The outcome of radical surgery and postoperative radiotherapy for squamous carcinoma of the temporal bone

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Presenter: R2 陳俊男
Patients

- M:F = 19:20
- Mean patient age: 61.4 years (range, 37–79 y)
- Median age: 64 years
- Mean follow-up time: 7.6 years (range, 6 mo–16 y)
University of Pittsburgh staging system

- **T1**, tumor limited to the external auditory canal (EAC) without bony erosion or evidence of soft tissue extension
- **T2**, tumor with limited EAC erosion (not full thickness) or radiological findings consistent with limited (<0.05 cm) soft tissue involvement
- **T3**, tumor eroding the osseous EAC (full thickness) with limited (0.05) soft tissue involvement of middle ear and/or mastoid, or causing facial paralysis at presentation
- **T4**, tumor eroding the cochlea, petrous apex, medial wall of middle ear, carotid canal, jugular foramen, or dura, or with extensive (>0.05) soft tissue involvement
University of Pittsburgh staging system

- Lymph node involvement is a poor prognostic sign
  - T1N1, stage III
  - T2N1, T3N1, or T4N1, stage IV

- Metastasis status
  - M1 is stage IV disease and is considered a poor prognostic sign.
<table>
<thead>
<tr>
<th>Staging</th>
<th>No. of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2N0M0</td>
<td>2</td>
</tr>
<tr>
<td>T3N0M0</td>
<td>3</td>
</tr>
<tr>
<td>T3N1M0</td>
<td>3</td>
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<tr>
<td>T4N0M0</td>
<td>25</td>
</tr>
<tr>
<td>T4N1M0</td>
<td>6</td>
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</tbody>
</table>
Surgical technique

- Lateral temporal bone resection.
- Extended temporal bone resection.
- Management of parotid.
- Dura and brain.
- Facial nerve.
- Management of neck.
- Reconstruction.
- Radiotherapy.
Fig. 1. Presenting symptoms of squamous cell carcinoma of the temporal bone. CN = cranial nerve.
Predisposing factors

- **Chronic suppurative otitis media**
  - 19 (47.8%) of the 39 patients
    - history of pre-existing chronic suppurative otitis media.

- **Radiotherapy**
  - 2 patients (5%):
    - previous radiotherapy to the area 20 years before presentation
### Survival rate

<table>
<thead>
<tr>
<th>Stage</th>
<th>TNM</th>
<th>No. of Patients</th>
<th>TNM Survival (%)</th>
<th>Stage Survival (%)</th>
<th>T Stage</th>
<th>T-Stage Survival (%)</th>
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</thead>
<tbody>
<tr>
<td>II</td>
<td>T2N0M0</td>
<td>2</td>
<td>100</td>
<td>100</td>
<td>T2</td>
<td>100</td>
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<tr>
<td>III</td>
<td>T3N0M0</td>
<td>3</td>
<td>100</td>
<td>100</td>
<td>T3</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>T3N1M0</td>
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<td></td>
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<td>50</td>
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<tr>
<td></td>
<td>T4N1M0</td>
<td>23</td>
<td>47.8</td>
<td>34.3</td>
<td>T4</td>
<td>38</td>
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<tr>
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<td>T4N1M0</td>
<td>6</td>
<td>0</td>
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</tbody>
</table>
Early referral + de novo treatment ➔ a greater chance of survival
(although this difference was not statistically significant)
Lymph node involvement

- **Node-positive:** 9 (23%)
  - All died of their disease at a mean time of 12.7 months (range, 4–27 months)

- **Node-negative:** 30 (77%)
  - 28 had T3 or T4 disease.
  - 14 (50%): alive and free of disease at a mean follow-up time of 86.8 months (range, 6–198 mo) after surgery.
Overall Survival Against Time

Fig. 2. Patient survival after surgery and radiotherapy.
Histological Differentiation

Fig. 3. Survival versus histological differentiation.
Fig. 4. Complications after surgery and radiotherapy. CSF = cerebrospinal fluid.
Conclusion - 1

- For T1-T2:
  - LTBR
  - Excision of the entire pinna, head, and ascending ramus of the mandible
  - Superficial parotidectomy

- For T3-T4
  - Extended temporal bone resection
Conclusion -2

- The overall disease-free survival: 43.2%.
- Poorer outcome
  - Node-positive disease
  - Poorly differentiated squamous cell histological findings
  - Brain involvement
  - Salvage surgery

- Early referral + aggressive primary surgical treatment with postoperative radiotherapy
  - The greatest chance of cure
Thanks for your attention