Prior Subtotal Resection Does Not Increase Gamma Knife Radiosurgery Risk for Large Vestibular Schwannomas

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Nothing To Disclose
Introduction

- Gamma Knife Radiosurgery (GKRS) has become a valuable treatment option for VS
  - Especially VS < 3.0 cm

- GKRS remains suboptimal for VS > 3.0 cm, with surgical resection being the primary treatment modality

- Gross total resection (GTR) is preferred when possible, as subtotal resection (STR) without adjuvant therapy leads to tumor recurrence

- GTR is occasionally not achievable due to tumor adherence to brainstem and cranial nerves, esp. CN VII
Methods

- Approved by Tufts MC IRB (#12525)
- Exclusion criteria:
  - Neurofibromatosis type II

14 patients had GKRS after STR of VS
GKRS between August 2002 and August 2017

**GKRS Group**
- GKRS alone
- N = 6 patients

**STR/GKRS Group**
- GKRS administered >12 months after surgery
- N = 8 patients
## Results

<table>
<thead>
<tr>
<th></th>
<th>GRKS</th>
<th>STR/GKRS</th>
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</thead>
<tbody>
<tr>
<td>Number of Patients</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Pre-GKRS Tumor Size (mm)</td>
<td>27.3</td>
<td>27.1</td>
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<tr>
<td>Mean Follow-up (years)</td>
<td>2.4</td>
<td>3.6</td>
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<tr>
<td>Mean Tumor Size Reduction (mm)</td>
<td>4.7</td>
<td>4.8</td>
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</tbody>
</table>
Results

• House-Brackmann Grade
  – STR/GKRS Group
    • Improved in 2 patients (3 to 1; 6 to 5) and worsened in 1 patient (1 to 3)
  – GKRS Group
    • Remained unchanged for all

• Karnofsky Performance Scale
  – STR/GKRS Group
    • Improved in 1 patient (80 to 90)
  – GKRS Group
    • It improved in 2 patients (80 to 90) and worsened in 1 patient (100 to 90)
Results

- Cranial Nerve Functional Outcomes
  - STR/GRKS Group
    - Facial numbness and imbalance resolved in 2 patients and gait imbalance developed in 1 patient.
  - GKRS Group
    - Imbalance resolved in 2 patients
Discussion

46 year old female who presented with acute onset headaches and blurry vision

1/2006 Pre-op HB 1
2/2007 Post-op HB 1
10/2015 GKRS 116 months after surgery HB 1
12/2017 18 mos s/p GKRS HB 1
Summary Points

• GKRS is safe when performed as an adjuvant therapy following STR

• GKRS carries a low risk of worsening facial nerve function when performed after STR

• GKRS for VS 2.5-3.0 cm appears to offer a similar risk/benefit profile with equivalent tumor control for patients with prior STR compared to those treated de novo.