Oral Cavity and Oropharyngeal Cancer
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I have no relevant financial relationships with commercial interests

Educational Objectives

Learn the most common sites of oropharyngeal and oral cavity SCCs.

Review common nodal drainage patterns of oropharyngeal and oral cavity SCCs.

Learn common pathways of “spread” of oropharyngeal and oral cavity SCCs.

Recognize features that upstage primary tumors to T4a (moderately advanced) and T4b (very advanced) local disease.

Oropharyngeal Carcinoma Staging (Tonsil and Base of Tongue)

Stage 0: Tis N0 M0
Stage I: T1 N0 M0
Stage II: T2 N0 M0
Stage III: T3 N0 M0
Stage IV A: T4a N0-1 N2 M0
Stage IVB: T4b Any N N3 M0
Stage IVC: Any T Any N M1

AJCC, 7th edition

Tonsillar SCCa: What to Report

- Tumor size?
- Involvement of structures/spaces that will upstage the primary tumor:
  - T4a: Larynx, ext tongue mm, med pterygoid m, hard palate, mandible
  - T4b: Lat pterygoid m, pterygoid plates, lateral NP, BOS, ICA (CS)
- What is the status of regional lymph nodes (58-76%)? Levels I-V
- Also should report involvement of soft palate, base of tongue, oral tongue...

MD Tonsillar SCCa (p16+)

64M: Globus discomfort in posterior throat

| Size? | N
|-------|---
| 3 cm  | N-SPal
| 5 cm  | N
| NPhx  | N
| BOS   | N
| CS?   | N
| M1?   | N
| Nodes?| N

T2N1M0=III
BOT Carcinoma—What to Report

- Tumor size?
- Extension across the midline?
- Involvement of structures/spaces that will upstage the primary tumor:
  - T4a: Larynx, ext tongue mm, med pterygoid m, hard palate, mandible
  - T4b: Lat pterygoid m, pterygoid plates, lateral NPx, BOS, ICA (CS)
- What is the status of regional nodes (50-83%)? Levels II-V
- Should also report extension to oral tongue, FOM, SLS, tonsil/soft palate along GTS…

Radiology 205:629-646, 1997
**Oral Cavity Carcinoma Sites**

- Lower lip: 38%
- Oral tongue: 22%
- Floor of the mouth: 17%
- Gingiva/RMT*: 6%
- Hard Palate: 5%
- Upper lip: 4%
- Buccal mucosa: 2%
- Other: 5.5%

*Includes retromolar trigone Ca because natural history, anatomic relationships, and management are closer to lesions of the gingiva than anterior tonsillar pillar

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**Oral Cavity Carcinoma-What to Report**

Although it is the most common site for SCCa (38%), these lesions rarely require imaging evaluation.

- Size?
- T4a: Skin of face, cortical bone (mand), FOM involved, Perineural tumor spread (PNTS): mental n, inferior alveolar n → V3?
- T4b: MS, ptery plates, BOS, ICA
- Intracranial extension (ICRAN ext)?
- Lymph nodes? Levels I and II

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**BOT Carcinoma**

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<tr>
<td>3.5 cm</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>Y*</td>
<td>Y-FOM</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N-IVA</td>
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**PD BOT Carcinoma (p16+)**

55F: 50 lb wt. loss, dysphagia, odynophagia, trismus, Rt otalgia, Rt tongue deviation, and dysarthria

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<td>4.2 cm</td>
<td>N</td>
<td>Y</td>
<td>Y-SPal</td>
<td>Y*</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y (MP)</td>
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*Conglomerate nodal mass

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**Lower Lip Carcinoma-What to Report**

Radiology 205:629-646, 1997

Although it is the most common site for SCCa (38%), these lesions rarely require imaging evaluation.

- Size?
- T4a: Skin of face, cortical bone (mand), FOM involved, Perineural tumor spread (PNTS): mental n → inferior alveolar n → V3?
- T4b: MS, ptery plates, BOS, ICA
- Intracranial extension (ICRAN ext)?
- Lymph nodes? Levels I and II

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**Oral Cavity Carcinoma Staging**

- T0: No evidence of primary tumor
- Tis: Carcinoma in situ
- T1: 0-2 cm in greatest dimension
- T2: 2 to 4 cm
- T3: Tumor more than 4 cm
- T4a: Moderately advanced local disease (more than superficial erosion)
- L: Includes through cortical bone, inferior alveolar nerve (PNT), FOM, skin of face
- Oral cavity, Involves adjacent structures only (e.g. through cortical bone into deep (extrinsic) tongue muscles, maxillary sinus, or skin of face)
- T4b: Very advanced local disease. Invades the masticator space, pterygoid plates, skull base and/or encases the ICA.
- N0: No nodes
- N1: Single ipsilateral ≤ 3 cm
- N2a: Single, ipsilateral > 3 cm
- N2b: Multiple ipsilateral ≤ 6 cm
- N2c: Bilateral or contralateral, ≤ 6 cm
- N3: > 6 cm
- Stage 0: Tis, N0, M0
- Stage I: T1, N0, M0
- Stage II: T2, N0, M0
- Stage III: T3, N0, M0
- Stage IV: T4a, N0, M0
- Stage IVB: T4b, N0, M0
- Stage IVA: T4a, N1, M0
- Stage IVC: Any T, N3, M0
- Stage V: Any V, Any N, M1

