MICROSURGERY FOR VESTIBULAR SCHWANNOMA AFTER RADIATION FAILURE

R. Mark Wiet, MD1, 2; Joyce Kim, BA1; Robert Battista, MD1, 3; Robert Kazan, MD1; Richard J. Wiet, MD1, 3
1Ear Institute of Chicago, 2Rush University Medical Center, 3Northwestern University

DISCUSSION

Vestibular schwannomas are benign, typically slow-growing tumors that arise from the schwann cell lining of the vestibular portion of the eighth cranial nerve. A database of patients with the diagnosis of vestibular schwannoma was reviewed. Fifty percent of the patients received LINAC radiotherapy and the remaining patients received gamma knife radiosurgery. The mean marginal radiation dose was 15.75 Gy. The mean time period between radiation and microsurgical resection was 27 months. The average pre-microsurgery tumor size was 1.6 cm. All six patients underwent translabyrinthine resection of their tumor. Indications for microsurgical resection were: growth of tumor (6 patients) and disabling hemifacial spasm (3 patients).

Most authors would agree that surgery should be avoided during the first two years after radiation. During this time period the clinical features are thought to be too susceptible to injury. In addition it is difficult to differentiate expected post-radiation tumor swelling from persistent tumor growth and cause symptoms despite treatment with radiosurgery or radiotherapy. Recent treatment is recommended for these tumors. Options then are again radiosurgery or microsurgery. Here we report our experience with the microsurgery for vestibular schwannoma in six patients.

A database of patients with the diagnosis of vestibular schwannoma was reviewed retrospectively. A study group was identified of six patients who had microsurgery after radiation that if the inclusion criteria Patients were included in the study if they had undergone LINAC radiotherapy or Gamma knife radiosurgery and the patient chose microsurgical resection of the tumor for subsequent management. Patients with prior radiosurgery or microsurgery. Films were obtained from before the patients underwent radiation and then before microsurgery. The mean follow up period was 19.5 months. All patients had normal facial function prior to microsurgery. At the time of microsurgery, five of the six tumors were found to have increased adherence of the tumor to the facial nerve. Partial and total facial nerve recovery occurred in five patients. The sole exception was a patient requiring a facial nerve anastomosis at the time of surgery and one patient required a cerebellopontine angle graft.

Table 1: Series of six patients with vestibular schwannomas that underwent microsurgery after radiation failure. Measurements represent the extracanalicular component of the tumor, except for the pre-radiation measurement of patient 6 whose tumor was intracanalicular prior to radiation. (1) Patient 5 underwent Gamma-knife radiosurgery. Later tumor growth was noted and an intracanalicular tumor growth was noted. The tumor continued to grow and was resected with a translabyrinthine approach. Later the tumor was resected through a translabyrinthine (TLA) approach. (2) Patient 6 had an intracanalicular tumor. The tumor was treated with LINAC, the tumor grew and became extracanalicular, the size increase (%) was not calculated due to the inconsistency with the measurements taken from the other tumors.

<table>
<thead>
<tr>
<th>Method of Radiation</th>
<th>Tumor Size, cm</th>
<th>Baseline</th>
<th>Baseline Indication for Surgery</th>
<th>Baseline Clinical Follow Up</th>
<th>Surgical Approach</th>
<th>Tumor Follow Up</th>
<th>Facial Spasm</th>
<th>Hearing</th>
<th>Surgery Follow Up</th>
<th>Indication for Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gamma Knife</td>
<td>1.6</td>
<td>21</td>
<td>Intra-op Facial Spasm</td>
<td>33</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>Growth of tumor</td>
</tr>
<tr>
<td>LINAC</td>
<td>1.1</td>
<td>14</td>
<td>Intra-op Facial Spasm</td>
<td>22</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>Growth of tumor</td>
</tr>
</tbody>
</table>

Table 1. Series of six patients with vestibular schwannomas that underwent microsurgery after radiation failure. Measurements represent the extracanalicular component of the tumor, except for the pre-radiation measurement of patient 6 whose tumor was intracanalicular prior to radiation. (1) Patient 5 underwent Gamma-knife radiosurgery. Later tumor growth was noted and an intracanalicular tumor growth was noted. The tumor continued to grow and was resected with a translabyrinthine approach. Later the tumor was resected through a translabyrinthine (TLA) approach. (2) Patient 6 had an intracanalicular tumor. The tumor was treated with LINAC, the tumor grew and became extracanalicular, the size increase (%) was not calculated due to the inconsistency with the measurements taken from the other tumors.

REFERENCES