

Head and Neck Cancer Staging

Neil Gildener-Leapman MD
Albany Medical Center
Assistant Professor of Surgery OTO/HNS
April 2020

Objectives

- Principles
- Melanoma
- Cutaneous non-melanoma
- Merkel Cell
- Thyroid cancer
- Parathyroid Carcinoma
- Salivary gland
- Nasopharynx
- Oropharynx
- Cervical lymph nodes and Unknown primary
- Oral cancer
- Laryngeal cancer

History of TNM Staging

- Pierre Denoix at Institut Gustave Roussy (first cancer center in Europe)
- Developed first TNM staging system in 1952
- The Union International Contre le Cancer (UICC) released TNM staging in 1958
- The American Joint Committee on Cancer (AJCC) began site specific staging in the 1960s and released its first manual in 1977
- There is harmonization between AJCC and UICC



Principles of Staging

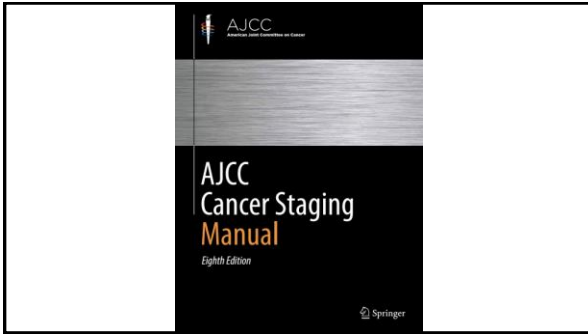
- Hazard consistency
- Hazard discrimination
- Balance between groups (for continued statistical evaluation)
- High predictive ability
- Iterative process (staging changes over time)

Principles of Staging

- Stage classifications
 - Clinical (c)
 - Pathological (p)
 - After radiation or chemotherapy (yp)
 - After radiation or chemo for planned surgery (yp)
 - Staging a recurrence (r)
 - Cancer found at autopsy (a)

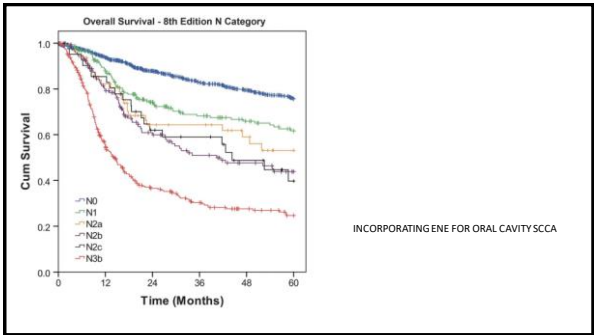
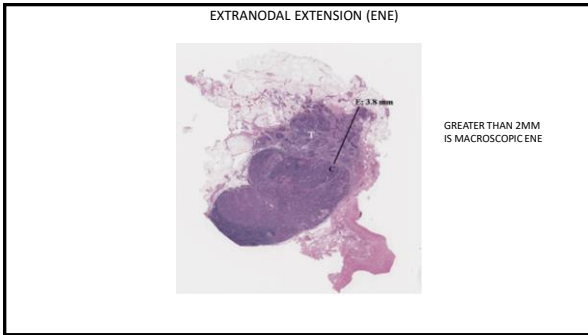
Zubrod/ECOG Performance Scale

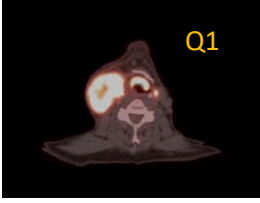
0	Fully active, able to carry out all predisease activities without restriction (Karnofsky 90-100)
1	Restricted in physically strenuous activity but ambulatory and able to carry work of a light or sedentary nature. For example, light housework, office work (Karnofsky 70-80)
2	Ambulatory and capable of all self-care but unable to carry out any work activities. Up and about more than 50% of waking hours (Karnofsky 50-60)
3	Capable of only limited self-care, confined to bed or chair 50% or more of waking hours (Karnofsky 30-40)
4	Completely disabled. Cannot carry on self-care. Totally confined to bed (Karnofsky 10-20)
5	Death (Karnofsky 0)



CERVICAL LYMPH NODES AND UNKNOWN PRIMARY

- Used for squamous cell carcinoma and salivary gland carcinoma of all head and neck sites
- Not used for:
 - HPV related oropharyngeal cancer
 - Nasopharyngeal cancer
 - Melanoma
 - Thyroid cancer
 - Sarcoma



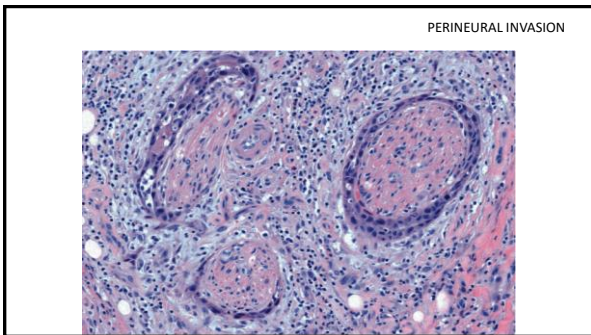
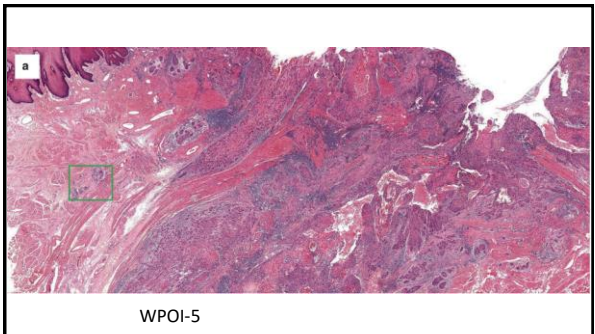
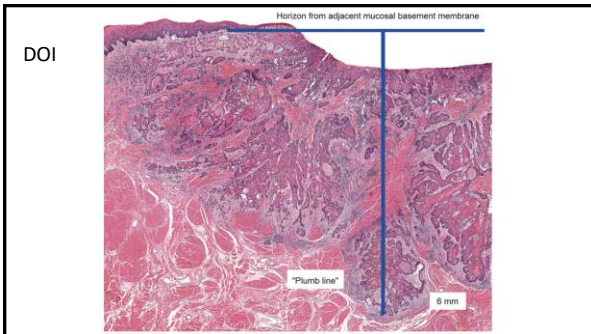
CLINICAL STAGING	
N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, 3 cm or smaller in greatest dimension and ENE(-)
	
N2a	Metastasis in a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-)
N2b	Metastases in multiple ipsilateral nodes, none larger than 6 cm in greatest dimension and ENE(-)
N2c	Metastases in bilateral or contralateral lymph nodes, none larger than 6 cm in greatest dimension and ENE(-)
N Category	N Criteria
N3a	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE(-)
N3b	Metastasis in any node(s) with clinically overt ENE(+) (ENE) [†]

PATHOLOGIC STAGING	
N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, 3 cm or smaller in greatest dimension and ENE(-)
N2a	Metastasis in a single ipsilateral node 3 cm or less in greatest dimension and ENE(+); or a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-)
N2b	Metastases in multiple ipsilateral nodes, none larger than 6 cm in greatest dimension and ENE(-)
N2c	Metastases in bilateral or contralateral lymph node(s), none larger than 6 cm in greatest dimension and ENE(-)
N3a	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE(-)
N3b	Metastasis in a single ipsilateral node larger than 3 cm in greatest dimension and ENE(+); or multiple ipsilateral, contralateral, or bilateral nodes any size and ENE(+) in any node; or a single contralateral node of any size and ENE(+)

