Vestibular schwannoma surgery outcome

In 400 patients who underwent surgical removal of vestibular schwannoma from 1984 to 2000,symptoms, preoperative evaluation, surgery, and postoperative complications were analyzed using standardized grading systems.

Results: One hundred ninety-four men and 206 women had an operation. Mean age was 53.9 years (age range, 11-78 y). Tumor size according to Koos stage was stage 1 in 39 cases, stage 2 in 122 cases, stage 3 in 87 cases, and stage 4 in 152 cases. Preoperatively, 7.5% of patients had facial nerve dysfunction. Surgical approaches were translabyrinthine in 229 patients, widened retrolabyrinthine in 128 cases, suboccipital in 42 cases, and transotic in 1 case. Mortality was 0.5%. Facial nerve was transected in 15 cases (3.7%) and immediately repaired in 5 cases. A delayed hypoglossal-to-facial nerve anastomosis was performed in 12 cases. At 1 year, House-Brackmann grade in 70.7% of patients was 1 to 2; in 24.3%, 3 to 4; and in 5%, 5 to 6. Poor facial nerve outcome was correlated with tumor size, preoperative irradiation, and nerve dysfunction and was not correlated with the approach used. Most patients had postoperative dizziness, and 30% still had vestibular disturbances after 1 year. Nine patients (2.2%) had a cerebrospinal fluid rhinorrhea, and 24 had a cerebrospinal fluid wound leak (6%). Twenty-two patients (5.5%) had postoperative meningitis. Two patients had a cerebellopontine angle hemorrhage, and three a brainstem infarct.

Transpetrosal approaches (translabyrinthine, widened retrolabyrinthine) are safe for vestibular schwannoma removal, and rates of postoperative complications and sequelae are decreasing [1)].

Bartek et al. performed a nationwide study with data from the Swedish Brain Tumor Registry (SBTR) for all adults diagnosed with VS 2009-2015. Patient symptoms, tumor characteristics, and postoperative complications were analyzed. Results: In total 348 patients underwent surgery for VS. Mean age was 50.6 ± 14.5 years and 165 patients (47.4%) were female. The most common symptom was focal neurological deficit (92.0%), with only 25 (7.2%) being asymptomatic prior to surgery, and 217 (63.6%) had no restriction in activity. Following surgery, 100 (28.7%) patients developed new deficit(s). In terms of postoperative complications; 11 (3.2%) had a hematoma, 35 (10.1%) an infection, 10 (2.9%) a venous thromboembolism, and 23 (6.6%) had a reoperation due to complication. There were no deaths within 30-days after surgery. When grouped according to tumor size (< 4 vs. ≥4 cm), those with ≥4 cm tumors were more often males ($p = 0.02$), had more often ICP related symptoms ($p = 0.03$) and shorter time from imaging to surgery ($p < 0.01$). Analysis of the younger (< 65 years) vs. elderly (≥65 years) revealed no difference in outcome except increased 1-year mortality ($p = 0.002$) in elderly. Conclusion: In this nation-wide registry-study, we benchmark the 30-day complication rate after VS surgery as collected by the SBTR. Further, we present the current neurosurgical outcome data from both VS smaller than 40 mm compared to larger tumors, as well as younger vs. elderly VS patients. Since surgical decision making is a careful consideration of short term risk vs. long term benefit, this information can be useful in clinical decision making [2)].

Landry et al. retrospectively reviewed charts of patients who underwent primary surgery for Vestibular schwannoma between 2005 and 2020 at a quaternary referral center in Toronto, Canada. Mined data includes patient demographics, clinical presentation, radiological features, and treatment details. Regression modelling was used to identify predictors of tumour control, postoperative

morbidity, and correlates of progression free survival (PFS).

Two hundred and five tumours with sufficient data were included in the study. Syndromic NF2, large tumours (>3cm), subtotal resection (vs gross total resection), presence of edema on preoperative MRI, and preoperative trigeminal symptoms were all predictors of postoperative progression/need for further treatment; the latter four were also associated with shorter progression free survival. Extent of resection (EOR), tumour size, and Koos grade were independently predictive of postoperative progression/secondary intervention in multivariate models; however, only EOR was independently predictive of progression-free survival. EOR, tumour size, and patient age are each independently predictive of facial nerve outcome.

They comprehensively explore the clinical landscape of surgically treated vestibular schwannoma and highlight important outcome predictors and disease subgroups. This may have important implications in risk stratifying these challenging cases [3)]

GTR is associated with better QoL using the general QoL measures SF-36 and PROMIS-10 and the disease-specific PANQOL, even after controlling for baseline and outcome differences. This is especially significant in the assessment of mental health, indicating there may indeed be a psychological advantage to the patient that translates to overall well-being to have the entire tumor removed if microsurgical resection is undertaken [4)].

see Hearing preservation.

Outcomes can be improved by avoiding irreversible injury, such as crush injury and thermal injury, and by maximizing the recuperation period after reversible injury, such as traction injury, through use of the extended recuperation treatment strategy [5)].

Postoperative headache is not uncommon after retrosigmoid vestibular schwannoma removal. Bone dust dispersed into the subarachnoid space during drilling may be responsible. If dispersion could be reduced, headache incidence might be decreased. An ultrasonic bone aspirator (UBA) containing an integrated suction at the tip may more effectively suction bone dust created during bone removal

The UBA resulted in approximately 25 times less bone dust dispersion than the otologic drill at optimized settings [6)].

1)
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