Large vestibular schwannoma

- Comparing surgical outcomes of the semisitting versus lateral position in large vestibular schwannoma surgery: a randomized clinical trial
- Genetic Analysis of Intracranial Schwannomas: Differential NF2 Alteration Frequencies in Nonvestibular Schwannomas Versus Vestibular Schwannomas
- In-frame insertions of SOX10 are highly enriched and characterize a distinct transcriptomic profile in gastrointestinal schwannomas
- Malignant Transformation of a Vestibular Schwannoma Without Previous Radiation Exposure: Illustrative Case and Literature Review
- Large vestibular schwannoma treated using a cranial nerve sparing approach with planned subtotal microsurgical resection and stereotactic radiosurgery: meta-analysis and International Stereotactic Radiosurgery Society (ISRS) practice guidelines
- Incidence and Risk Factors of Delayed Facial Paralysis After Vestibular Schwannoma Resection: A Systematic Review and Meta-Analysis
- Quality-of-life assessment instruments for patients with vestibular schwannoma: A systematic review
- Manifestation of a Vestibular Schwannoma in a Patient With PHACE Syndrome

Large vestibular schwannoma (2.5 cm to 4 cm).

Treatment

Large vestibular schwannoma treatment

Outcome

Excellent clinical facial nerve outcomes can be obtained with subtotal resection (STR) of large VS tumors. Maximal reduction in tumor size occurs at 2-year post-operatively. Thus, in patients undergoing surgery for large VS, STR and a "watch and wait" strategy is a reasonable treatment option that may optimize facial nerve outcomes ¹⁾.

Systematic review

Starnoni et al. published a systematic review and metaanalysis of reported series of 240 patients treated by planned subtotal resection and followed on by RS.60 They showed that the tumor control rate after a mean follow-up of 46 months (range: 28–68.8) was 93.9%. Treatment failure was seen in 18 patients (7.26%), of which 13 patients required salvage treatment ²⁾.

Retrospective cohort studies

The aim of Asensi-Diaz et al. was to review the results of oculoplastic surgery performed

simultaneously with vestibular schwannoma resection in terms of vision-related quality of life, compared to deferred surgery.

The study involved 177 patients who underwent vestibular schwannoma resection between 2015 and 2022. The incidence of facial palsy was registered. Of those patients who had the palsy, they selected 35 who also had oculoplastic surgery. 5 of them declined participating in the study. The final sample (n = 30) was divided in two groups depending on the timing of oculoplastic surgery: simultaneously-first group (n = 15) and deferred-second group (n = 15). The vision-related quality of life was measured using the NEI VFQ-25 test.

26.56% patients developed an immediate postoperative facial dysfunction, decreasing to 18.08% after one year of follow-up. Timing of oculoplastic surgery was associated with better results in quality of life; the first group of patients had a better quality of life (70.27/100) compared to the second group (53.73/100; p = 0.006). Moreover, worse results in quality of life were also associated with long-term postoperative facial palsy (p = 0.042). Current criteria for selecting patients were reliable, proving adequacy as we found worse long-term facial functions in patients who underwent simultaneous surgery (p = 0.01).

The current criteria for selecting candidates for simultaneous oculoplastic surgery are effective. When long-term facial nerve dysfunction is expected during vestibular schwannoma resection, oculoplastic surgery should be performed simultaneously to preserve the q vision-related quality of life. Long-term severe facial palsy is associated with poor vision-related quality of life ³⁾

Case series

Between October 2008 and September 2020, 72 patients underwent surgery in Rajavithi Hospital. Of these, 48 had total or subtotal resection. Yhey classified these participants into two groups: VS \geq 3 cm (Group A, n=30); and VS <3 cm (Group B, n=18). Both groups were compared in terms of clinical presentation, imaging data, facial nerve outcomes, and surgical complications. The retrosigmoid approach was used in each case, and all patients had follow-up for at least 1 year. Chi-square and Fisher's exact test were used for statistical analysis.

The mean tumor size in Group A was 3.8 cm compared with 1.5 cm in Group B. In Group A, clinical signs of hearing dysfunction, gait ataxia, and facial paresthesia were present in 96.7%, 66.7%, 50% of patients respectively, compared with 100%, 5.6%, and 11.1% respectively in Group B. Radiographic signs of hydrocephalus were observed in 56.7% of Group A subjects, and 5.6% of those in Group B. At 1 year follow-up, 40% of patients with large VS and 94.4% of patients with small to medium size VS had good facial nerve outcomes (House-Brackmann [HB] facial grading scale grade I-III). Significant differences between the two groups were found only in gait ataxia (p<0.001), facial paresthesia (p=0.006), radiographic signs of hydrocephalus (p=0.002), facial nerve outcome 1 month (p<0.001) and facial nerve outcome 1 year (p<0.001).

In patients with large size VS, microsurgical resection had poor facial nerve outcomes compared with those of their counterparts with small to medium size VS. Planned subtotal resection with postoperative radiosurgery might attain superior facial nerve outcomes and result in better quality of life in subjects with large VS⁴.

Intended subtotal resection of large vestibular schwannomas (T4a and b according to the Hannover

grading scale) has been shown to be safe and, in combination with stereotactic radiosurgery, might enable sufficient tumor control. However, risk factors for postoperative neurological deterioration in these surgically challenging lesions are largely unknown.

63 patients harboring T4a (N = 33, 52%) or T4b (N = 30, 48%) tumors were included. At time of discharge, facial nerve and hearing function had deteriorated from a serviceable to a non-serviceable level (H&B grades I + II vs. >II) in 24% (N = 15/63) and 21% (N = 6/29), respectively. Deterioration of vertigo was more common after near (N = 3/9, 33% vs. 2/38, 5%) than after subtotal resection (<.25 ccm vs. \geq .25 ccm tumor remnant on the initial postoperative MRI; p = .042). No further correlation with patient age, sex, neurofibromatosis, resection extent and tumor volume, or -cyst volume was found. Patients were reevaluated after a median of 3 months after surgery. At that time, facial nerve function and hearing had both decreased from a preoperative serviceable to a non-serviceable level in 5%. In univariate analyses, risk of deterioration of facial nerve function increased with preoperative tumor volume (p = .037).

Intended submaximal resection provides satisfactory neurological outcome for patients with large VS. Risk factors for postoperative neurological deterioration remain unclear ⁵⁾.

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