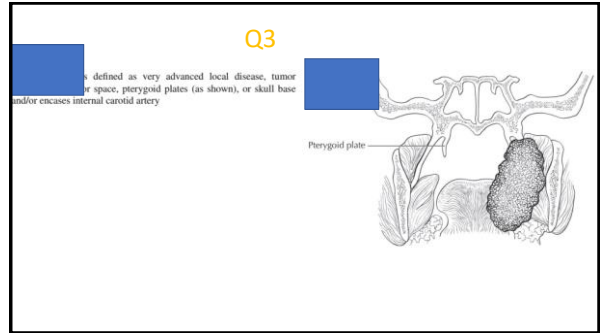
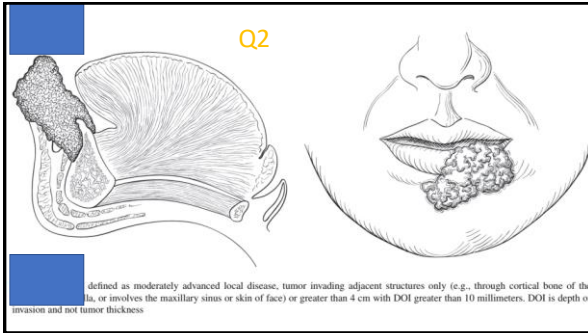
Oral Cancer

ICD-O-3 Topography Codes

Code	Description
C00.3	Mucosa of upper lip
C00.4	Mucosa of lower lip
C00.5	Mucosa of lip, NOS
C00.8	Overlapping lesion of lip
C00.9	Lip, NOS
C02.0	Dorsal surface of tongue, NOS
C02.1	Border of tongue
C02.2	Ventral surface of tongue, NOS
C02.3	Anterior two-thirds of tongue, NOS
C02.8	Overlapping lesion of tongue
C02.9	Tongue, NOS
C03.0	Upper gum
C03.1	Lower gum
C03.9	Gum, NOS
C04.0	Anterior floor of mouth
C04.1	Lateral floor of mouth
C04.8	Overlapping lesion of floor of mouth
C04.9	Floor of mouth, NOS
C05.0	Hard palate
C05.8	Overlapping lesion of palate
C05.9	Palate, NOS
C06.0	Cheek mucosa
C06.1	Ventride of mouth



T Category	T Criteria
TX	Primary tumor cannot be assessed
Tis	Carcinoma <i>in situ</i>
T1	Tumor ≤ 2 cm with depth of invasion (DOI)* ≤ 5 mm
T2	Tumor ≤ 2 cm, with DOI* > 5 mm and ≤ 10 mm or tumor > 2 cm and ≤ 4 cm, with DOI* ≤ 10 mm
T3	Tumor > 2 cm and ≤ 4 cm with DOI* > 10 mm or tumor > 4 cm with DOI* ≤ 10 mm
T4	Moderately advanced or very advanced local disease
T4a	Moderately advanced local disease Tumor > 4 cm with DOI* > 10 mm or tumor invades adjacent structures only (e.g., through cortical bone of the mandible or maxilla, or involves the maxillary sinus or skin of the face) Note: Superficial erosion of bone/tooth socket (alone) by a gingival primary is not sufficient to classify a tumor as T4.
T4b	Very advanced local disease Tumor invades masticator space, pterygoid plates, or skull base and/or encases the internal carotid artery



Oropharyngeal Squamous Cell Carcinoma

International Collaboration on Oropharyngeal cancer Network for Staging (ICON-S)

- Based on data from Princess Margaret Hospital an international collaboration began to investigate P16 positive staging
- 2600 patients evaluated
- 7th edition staging performed poorly for 16 positive cases, 5 yr-OS:
 - I, 88% [95% CI, 74%–100%];
 - II, 82% [95% CI, 71%–95%];
 - III, 84% [95% CI, 79%–89%];
 - IVA, 81% [95% CI, 79%–83%]; p = .25)
 - IVB, 60% [95% CI, 53%–68%]; p < .001, essentially driven by N3 disease

Lydiatt 2018

P16 POSITIVITY (GREATER THAN 75% DISTRIBUTION)

P16 POSITIVE OROPHARYNGEAL CANCER

T Category	T Criteria
T0	No primary identified
T1	Tumor 2 cm or smaller in greatest dimension
T2	Tumor larger than 2 cm but not larger than 4 cm in greatest dimension
T3	Tumor larger than 4 cm in greatest dimension or extension to lingual surface of epiglottis
T4	Moderately advanced local disease Tumor invades the larynx, extrinsic muscle of tongue, medial pterygoid, hard palate, or mandible or beyond*

*Mucosal extension to lingual surface of epiglottis from primary tumors of the base of the tongue and vallecula does not constitute invasion of the larynx.

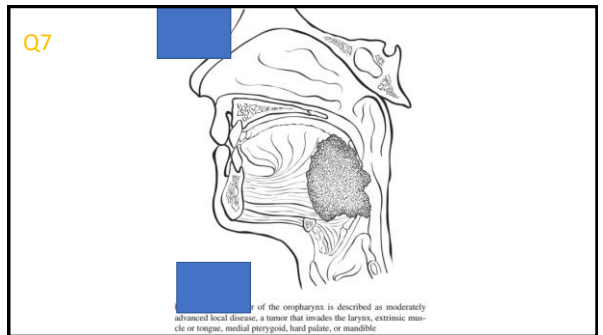
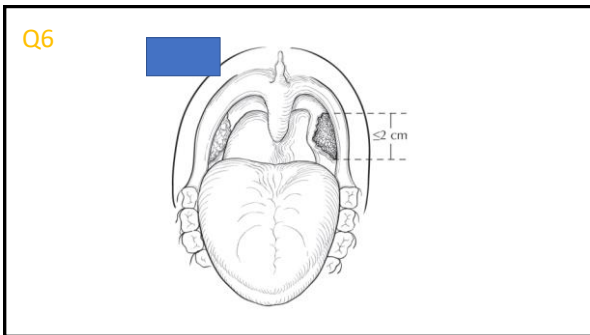
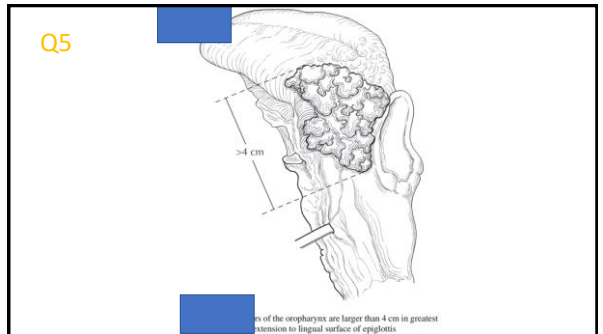


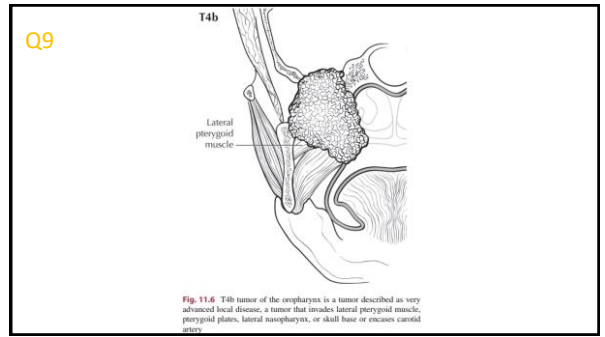
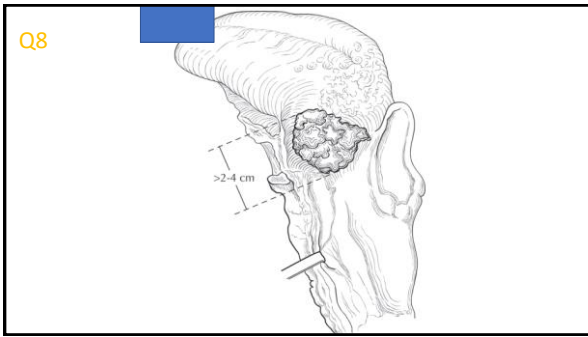
P16 POSITIVE OROPHARYNGEAL CANCER

Clinical N (cN)	
N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	One or more ipsilateral lymph nodes, none larger than 6 cm
N2	Contralateral or bilateral lymph nodes, none larger than 6 cm
N3	Lymph node(s) larger than 6 cm

Pathological N (pN)	
N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
pN0	No regional lymph node metastasis
pN1	Metastasis in 4 or fewer lymph nodes
pN2	Metastasis in more than 4 lymph nodes

