Surgeon Perspectives on Education and Management of Facial Paralysis Following Vestibular Schwannoma Resection: A North American Survey

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Abstract

Background: Facial paralysis (FP) is a devastating complication of vestibular schwannoma (VS) surgery, affecting function, speech, swallowing, and psychosocial well-being. Surgeon practices regarding FP counseling and management remain poorly characterized.
Objective: To evaluate preoperative counseling, postoperative management, and referral practices for FP among North American VS surgeons. To assess variation by specialty, practice type, years of experience, and surgical volume.
Methods: An online survey of North American Skull Base Society members (n=1,214) was conducted from October–December 2024. Data were analyzed with descriptive statistics, chi-square tests, and proportion Z-tests.
Results: Of 105 respondents (73% neurosurgeons, 27% neurotologists; 60% academic; 58% 15+ years experience; 54% >21 VS cases/year), nearly all discussed FP risk (99–100%), but preoperative referral to reconstructive surgeons was rare (7–8%). Facial rehabilitation referrals were common (87–93%), while speech/swallow therapy referrals differed by specialty (neurosurgery 77% vs. neurotology 36%, $p<0.001$). Assessment of quality of life (25–27%), depression (29–35%), and anxiety (14–18%) was limited. Higher-volume surgeons more frequently provided detailed counseling and psychosocial assessment though gaps in multidisciplinary care were observed across all practice settings and experience levels.
Conclusions: For VS surgeons, preoperative counseling regarding the risk of FP is nearly universal, but systematic referrals for preoperative education, post operative speech/swallow therapy, or psychosocial assessment are inconsistent. Higher-volume surgeons provide slightly more structured care, though its impact on outcomes is unknown. Future research should evaluate the effect of coordinated, multidisciplinary management for FP on functional, psychosocial, and quality of life outcomes.

Introduction

Vestibular schwannomas (VS) are benign, slow-growing tumors with an incidence of approximately 1 per 100,000 persons per year, and management strategies vary based on tumor size and location, including surveillance, stereotactic radiation, or microsurgical resection.[1-3] Facial paralysis (FP) remains one of the most impactful complications of treatment due to its effects on facial expression, articulation, mastication, ocular protection, and psychosocial well-being. Although earlier studies reported postoperative FP rates of 16–25%, more recent work shows improved outcomes, with early FP occurring in approximately 14–16% of patients and 10–13% persisting at one year. [4-6] These findings underscore the continued importance of thorough preoperative counseling and thoughtful postoperative management.

Our prior work examining patient experiences following vestibular schwannoma treatment revealed that while FP risk is commonly discussed preoperatively, counseling about functional, aesthetic, and psychosocial consequences is often inconsistent, and access to rehabilitation, reconstructive services, and mental health support is frequently delayed or fragmented.[7,8] However, these studies were limited by recall bias, as patients were surveyed months after FP onset. To address this limitation, the present study focuses on the surgeon perspective, evaluating preoperative education, postoperative FP management practices, and potential differences based on surgeon specialty, treatment setting, experience, and surgical volume. By integrating surgeon and patient perspectives, this work aims to clarify current practice patterns, identify gaps in care, and inform strategies to optimize comprehensive FP management.

Methods

This study received Institutional Review Board approval (PSJH STUDY2021000624) and recruited participants from the North American Skull Base Society (NASBS) between October and December 2024. An online survey invitation was emailed to 1,214 NASBS surgeons on October 1, 2024, and completion implied informed consent. A 15-question REDCap survey developed by the senior author and colleagues assessed surgeon specialty (neurosurgery vs neurotology), practice setting, years of experience, surgical volume (recategorized as low 0–20 vs high >20 cases/year based on volume–outcome data), pre- and postoperative counseling practices, FP management, and referral patterns. Responses were summarized using frequencies and percentages; nonresponses were excluded. Group comparisons used Pearson's chi-square or Fisher's exact test, Likert responses were dichotomized when helpful, proportions were tested with one-sample Z-tests, and analyses were conducted in SAS Enterprise Guide 8.4 with significance set at $p<0.05$.

Survey

1. Please select the answer that best describes your specialty.
   Neurosurgery
   Neurotology
2. How would you describe your current practice?
   Academic (University based)
   Private
   Hybrid (Private with academic affiliation, Trainee supervision)
3. How many years have you been in practice?
   0-5
   6-10
   11-15
   15+
4. What is your surgical volume for managing vestibular schwannomas per year?
   1-10
   11-20
   21-30
   30+
5. Do you or your treatment team discuss the risk of facial paralysis prior to treatment?
   Yes
   No
6. Do you or your treatment team refer patients to a reconstructive surgeon to discuss facial reanimation prior to surgery?
   Yes
   No
7. Do you provide patients with informational material to explain the treatment options and potential side effects of surgery for VS to your patients?
   Yes
   No
8. If you answered Yes to question 7, does that include information on management of facial paralysis?
   Yes
   No
9. If you believe the facial nerve to be intact but the patient awakens with complete paralysis, when do you consider the patient a candidate for facial nerve reanimation?
   Within 1-6 months
   7-12 months
   13-18 months
   > 18 months
   Unsure
10. Do you or your treatment team use quality of life questionnaires and/or other surveys to assess patients with facial paralysis?
    Yes
    No
11. If a patient develops facial paralysis, do you or your treatment team refer them to speech/swallow therapy?
    Yes
    No
12. Do you or your treatment team assess patients with facial paralysis or weakness after management of vestibular schwannoma for depression?
    Yes
    No
13. Do you or your treatment team assess patients with facial paralysis or weakness after management of vestibular schwannoma for anxiety?
    Yes
    No
14. If a patient develops facial paralysis, do you or your treatment team refer them to a specialist for psychological support?
    Yes
    No
15. If a patient develops facial paralysis, do you or your treatment team refer them to anyone for facial retraining or facial physical therapy?
    Yes
    No

Results

- 105 NASBS surgeons (8.6% response rate) completed the survey
- 73% were neurosurgeons and 27% neurotologists
- 60% of surveyed surgeons were in academic settings
- Over 50% practiced greater than 15 years
- 54% performed more than 20 VS cases annually
- Practice characteristics, experience, and surgical volume were generally similar across specialties, and most surgeons discussed FP risk and provided VS treatment counseling.
- Referral to facial retraining/physical therapy was common
- Preoperative referral to reconstructive surgeons was rare
- Referrals for speech/swallow therapy varied
- Quality-of-life assessment and psychosocial screening were infrequently performed

Conclusions

Although preoperative discussions of FP risk are common, significant gaps remain in rehabilitation referrals, multidisciplinary coordination, and psychosocial assessment for VS patients. Future research should evaluate whether coordinated multidisciplinary care meaningfully improves functional, psychosocial, and QoL outcomes to guide best practices for patient-centered FP management.

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