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**Conclusions**

AJCC, 7th edition
Lower Lip Carcinoma

T1N2bM0=IVA (very small primary tumor but already stage IVA due to nodal disease)

Size? 1.5cm
Skin? N
Mand? N
PNTS? N
FOM ext? Y
MS ext? Y
ICRAN ext? N
Nodes? Y-10/11A

WD Lower Lip Carcinoma

80F: Rock hard lip mass and Rt chin numbness

Size? 3cm
Skin? N
Mand? Y
FOM ext? N
PNTS? Y
MS ext? Y
ICRAN ext? N
Nodes? N (9mm)

T4a (PNTS-Inf Alv n) N0M0=IVA

Oral Tongue Carcinoma

Two most important findings in relation to the primary tumor that impact treatment and prognosis are:

• Relationship to midline fibrofatty septum. Clear surgical margin if tumor abuts or crosses the midline would not be possible without total glossectomy which is functionally crippling. These patients usually undergo non-surgical management.
• Relationship to the sublingual space where the neurovascular bundle (NVB) of the tongue is located. Sacrifice of one NVB with tumor but leave a small pedicle attached to the contralateral NVB. However, if both NVBs are involved, the situation remains as above for contralateral disease.

Oral Tongue Carcinoma-What to Report

• Tumor size?
• Midline crossed (X ML)?
• T4a: Cortical bone (mand), extrinsic tongue muscles (Ext mm), FOM/SLS, skin of face
• T4b: MS, ptery plates, BOS, ICA (CS)
• Nodal involvement? (34%-65%) Levels I-III
• Should also assess extension to BOT, tonsil and soft palate

PD Oral Tongue Carcinoma

67F: Rt tongue soreness, Rt. otalgia

Size? 2.5cm
X ML? N
Ext mm? N
FOM ext? Y
SLS? Y
Mand? N
BOT? N
Tonsil? N
Nodes? N

T2N0M0=II

Courtesy M Michel, MD
**MD Oral Tongue Carcinoma (p16+)**
60M: Rt tongue "ulcer" x 2 months

- Size?: 4.0cm
- X ML?: Y
- Ext mm?: N
- FOM ext?: N
- SLS?: N
- Mand?: N
- BOT?: N
- Tonsil?: N
- Nodes?: N

Stage: T3N0M0=III

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**MD Oral Tongue Carcinoma**
32F: Painful tongue ulceration x 3 yrs; 40lb weight loss; new otalgia

- Size?: 5.5cm
- X ML?: Y
- Ext mm?: Y
- FOM ext?: Y
- SLS?: Y
- Mand?: Y
- BOT?: Y
- Tonsil?: Y
- Nodes?: Y-IIA

Stage: T4a (ext mm) N1M0=IVA

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**Oral Tongue Carcinoma**

- Size?: 5 cm
- X ML?: Y
- Ext mm?: Y
- FOM ext?: N
- SLS?: Y
- Mand?: Y
- BOT?: N
- Tonsil?: Y
- Nodes?: Y-IIA

Stage: T4a (ext mm) N1M0=IVA

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**MD Oral Tongue SCCa**
60F: Left tongue pain and otalgia x 6 months

- Size?: 6.8 cm
- X ML?: Y
- Ext mm?: Y
- FOM ext?: Y
- SLS?: Y
- Mand?: Y
- BOT?: Y
- Tonsil?: Y
- Nodes?: N

Stage: T4a (ext mm) N0M0=IVA

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**Floor of Mouth Carcinoma-What to Report**

One of the earliest findings of SLS involvement by these tumors may be submandibular duct obstruction!

- Tumor size?
- Midline crossed (X ML)?
- T4a: Cortical bone (mand), oral tongue (OT), extrinsic tongue muscles (Ext mm), SLS, skin of face
- T4b: MS, ptery plates, BOS, ICA (CS)
- Nodal involvement? (30%-59%) Levels I-II

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**Now see involvement of:**
Mast Space
Lat pterygoid muscle
PPF/V2
V3 in f ovale

Stage: IVB
**Floor of Mouth Carcinoma**

49M; FOM tenderness; 1/5 vodka/day, 100 pack years

- Size?: 2.5 cm
- SLS?: Y
- X ML?: N
- Mand?: Y
- Oral tongue?: N
- Ext m?: N
- BOT?: N
- Tonsil?: N
- Nodes?: N

T2N0M0=II

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**Retromolar Trigone Carcinoma - What to Report**

- Extension along pterygomandibular raphe (Buccinator or superior constrictor muscles)?
- Extension to masticator space (MS), maxilla, base of skull (BOS)?
- Extension to floor of mouth (FOM), mandible (mand)?
- PNTS?
- Nodes involved? (39%-56%) Levels I-III

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**The Pterygomandibular Raphe (PMR)**

- Thickening of the buccopharyngeal fascia
- Gives origin to the buccinator and superior constrictor muscles
- Extends from hamulus of the med ptery plate to posterior aspect of the mylohyoid line
- A potential pathway for disease spread from OC & OP to BS, MS, NP, FOM…

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**RMT Carcinoma**

63M: Unknown SCCa primary (neck node)

- Size?: 1.5 cm
- Bucc m?: N
- SPC m?: N
- MS ext?: N
- Maxillae?: N
- BOS?: N
- Mand?: N
- PNTS?: N
- FOM?: N
- Nodes?: Y

T1N1M0=III