A Multicenter Experience in Contralateral Submandibular Gland Sparing in Head and Neck Radiotherapy: An Assessment of Feasibility and Safety  
T. Robin, University of Colorado, Denver

Prospective Study of Voice and Speech Quality After Chemo-IMRT for Oropharyngeal Cancer - Clinical and Dosimetric Predictors & Differences between Patient and Observer Reporting  
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Sparing Bilateral IB in Node Positive Oropharyngeal Carcinoma Improves Xerostomia Outcomes  
M. Tam, Memorial Sloan-Kettering Cancer Center, New York

Unilateral Radiotherapy in Node Positive Patients with Lateralized Tonsillar Carcinoma  
W. L. Thorstad, Washington University School of Medicine, St. Louis
A Multicenter Experience in Contralateral Submandibular Gland Sparing in Head and Neck Radiotherapy: An Assessment of Feasibility and Safety

T. Robin, University of Colorado, Denver
Radiation Side Effects

Xerostomia (dry mouth): significant effect on patient quality of life

Parotid gland
- Produces majority of stimulated saliva production

Submandibular gland
- Produces majority of unstimulated saliva production
Modern Radiation Techniques

• Ability to shape radiation around salivary glands while still treating tumor

• This has been successful with sparing the parotid gland, but the submandibular gland is responsible for unstimulated saliva production.

• Can we spare the submandibular gland too?
  o Is it possible?
  o Is it safe or will patients have cancer recurrences in the spared area?
Sumbandibular Gland Sparing

- Studied 71 patients with advanced head and neck cancer who were treated with submandibular gland sparing radiation
- No patients had cancer recurrences in the spared area (median follow-up of 27.3 months)
- Submandibular gland sparing is possible and safe, even in advanced cancers, and should be considered when treating patients to improve quality of life.
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WELCOME
Prospective Study of Voice and Speech Quality After Chemo-IMRT for Oropharyngeal Cancer – Clinical and Dosimetric Predictors & Differences between Patient and Observer Reporting

J. M. Vainshtein, University of Michigan, Ann Arbor
Background

• The effects of chemoradiation on swallowing difficulty and mouth dryness in patients treated for head and neck cancer have been extensively described in recent years.

• The impact of chemoradiation on voice and speech quality remains poorly characterized.

• The present study assessed voice and speech quality outcomes, as reported by both patients and physician observers, after intensity modulated radiation therapy with concurrent chemotherapy (chemo-IMRT) for oropharyngeal cancer (OPC).
Study Population

- 93 patients with locally advanced Stage III/IV OPC treated at University of Michigan on two consecutive prospective clinical trials of organ-sparing chemo-IMRT.
  - IMRT intended to minimize radiation dose to the swallowing and salivary structures
  - Weekly carboplatin & paclitaxel chemotherapy

- All patients completed HNQOL- and UWQOL-validated questionnaires at pre-treatment and 1, 3, 6, 12, 18 and 24 months after treatment.
- Observer-rated toxicity scored by physicians using CTCAE version 3.0.
- Prevalence and factors associated with patient-reported voice quality worsening from baseline and speech impairment were assessed.
Patient Reported Voice & Speech Quality after Chemo-IMRT

**HNQOL Communication Domain Score**

**Speech Impairment by UWQOL Questionnaire**

Time to return to baseline
Voice and Speech Worsening After Chemoradiation – Differences in Reporting by Patients and Observers

<table>
<thead>
<tr>
<th>% Reporting Worsening from Baseline</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td><strong>1 mo</strong></td>
</tr>
<tr>
<td>HNQOL Communication Domain</td>
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<tr>
<td>UWQOL Speech Domain</td>
</tr>
<tr>
<td>Observer-Rated Toxicity (CTCAE)</td>
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</tbody>
</table>
Radiation Dose to Glottic Larynx vs. Probability of Patient-Reported Voice Quality Worsening from Pre-treatment

