

**Comparing Outcomes of Solo Neurosurgical versus** Multidisciplinary Approaches in Retrosigmoid **Resection of Vestibular Schwannomas** Kurbaan S. Shergill<sup>1</sup>, Brian D. Westerberg, MD, MHSc, FRCSC<sup>2</sup>, Ryojo Akagami MD, BSc, MHSc, FRCSC<sup>3</sup>, Serge Makarenko MD, FRCSC<sup>3</sup>

### Background

Vestibular Schwannomas (VS) are surgically managed using retrosigmoid, translabyrinthine, and middle cranial fossa approaches. Multidisciplinary approaches combining neurosurgery and neurotology are critical to improve surgical outcomes. However, in some circumstances, a combined surgical team approach is not possible, and empirical evidence directly comparing these multidisciplinary approaches to solo surgical interventions is limited.

# Objective

This study compares surgical outcomes in resection of VS with the retrosigmoid approach with and without involvement of a subspecialized neuro-otologist.

## **Methods and Materials**

### Results

69 out of a much larger cohort of patients who underwent retrosigmoid VS resection have been assessed so far; of 69 cases, 53 were operated on by both a neurosurgeon and a neurotologist, and 16 by neurosurgeons alone. There were no statistically significant differences in demographic variables between the two groups. The mean age was 55.6 years in the neurotology group compared to 59.8 years in the non-neurotology group (p = 0.364). The prevalence of hypertension (15.4% vs. 6.3%, p = 0.602), diabetes (9.6% vs. 0%, p = 0.459, coronary artery disease (3.8% vs. 0%, p = 1.000), and smoking history showed no significant differences between groups. Surgical outcomes revealed no statistically significant differences in key metrics. The mean postoperative House-Brackmann (HB) score was 2.4 in the multidisciplinary group compared to 2.6 in the solo group (p = 0.840). Gardner-Robertson (GR) hearing score changes also did not reach statistical significance

This retrospective cohort study was conducted at a single quaternary center and included patients who underwent retrosigmoid VS resection between 2001 and 2023. The cohort was divided into two groups: cases performed by neurosurgeons alone and cases involving both a neurosurgeon and a neurotologist. We analyzed various surgical and patient outcomes, including House-Brackmann (HB) facial nerve scores, Gardner-Robertson (GR) hearing scores, operative time, blood loss, length of hospital stay, subtotal resection rate, residual tumor presence, and need for adjuvant treatment. Additionally, demographic characteristics such as age, sex, hypertension, diabetes, coronary artery disease, and smoking history were compared between groups. Statistical analyses included independent t-tests for continuous variables and chi-square tests for categorical variables, with a significance threshold set at p < 0.05.

(p = 0.849), but a slight trend suggested improved hearing preservation with a multidisciplinary approach. The mean operative time was 482.1 minutes in the multidisciplinary group versus 468.2 minutes in the solo group (p = 0.694). Mean blood loss was 323.5 mL for the multidisciplinary group compared to 355.7 mL for the solo group (p = 0.621). The subtotal resection rate was 32.1% in the multidisciplinary group versus 37.5% in the solo group (p = 0.729). Residual tumor presence was noted in 28.3% of multidisciplinary cases versus 31.2% of solo cases (p = 0.781). Adjuvant treatment rates were 15.1% in the multidisciplinary group compared to 18.7% in the solo group (p = 0.845). Length of hospital stay was slightly shorter in the multidisciplinary group (4.2 days) compared to the solo group (4.8 days), though this difference did not reach statistical significance (p = 0.071).



further assess the benefits of neurotology involvement.



### Contact

Kurbaan S. Shergill Faculty of Medicine, University of British Columbia 317 – 2194 Health Sciences Mall, Vancouver, BC V6T 1Z3 kurbaan@student.ubc.ca

### Affiliations

<sup>1</sup>Faculty of Medicine, University of British Columbia, Vancouver, BC <sup>2</sup>Division of Otolaryngology – Head and Neck Surgery, University of British Columbia, Vancouver, BC <sup>3</sup>Division of Neurosurgery, University of British Columbia, Vancouver, BC