P16 NEGATIVE OROPHARYNX AND HYPOPHARYNX

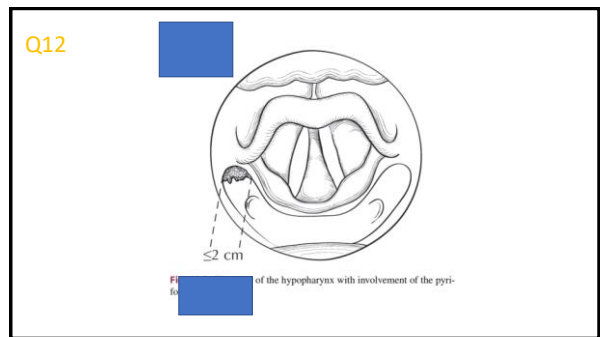
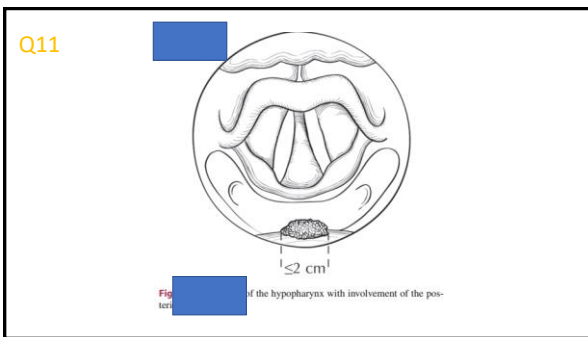
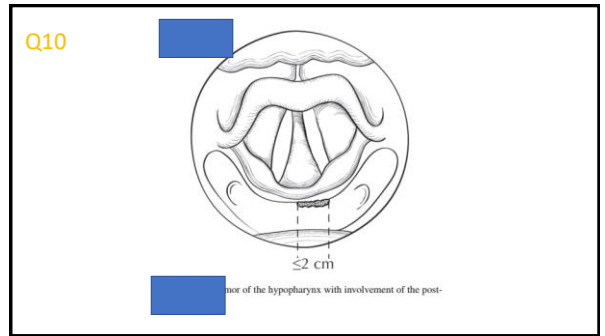




Oropharynx (p16-)

T Category	T Criteria
TX	Primary tumor cannot be assessed
Tis	Carcinoma in situ
T1	Tumor 2 cm or smaller in greatest dimension
T2	Tumor larger than 2 cm but not larger than 4 cm in greatest dimension
T3	Tumor larger than 4 cm in greatest dimension or extension to lingual surface of epiglottis
T4	Moderately advanced or very advanced local disease
T4a	Moderately advanced local disease Tumor invades the larynx, extrinsic muscle of tongue, medial pterygoid, hard palate, or mandible*
T4b	Very advanced local disease Tumor invades lateral pterygoid muscle, pterygoid plates, lateral nasopharynx, or skull base or encases carotid artery

*Note: Mucosal extension to lingual surface of epiglottis from primary tumors of the base of the tongue and vallecula does not constitute invasion of the larynx



Q13



Fig. [redacted] of the hypopharynx with fixation of the hemilarynx to the pyriform sinus, aryepiglottic fold, and posterior wall

Q14



Fig. [redacted] of the hypopharynx with involvement of the posterior wall

Q15



Fig. [redacted] of the hypopharynx with involvement of the pyriform sinus and aryepiglottic fold

Q16

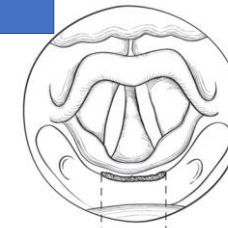


Fig. [redacted] of the hypopharynx with involvement of the posterior wall

Q17



Fig. [redacted] of the hypopharynx with involvement of the pyriform sinus and anterior wall

Q18

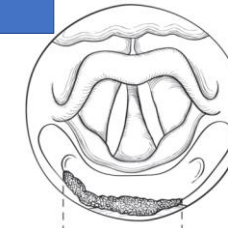


Fig. [redacted] of the hypopharynx larger than 4 cm in diameter and involving the anterior wall of the posterior wall

Q19



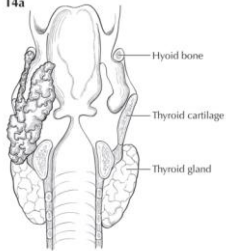
Fig. [redacted] of the hypopharynx with involvement of the pyriform sinus and post-cricoid area

Q20



Fig. [redacted] of the hypopharynx with fixation of the hemilarynx and pyriform sinus and post-cricoid area

T4a



T4b



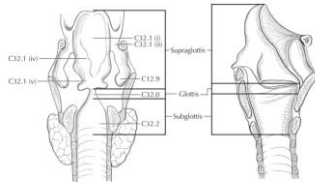
Fig. 11.18 T4a tumor of the hypopharynx that is moderately advanced local disease, with invasion of the hyoid bone, thyroid/cricoid cartilage, thyroid gland, or central compartment soft tissue. T4a also includes invasion of the esophageal muscle, which is not shown here

Hypopharynx

T Category	T Criteria
TX	Primary tumor cannot be assessed
Tis	Carcinoma <i>in situ</i>
T1	Tumor limited to one subsite of hypopharynx and/or 2 cm or smaller in greatest dimension
T2	Tumor invades more than one subsite of hypopharynx or an adjacent site, or measures larger than 2 cm but not larger than 4 cm in greatest dimension without fixation of hemilarynx
T3	Tumor larger than 4 cm in greatest dimension or with fixation of hemilarynx or extension to esophageal mucosa
T4	Moderately advanced and very advanced local disease
T4a	Moderately advanced local disease Tumor invades thyroid/cricoid cartilage, hyoid bone, thyroid gland, esophageal muscle or central compartment soft tissue*
T4b	Very advanced local disease Tumor invades prevertebral fascia, encases carotid artery, or involves mediastinal structures

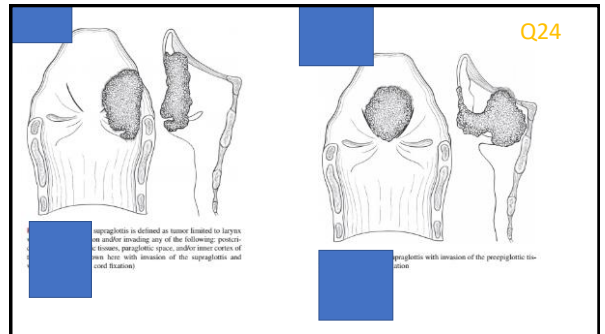
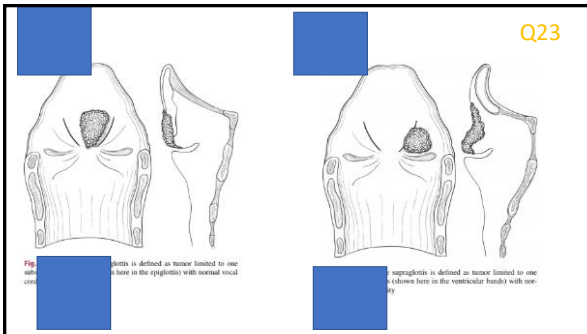
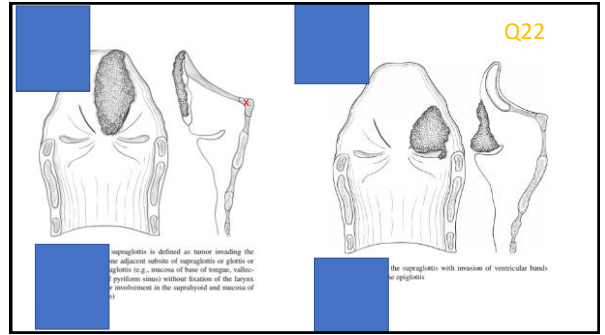
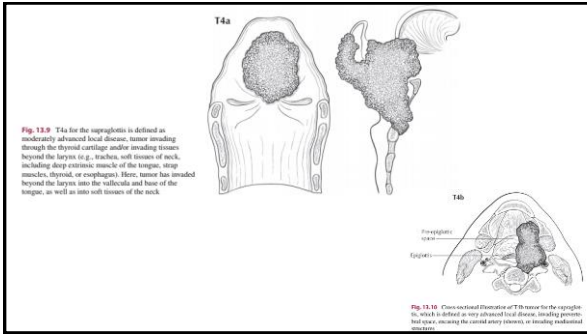
*Note: Central compartment soft tissue includes prelaryngeal strap muscles and subcutaneous fat