<table>
<thead>
<tr>
<th>Larynx Dose</th>
<th>6 mo</th>
<th>12 mo</th>
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</thead>
<tbody>
<tr>
<td>&lt;20 Gy</td>
<td>25%</td>
<td>10%</td>
</tr>
<tr>
<td>&gt;20-30 Gy</td>
<td>33%</td>
<td>32%</td>
</tr>
<tr>
<td>&gt;30-40 Gy</td>
<td>59%</td>
<td>25%</td>
</tr>
<tr>
<td>&gt;40-50 Gy</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>&gt;50 Gy</td>
<td>64%</td>
<td>63%</td>
</tr>
</tbody>
</table>

- Similar findings for patient-reported speech impairment
- Results independent of other patient & treatment factors
Conclusions

• Post-therapy voice and speech changes were frequently reported by patients, under-recognized by clinicians and independently associated with dose to the glottic larynx.

• Reducing radiation dose to the glottic larynx when the larynx is not a target is likely to translate into improved voice and speech outcomes after chemo-IMRT.

• Our findings highlight the critical role of patient-reported outcomes in identifying areas of improvement of our current therapies, which may ultimately translate into improvements in quality of life for our patients.
Sparing Bilateral IB in Node Positive Oropharyngeal Carcinoma Improves Xerostomia Outcomes

M. Tam & N. Lee, Memorial Sloan-Kettering Cancer Center, New York
Background/Purpose

• Radiation therapy is important in the treatment of head and neck cancers.

• Most common side effect is poor salivary function (xerostomia).

• Intensity modulated radiotherapy (IMRT) allows for sparing of healthy tissue.

• This study evaluates whether treatment sparing of the submandibular glands (neck level IB) can result in better salivary function.
Materials/Methods

- 125 patients with OPC received chemoradiation
- May 2010 – December 2011
- Sparing (n=40); without sparing (n=85)
- Salivary toxicity assessment
  - Self-reported (previously validated questionnaire)
  - Observer rated (physician assessment)
- Dosimetric analysis of the salivary glands
Salivary Function and Radiation Doses

Patient-reported

Good

0

20

40

60

80

100

Poor

39.5

52.4

P = 0.021

Observer-rated

Improvement to 1.4 from 1.7 (p = 0.005)

Average radiation dose to salivary organs

Oral cavity 36.1 Gy <= 45.2 Gy

SMG 1

SMG 2

45.0

56.2

63.9

70.5

Excellent 2-year local-regional control of over 90%
Conclusions

• Sparing salivary structures (submandibular glands) in oropharyngeal cancer improved quality of life in patients by decreasing dry mouth.

• Sparing these structures was safe and did not compromise disease outcomes (loco-regional control).
Unilateral Radiotherapy in Node Positive Patients with Lateralized Tonsillar Carcinoma

W. L. Thorstad, Washington University School of Medicine, St. Louis
Location of Tonsil Cancer

Liu et al. 2013 Wiley Online Library.

FIGURE 1. Definition of tonsil lateralization.
Neck Stage

• Considered safe to treat only one neck side if N0 or N1

• Neck Stage
  o N0 no spread to neck lymph nodes
  o N1 single lymph node < 3 cm
  o N2 more than 1 lymph node or > 3 cm
  o N3 more than 6 cm

• Little data about safety of treating only one side of the neck for N2 disease
Methods/Results

• 153 patients from 1997 – 2012
• 125 (82%) laterization was documented and plan was available
  o 83 had bilateral treatment; current standard
  o 42 had unilateral treatment; 76% N2 neck disease
  o No patient with unilateral treatment had recurrence in the untreated neck
Unilateral Radiation Therapy
Conclusions

• Results support the concept that the location of the tonsil cancer - rather than the amount of cancer in one side of the neck - drives the risk of cancer spread to the other neck

• Suggest that it is safe to treat only one side of the neck for lateralized tonsil cancer

• Less normal tissue treated = less toxicity

• Like to see additional studies/trials
Q & A

Please use the Q & A function at the bottom of your screen.
For additional information or to arrange an interview with today’s authors, please contact:

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