STAGING IN HNC- TNM AND BEYOND

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MMIMSR, Ambala,
Haryana.

- Purpose of staging
- Principles of staging in HNC
- Moving ahead within the TNM and beyond the TNM

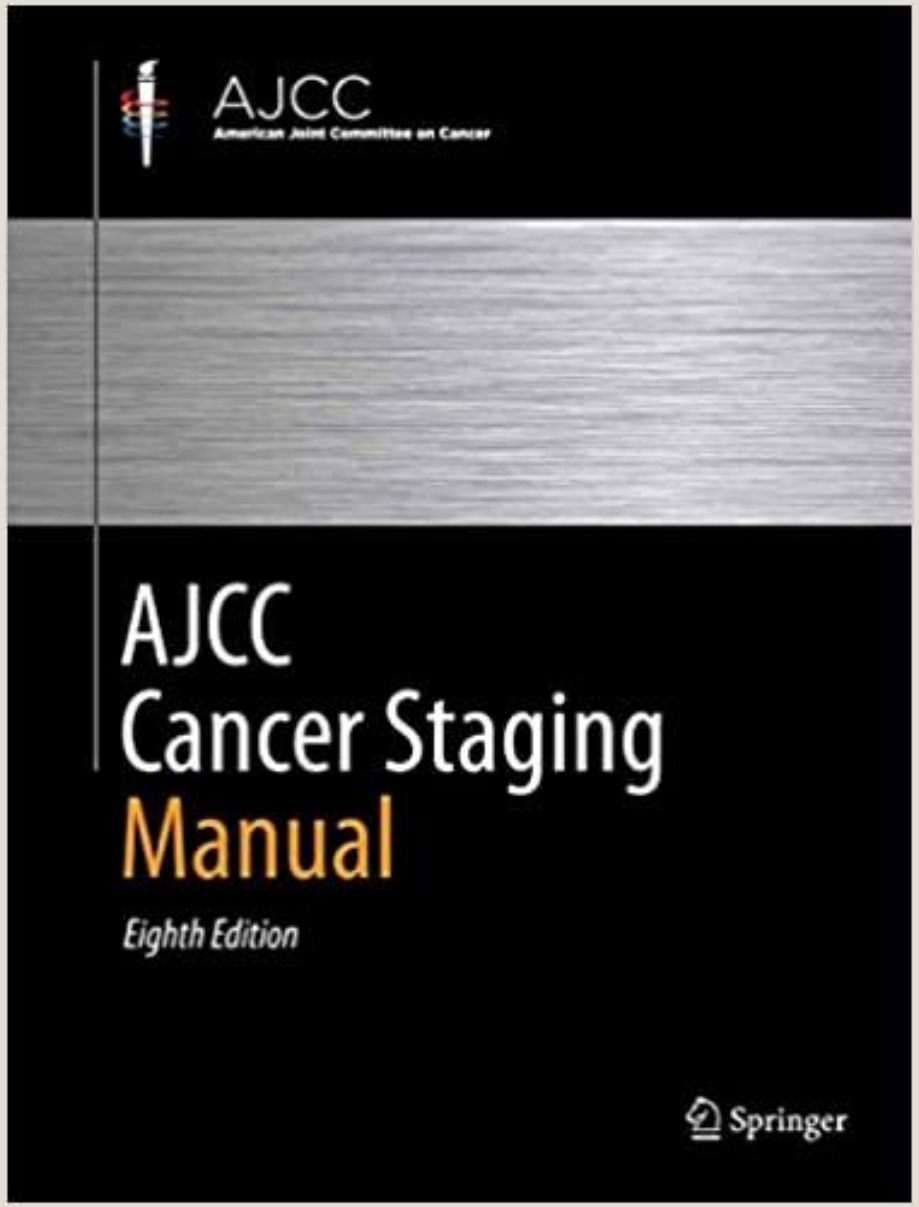
Purpose of staging

- Predicting **prognosis**
- Guiding **treatment decisions** (outcomes of previous patients with similar stage)
- key component of inclusion, exclusion, and stratification criteria for **clinical trials**
- Basis of clinical and translational cancer research (exchange and comparison of info among diff centres and registries)

TNM staging

AJCC-UICC

T
N
M



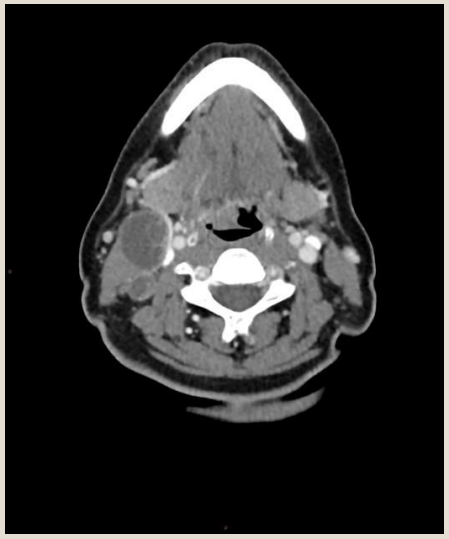
Principles of staging

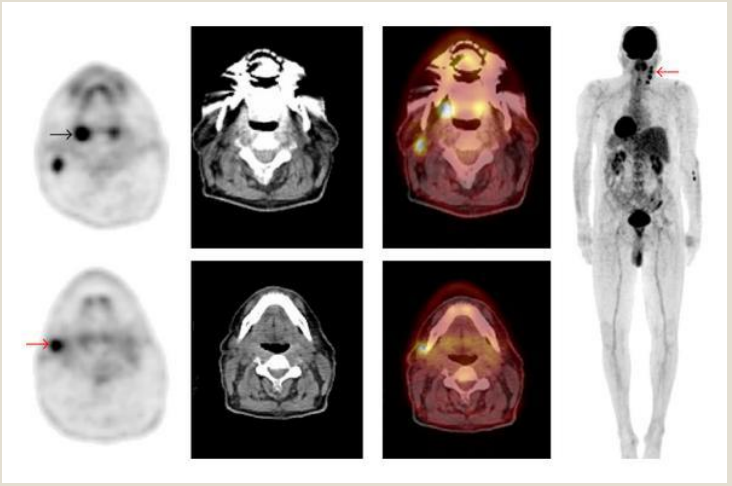
- **Clinical staging**

- **Pathological staging**

Principles of staging

- **Clinical staging-**
  - using <u>best possible estimate</u> of the extent of disease (cTNM)
  - before initiation of first treatment.





-Clinical examination,
-CT,MRI,PET,USG (NPC,PNS,Nodes)
-Endoscopy,EUA

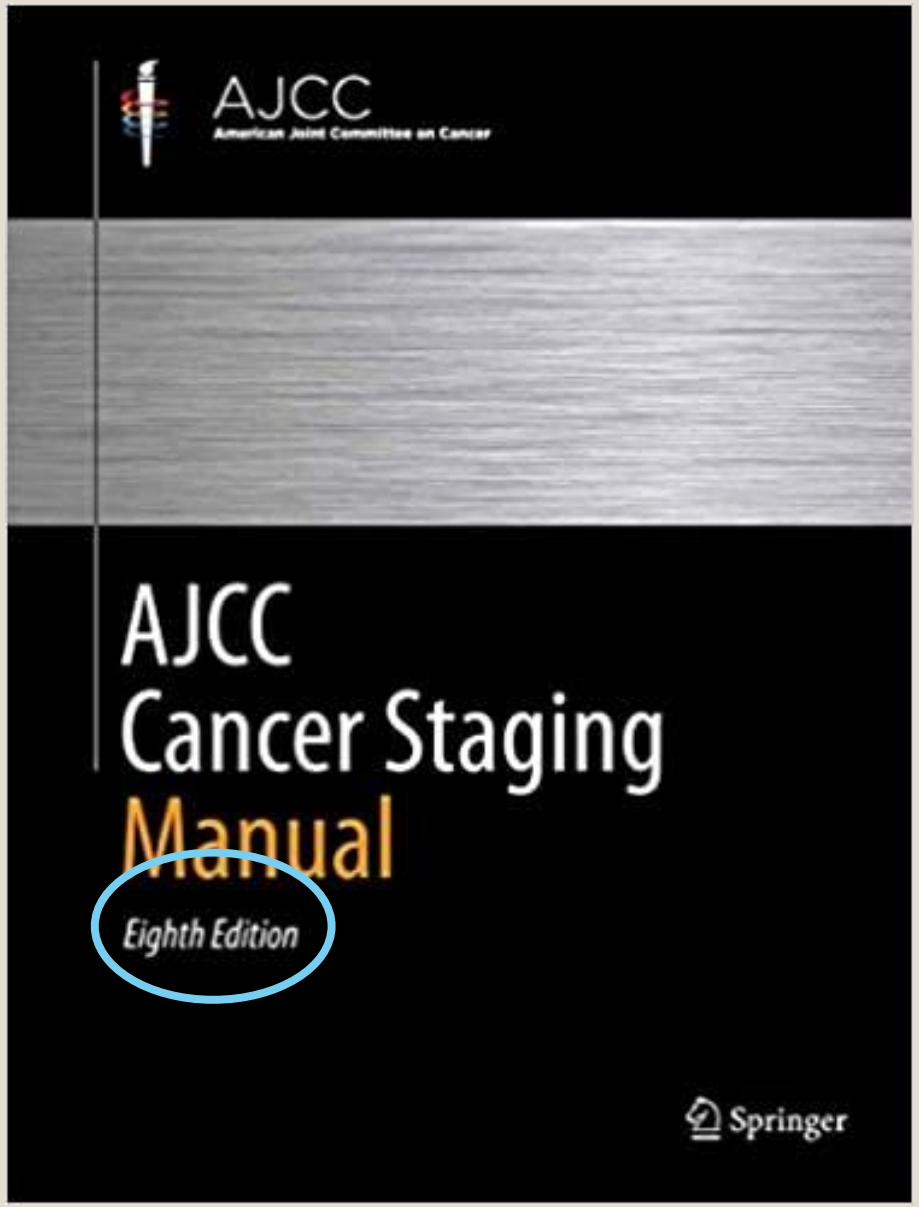
Principles of staging

- **Pathological staging**
  - **Additional and important** staging, but cannot replace clinical staging.
  - Based on clinical stage information supplemented/modified by operative findings and pathological evaluation o f the resected specimens (primary and/or nodes)
  - **pT**- actual measurement of unfixed tumor in surgical specimen
  - **pN**- If SND- > 10 LN, If RND, MRND >15 nodes
    But examination of fewer negative nodes will be assigned N0 category.
  - When biopsy proven mets- **pM1**

TNM staging

AJCC-UICC

T
N
M



Why revise and move ahead and beyond TNM??

Advancement in what we know- clinical and pathological data, diagnostic/ imaging modalities, treatment modalities

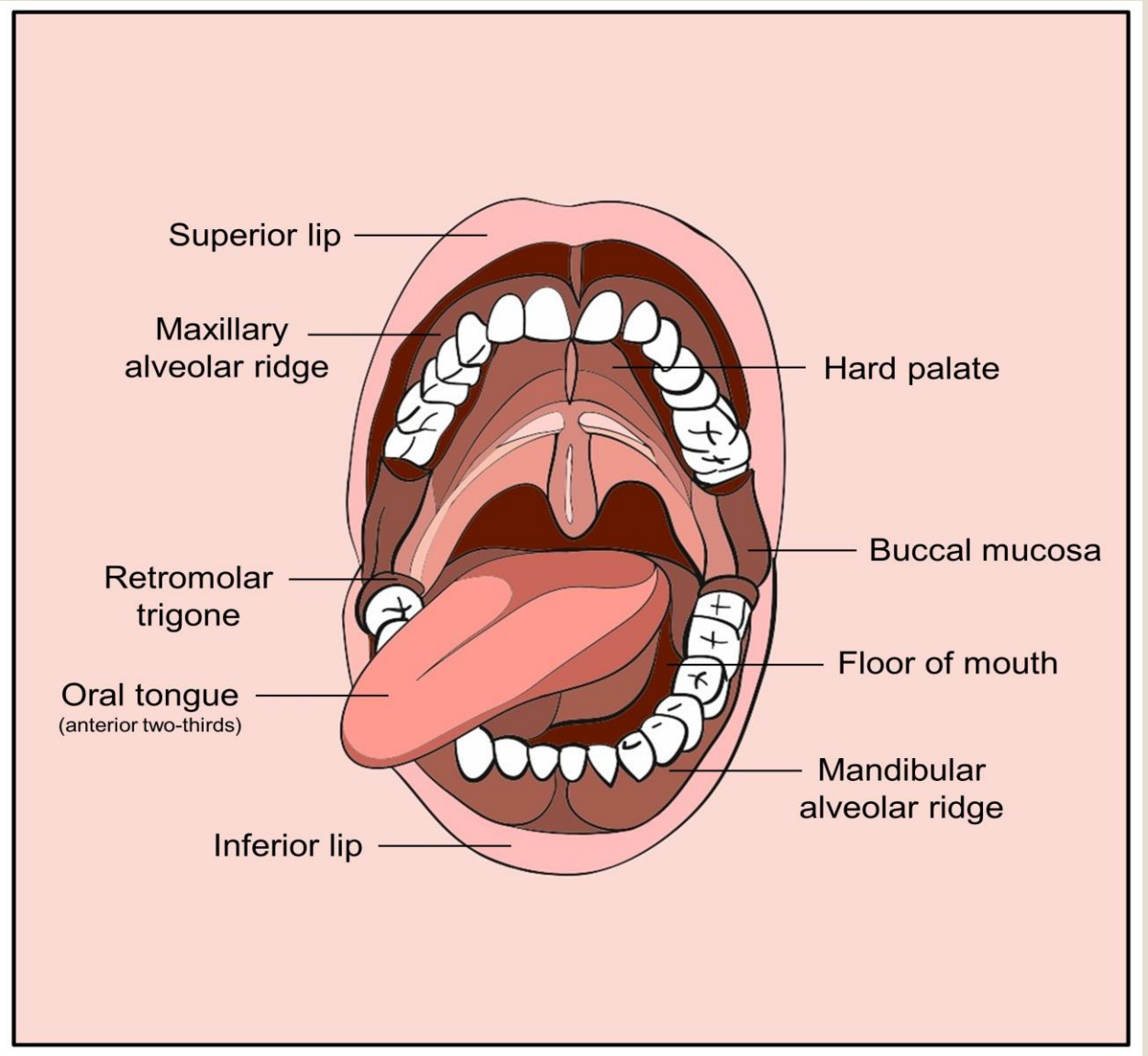
Prognostic significance of staging systems change

Evaluate for suitability of staging systems

Further exploration

Part II Head and Neck

LIP AND ORAL CAVITY -STAGING


Superior lip
Maxillary alveolar ridge
Hard palate
Buccal mucosa
Retromolar trigone
Floor of mouth
Oral tongue
(anterior two-thirds)
Mandibular alveolar ridge
Inferior lip

- Mucosal Lip
- Depth of Invasion
- Extranodal extension

Mucosal Lip- vermilion surface or that portion of the lip that comes into contact with the opposed lip

Hay, A., Shah, J. (2020). Staging of Oral Cancer. In: Warnakulasuriya, S., Greenspan, J. (eds) Textbook of Oral Cancer. Textbooks in Contemporary Dentistry. Springer, Cham. https://doi.org/10.1007/978-3-030-32316-5_6

Depth of invasion

SCIENTIFIC PAPERS

Predictive Value of Tumor Thickness in Squamous Carcinoma Confined to the Tongue and Floor of the Mouth

Ronald H. Spiro, MD, Andrew G. Huvos, MD, George Y. Wong, PhD, Jeffrey D. Spiro, MD, Clare A. Gnecco, MS, and Elliot W. Strong, MD, New York, New York

From the Head and Neck Service, Departments of Surgery and Pathology, and the Division of Biostatistics, Memorial Sloan-Kettering Cancer Center, New York, New York.
Requests for reprints should be addressed to Ronald H. Spiro, MD, 425 East 67th Street, New York, New York 10021.
Presented at the 32nd Annual Meeting of the Society of Head and Neck Surgeons, Colorado Springs, Colorado, May 7–10, 1986.