Laryngeal Cancer

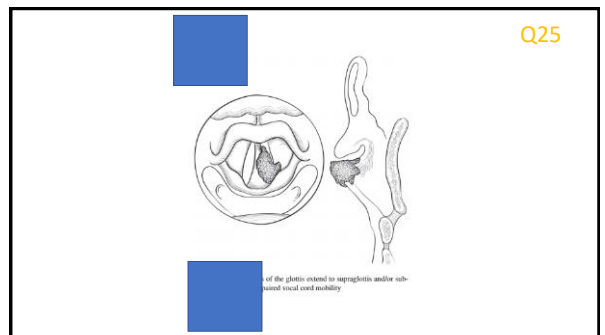


Q21





Supraglottis	
T Category	T Criteria
TX	Primary tumor cannot be assessed
Tis	Carcinoma <i>in situ</i>
T1	Tumor limited to one subsite of supraglottis with normal vocal cord mobility
T2	Tumor invades mucosa of more than one adjacent subsite of supraglottis or glottis or region outside the supraglottis (e.g., mucosa of base of tongue, vallecula, medial wall of pyriform sinus) without fixation of the larynx
T3	Tumor limited to larynx with vocal cord fixation and/or invades any of the following: postcricoid fossa, paraglottic space, paraglottic space, and/or inner cortex of thyroid cartilage
T4	Moderately advanced or very advanced
T4a	Moderately advanced local disease Tumor invades through the outer cortex of the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of 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



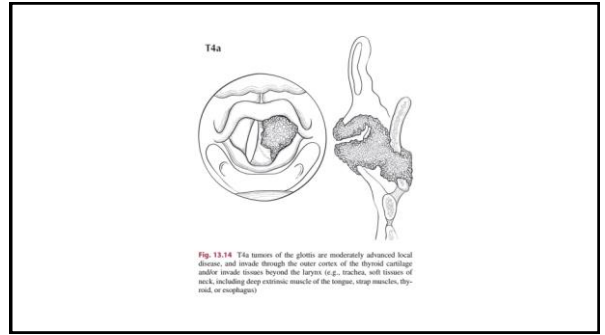
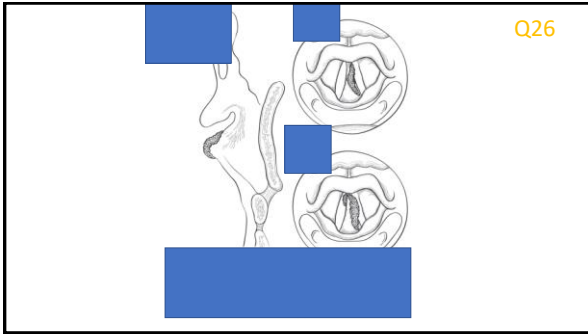
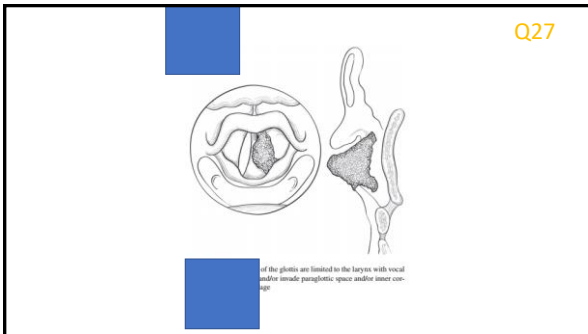


Fig. 13.14 T4a tumors of the glottis are moderately advanced local disease, and invade through the outer cortex of the thyroid cartilage and/or invade tissues beyond the larynx (e.g., trachea, soft tissues of neck, including deep extrinsic muscle of the tongue, strap muscles, thyroid, or esophagus)



of the glottis are limited to the larynx with vocal and/or invade paraglottic space and/or inner cortex

Glottis	
T Category	T Criteria
TX	Primary tumor cannot be assessed
Tis	Carcinoma <i>in situ</i>
T1	Tumor limited to the vocal cord(s) (may involve anterior or posterior commissure) with normal mobility
T1a	Tumor limited to one vocal cord
T1b	Tumor involves both vocal cords
T2	Tumor extends to supraglottis and/or subglottis, and/or with impaired vocal cord mobility
T3	Tumor limited to the larynx with vocal cord fixation and/or invasion of paraglottic space and/or inner cortex of the thyroid cartilage
T4	Moderately advanced or very advanced
T4a	Moderately advanced local disease Tumor invades through the outer cortex of the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, cricoid cartilage, soft tissues of 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

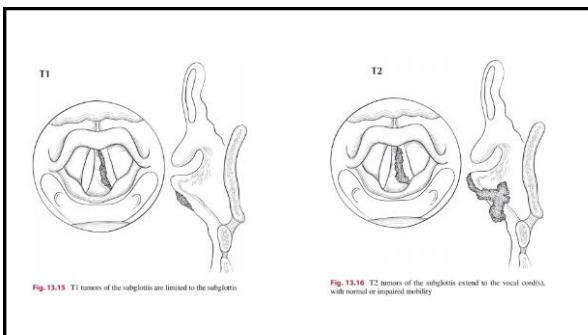


Fig. 13.15 T1 tumors of the subglottis are limited to the subglottis

Fig. 13.16 T2 tumors of the subglottis extend to the vocal cords, with normal or impaired mobility

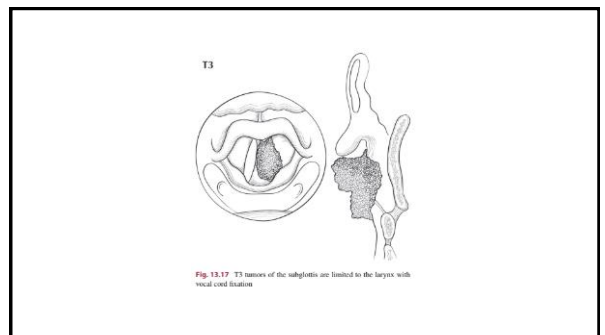


Fig. 13.17 T3 tumors of the subglottis are limited to the larynx with vocal cord fixation

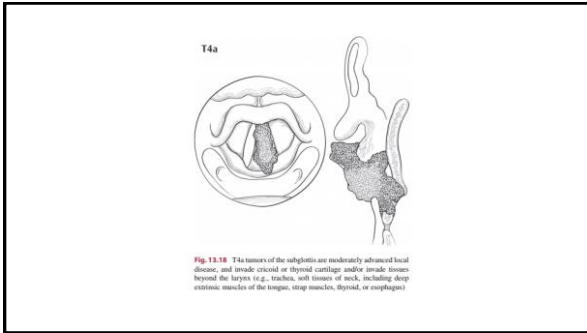
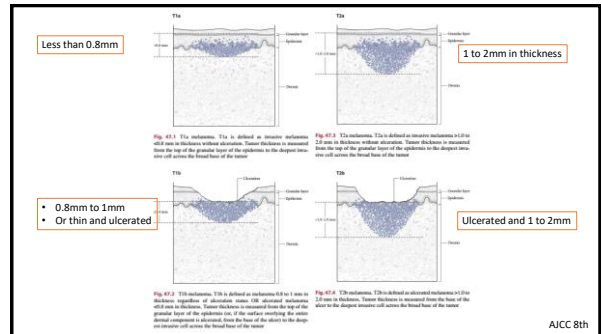


Fig 13.18 T4a tumors of the subglottis are moderately advanced local disease, and invade cricoid or thyroid cartilage and/or invade tissues beyond the larynx (e.g., trachea, soft tissues of neck, including deep extrinsic muscles of the tongue, strap muscles, thyroid, or esophagus)

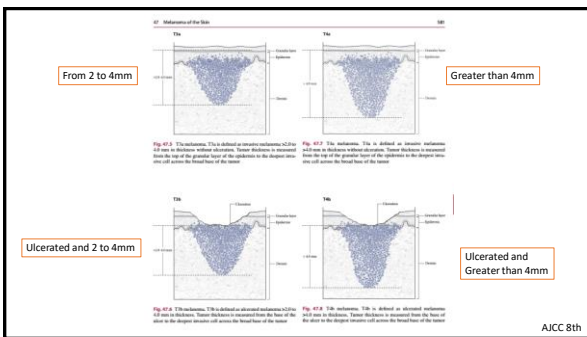
Subglottis

T Category	T Criteria
TX	Primary tumor cannot be assessed
Tis	Carcinoma <i>in situ</i>
T1	Tumor limited to the subglottis
T2	Tumor extends to vocal cord(s) with normal or impaired mobility
T3	Tumor limited to larynx with vocal cord fixation and/or invasion of paraglottic space and/or inner cortex of the thyroid cartilage
T4	Moderately advanced or very advanced
T4a	Tumor invades cricoid or thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscles of the tongue, strap muscles, thyroid, or esophagus)
T4b	Very advanced local disease Tumor invades prevertebral space, encases carotid artery, or invades mediastinal structures

Melanoma Staging



AJCC 8th



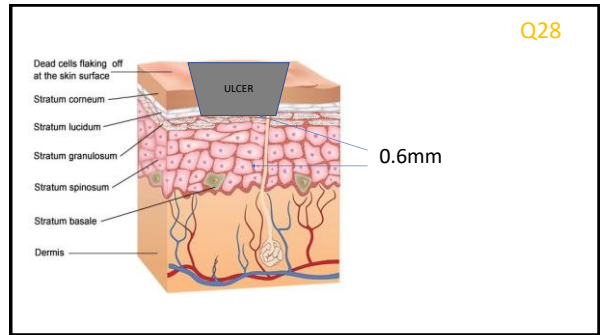
AJCC 8th

MELANOMA T-STAGING

T Category	Thickness	Ulceration status
TX, primary tumor thickness cannot be assessed (e.g., diagnostic by curettage)	Not applicable	Not applicable
Tis, no evidence of primary tumor (e.g., unknown primary or completely regressed melanoma)	Not applicable	Not applicable
Tis (melanoma <i>in situ</i>)	Not applicable	Not applicable
T1	≤1.0 mm	Unknown or unspecified
T1a	<0.8 mm	Without ulceration
T1b	0.8–1.0 mm	With ulceration
T2	>1.0–2.0 mm	Unknown or unspecified
T2a	>1.0–2.0 mm	Without ulceration
T2b	>1.0–2.0 mm	With ulceration
T3	>2.0–4.0 mm	Unknown or unspecified
T3a	>2.0–4.0 mm	Without ulceration
T3b	>2.0–4.0 mm	With ulceration
T4	>4.0 mm	Unknown or unspecified
T4a	>4.0 mm	Without ulceration
T4b	>4.0 mm	With ulceration

Extent of regional lymph node and/or lymphatic metastasis					
N Category	Number of tumor-involved regional lymph node	Presence of in-transit, satellite, and/or microsatellite metastases			
NX	Regional nodes not assessed (e.g., SLN biopsy not performed, regional nodes previously removed for another reason)	No	N2a	Two or three clinically occult (i.e., detected by SLN biopsy)	No
	Exception: When there are no clinically detected regional metastases in a pT1 cM0 melanoma, assign cN0 instead of pNX		N2b	Two or three, at least one of which was clinically detected	No
N0	No regional metastases detected	No	N2c	One clinically occult or clinically detected	Yes
			N3a	Four or more clinically occult (i.e., detected by SLN biopsy)	No
N1a	One clinically occult (i.e., detected by SLN biopsy)	No	N3b	Four or more, at least one of which was clinically detected, or presence of any number of matted nodes	No
N1b	One clinically detected	No	N3c	Two or more clinically occult or clinically detected and/or presence of any number of matted nodes	Yes
N1c	No regional lymph node disease	Yes			

AJCC 8th



Cutaneous Non-Melanoma Skin Cancer



- Cutaneous non-melanoma skin cancer
- Risk considerations:
 - Extranodal extension
 - Tumor Diameter (2cm is an important cutoff for metastatic potential)
 - Depth of invasion 6mm increased metastases
 - Location: Lip, ear, temple, and cheek
 - PNI: for greater than 0.1mm nerves
 - Poor differentiation
 - Invasion of bony structures
 - Lymph nodes
 - Immunosuppression (organ transplant increases rate by 65x)

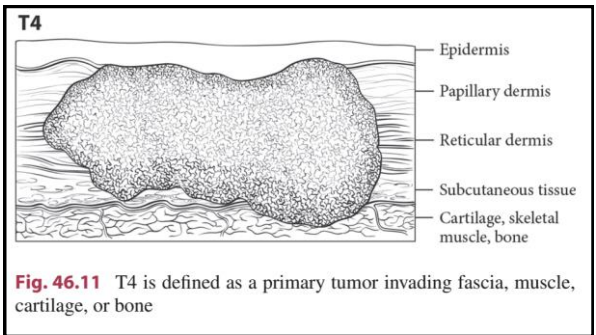
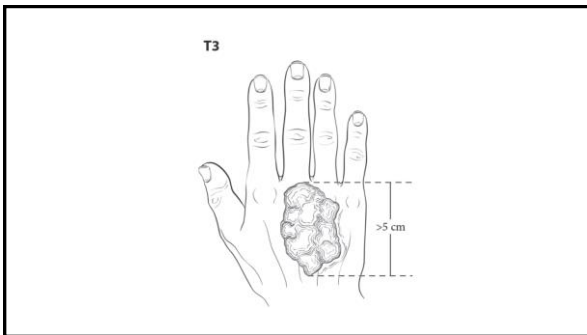
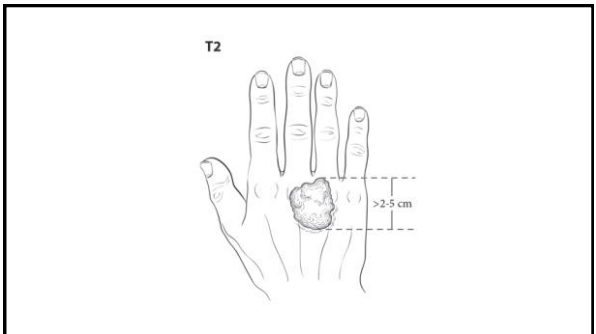
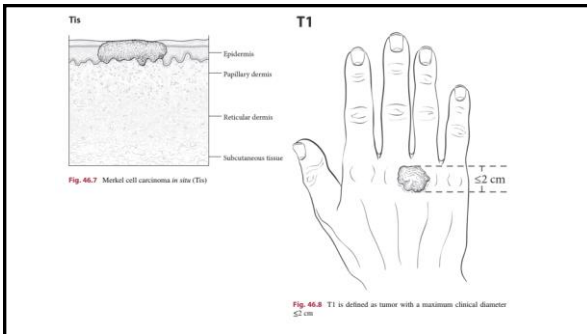
T Category	T Criteria
TX	Primary tumor cannot be assessed
Tis	Carcinoma in situ
T1	Tumor smaller than or equal to 2 cm in greatest dimension
T2	Tumor larger than 2 cm, but smaller than or equal to 4 cm in greatest dimension
T3	Tumor larger than 4 cm in maximum dimension or minor base erosion or peritumoral invasion or deep invasion*
T4	Tumor with gross cortical bone/marrow, skull base invasion and/or skull base foramen invasion
T4a	Tumor with gross cortical bone/marrow invasion
T4b	Tumor with skull base invasion and/or skull base foramen involvement

*Deep invasion is defined as invasion beyond the subcutaneous fat and >6 mm (as measured from the granular layer of adjacent normal epidermis to the base of the tumor); peritumoral invasion for T3 classification is defined as tumor cells within the nerve sheath of a nerve lying deeper than the dermis or measuring 0.1 mm or larger in caliber, or presenting with clinical or radiographic involvement of named nerves without skull base invasion or transgression.

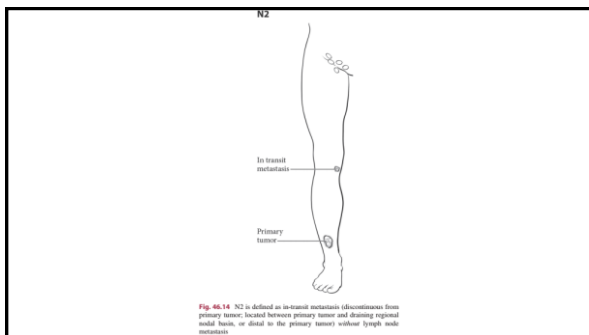
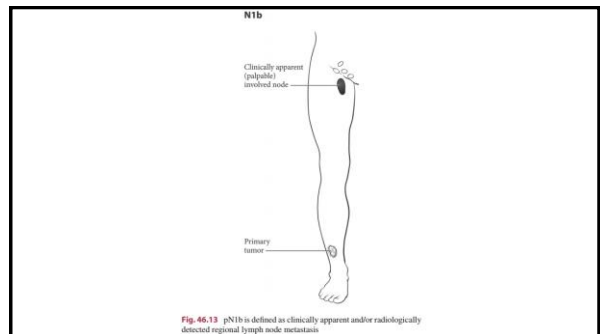
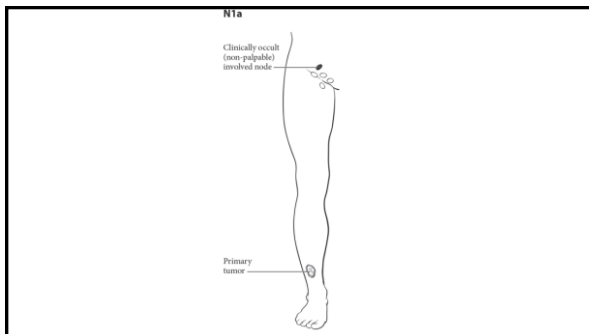
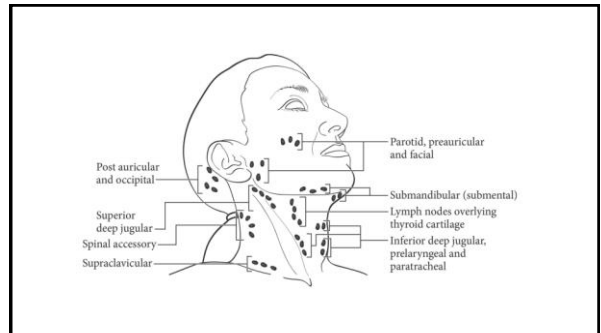
N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, 3 cm or smaller in greatest dimension and ENE(-)
N2a	Metastasis in single ipsilateral node 3 cm or smaller in greatest dimension and ENE(-); or a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-)
N2b	Metastases in multiple ipsilateral nodes, none larger than 6 cm in greatest dimension and ENE(-)
N2c	Metastases in bilateral or contralateral lymph node(s), none larger than 6 cm in greatest dimension and ENE(-)
N3a	Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE(-)
N3b	Metastasis in a single ipsilateral node larger than 3 cm in greatest dimension and ENE(+); or multiple ipsilateral, contralateral, or bilateral nodes, any with ENE(+); or a single contralateral node of any size and ENE(+)

Merkel Cell

- 33% overall mortality
- Clonal incorporation of Merkel Cell Polyomavirus



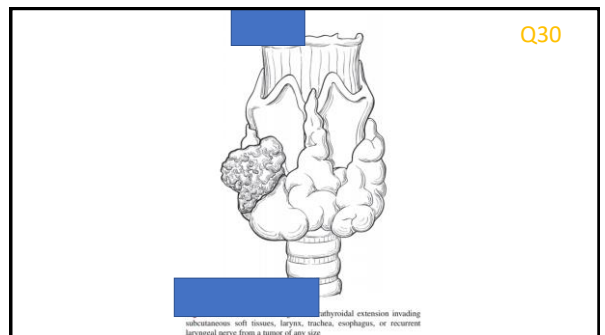
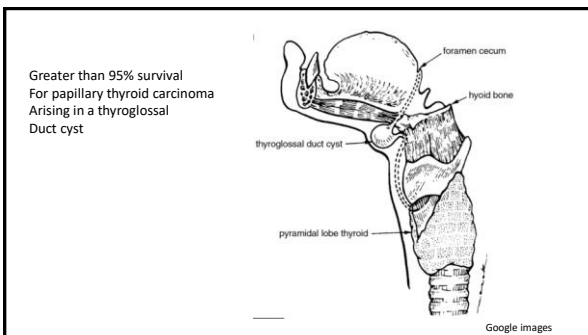
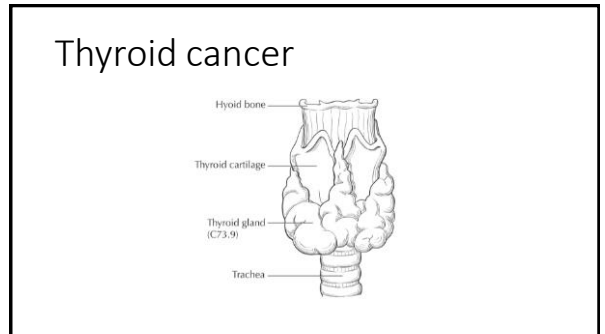
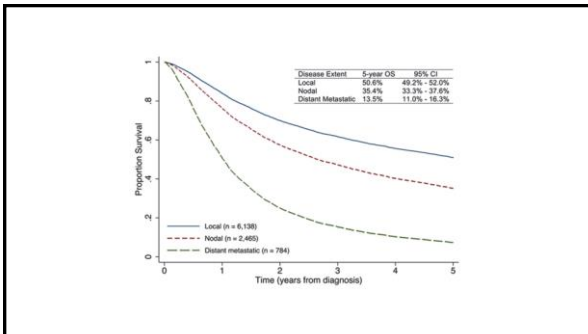
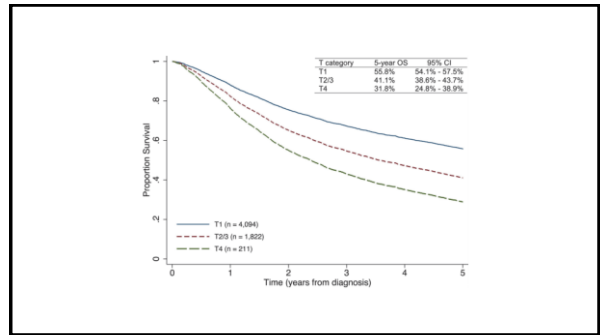
MERKEL CELL CARCINOMA	
T Category	T Criteria
TX	Primary tumor cannot be assessed (e.g., curetted)
T0	No evidence of primary tumor
Tis	<i>In situ</i> primary tumor
T1	Maximum clinical tumor diameter ≤ 2 cm
T2	Maximum clinical tumor diameter >2 but ≤ 5 cm
T3	Maximum clinical tumor diameter >5 cm
T4	Primary tumor invades fascia, muscle, cartilage, or bone

