Early Glottic Cancer: RT or Surgery?

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Disclosures

• None

Outline

• Outcomes for radiation and endoscopic surgery
• Considerations for management decision-making
• Case illustrations

Anatomy of the Larynx
Early Glottic Cancer

- Invasive carcinoma
  - One anatomical sub-site
    - T1a one vocal fold
    - T1b both vocal folds
- High-grade dysplasia
- Carcinoma in situ

Patient Case: RM

- 61 yr old male
- 4 months of voice change
- Treated with antibiotics and nystatin
- 1 pk/day x 12 years, quit in 1978
- Professional singer
- Unable to sing for the past 2 months

Preop Exam

Management Goals

- Cure
- Organ Preservation
- Function/Quality of Life
Treatment Modalities

- Definitive Radiotherapy
- Surgery
  - Endoscopic surgery, with or without laser
  - Open partial laryngectomy

Oncologic Outcomes

<table>
<thead>
<tr>
<th>N</th>
<th>Stage</th>
<th>Cause-specific survival</th>
<th>Absolute survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spector et al. 1999</td>
<td>61</td>
<td>T1</td>
<td>95</td>
</tr>
<tr>
<td>Steiner, 1993</td>
<td>159</td>
<td>pTis-T2</td>
<td>100</td>
</tr>
<tr>
<td>Mendenhall et al. 2001</td>
<td>61</td>
<td>T1a</td>
<td>98</td>
</tr>
<tr>
<td>Le et al. 1997</td>
<td>315</td>
<td>T1</td>
<td>96 (10yr)</td>
</tr>
</tbody>
</table>

Oncologic Outcomes

<table>
<thead>
<tr>
<th>N</th>
<th>Stage</th>
<th>Local Control with larynx</th>
<th>Ultimate Local Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spector et al. 1999</td>
<td>61</td>
<td>T1</td>
<td>90</td>
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Larynx Preservation

- Stoekli et al.
  - N=101
  - T1 glottic
  - RT vs. laser
  - No difference in initial local control, survival
  - Larynx preservation: initial surgery better than RT
    - RT(82%), Surgery(96%), p=.022

- Yoo et al.
  - Systematic review of RT vs. endoscopic surgery
  - 10 studies considered larynx preservation
  - 5 showed significant benefit favoring surgery
Anterior commissure disease

- Remains controversial
- Broyle’s ligament inserts into thyroid cartilage
- Tumor barrier preventing spread vs. weak point?
- Understaging of AC disease due to submucosal spread or cartilage involvement

Rodel et al. 2008 Head Neck
- 444 pts with early glottic ca (T1a-T2a) treated with TLM
- AC involved in 153 pts

<table>
<thead>
<tr>
<th>Stage</th>
<th>5 yr LCR AC+</th>
<th>5 yr LCR AC-</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1a</td>
<td>73%</td>
<td>89%</td>
</tr>
<tr>
<td>T1b</td>
<td>68%</td>
<td>86%</td>
</tr>
<tr>
<td>T2a</td>
<td>76%</td>
<td>76%</td>
</tr>
</tbody>
</table>


“there is no evidence favoring surgery over RT for T1 tumors involving the AC”

Radiation: Issues to consider

- Requires 5-7 weeks of treatment
- Cost
- Lose treatment option for recurrence or 2nd primary
- Acute side effects
- Delayed radiation effects

- Avoids surgery and anesthesia
- Can be done locally
- Voice
Endoscopic Surgery

- Outpatient procedure
- Minimal/no dysphagia
- Can be repeated
- Good voice if resection is superficial
- Depth of invasion may only be apparent intraop
- Voice outcome is unpredictable if muscle resected
- Requires specialized skill and equipment

Voice Outcomes

- Dinapoli et al – Rome, Italy 2010
  - 143 patients with T1 glottic ca
    - 73 underwent surgery
    - 70 underwent radiotherapy
  - Voice outcome
    - Median VHI score
      - Radiotherapy patients – 4
      - Surgical patients – 18 (p < 0.0001)
- Sjogren et al Arch Otolaryngol Head Neck 2008
  - In T1a pts, TLM had equivalent voice outcomes to XRT

Spectrum of T1 Disease

Voice Outcomes

- Vilaseca et al Head and Neck 2008
  - Voice result dependent on amount of tissue removed
  - Used ELS classification system
Anterior Commissure Disease

What about Swallowing?

- Acute dysphagia common during XRT
- Chronic dysphagia rare
  Khan et al. Radiat Oncol 2012
  - 141 patients with T1-T2 glottic ca treated with XRT
  - Chronic dysphagia noted in 7%
- Dose volume relationships
  - Dose to superior pharyngeal constrictors, glottic/supraglottic area correlates with radiation induced late dysphagia risk
  - With or without IMRT

Case SH

- 61 year old female
- Diagnosed with T1 SCCa of the left true vocal fold in 2000
- No tobacco or EtOH history
- Treated with definitive XRT
Back to Case RM

- Biopsy then radiation recommended
- Due to cost issues, frozen section biopsy then endoscopic resection performed

1 Year Post-Op

Case MS

- 63 year old male who presents with hoarseness
- Voice was gradually worsening, but severely affected in past 6 months
- Smoked 1 ppd x 40 years, quit 6 months ago
- Founder, chairman of consulting firm
Case MS

- 63 Gy in 28 fractions
- 1 yr post XRT exam:

Conclusions

- Recommend Radiation
  - Deeply invasive disease
  - Disease extending across anterior commissure
  - Field cancerization or diffuse dysplastic changes

- Recommend Surgery
  - Discrete superficial midfold lesion
  - Patients with low voice demand or concerns

Everything Else....

- Discussion of individual patient factors and preferences

- Weighing
  - Expected voice outcomes
  - Cost
  - Treatment length
  - Side Effects
  - Possible future treatment options