Volume 152, October 1986

JAMA Otolaryngology–Head & Neck Surgery December 2014 Volume 140, Number 12

Original Investigation

Primary Tumor Staging for Oral Cancer and a Proposed Modification Incorporating Depth of Invasion
An International Multicenter Retrospective Study

The International Consortium for Outcome Research (ICOR) in Head and Neck Cancer

International Consortium for Outcomes Research in Head and Neck Cancer

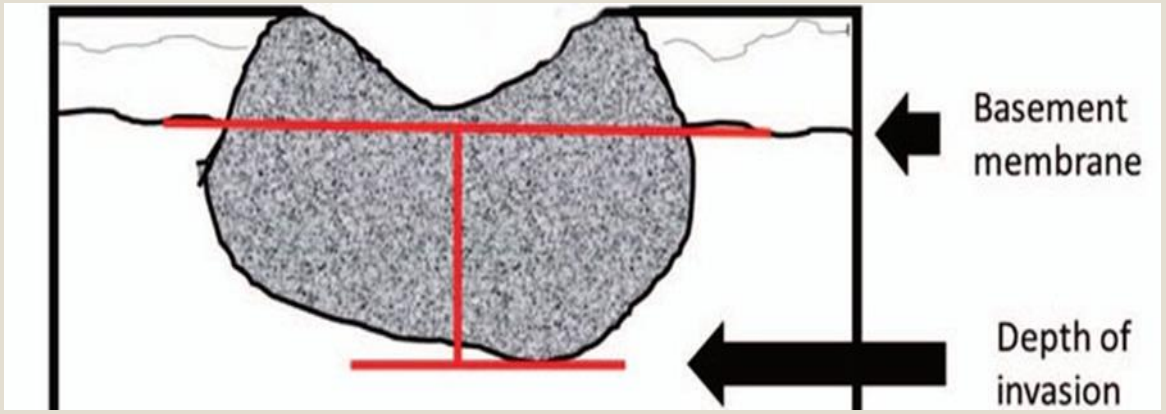
- Retrospective analysis
- 3149, 11 centres, oral SCC
- Median followup 40 months

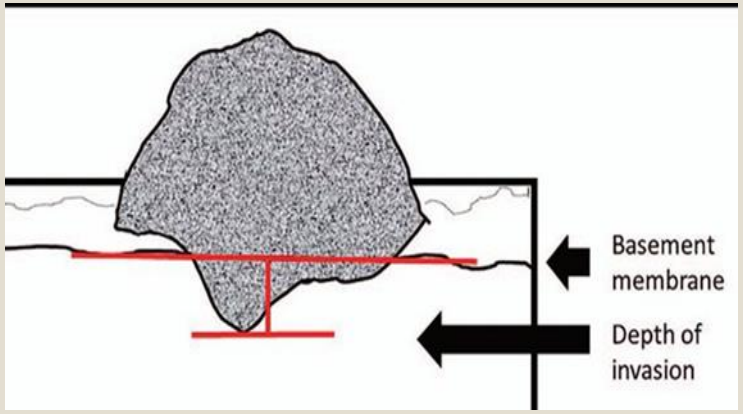
DOI was a significantly associated with disease-specific survival
($P < .001$)

Proposed an improved oral cancer T staging system based
on incorporation of DOI

Depth of invasion

- Deepest level of Invasion beneath the plane defined by surrounding normal mucosa
- Not the same as tumor thickness(exophytic portion)





https://www.researchgate.net/profile/Lester-Thompson-3

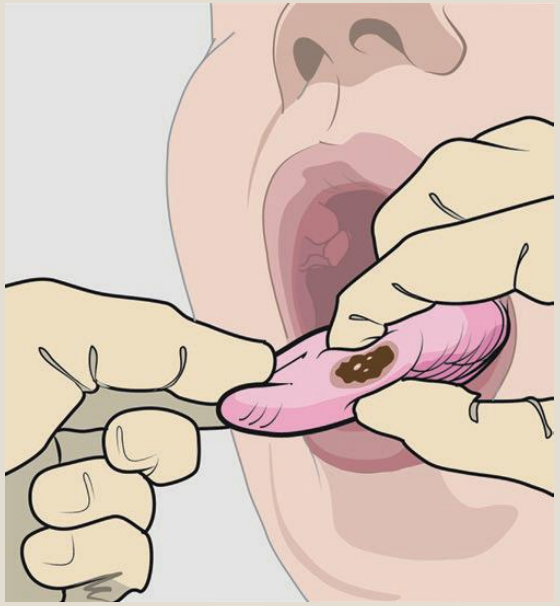
Can we predict DOI before pathological examination??

History - dysphagia(sufficient invasion of oral structures)

- drooling, swallowing with difficulty
- trismus (not caused by pain)

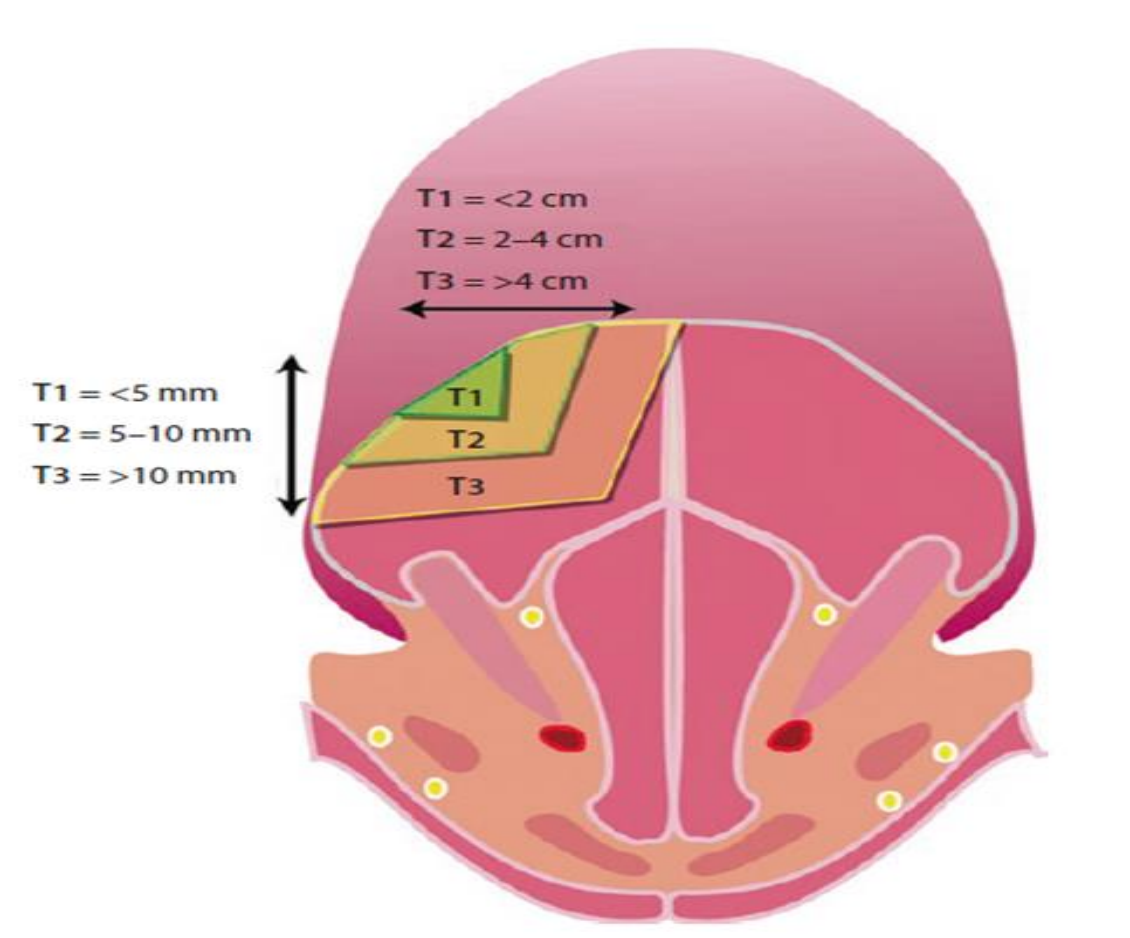
Clinically –(by bidigital*, bimanual* palpation)

- crude measure



Richard et al.

Davoren A Chick



Richard et al. Jatin Shah's head and neck surgery and oncology. 5thed. Elsevier;2020

DOI increases T category by 1 for each 5 mm of tumor depth (until ≥ 10 mm)

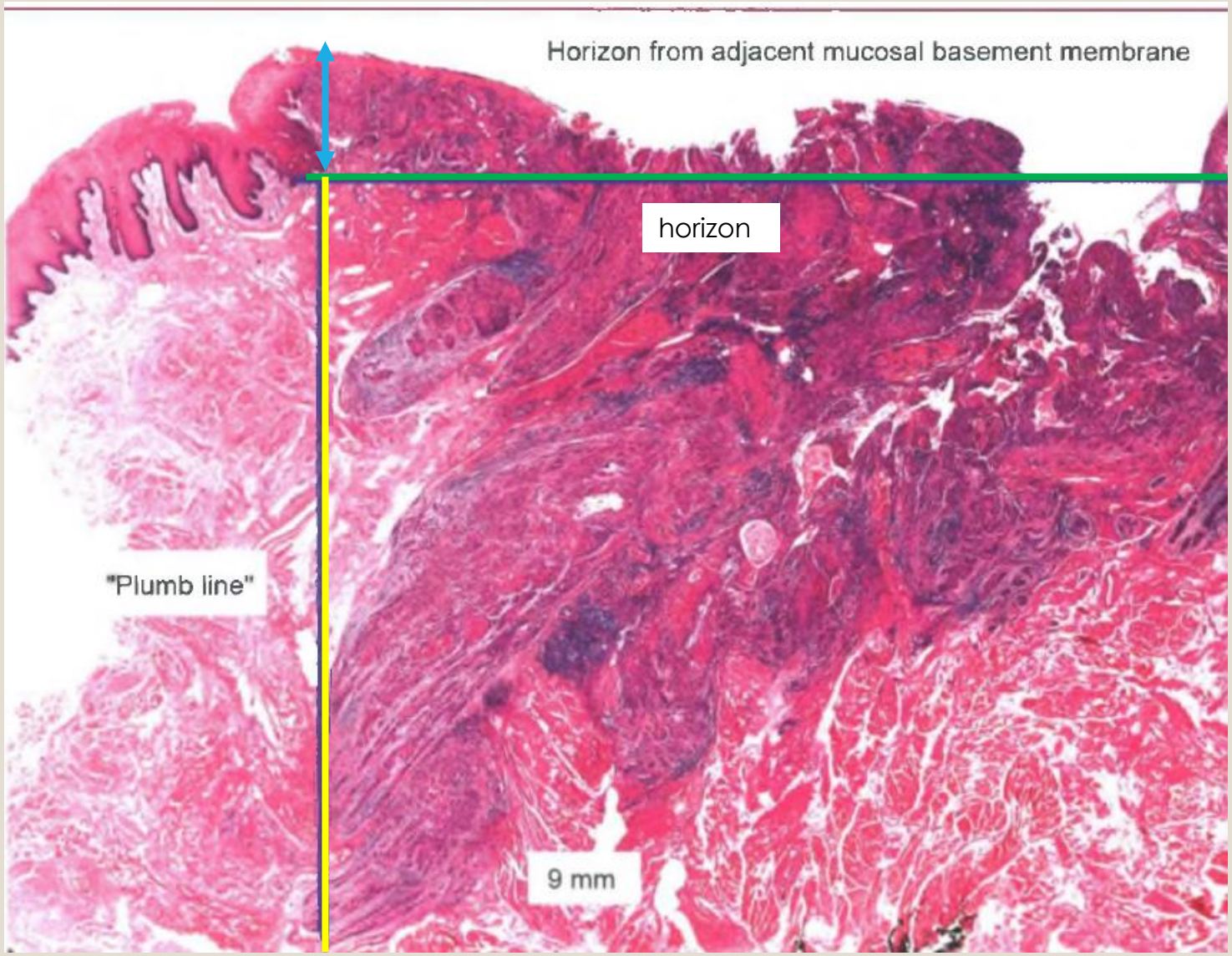
Even experienced clinicians may have difficulty in differentiating

Superficial and less invasive lesion(< 5mm)

Moderate depth (>5, < 10mm)

Deeply invasive lesion (>10mm)

-if there are doubts---------- select the lesser depth to avoid stage migration



- The **horizon** is established at the level o f the basement membrane relative to the closest intact squamous mucosa.

-dropping a "**plumb line**" perpendicular from the horizon to determine the greatest DOI.

-recorded in mm.

- Increases T category by 1 for each 5 mm of tumor depth (until ≥ 10 mm)

AJCC cancer staging 8th edition

Extranodal extension

Influence of extracapsular nodal spread extent on prognosis of oral squamous cell carcinoma

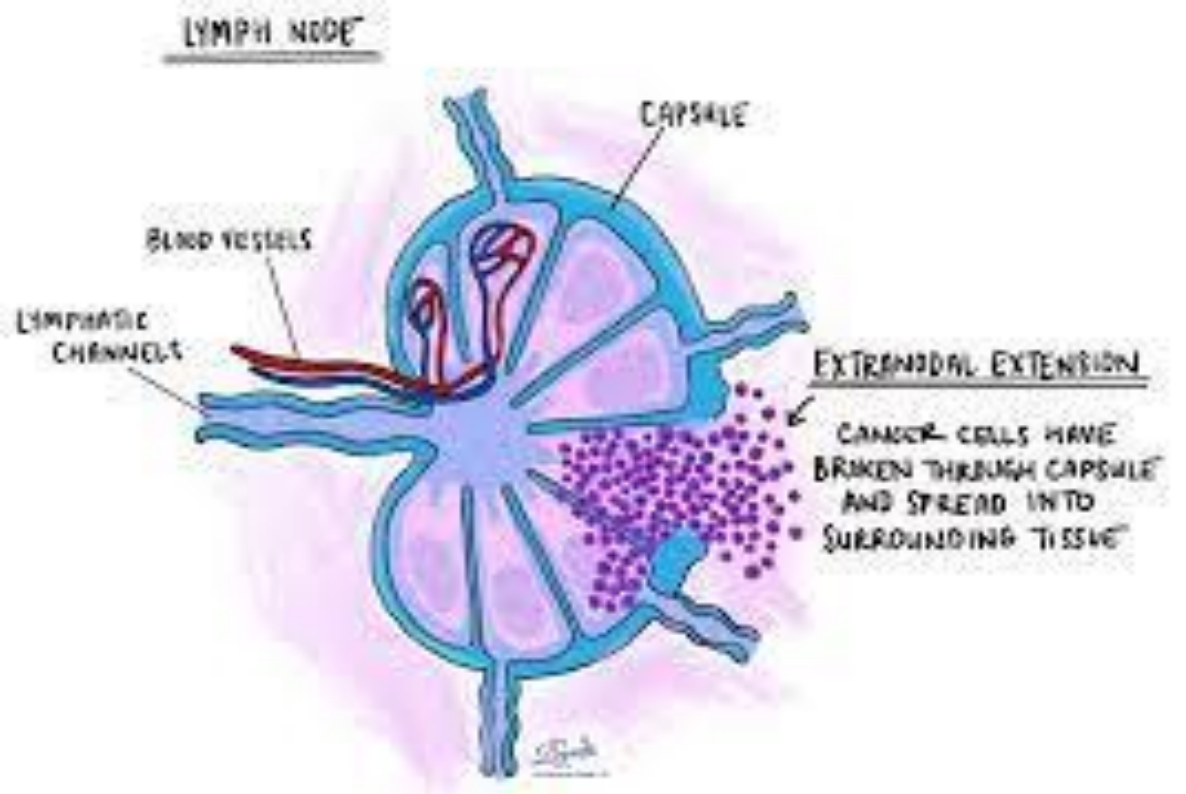
Volkert B. Wreesmann, MD, PhD,[1] Nora Katabi, MD,[2] Frank L. Palmer, BA,[1] Pablo H. Montero, MD,[1] Jocelyn C. Migliacci, MA,[1] Mithat Gönen, PhD,[3] Diane Carlson, MD,[4] Ian Ganly, MD, PhD,[1] Jatin P. Shah, MD,[1] Ronald Ghossein, MD,[2] Snehal G. Patel, MD[1]*

[1]Head and Neck Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, New York, [2]Department of Pathology, Memorial Sloan Kettering Cancer Center, New York, New York, [3]Department of Epidemiology–Biostatistics, Memorial Sloan Kettering Cancer Center, New York, New York, [4]Department of Pathology, Cleveland Clinic, Weston, Florida.

Accepted 3 July 2015
Published online 30 October 2015 in Wiley Online Library (wileyonlinelibrary.com). DOI 10.1002/hed.24190

- Pathological review of 245 pathologically +ve neck dissection specimens of oral SCC
- 73 months follow-up
- DSS was significantly
- better for patients without ECS than patients with ECS ($p<0.01$)

Extranodal extension

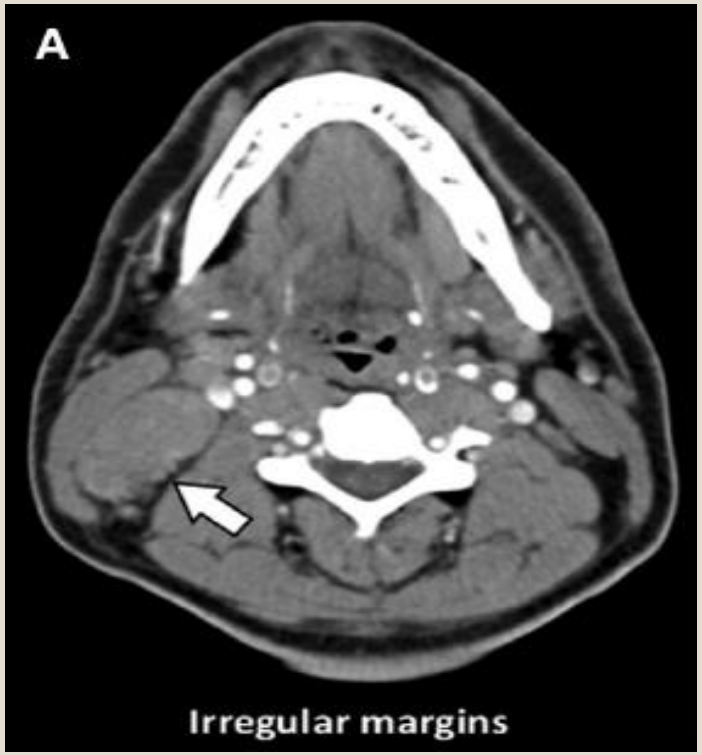


ENE for cN

- Assignment of ENE should be based almost entirely on **physical examination**, rather than imaging.
- **Unambiguous Gross ENE** on clinical exam supported by strong radiological evidence.

