Evaluation and Treatment of Dysphagia in the Head and Neck Cancer Patient

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How are Cancers of the Head and Neck Staged?

TNM Staging System:

Most common system used to describe the spread of laryngeal and hypopharyngeal cancer created by the American Joint Committee on Cancer (AJCC)
TNM staging system:

- is simply an anatomic staging system that describes the **anatomic extent** of the primary tumor as well as the **involvement of regional lymph nodes and distant metastasis**

- Where it started → where it spread to
TNM Staging System:

T stands for tumor - refers to the size of the primary tumor and to which, if any, tissues the cancer has spread to.

N stands for spread to lymph nodes - describes the involvement of lymph nodes near the primary tumor. Lymph nodes are small, bean-shaped clusters of immune system cells that are key to fighting infections and are usually one of the first sites in the body to which cancer spreads.

M is for metastasis - spread to distant organs. The most common sites of metastasis for head and neck cancer is the lungs, followed by the liver and bones.
“T”- Primary Tumor

- TX - Tumor that cannot be assessed by the rules
- T0 - No evidence of primary tumor
- TIS - Tumor in situ (has not spread to nearby tissues)
- T1-T4 smallest-largest
“N” - Lymph Nodes

- NX - No nodes can be clinically assessed
- N0 - No clinically positive nodes
- N1: mets in a single ipsilateral (same side), 3cm or less in size
- N2a: mets in a single ipsilateral lymph node more than 3cm but not more than 6cm in greatest dimension
“N” - Lymph Nodes (cont’d)

- N2b: mets in multiple ipsilateral (same side) lymph nodes, none more than 6cm in greatest dimension
- N2c: mets in bilateral (both) or contralateral (opposite side) lymph nodes, none more than 6cm in greatest dimension
- N3: mets in a lymph node more than 6cm in greatest dimension
“M” - Metastasis

- **Mx** - Not assessed
- **M0** - No (known) distant metastasis
- **M1** - Distant metastasis present
## How the TNM Classification System converts to further staging:

<table>
<thead>
<tr>
<th>Stage</th>
<th>T1</th>
<th>N0</th>
<th>M0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td>T2</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage II</td>
<td>T3</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>Stage III</td>
<td>T1</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T3</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IV A</td>
<td>T4</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td></td>
<td>T4</td>
<td>N1</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IV B</td>
<td>Any T</td>
<td>N3</td>
<td>M0</td>
</tr>
<tr>
<td>Stage IV C</td>
<td>Any T</td>
<td>Any N</td>
<td>M1</td>
</tr>
</tbody>
</table>
Subgroups for Classification/Staging:

- Oral Cavity and Larynx
- Glottis
- Supraglottis
- Subglottis
- Nasopharynx
Supraglottis:

Supraglottis:

TX
Primary tumor cannot be assessed

T0
No evidence of primary tumor

Tis
Carcinoma in situ

T1
Tumor limited to 1 subsite of the supraglottis with normal vocal cord mobility

T2
Tumor invades mucosa of more than 1 adjacent subsite of the supraglottis or glottis or region outside the supraglottis (eg, mucosa of base of the tongue, vallecula, medial wall of piriform sinus) without fixation of the larynx

T3
Tumor limited to the larynx with vocal cord fixation and/or invades any of the following: postcricoid area, pre-epiglottic space, paraglottic space, and/or inner cortex of the thyroid cartilage

T4a
Moderately advanced local disease Tumor invades through the thyroid cartilage and/or invades tissues beyond the larynx (eg, trachea, soft tissues of the neck, including deep extrinsic muscle of the tongue, strap muscles, thyroid, or esophagus)

T4b
Very advanced local disease Tumor invades prevertebral space, encases carotid artery, or invades mediastinal structures

Structures of the supraglottis:

- Aryepiglottic folds
- Arytenoids
- False cords
- Epiglottis:
  - Suprahyoid region = lingual and laryngeal surfaces of the epiglottis
  - Infrahyoid regions
Let’s practice our hand at tumor cancer staging: Supraglottic Cancer

T1  T2  or  T3  T4a  T4b?