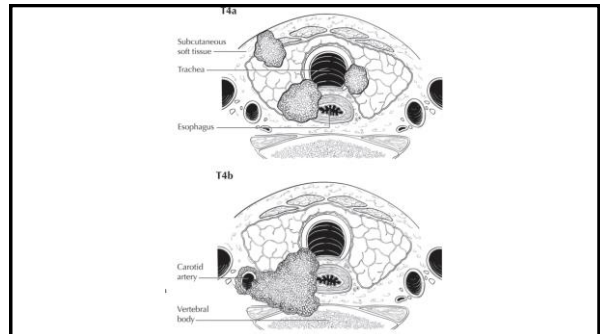
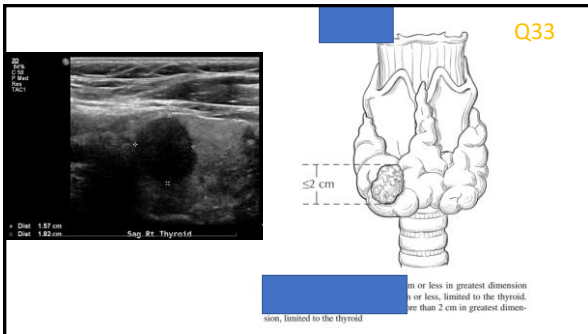
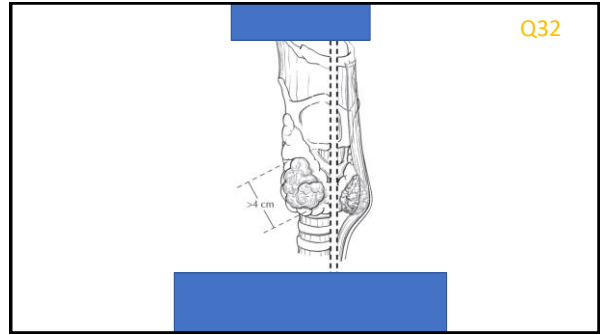
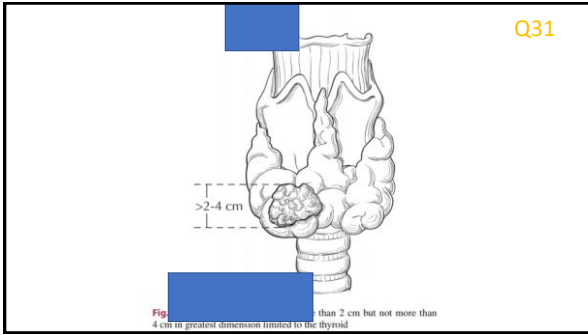


MERKEL CLINICAL NODAL STAGING	
N Category	N Criteria
NX	Regional lymph nodes cannot be clinically assessed (e.g., previously removed for another reason, or because of body habitus)
N0	No regional lymph node metastasis detected on clinical and/or radiologic examination
N1	Metastasis in regional lymph node(s)
N2	In-transit lymph node metastasis (discontinuous from primary tumor; located between primary tumor and draining regional nodal basin, or distal to the primary tumor) <i>without</i> lymph node metastasis
N3	In-transit lymph node metastasis (discontinuous from primary tumor; located between primary tumor and draining regional nodal basin, or distal to the primary tumor) <i>with</i> lymph node metastasis

MERKEL PATHOLOGIC NODAL STAGING

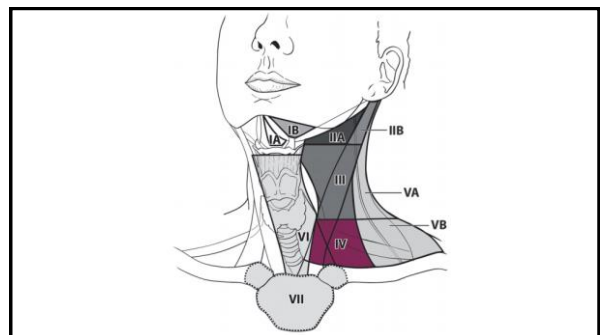
pN Category	pN Criteria
pNX	Regional lymph nodes cannot be assessed (e.g., previously removed for another reason or not removed for pathological evaluation)
pN0	No regional lymph node metastasis detected on pathological evaluation
pN1	Metastasis in regional lymph node(s)
pN1a(s)	Clinically occult regional lymph node metastasis identified only by sentinel lymph node biopsy
pN1a	Clinically occult regional lymph node metastasis following lymph node dissection
pN1b	Clinically and/or radiologically detected regional lymph node metastasis, microscopically confirmed
pN2	In-transit metastasis (discontinuous from primary tumor; located between primary tumor and draining regional nodal basin, or distal to the primary tumor) without lymph node metastasis
pN3	In-transit metastasis (discontinuous from primary tumor; located between primary tumor and draining regional nodal basin, or distal to the primary tumor) with lymph node metastasis





Papillary, Follicular, Poorly Differentiated, Hürthle Cell and Anaplastic Thyroid Carcinoma

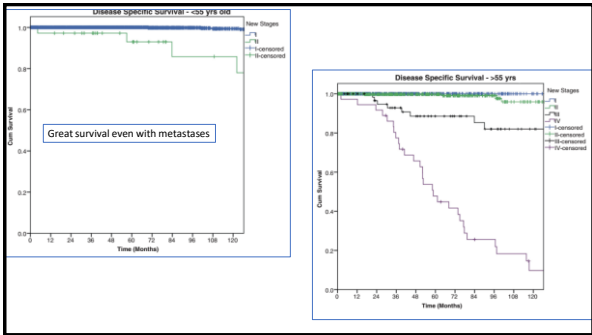
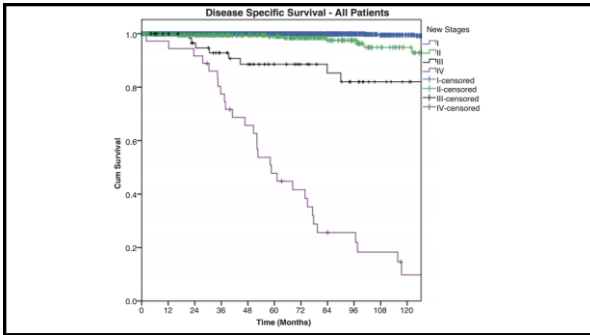
T Category	T Criteria
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
T1	Tumor ≤2 cm in greatest dimension limited to the thyroid
T1a	Tumor ≤1 cm in greatest dimension limited to the thyroid
T1b	Tumor >1 cm but ≤2 cm in greatest dimension limited to the thyroid
T2	Tumor >2 cm but ≤4 cm in greatest dimension limited to the thyroid
T3	Tumor >4 cm limited to the thyroid, or gross extrathyroidal extension invading only strap muscles
T3a	Tumor >4 cm limited to the thyroid
T3b	Gross extrathyroidal extension invading only strap muscles (sternohyoid, sternothyroid, thyrohyoid, or omohyoid muscles) from a tumor of any size
T4	Includes gross extrathyroidal extension beyond the strap muscles
T4a	Gross extrathyroidal extension invading subcutaneous soft tissues, larynx, trachea, esophagus, or recurrent laryngeal nerve from a tumor of any size
T4b	Gross extrathyroidal extension invading prevertebral fascia or encasing the carotid artery or mediastinal vessels from a tumor of any size



N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No evidence of locoregional lymph node metastasis
N0a	One or more cytologically or histologically confirmed benign lymph nodes
N0b	No radiologic or clinical evidence of locoregional lymph node metastasis
N1	Metastasis to regional nodes
N1a	Metastasis to level VI or VII (pretracheal, paratracheal, or prelaryngeal/Delphian, or upper mediastinal) lymph nodes. This can be unilateral or bilateral disease.
N1b	Metastasis to unilateral, bilateral, or contralateral lateral neck lymph nodes (levels I, II, III, IV, or V) or retropharyngeal lymph nodes

Differentiated

When age at diagnosis is...	And T is...	And N is...	And M is...	Then the stage group is...
<55 years	Any T	Any N	M0	I
<55 years	Any T	Any N	M1	II
≥55 years	T1	N0/NX	M0	I
≥55 years	T1	N1	M0	II
≥55 years	T2	N0/NX	M0	I
≥55 years	T2	N1	M0	II
≥55 years	T3a/T3b	Any N	M0	II
≥55 years	T4a	Any N	M0	III
≥55 years	T4b	Any N	M0	IVA
≥55 years	Any T	Any N	M1	IVB



Medullary Thyroid Cancer

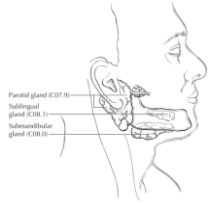
- Essentially same staging as well differentiated thyroid cancer
- Consideration for RET mutations
- Measurement of Calcitonin and CEA
- Remark on completeness of resection

Parathyroid Carcinoma

T Category	T Criteria
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	Atypical parathyroid neoplasm (neoplasm of uncertain malignant potential)
T1	Localized to the parathyroid gland with extension limited to soft tissue
T2	Direct invasion into the thyroid gland
T3	Direct invasion into recurrent laryngeal nerve, esophagus, trachea, skeletal muscle, adjacent lymph nodes, or thymus
T4	Direct invasion into major blood vessel or spine