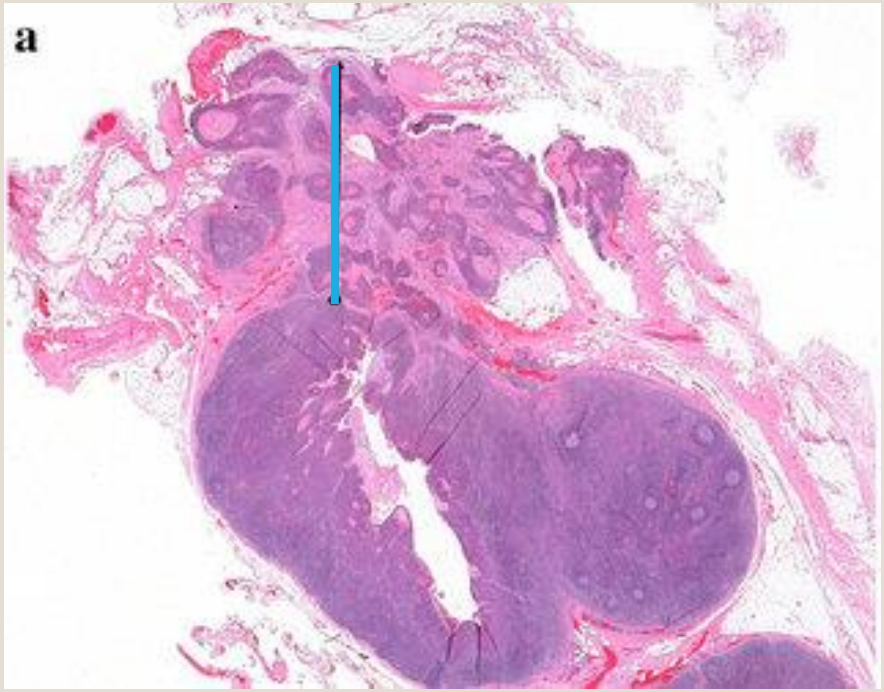
- multiple matted nodes
- fixed nodes
- skin invasion
- muscle invasion
- infiltration of cranial nerve, brachial plexus, sympathetic trunk, phrenic nerve

- **Irregular enhancement** of the nodal capsule (amorphous spiculated margins
- **<u>Infiltration into adjacent fat/muscle</u>** (involvement of internodal fat resulting in loss of normal oval to round nodal shape)



Faraji F, Aygun N, Coquia SF, et al. Computed tomography performance in predicting extranodal extension in HPV-positive oropharynx cancer. *Laryngoscope*. 2020;130(6):1479-1486. doi:10.1002/lary.28237

ENE for pN



Bullock MJ. Current Challenges in the Staging of Oral Cancer. *Head Neck Pathol.* 2019;13(3):440-448. doi:10.1007/s12105-019-01014-4

- ENEmi – microscopic ENE ≤ 2mm
- ENEma- Macroscopic ENE-

  - ENE apparent to naked eye at the time of dissection

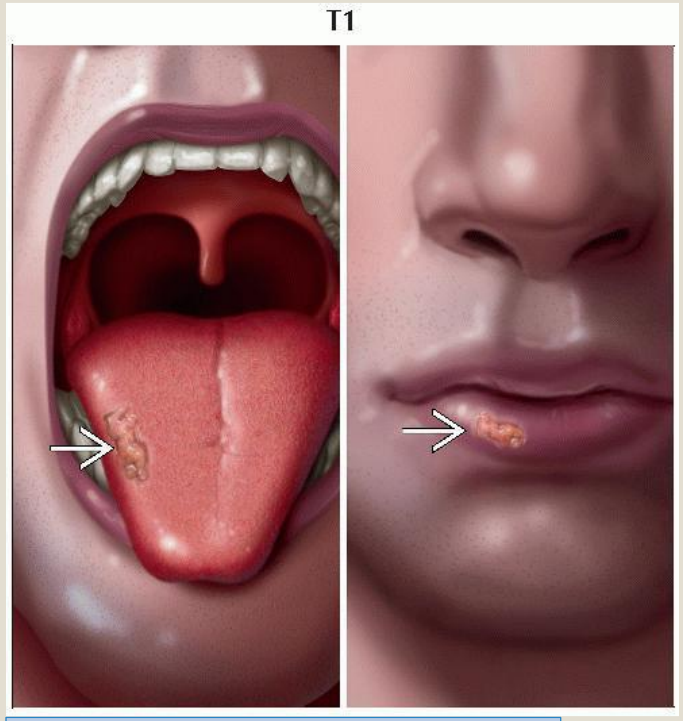
  OR - microscopic ENE >2mm beyond the LN capsule

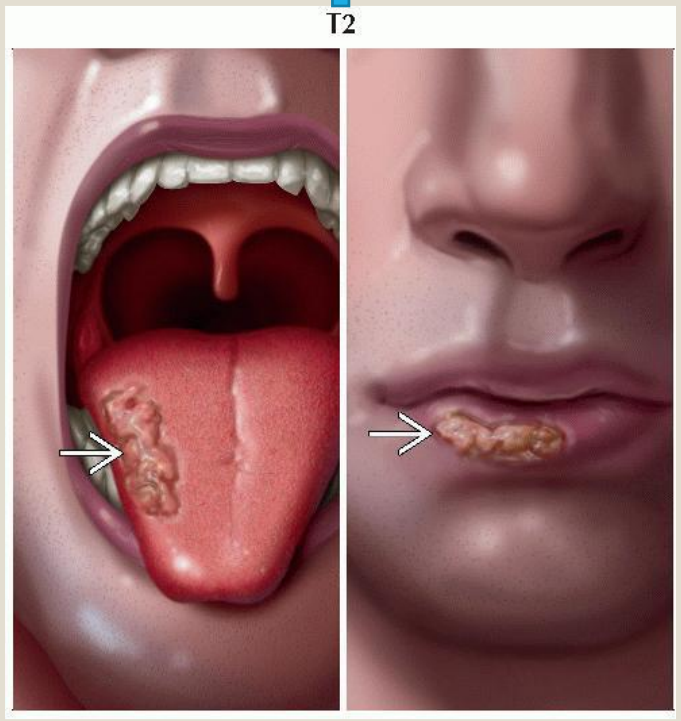
ENE HAS BEEN INCORPORATED IN ALL HEAD AND NECK CANCER SITES EXCEPT NASOPHARYNGEAL CANCER AND HPV ASSOCIATED P16+ OPC

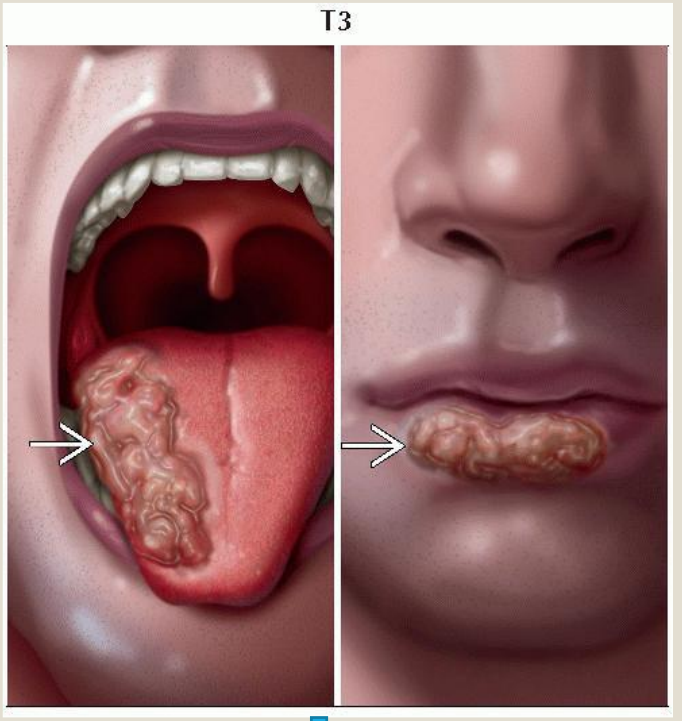
Tx

Tis

Tumor ≤ 2 cm, DOI > 5 mm and ≤ 10 mm
or
tumor > 2 cm but ≤ 4 cm, and ≤ 10 mm DOI





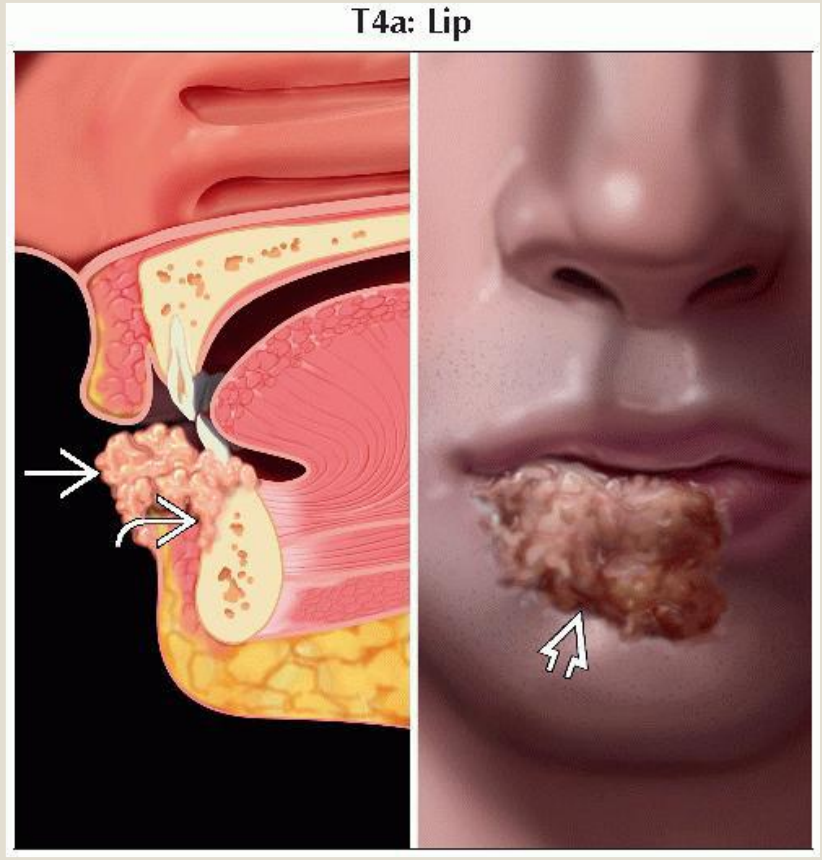


Tumor ≤ 2 cm ,
≤ 5 mm depth of invasion
(DOI)

Tumor>4 cm
or any tumor> 10 mm DOI

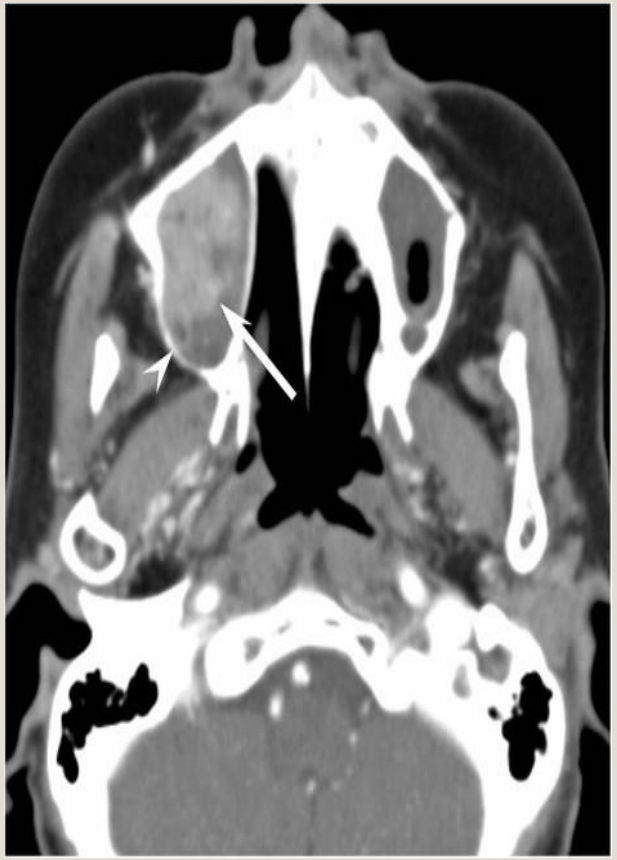
Radiation Oncology: Imaging and Treatment 1st Edition by David K Gaffney Dennis C. Shrieve (Christopher J Anker (Author), Mark K Buyyounouski Feng-ming (Spring) Kong)

T4a- moderately advanced local disease



lip- cortical bone, skin of the face, inferior alveolar nerve, floor of mouth

T4a-oral cavity

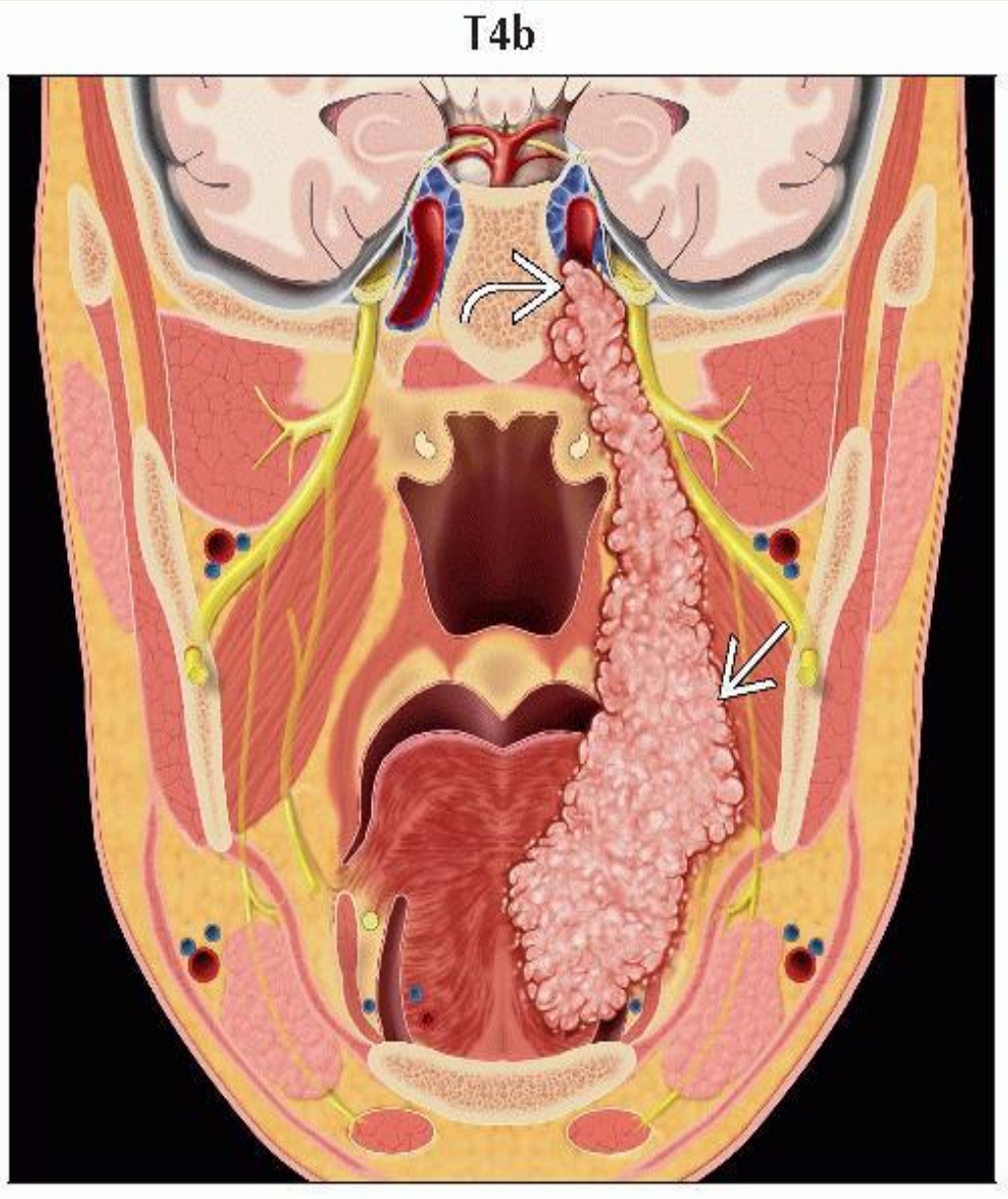


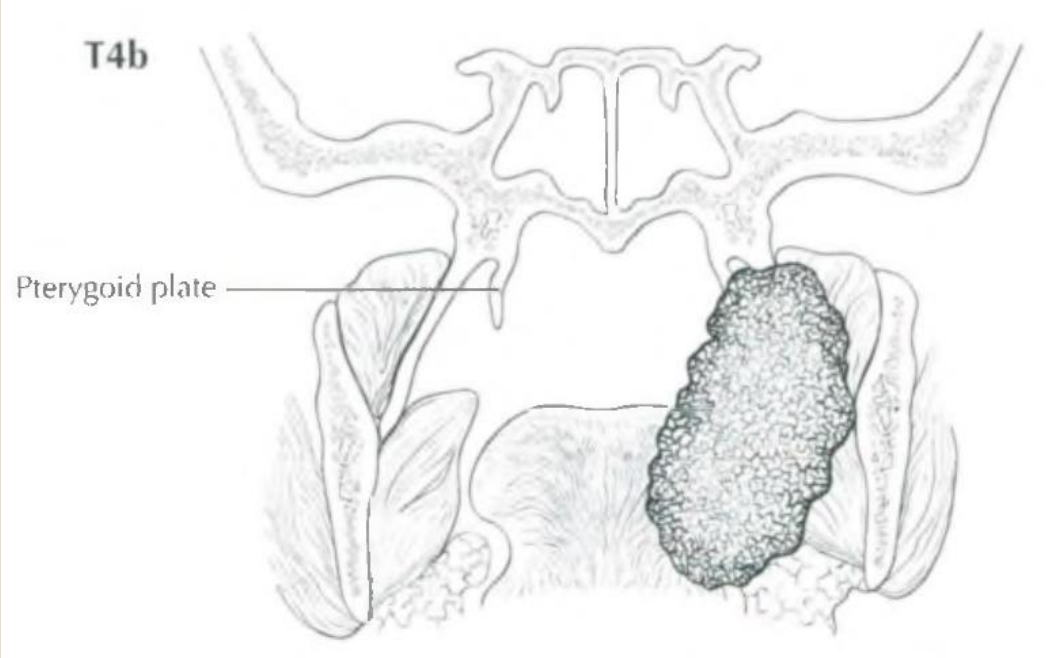
Mitsuhiro Aoki

Tsuyoshi Sugiura

Adjacent structures only- eg- through cortical bones of mandible, maxilla into the maxillary sinus or skin of the face. A superficial erosion of bone/tooth socket(alone) by a primary in the gingiva is not T4a

