# Early Results with Hypofractionated Gamma Knife Radiotherapy for Treatment of Vestibular Schwannoma

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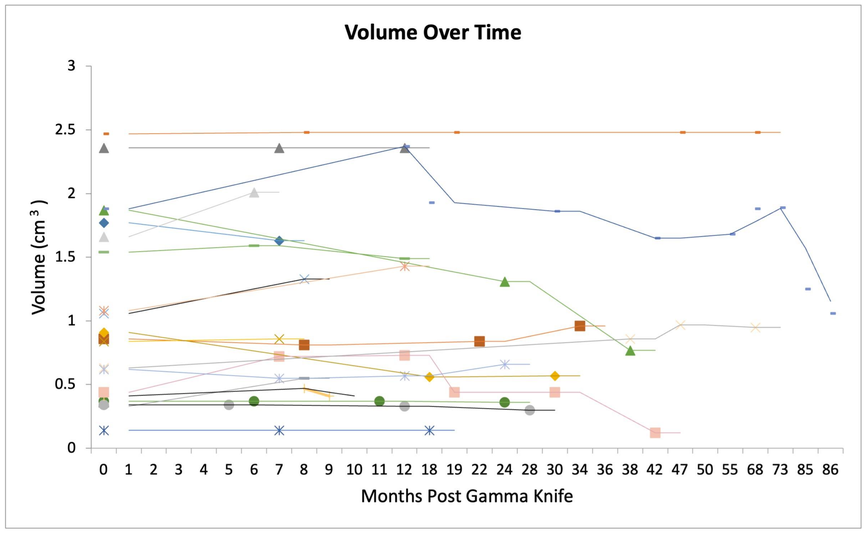
## Introduction

- Current radiation therapy modalities for vestibular schwannoma (VS):
  - Gamma Knife Radiosurgery (GKRS)
  - Linac Based Radiotherapy (LBR)
  - Fractionated Radiotherapy (FSRT)
  - Hypofractionated Gamma Knife Radiosurgery (hfGKRS)
- The goal of fractionation is tumor control and to minimize normal tissue injury.
- hfGKRS provides benefits of fractionation and avoids weeks of treatment.
- This study examined the utility of hfGKRS in three fractions of 6 Gy for a total of 18 Gy.

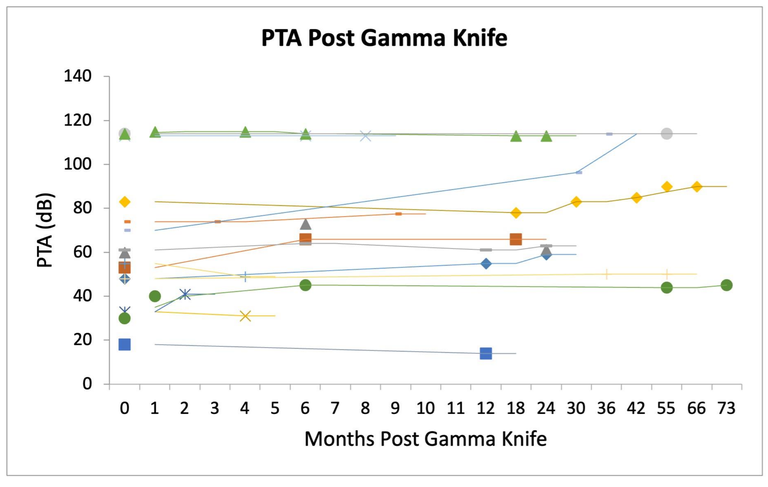
## Methods

- Retrospective analysis:
  - Unilateral VS - hfGKRS treatment at an academic center between 2017 and 2023
- Volume measurement was conducted with MIM and AI powered Vbrain software.
- Audiometric data included PTA, WRS, and SRT.
- Pre and post-treatment tinnitus, imbalance, and House-Brackmann score were recorded.
- Outcomes compared to literature controls of GKRS and LBR.

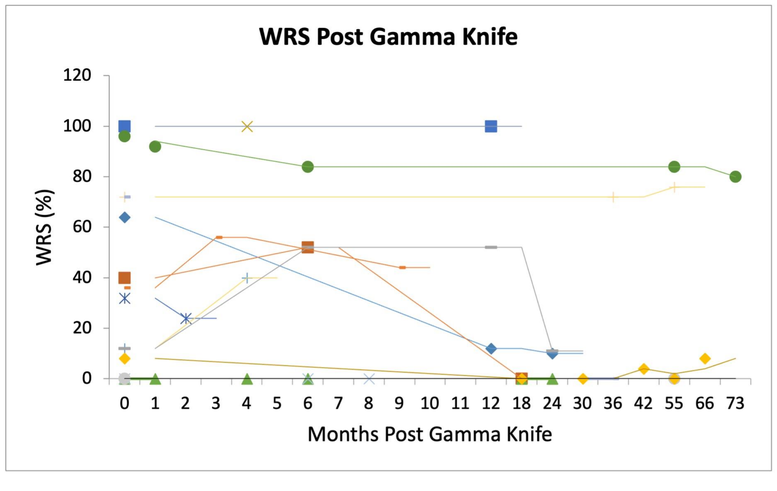
## Figure 1. Volume Over Time



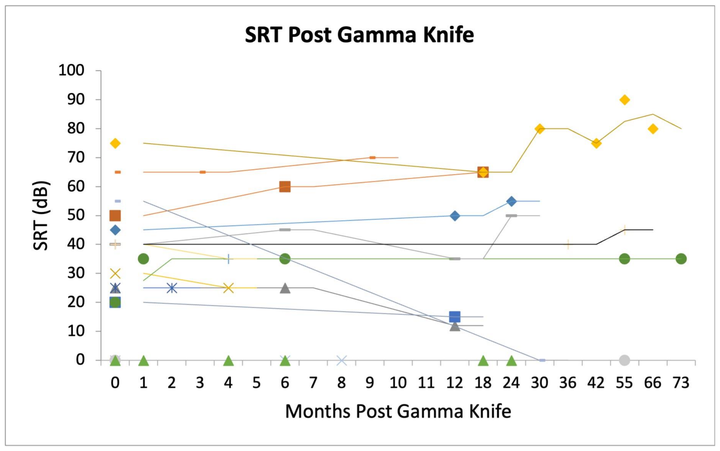

## Figure 2. PTA Over Time




## Figure 3. WRS Over Time




## Figure 4. SRT Over Time




## Results

- Of the 25 patients treated with hfGKRS, 23 patients had post-hfGKRS MRI.
- For most of the patients in our case series, the volume is stable.
- Serviceable hearing was preserved in 80% of patients (G-R).
- Surgical salvage post-hfGKRS in 1 patient (4%) due to facial spasm.
  - Overall tumor control rate: 96%
- House-Brackmann 1/6 in all patients before and after hfGKRS.
- Tinnitus (12.5%), Dizziness (12.5%), Facial pain (8%), Facial spasms (8%)

## Conclusion

- Early results show similar tumor control and improved hearing preservation.
- Cranial nerve toxicity and adverse outcomes of hfGKRS are similar to GKRS.
- Further follow-up is needed in long-term tumor control, hearing results, and toxicity.