N Category	N Criteria
NX	Regional nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Regional lymph node metastasis
N1a	Metastasis to level VI (pretracheal, paratracheal, and prelaryngeal/Delphian lymph nodes) or superior mediastinal lymph nodes (level VII)
N1b	Metastasis to unilateral, bilateral, or contralateral cervical (level I, II, III, IV, or V) or retropharyngeal

Salivary Gland Carcinomas

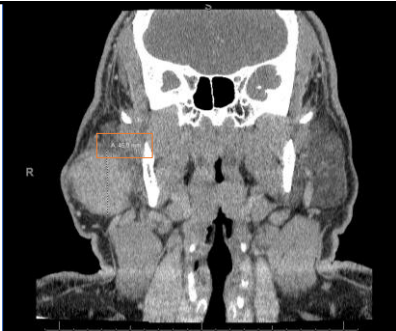


SALIVARY GLAND CARCINOMAS

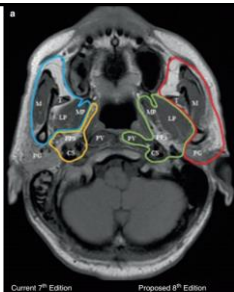
T Category	T Criteria
TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	Carcinoma <i>in situ</i>
T1	Tumor 2 cm or smaller in greatest dimension without extraparenchymal extension*
T2	Tumor larger than 2 cm but not larger than 4 cm in greatest dimension without extraparenchymal extension*
T3	Tumor larger than 4 cm and/or tumor having extraparenchymal extension*
T4	Moderately advanced or very advanced disease
T4a	Moderately advanced disease Tumor invades skin, mandible, ear canal, and/or facial nerve
T4b	Very advanced disease Tumor invades skull base and/or pterygoid plates and/or encases carotid artery

* Extraparenchymal extension is clinical or macroscopic evidence of invasion of soft tissues. Microscopic evidence alone does not constitute extraparenchymal extension for classification purposes

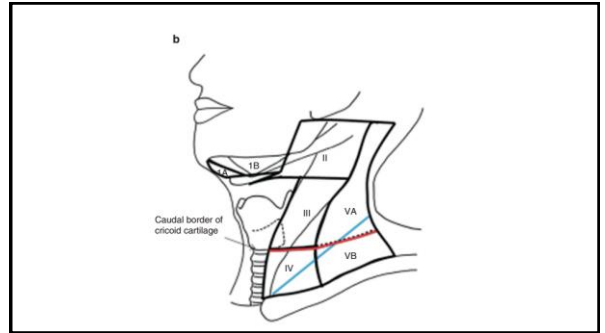
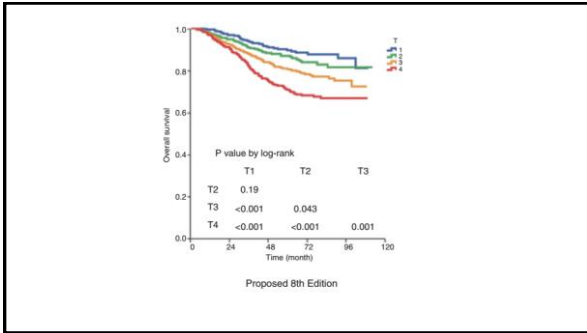
Q34



Nasopharyngeal Carcinoma



T Category	T Criteria
TX	Primary tumor cannot be assessed
T0	No tumor identified, but EBV-positive cervical node(s) involvement
Tis	Tumor <i>in situ</i>
T1	Tumor confined to nasopharynx, or extension to oropharynx and/or nasal cavity without parapharyngeal involvement
T2	Tumor with extension to parapharyngeal space, and/or adjacent soft tissue involvement (medial pterygoid, lateral pterygoid, prevertebral muscles)
T3	Tumor with infiltration of bony structures at skull base, cervical vertebra, pterygoid structures, and/or paranasal sinuses
T4	Tumor with intracranial extension, involvement of cranial nerves, hypopharynx, orbit, parotid gland, and/or extensive soft tissue infiltration beyond the lateral surface of the lateral pterygoid muscle



N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Unilateral metastasis in cervical lymph node(s) and/or unilateral or bilateral metastasis in retropharyngeal lymph node(s), 6 cm or smaller in greatest dimension, above the caudal border of cricoid cartilage
N2	Bilateral metastasis in cervical lymph node(s), 6 cm or smaller in greatest dimension, above the caudal border of cricoid cartilage
N3	Unilateral or bilateral metastasis in cervical lymph node(s), larger than 6 cm in greatest dimension, and/or extension below the caudal border of cricoid cartilage

MUCOSAL MELANOMA OF THE HEAD AND NECK

Definition of Primary Tumor (T)

T Category	T Criteria
T3	Tumors limited to the mucosa and immediately underlying soft tissue, regardless of thickness or greatest dimension; for example, polypoid nasal disease, pigmented or nonpigmented lesions of the oral cavity, pharynx, or larynx
T4	Moderately advanced or very advanced
T4a	Moderately advanced disease Tumor involving deep soft tissue, cartilage, bone, or overlying skin
T4b	Very advanced disease Tumor involving brain, dura, skull base, lower cranial nerves (IX, X, XI, XII), masticator space, carotid artery, prevertebral space, or mediastinal structures

Definition of Regional Lymph Node (N)

N Category	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastases
N1	Regional lymph node metastases present

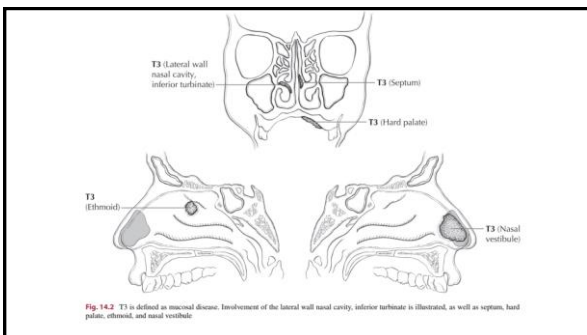


Fig. 14.2 T3 is defined as mucosal disease. Involvement of the lateral wall nasal cavity, inferior turbinate is illustrated, as well as septum, hard palate, ethmoid and nasal vestibule

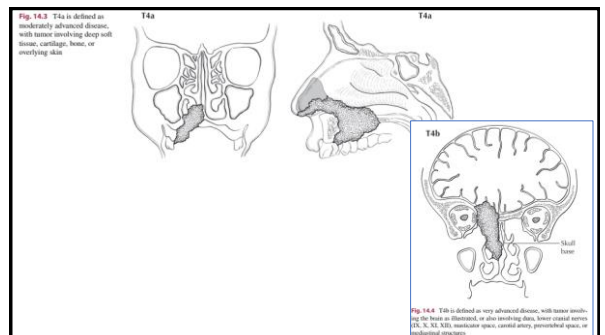
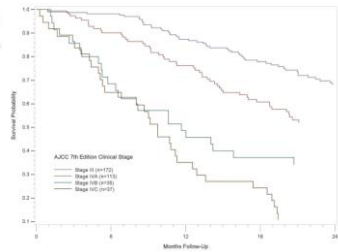


Fig. 14.3 T4a is defined as moderately advanced disease, with tumor involving deep soft tissue, cartilage, bone, or overlying skin

Fig. 14.4 T4b is defined as very advanced disease, with tumor involving the brain or dura, or also involving dura, lower cranial nerves (IX, X, XI, XII), masticator space, carotid artery, prevertebral space, or mediastinal structures

Fig. 14.1 24-month follow-up of patients older than 18 years of age, diagnosed with NM of the head and neck, lip and oral cavity, pharynx, larynx, and nasal cavity and paranasal sinuses using the AJCC Cancer Staging Manual, 7th Edition. The cases were diagnosed in 2010–12



Conclusions

- Staging is a dynamic process, for instance the evolution of oropharyngeal cancers over the past decades
- Staging is useful for standardization and reporting of cancer trends
- It should be prognostic