Radiation Oncology: Imaging and Treatment 1st Edition by David K Gaffney Dennis C. Shrieve (Christopher J Anker (Author), Mark K Buyyounouski Feng-ming (Spring) Kong)

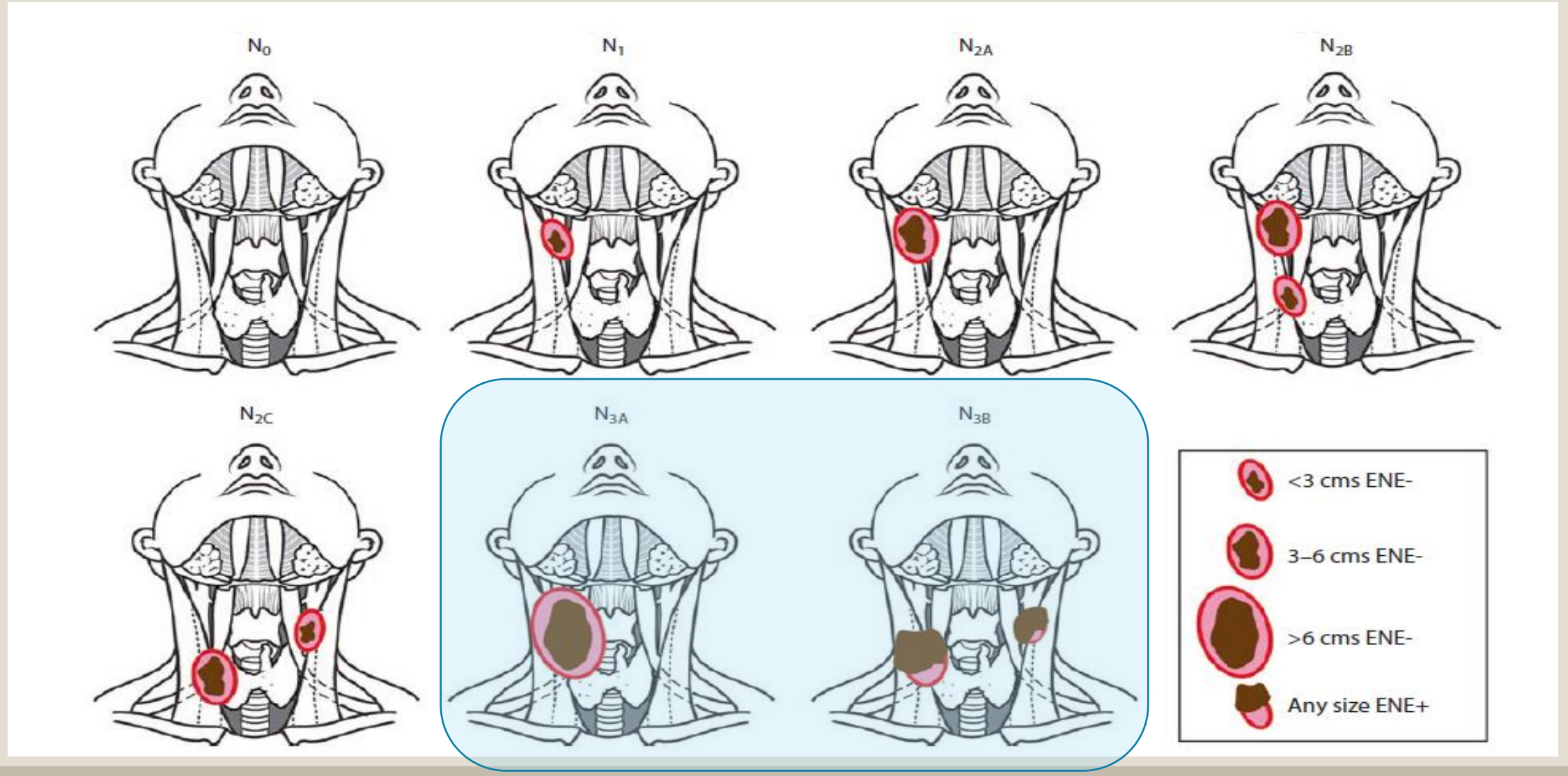




T4b- very advance local disease- pterygoid plates, masticator space, skull base, encases ICA

Radiation Oncology: Imaging and Treatment 1st Edition by David K Gaffney Dennis C. Shrieve (Christopher J Anker (Author), Mark K Buyyounouski Feng-ming (Spring) Kong)

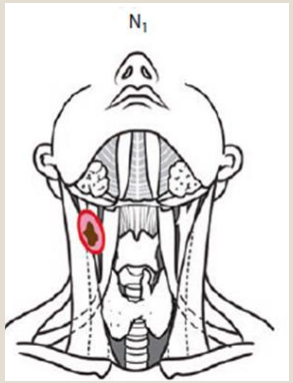
cN categories

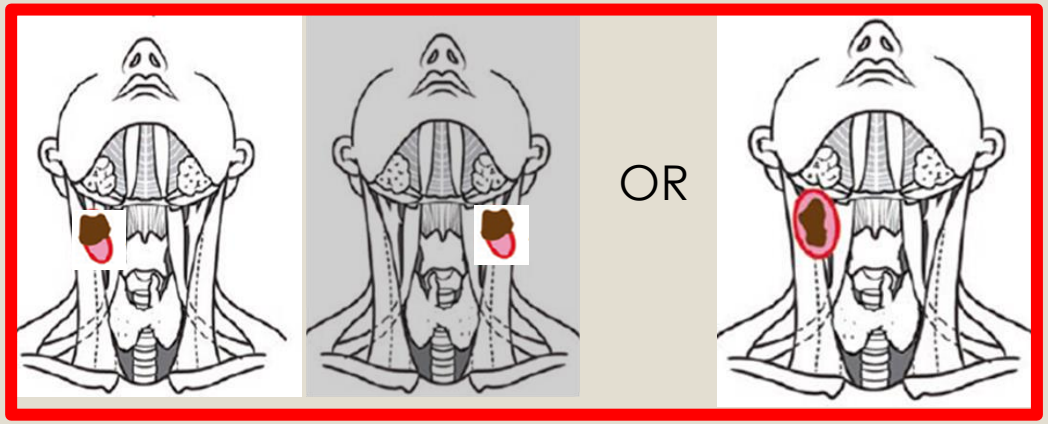


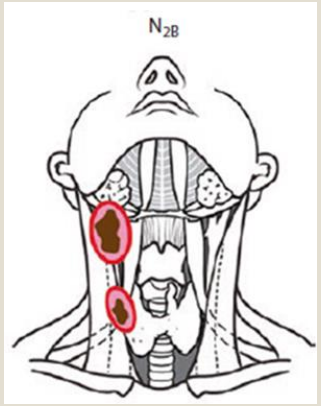
SamanWarnakulasuriya JohnS.Greenspan*Editors* Textbook ofOral Cancer Prevention, Diagnosis and Management

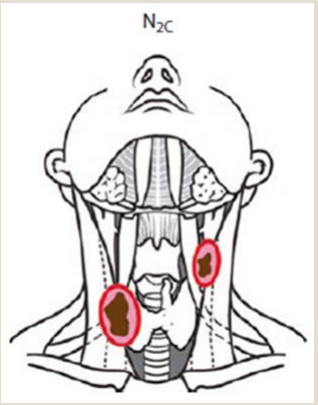
pN categories

N2a

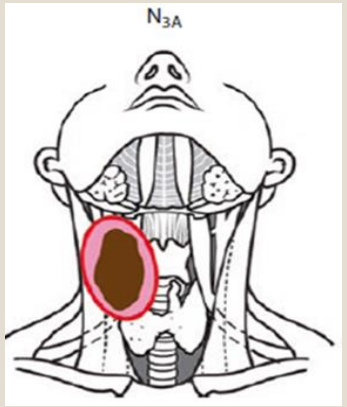


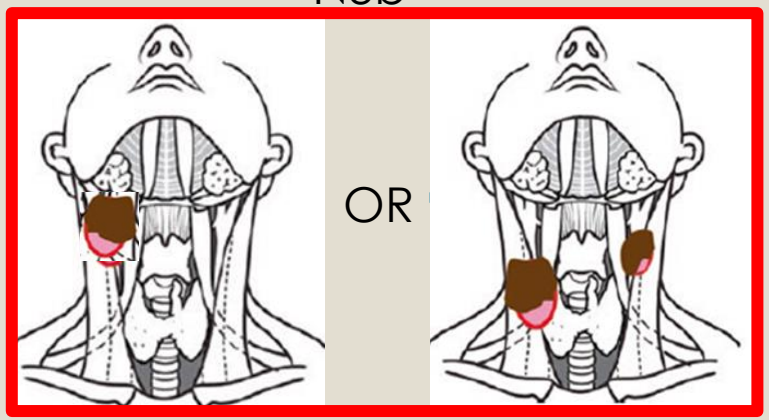






N3b





Survival data

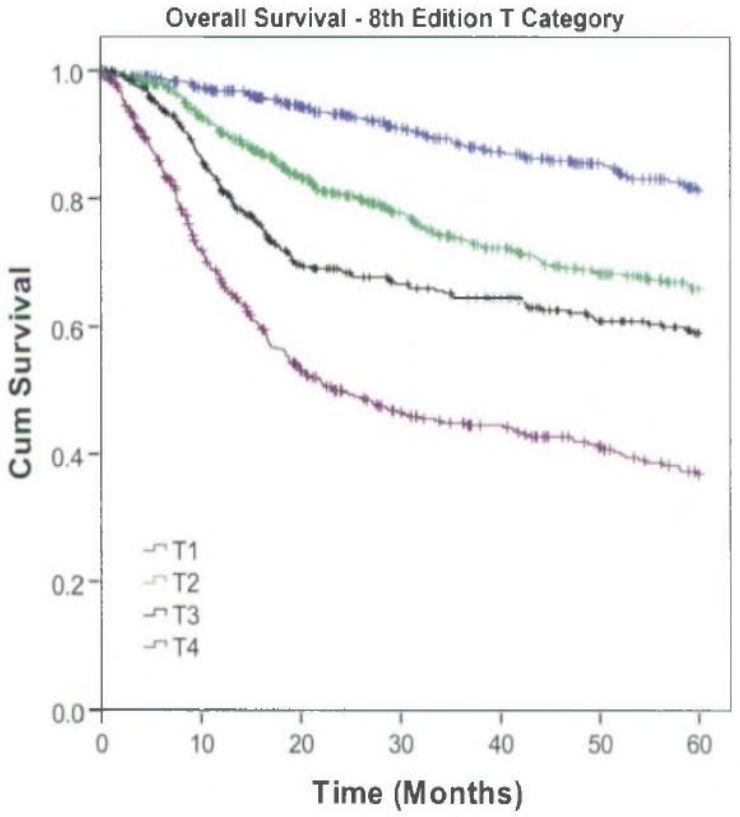


Fig. 5.2 Overall Survival based on 8th edition T category criteria. Kaplan Meier methods were used to perform cancer-specific analyses predicting overall survival as the endpoint on a population of oral cavity cancer patients from MSKCC and PMH

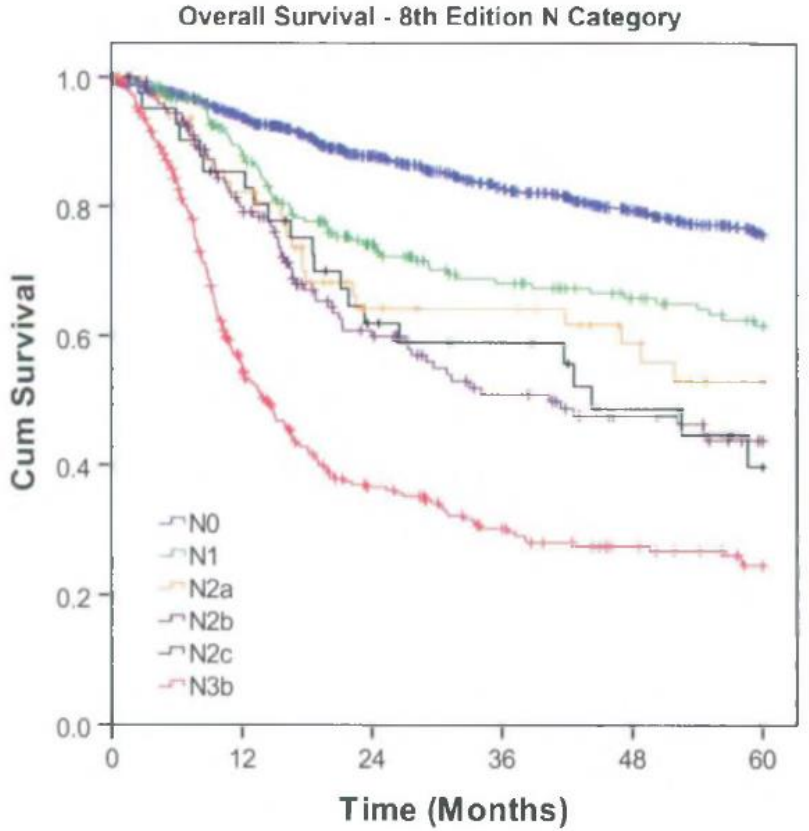


Fig. 5.4 Overall Survival based on 8th edition N category criteria that incorporate ENE as a prognostic factor. Kaplan Meier methods were used to perform cancer-specific analyses predicting overall survival as the endpoint on a population of oral cavity cancer patients from MSKCC and PMH

