa ranges from -1 (complete disagreement) to 1 (perfect agreement). The higher value indicates better agreement.

Of 110 patients with GPN, MRI showed NVC in accordance with surgical findings in 88 patients. In the 19 patients with negative MRI findings, 9 had no conflict at surgery, whereas the other 10 had an intraoperative NVC (false negative). The sensitivity of MRI was 89.7% and the specificity was 69.2%, with surgical findings as the gold standard. The positive predictive value of MRI examination was 95.6%, whereas the negative predictive value was 47.4%. The concordance between preoperative imaging and intraoperative observation was evaluated by Cohen's kappa score (Cohen J. A coefficient of agreement for nominal scales. *Educ Psychol Meas.* 1960;20:37-46). There was generally good agreement between preoperative MRI examination of NVC and surgical findings (kappa=0.63).

Supplementary Table 3. Causes of failures and treatment for the 10 patients who underwent reoperation

Patient No.	Causes of failures	Treatment	Outcome	Complications
1	Vein regeneration	MVD+Rhizotomy	Complete pain relief	None
2	Vein regeneration	MVD+Rhizotomy	Complete pain relief	None
3	Vein regeneration	MVD+Rhizotomy	Complete pain relief	None
4	Missed compressive vessel	Redecompression	Partial pain relief	None
5	Missed compressive vessel	Redecompression	Complete pain relief	None
6	Arachnoidal adhesion	Adhesiolysis	Partial pain relief	None
7	No offending vessel	Rhizotomy	Failure	Dysphagia
8	No offending vessel	Rhizotomy	Complete pain relief	None
9	No offending vessel	Rhizotomy	Complete pain relief	None
10	No offending vessel	Rhizotomy	Failure	None

Among the 10 patients who underwent reexploration, 6 patients (vein regeneration in 3, no offending vessel in 2, missed compressive vessel in 1) experienced immediate and complete relief of pain after the second operation, 2 patients (arachnoidal adhesion and missed compressive vessel, respectively) reported partial pain relief, and 2 patients (no offending vessel) did not experience postoperative pain relief. Of the 4 patients who underwent rhizotomy, 1 patient developed transient dysphagia following the reoperation.