Intraoperative real-time continuous vagus nerve monitoring in surgery for tumors around the jugular foramen

Objective: Jugular foramen tumor surgery has risks of dysphagia and vocal cord palsy owing to injury to the lower cranial nerves, which enter the jugular foramen. For the treatment of tumors around the jugular foramen, long-term tumor control by maximum tumor resection while avoiding neurological damage is required. To accomplish this challenging goal, we developed intraoperative continuous vagus nerve monitoring and herein report our experience with this novel monitoring method.

Methods: During an 11-year period, 50 patients with a tumor around the jugular foramen (34 jugular foramen neuromas, 11 meningiomas, and 5 others) underwent microsurgical resection under continuous vagus nerve monitoring. In the 34 of 60 surgeries for jugular foramen neuromas (57%), monitoring was performed efficiently. The other 26 cases were excluded because of non-response owing to severe preoperative nervous damage or non-use of monitoring.

Results: The average resection rate was 96%, and no additional surgery was required in any of the patients during the follow-up period (average: 65.0 months). Extubation was performed by the next day in all patients and oral feeding was started within 10 days postoperatively in all but 1 patient with severe preoperative dysphagia. In 7 patients (14%), dysphagia and/or hoarseness was mildly worsened after the surgery, but tracheostomy or gastrostomy was not required in any of them. Decreased amplitude preservation ratios of intraoperative vagus electromyograms correlated with these postoperative symptoms (cut-off value: 63%, sensitivity: 86%, specificity: 79%).

Conclusion: Intraoperative continuous vagus nerve monitoring enables real-time and quantitative assessment of neural conditions, and is essential to achieve sufficient tumor resection while avoiding permanent vagus nerve palsy in jugular foramen tumor surgery.

Identifying subjective symptoms related to a psychomotor disturbance in melancholia: a multiple regression analysis study

Backgrounds: Psychomotor disturbance (PMD) such as retardation and agitation, was one of the most critical features of melancholia. It was not only experienced subjectively but expressed as observable behavioral signs. Parker has developed the CORE measure that evaluates PMD as behavioral characteristics. He