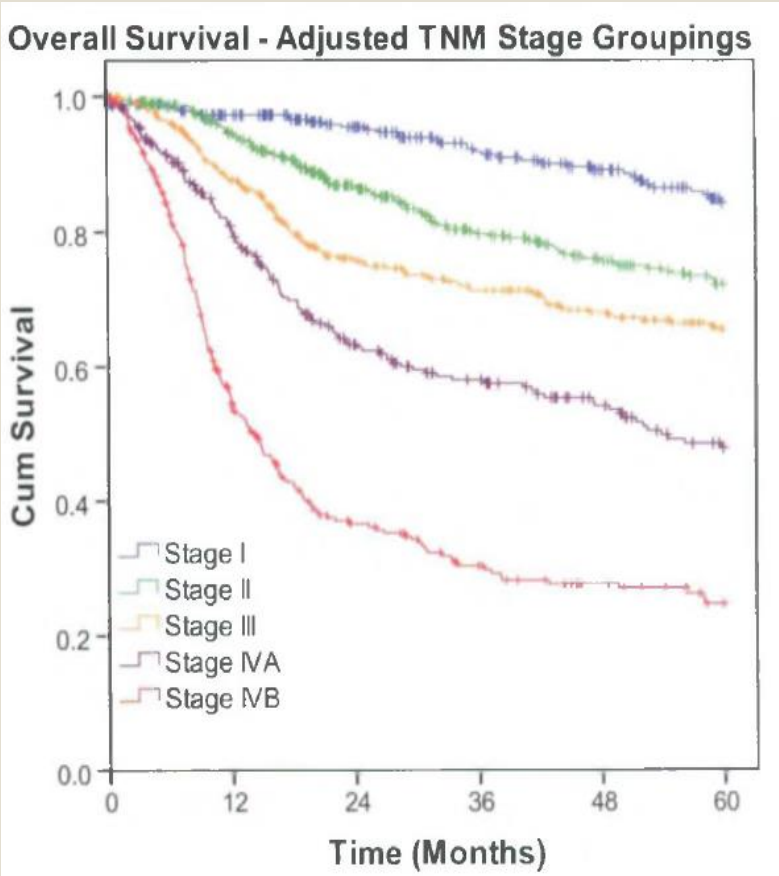
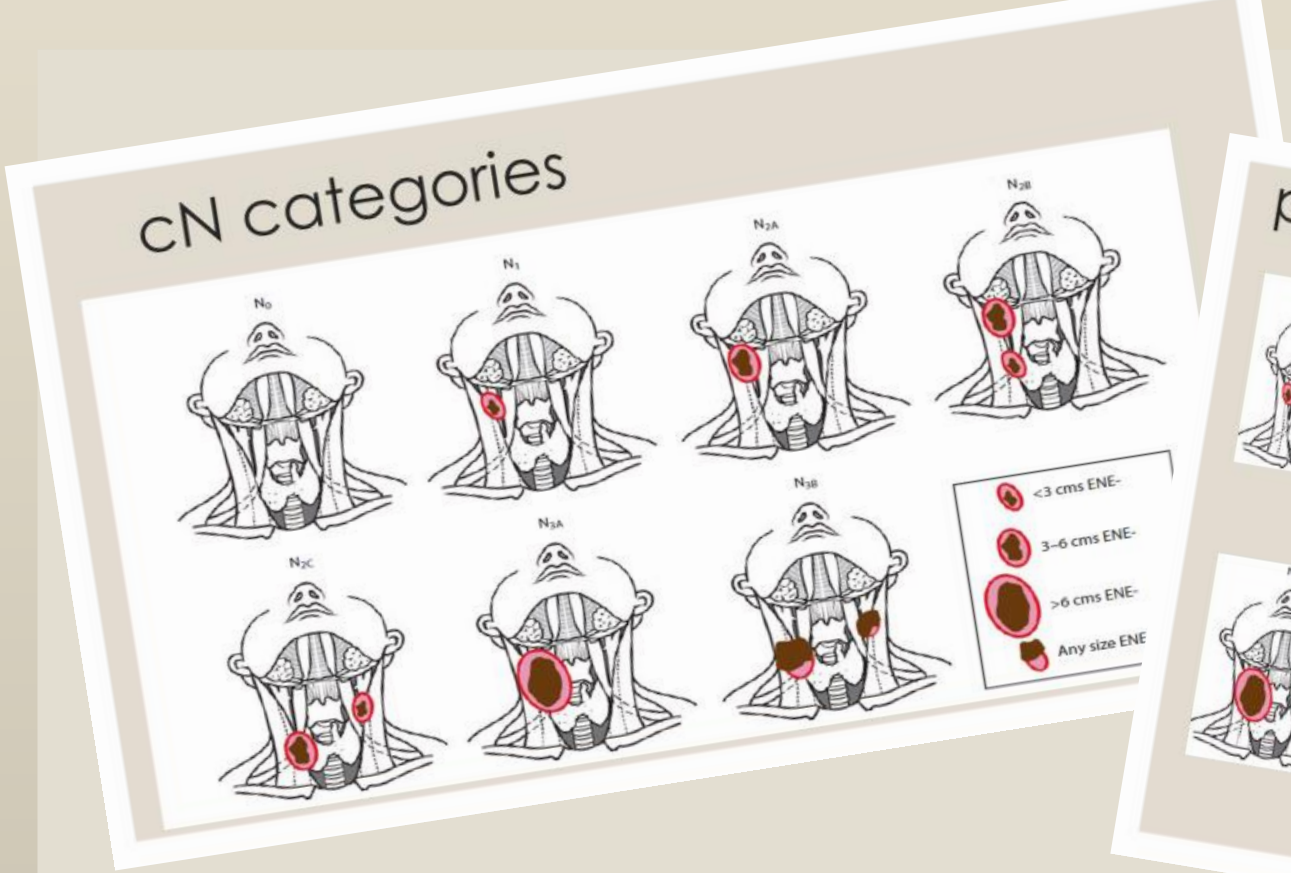
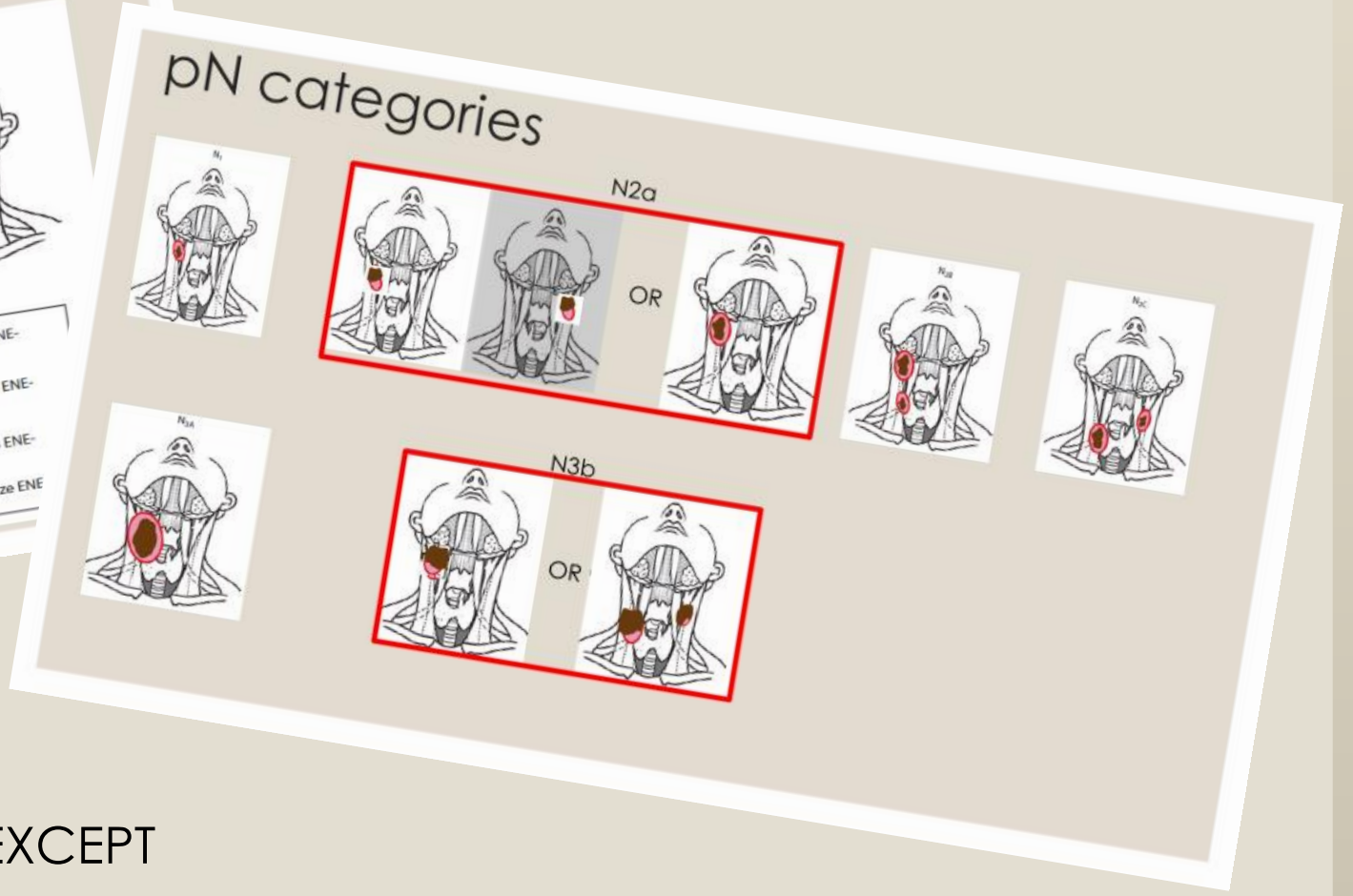


Fig. 5.6 Overall Survival based on Kaplan Meier methods were used to perform cancer-specific analyses predicting overall survival as the endpoint on a population of oral cavity cancer patients from MSKCC and PMH[15]

AJCC cancer staging 8th edition

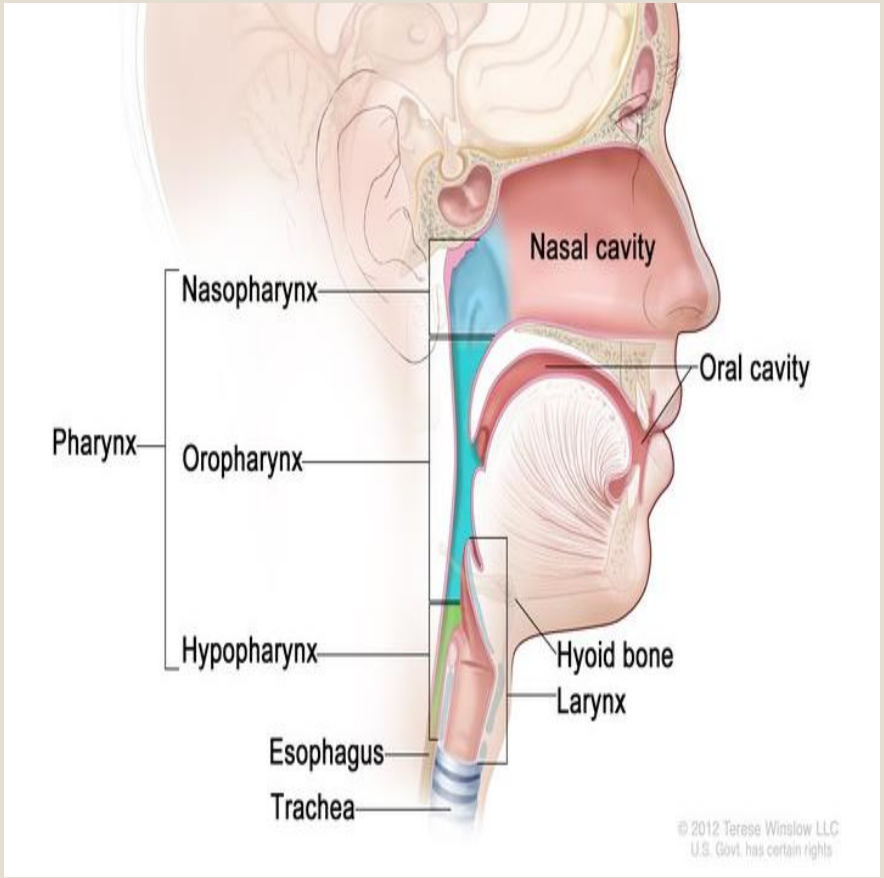




ALL HEAD AND NECK CANCER SITES EXCEPT

NASOPHARYNGEAL CANCER AND HPV ASSOCIATED P16+ OPC

HPV MEDIATED (P16+) OROPHARYNGEAL CANCER*


Nasal cavity
Nasopharynx
Oral cavity
Pharynx
Oropharynx
Hypopharynx
Hyoid bone
Larynx
Esophagus
Trachea
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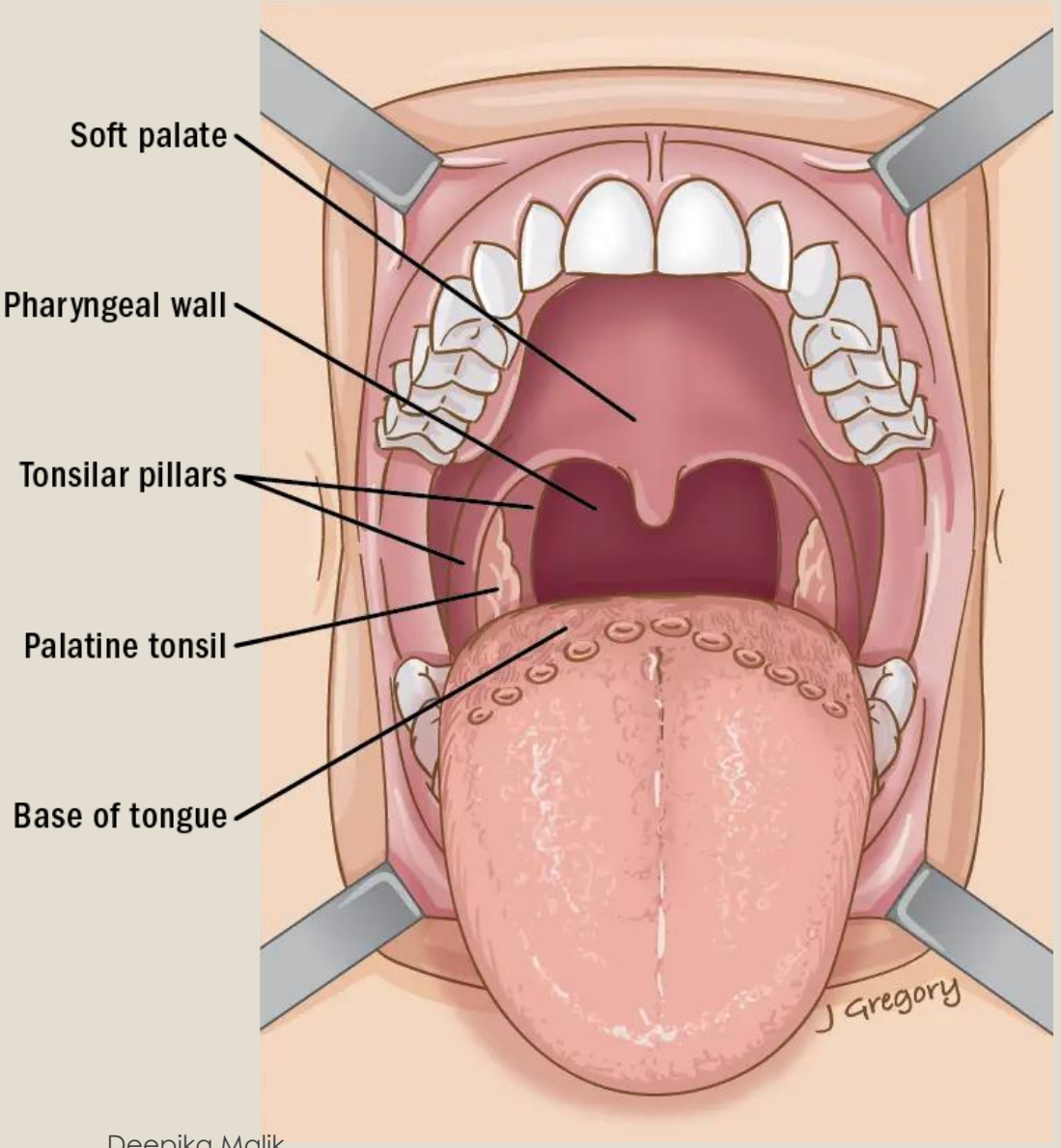
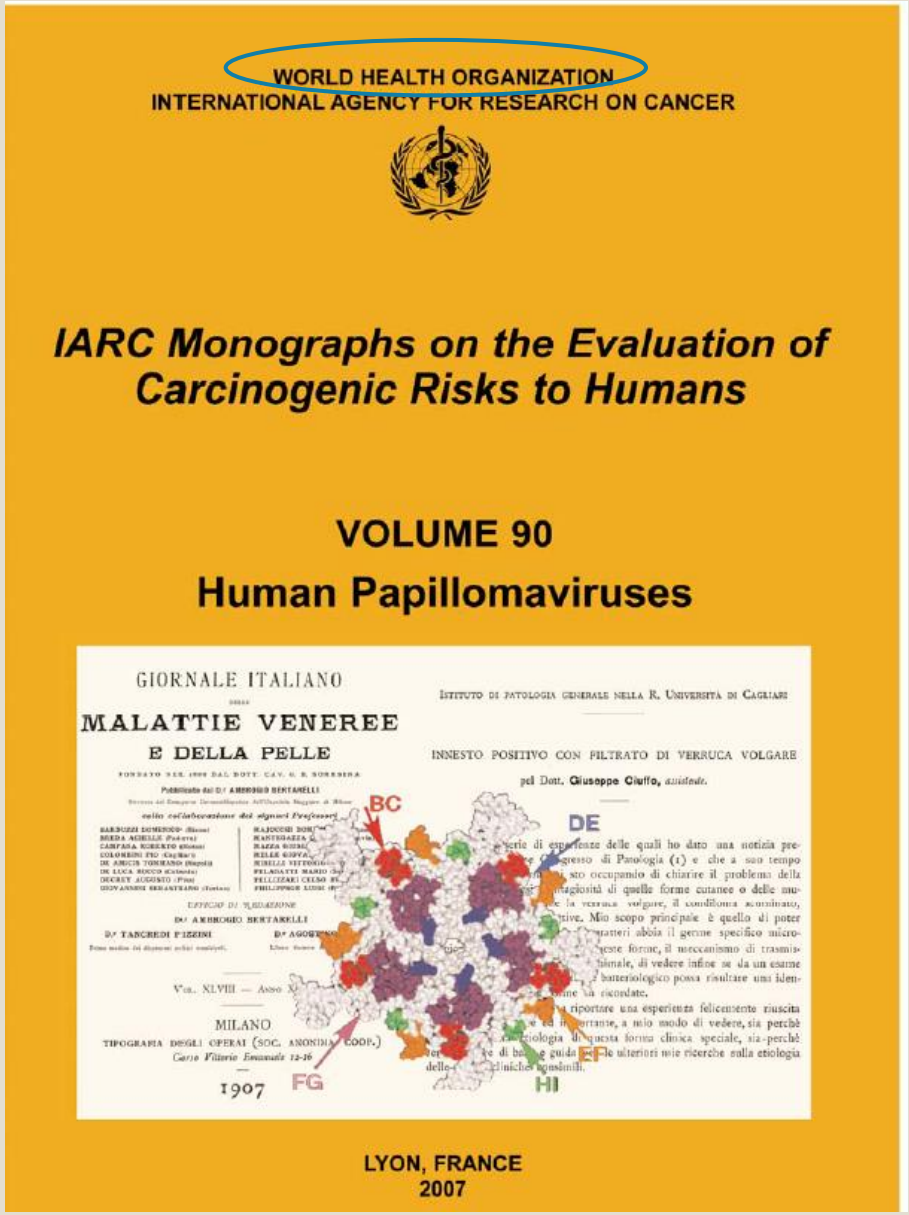

Soft palate
Pharyngeal wall
Tonsilar pillars
Palatine tonsil
Base of tongue
J Gregory

Why a separate staging system?

- Epidemic of HPV mediated OPC over the last 2 decades (↑of 5%/year)
- Significantly different behaviour and natural history of disease

- YOUNGER
- HEALTHIER
- LITTLE OR NO TOBACCO EXPOSURE



- Particularly over the last 15 years, since the official recognition of viral cause of OPC by WHO in 2007, evidence emerged that the previous staging system was unsuited to this particular group

p16

IHC for p 16 overexpression has emerged as a robust surrogate biomarker for HPV-mediated carcinogenesis

{Overexpression of tumor suppressor protein p16 (cyclin-dependent kinase 2 A)}

- Lower cost
- Widespread availability
- Ease of interpretation
- Independent positive prognosticator

Development and validation of a staging system for HPV-related oropharyngeal cancer by the International Collaboration on Oropharyngeal cancer Network for Staging (ICON-S): a multicentre cohort study

Brian O'Sullivan, Shao Hui Huang, Jie Su, Adam S Garden, Erich M Sturgis, Kristina Dahlstrom, Nancy Lee, Nadeem Riaz, Xin Pei, Shlomo A Koyfman, David Adelstein, Brian B Burkey, Jeppe Friborg, Claus A Kristensen, Anita B Gothelf, Frank Hoebers, Bernd Kremer, Ernst-Jan Speel, Daniel W Bowles, David Raben, Sana D Karam, Eugene Yu, Wei Xu

www.thelancet.com/oncology Published online February 26, 2016

- 2600 patients, 1907 HPV +
- 5 year OS

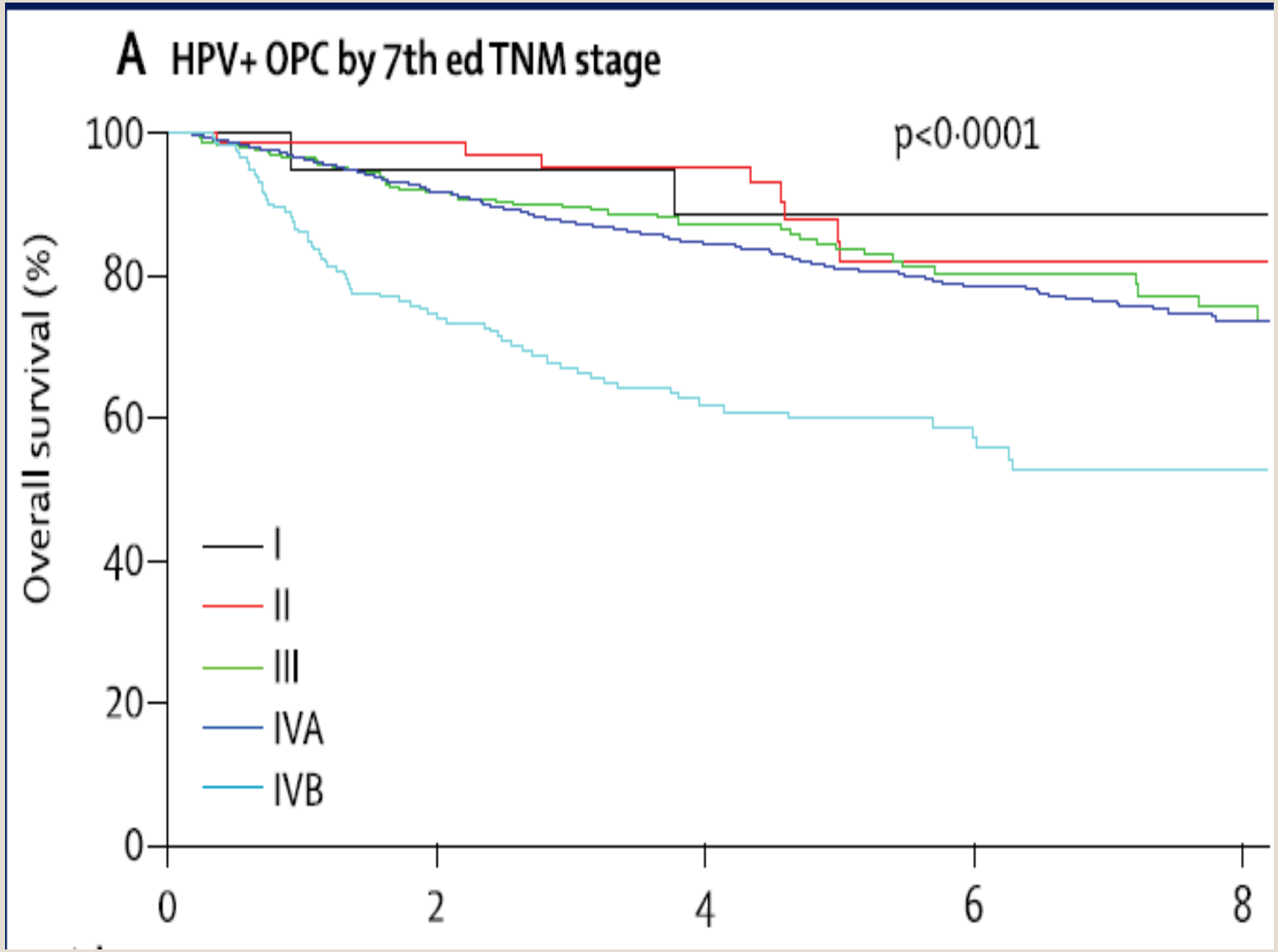
		HPV +ve
Stage I	76%	88%
Stage II	68%	82%
Stage III	53%	84%
Stage IVA	45%	81%
Stage IVB	34%	60%

The 7th edition

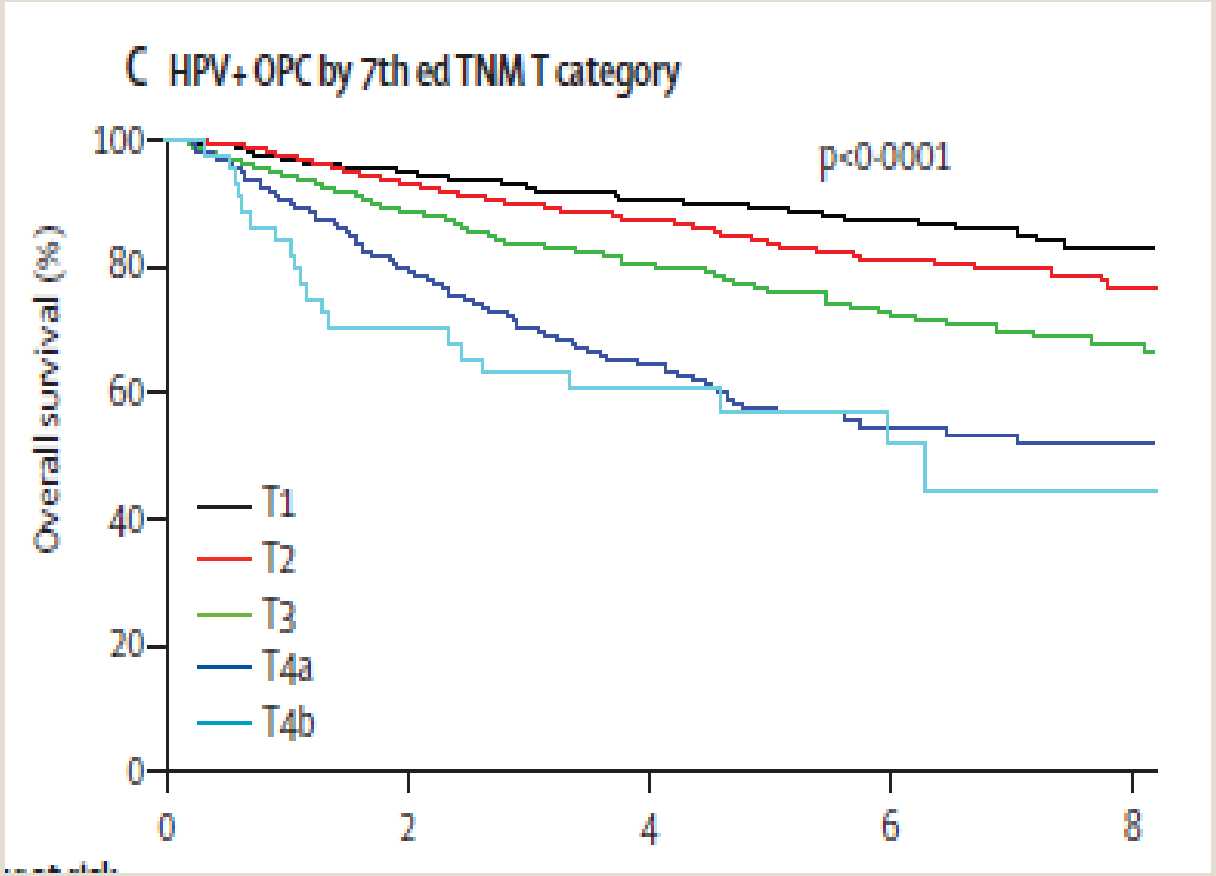
-lost the ability to differentiate between stages -Hazard discrimination

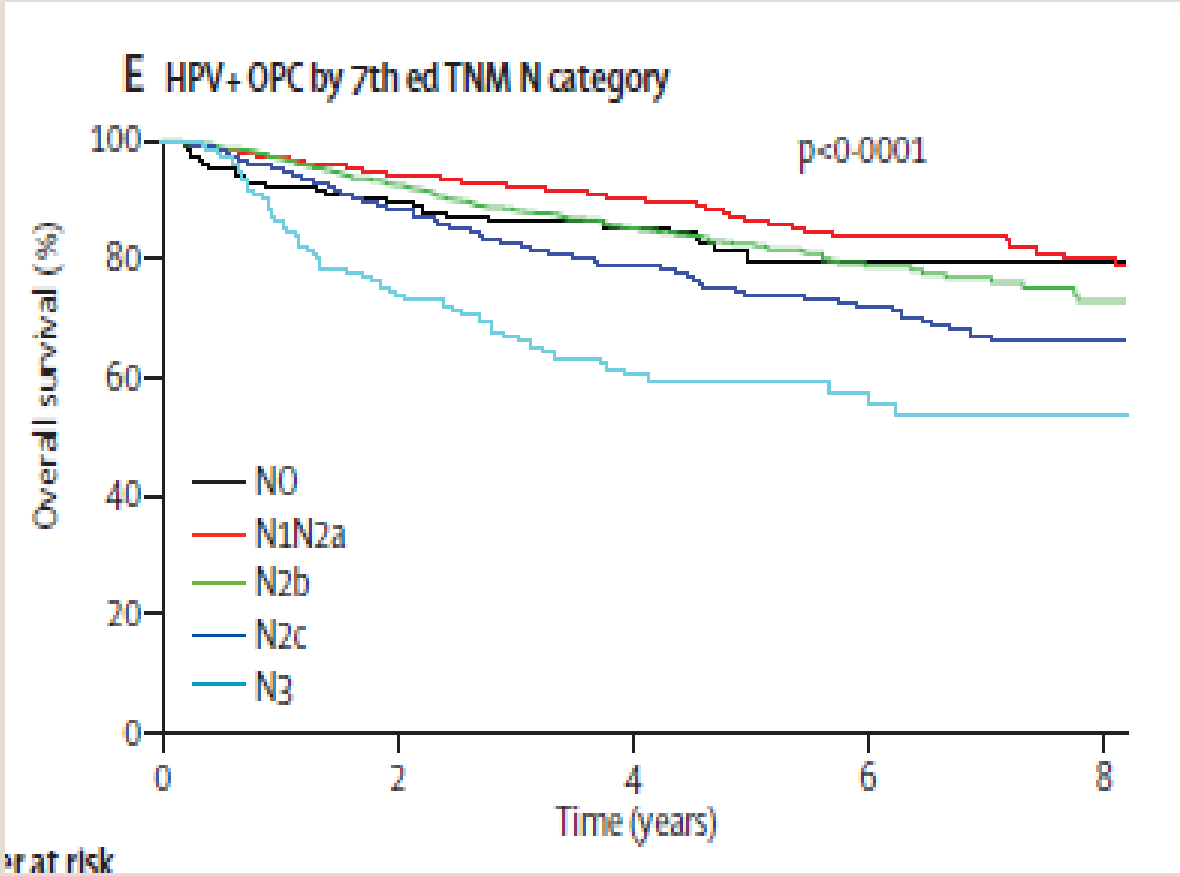
-lost hazard consistency

-Loss of predictive ability



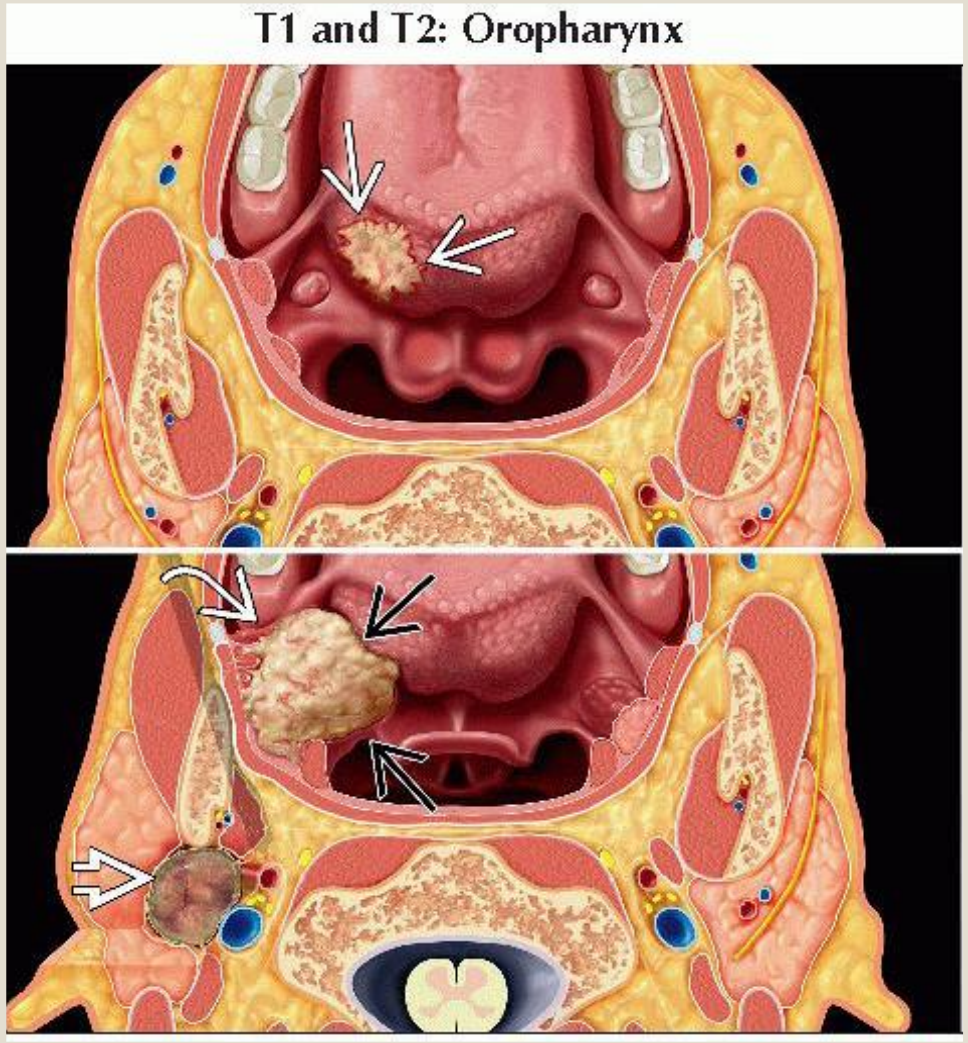
AJCC cancer staging 8th edition

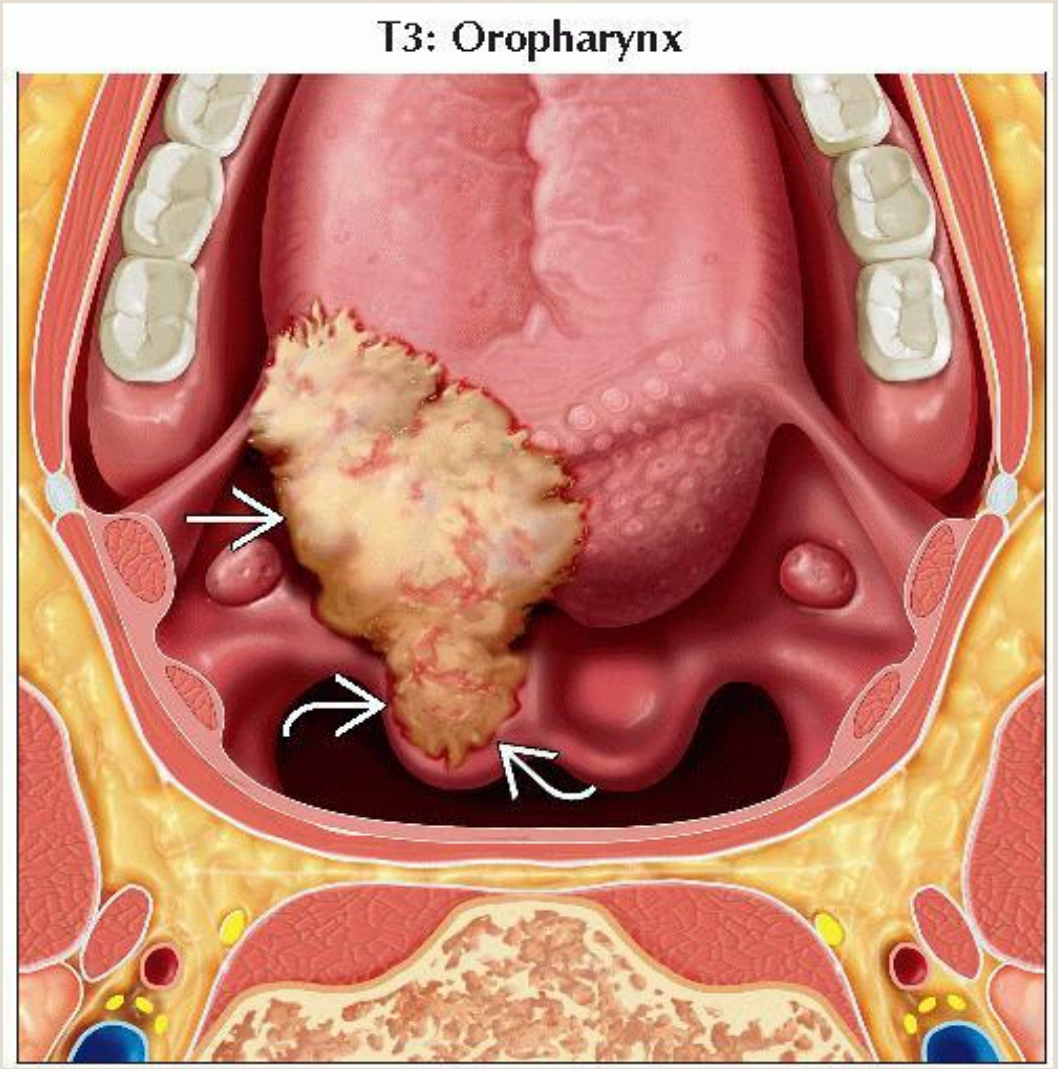




- N0-N2b showed homogenous outcomes for T1 and T2 categories — Stage I
- N2c and T3 – intermediate outcome — Stage II
- T4 and N3- least favourable otcome — Stage III
- Distant mets — Stage IV