- **TX**
  - Primary tumor cannot be assessed

- **T0**
  - No evidence of primary tumor

- **Tis**
  - Carcinoma in situ

- **T1**
  - Tumor limited to 1 subsite of the supraglottis with normal vocal cord mobility

- **T2**
  - Tumor invades mucosa of more than 1 adjacent subsite of the supraglottis or glottis or region outside the supraglottis (e.g., mucosa of base of the tongue, vallecula, medial wall of piriform sinus) without fixation of the larynx

- **T3**
  - Tumor limited to the larynx with vocal cord fixation and/or invades any of the following: postcricoid area, pre-epiglottic space, paraglottic space, and/or inner cortex of the thyroid cartilage

- **T4a**
  - Moderately advanced local disease Tumor invades through the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of the neck, including deep extrinsic muscle of the tongue, strap muscles, thyroid, or esophagus)

- **T4b**
  - Very advanced local disease Tumor invades prevertebral space, encases carotid artery, or invades mediastinal structures

Clinical diagnosis cT4.....confirmed by scans T4a
And we’ll also stage the lymph node involvement:

Nothing is felt in the neck….Scans report:

......no spread to the lymph nodes

<table>
<thead>
<tr>
<th>N0</th>
<th>N1</th>
<th>N2</th>
<th>N2a</th>
<th>N2b</th>
<th>N2c</th>
<th>N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>N1</td>
<td>N2</td>
<td>N2a</td>
<td>N2b</td>
<td>N2c</td>
<td>N3</td>
</tr>
<tr>
<td>No spread to the lymph nodes</td>
<td>Metastasis in a single ipsilateral lymph node 3 cm or less in greatest dimension</td>
<td>Metastasis in a single ipsilateral lymph node &gt; 3 cm but not more than 6 cm in greatest dimension; or in multiple ipsilateral lymph nodes, none &gt; 6 cm in greatest dimension; or in bilateral or contralateral lymph nodes, none &gt; 6 cm in greatest dimension</td>
<td>Metastasis in a single ipsilateral lymph node &gt; 3 cm but not more than 6 cm in greatest dimension</td>
<td>Metastasis in multiple ipsilateral lymph nodes, none &gt; 6 cm in greatest dimension</td>
<td>Metastasis in bilateral or contralateral lymph nodes, none &gt; 6 cm in greatest dimension</td>
<td>Metastasis in a lymph node &gt; 6 cm in greatest dimension</td>
</tr>
</tbody>
</table>
Staging of the distant metastasis ($M$):

**PET CT results:**

<table>
<thead>
<tr>
<th></th>
<th>M0</th>
<th>M1</th>
<th>Mx</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0</td>
<td>No distant metastasis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1</td>
<td>Distant metastasis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mx</td>
<td>Distant metastasis cannot be assessed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This patient’s cancer staging: T4 N0 M0 (Stage IVa)

What does the staging mean?

- If there is NO distant metastasis M0 = *curative cancer*
- If there is distant metastasis M1 = *palliative*
- Treatment options:
  - Chemotherapy
  - Radiation Therapy
  - Surgery
Myriad of Things to Consider when planning the treatment:

- Tumor Staging
- Site of Lesion
- Histology of the cancer

Bringing an elephant down in the dark with a sling shot probably won’t work........
Other things to consider......

- Age
- Insurance
- Transportation
- Family Support
- Surgical Candidacy
- Patient wishes
- Functional impairments
Specifics of the Treatment:

Treatment can be one, two or three of the above modalities...

More Treatments = more toxicities (side effects)
What makes the **Head and Neck Cancer** patient different that some other dysphagic patients that you may see?

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Radiation</th>
<th>Chemotherapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Structures altered/removed</td>
<td>✓ Early side effects (during radiation treatment)</td>
<td>✓ Dysgeusia</td>
</tr>
<tr>
<td>✓ Reconstructed in a variety of ways: primary closure vs.</td>
<td>✓ Late side effects (any time frame after radiation)</td>
<td>✓ Poor appetite</td>
</tr>
<tr>
<td>✓ Free-Flap reconstruction</td>
<td></td>
<td>✓ Nausea</td>
</tr>
</tbody>
</table>
Case Studies: