The Treatment of Laryngeal Cancer 2009

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How Do You Treat Larynx Cancer?

Trends in Larynx Cancer - NCDB

5-year relative survival %

N = 158,426

Trends in Larynx Cancer - NCDB

5-Year Survival %

N = 109,196
Changes Over Time

- No difference in stage
- No difference in demographics
- Expanded use of organ-preservation
- Decreased survival for T3N0M0 laryngeal SCCA correlates with non-surgical treatment
  - Particularly true for T3N0M0 glottic


Staging

- **Supraglottis**
  - T1 – 1 subsite
  - T2 - >1 adjacent subsite (inc. mucosa of BOT, vallecula, medial pyriform)
  - T3 – fixed TVC +/- postcriocoid, pre-epiglottic, paraglottic, inner thyroid lamina

- **Glottis**
  - T1 – limited to TVC
    - a or b
  - T2 – extension to supra- or subglottis, or impaired motion
  - T3 – TVC fixation, +/- paraglottic, +/- inner lamina

- **Subglottis**
  - T1 – limited to subglottis
  - T2 – to TVC +/- dec motion
  - T3 – TVC fixation

Staging

- **T4a (‘resectable’)**
  - Through thyroid lamina +/- invades tissues beyond the larynx (trachea, straps, thyroid, deep extrinsic tongue muscles, esophagus)

- **T4b (‘unresectable’)**
  - Invades prevertebral space, encases carotid artery, invades mediastinal structures
Early vs. Late

Single modality treatment → Multimodality treatment

Non-Surgical Therapy

- Radiotherapy
  - Early vs. late stage disease
  - Tumor bulk
- Chemotherapy
  - Little benefit primarily
    • Possibly for select T2
- Chemotherapy and radiotherapy
  - ‘Organ preservation’
    • VA Protocol

Open vs. Endoscopic (TLM) Partial Laryngectomy

Similarities

Duration
Primary Rx
RT failure
Margins
Neck Rx

Differences

Fistula
Granul
Tracheostomy
Mastoid

*Open on left pan of scale, TLM on right pan
Transoral Laser Resection - Glottis

- Indications
  - Early stage disease
  - Limited subglottic extension
  - Ease of exposure
- Assessment
  - Anatomic location
    - Careful endoscopy
  - Radiographic
  - Patient
    - Physiology
    - Exposure
    - Motivation

Tis Glottic Cancer

<table>
<thead>
<tr>
<th>Author</th>
<th>N</th>
<th>Treatment</th>
<th>OS (%)</th>
<th>DFS (%)</th>
<th>LC (%)</th>
<th>Recurrence (N)</th>
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T1 Glottic Cancer

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Voice Results

- Confusing data
  - Disparate measures
  - Heterogeneous
    - Tumors
    - Resections
    - Follow-up
    - Pre and post-op evaluations
- Universal findings
  - Outcome is related to extent of resection
- Majority show no difference - TLM vs. RT

Sjogren - 2008 (N = 34)
- T1a midcord carcinoma with a standardized lesion
- TLM vs. RT
- No difference in acoustic, perceptual, aerodynamic, or stroboscopic analysis
- No difference in VHI

T2 Glottic Cancer

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T3 Glottic Cancer

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Glottic Surgery Results

- Primary endoscopic resection
  - Cure rates same or better than radiotherapy
    - Some bias for tumor size (bigger T2's to RT)
  - Voice same or better than radiotherapy
    - Limited resection, voice is better
  - Same cure rates as open procedures

Complications

Chemoradiotherapy

- 91-11 (547 patients)
  - 3 arm study

91-11 Acute Toxicity

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Chemotherapy Followed by Radiotherapy</th>
<th>Radiotherapy with Concurrent Chemotherapy (N=350)</th>
<th>Radiotherapy Alone (N=111)</th>
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<tr>
<td>Hematologic</td>
<td>grade 1</td>
<td>grade 2</td>
<td>grade 3</td>
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<td>Nausea or vomiting</td>
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<td>Head or neck rash</td>
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<td>Radiation dermatitis</td>
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* Grade 4 data not applicable.
91-11 Recommendations

- Concurrent therapy - standard of care
  - Stage III or IV
    - T2, T3, low-volume T4
    - TL only for salvage
  - Not used for
    - Inappropriate for regimen
    - Debilitated, co-morbidities, etc.
    - Significant tongue base involvement or cartilage destruction

- Hanna – 2004
  - No overall difference
  - TL
    - Greater difficulty socializing
    - Sensory disturbance
    - Increased pain medications
  - ChemoRT
  - Xerostomia
- Trivedi – 2008 (N=40)
  - Same findings as Hanna

Primary chemoradiotherapy
- 91-11 results 129/517 (35%)
  - All TL

Advanced Disease - Where Are We Now?

- Primary Chemotherapy and Radiotherapy
  - 91-11
    - The winner - concurrent chemoradiotherapy
  - ‘Paradigm’ Trial
- Gourin et al – 2009 (N=451)
  - Improved survival with primary surgery for T4 and Stage IV disease
  - No difference for Stage I-III

Quality of Life

- Boscolo-Rizzo – 2008 (N=112)
  - Overall QOL better in ChemoRT (p=0.016)
    - Improved social and physical function
  - HN 35 questionnaire
  - TL better

ASCO Recommendations

<table>
<thead>
<tr>
<th>Tumor</th>
<th>PL Open</th>
<th>PL Endo</th>
<th>RT</th>
<th>CRT</th>
<th>TL</th>
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<td>1°</td>
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<tr>
<td>T2 glottis - favorable</td>
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<td>2°</td>
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<tr>
<td>T2 glottis - unfavorable</td>
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<td>2°</td>
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<td>T3 – T4</td>
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Survival

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<tr>
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<th>TL (%)</th>
<th>CRT (%)</th>
<th>RT (%)</th>
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<td>T4</td>
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<td>Stage IV</td>
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### RVS Recommendations

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- Volume matters – 2009 NCDB (N = 11446 *early stage*)
  - Low (mean 2/2 yr) vs. High (mean 18/2 yr)
    - HR 1.2 vs. 0.74
    - RT vs. partial laryngectomy
    - HR 1.0 vs. 0.74

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### Early vs. Late

- **Single modality treatment**
  - Radiotherapy
  - Surgery
  - Concurrent therapy

- **Multimodality treatment**

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