48% of seventh edition TNM stage III-IV would migrate to eight edition TNM stage I





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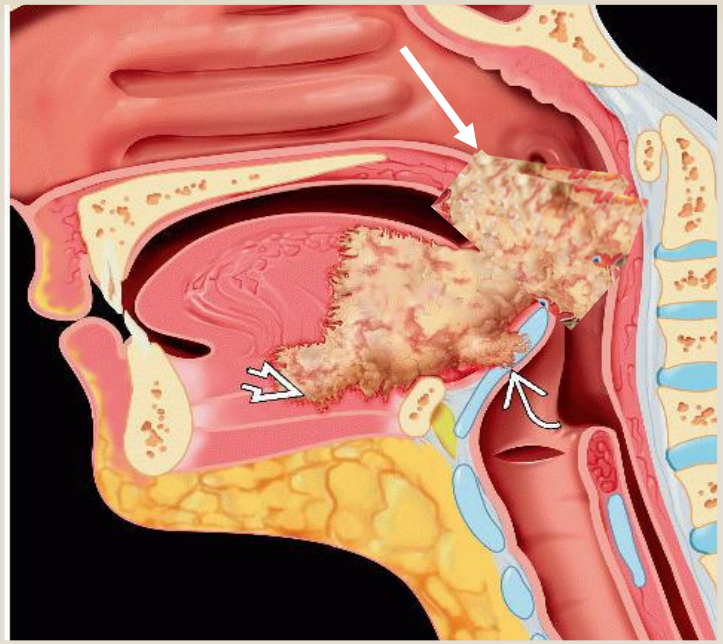
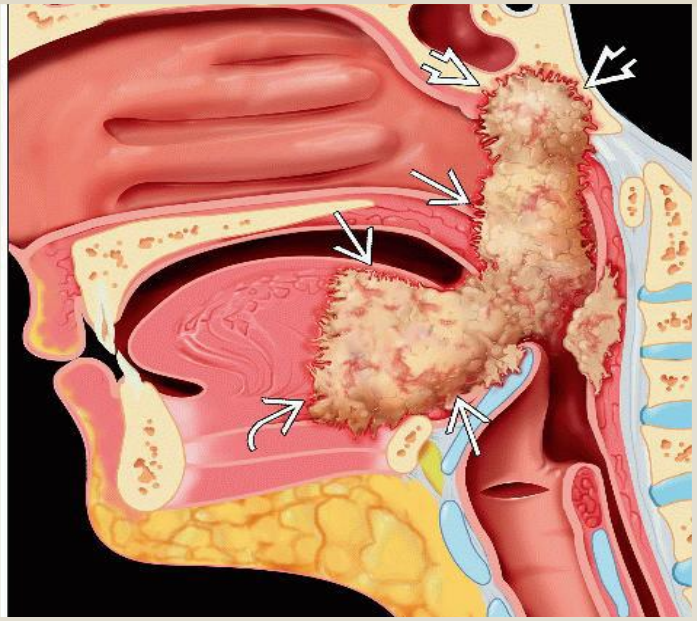
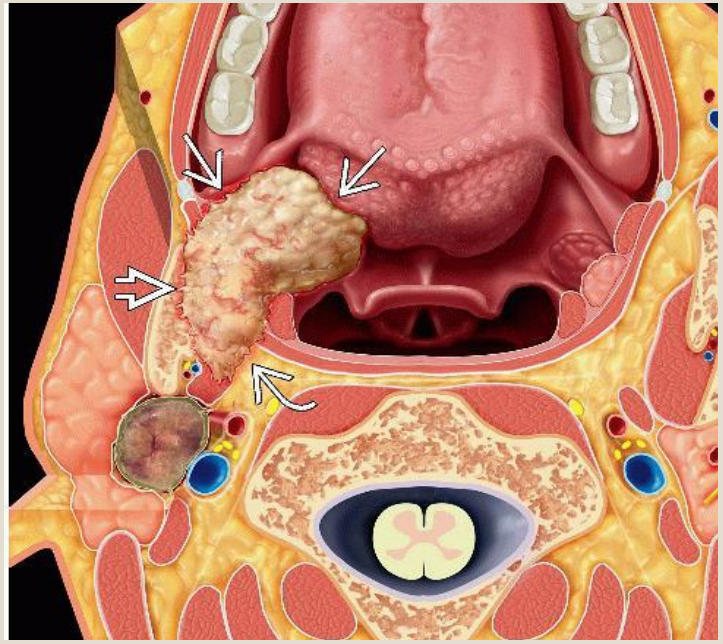


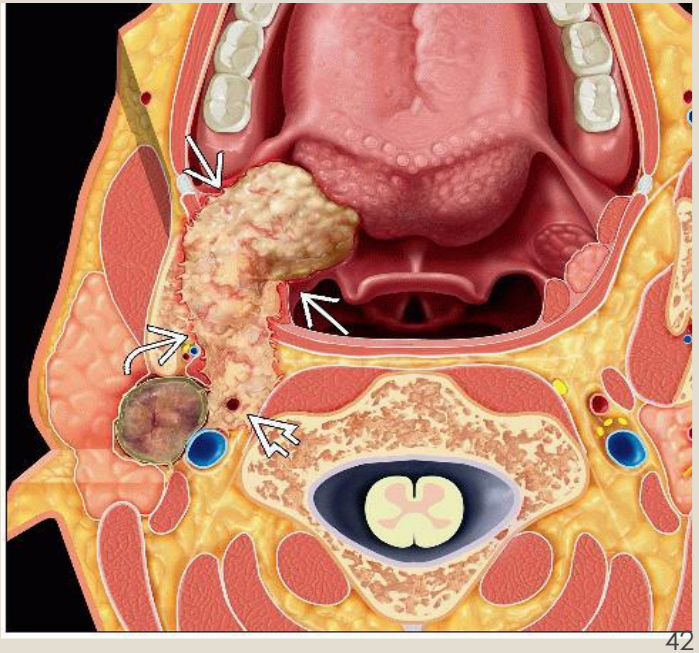
T4

Tumor invades the

- **larynx,**
- **extrinsic muscle o f tongue,**
- **medial pterygoid,**
- **hard palate**
- **mandible or beyond**







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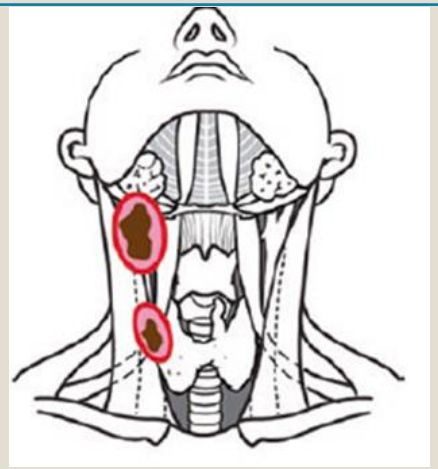
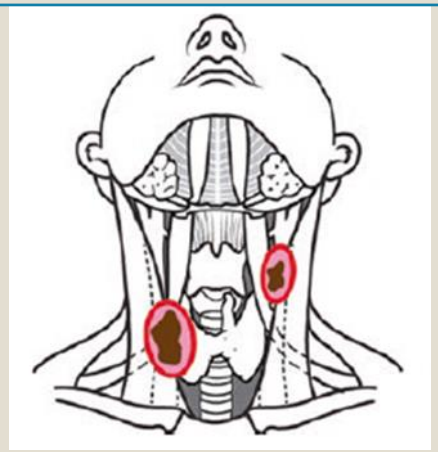
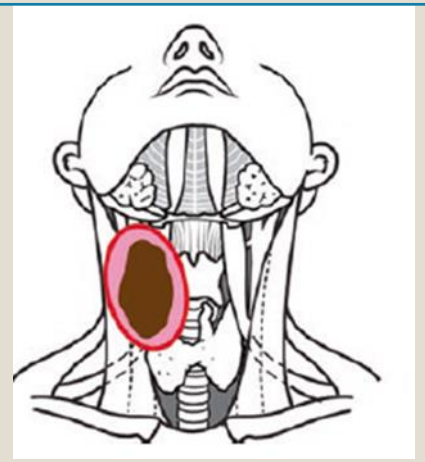
Nodal



Previous N1, N2a, N2b combined to **N1 (ie I/L nodes ≤6cm**



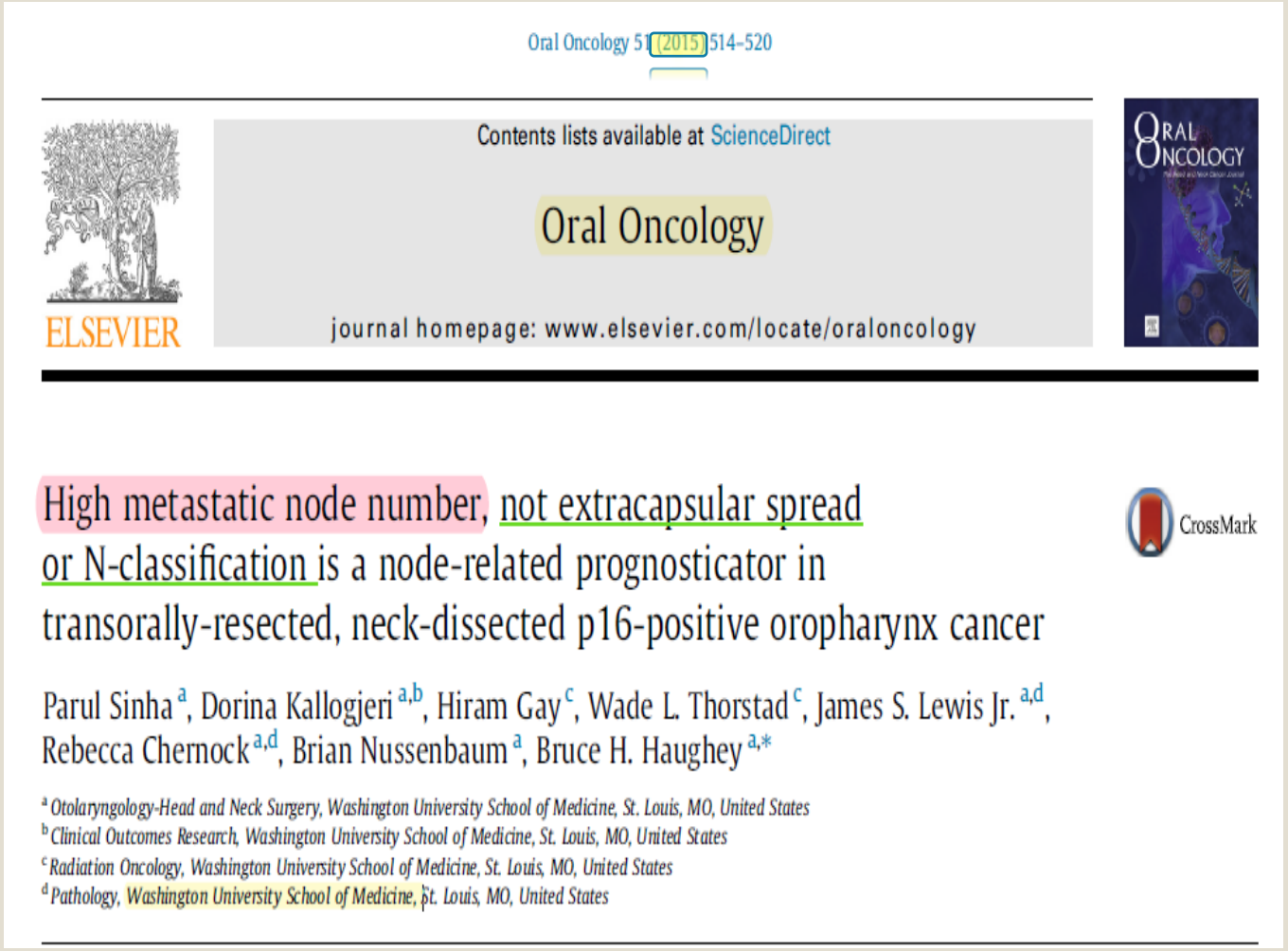
Previous N2c is **N2 (B/L or C/L nodes ≤6 cm)**



N3 any **LN >6cm**

Role of ENE is less obvious in p16+ OPC, therefore not a factor in staging

Pathological p16+ OPC



Oral Oncology 51 (2015) 514–520

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journal homepage: www.elsevier.com/locate/oraloncology

High metastatic node number, not extracapsular spread or N-classification is a node-related prognosticator in transorally-resected, neck-dissected p16-positive oropharynx cancer

Parul Sinha [a], Dorina Kallogjeri [a,b], Hiram Gay [c], Wade L. Thorstad [c], James S. Lewis Jr. [a,d], Rebecca Chernock [a,d], Brian Nussenbaum [a], Bruce H. Haughey [a,*]

[a] Otolaryngology-Head and Neck Surgery, Washington University School of Medicine, St. Louis, MO, United States
[b] Clinical Outcomes Research, Washington University School of Medicine, St. Louis, MO, United States
[c] Radiation Oncology, Washington University School of Medicine, St. Louis, MO, United States
[d] Pathology, Washington University School of Medicine, St. Louis, MO, United States

Nx- regional LN cannot be assessed

pN0- no regional LN mets

pN1- mets in ≤ 4 LNs

pN2- mets in > 4 LNs

AJCC PROGNOSTIC STAGE GROUPS

Clinical

When T is...	And N is...	And M is...	Then the stage group is...
T0, T1 or T2	N0 or N1	M0	I
T0, T1 or T2	N2	M0	II
T3	N0, N1 or N2	M0	II
T0, T1, T2, T3 or T4	N3	M0	III
T4	N0, N1, N2 or N3	M0	III
Any T	Any N	M1	IV

Pathological

When T is...	And N is...	And M is...	Then the stage group is...
T0, T1 or T2	N0, N1	M0	I
T0, T1 or T2	N2	M0	II
T3 or T4	N0, N1	M0	II
T3 or T4	N2	M0	III
Any T	Any N	M1	IV

AJCC cancer staging 8th edition

Important considerations*

- ✓Only radiological imaging may not help in distinguishing whether the BOT tumor is extending along mucosa of lingual surface of epiglottis (T3) or it is only abutting against it.

  NEED Direct Clinical observation

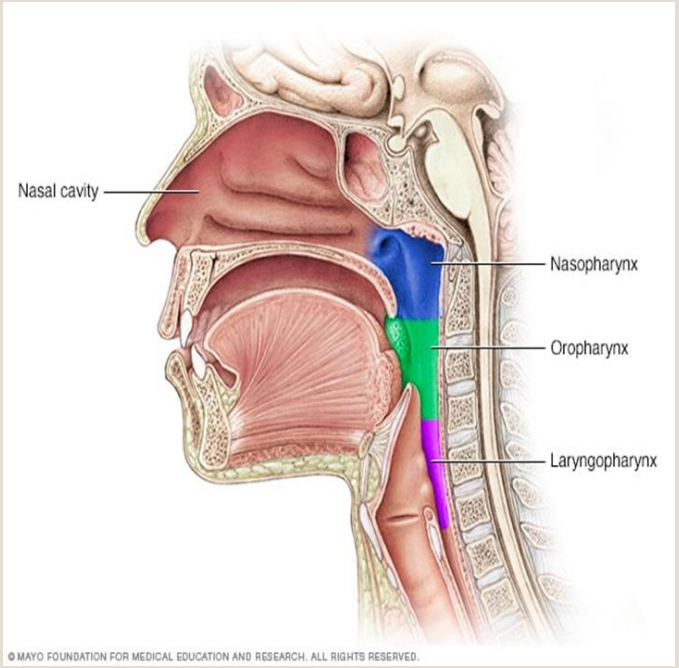
- ✓When skull base involved , important to carefully evaluate for PNI and intracranial spread of disease. Important for radiation planning
- ✓RPN to be carefully evaluated for OPC especially for PPW tumor

  Unless cystic or necrotic, RPN appear isodense to adj prevertebral muscles on CT, easily overlooked

NASOPHARYNGEAL CA STAGING

NPC- a unique HNC

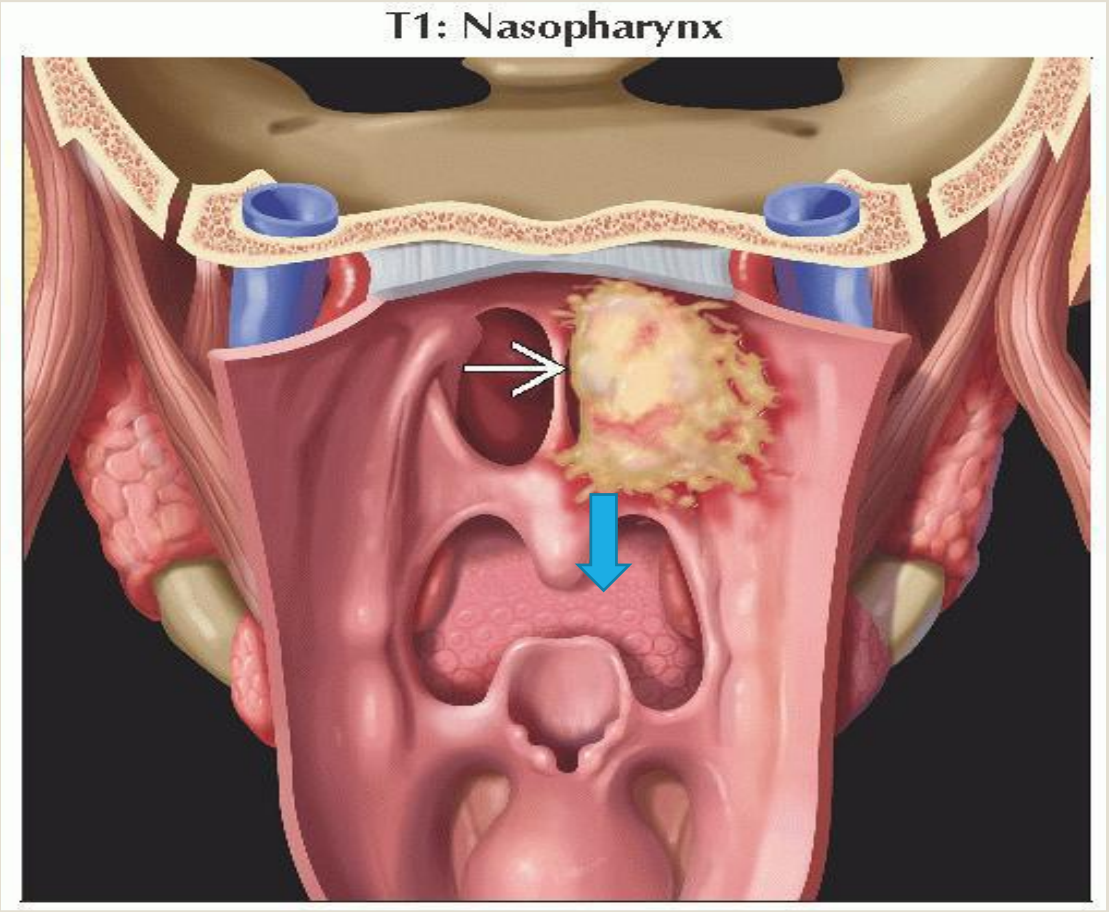
- Natural behaviours
- Therapeutic considerations
- Staging



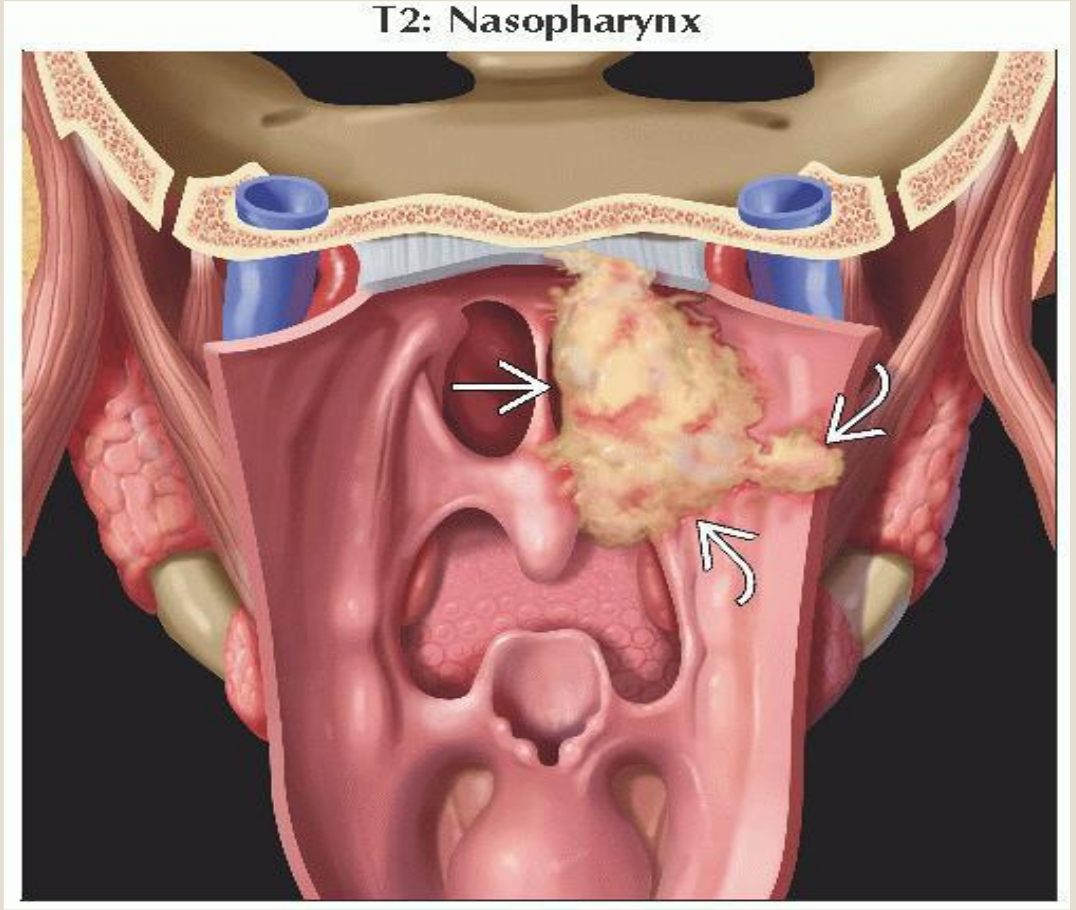
AJCC/UICC
Chinese systems
} 8th AJCC NPC staging
Ho's staging from Hongkong

Tx

T0- no tumor identified, but EBV +ve cervical nodal involvement



Tm confined to the nasopharynx. Tumor that extends to the oropharynx &/or nasal cavity without parapharyngeal extension



Tm with parapharyngeal space extn and/or adjacent soft tissue involvement (medial pterygoid, LP, Prevertebral muscles)

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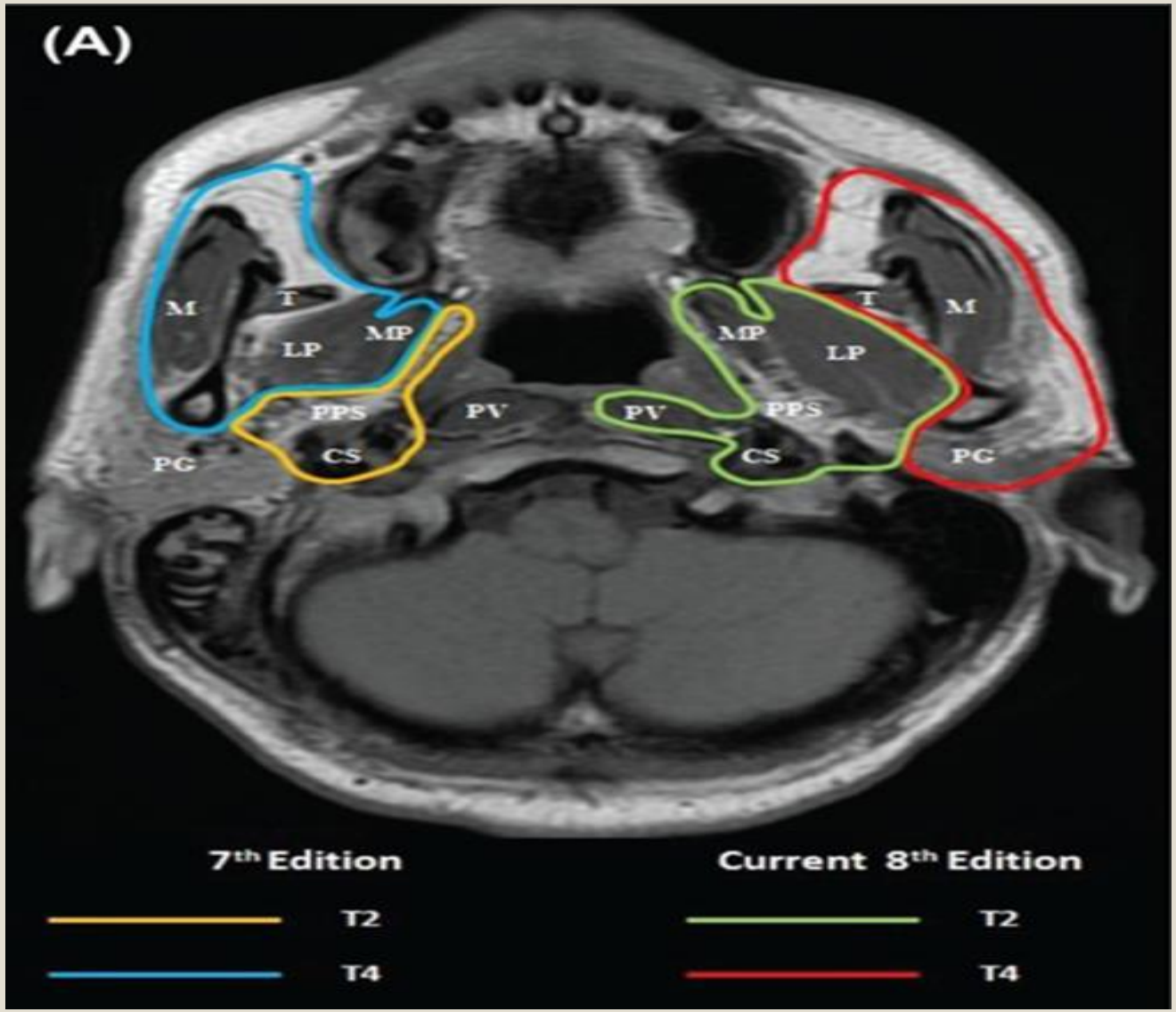
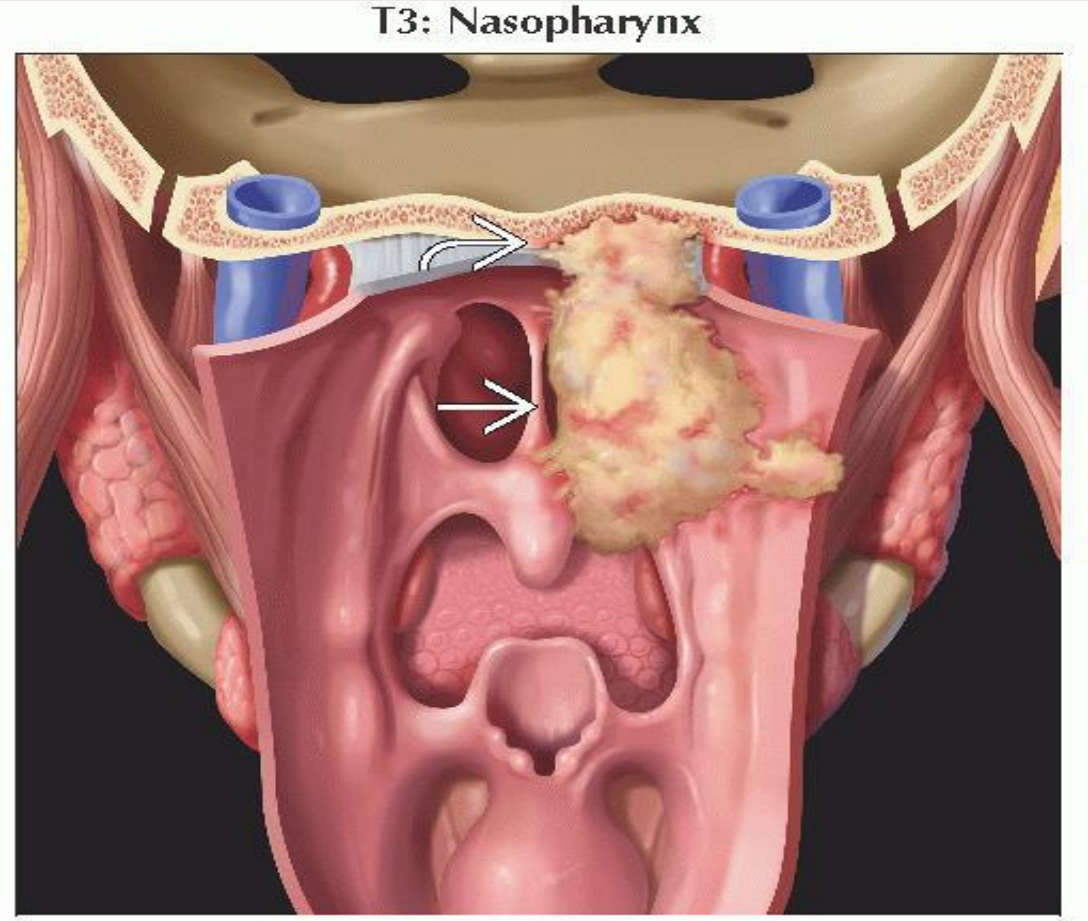
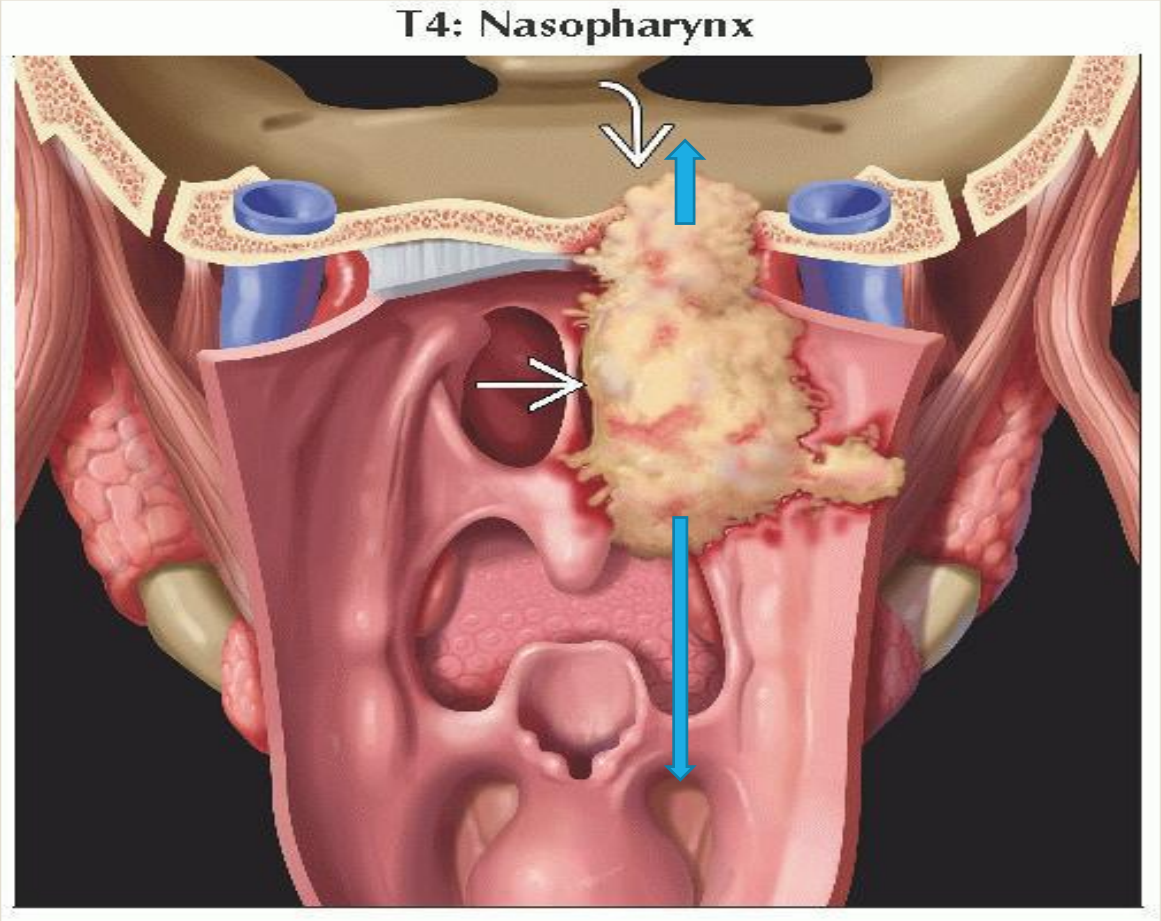


Pan JJ, Ng WT, Zong JF, Chan LL, O'Sullivan B, Lin SJ, Sze HC, Chen YB, Choi HC, Guo QJ, Kan WK, Xiao YP, Wei X, Le QT, Glastonbury CM, Colevas AD, Weber RS, Shah JP, Lee AW. Proposal for the 8th edition of the AJCC/UICC staging system for nasopharyngeal cancer in the era of intensity-modulated radiotherapy. Cancer. 2016 Feb 15;122(4):546-58. doi: 10.1002/cncr.29795. Epub 2015 Nov 20. PMID: 26588425; PMCID: PMC4968037.





Infiltration of bony structures at skull base, cervical vertebra, pterygoid structures, and/or paranasal sinuses

Intracranial, hypophx, cranial nerves, orbit, parotid gland and/or soft tissue inv beyond the lateral surface of LP muscle

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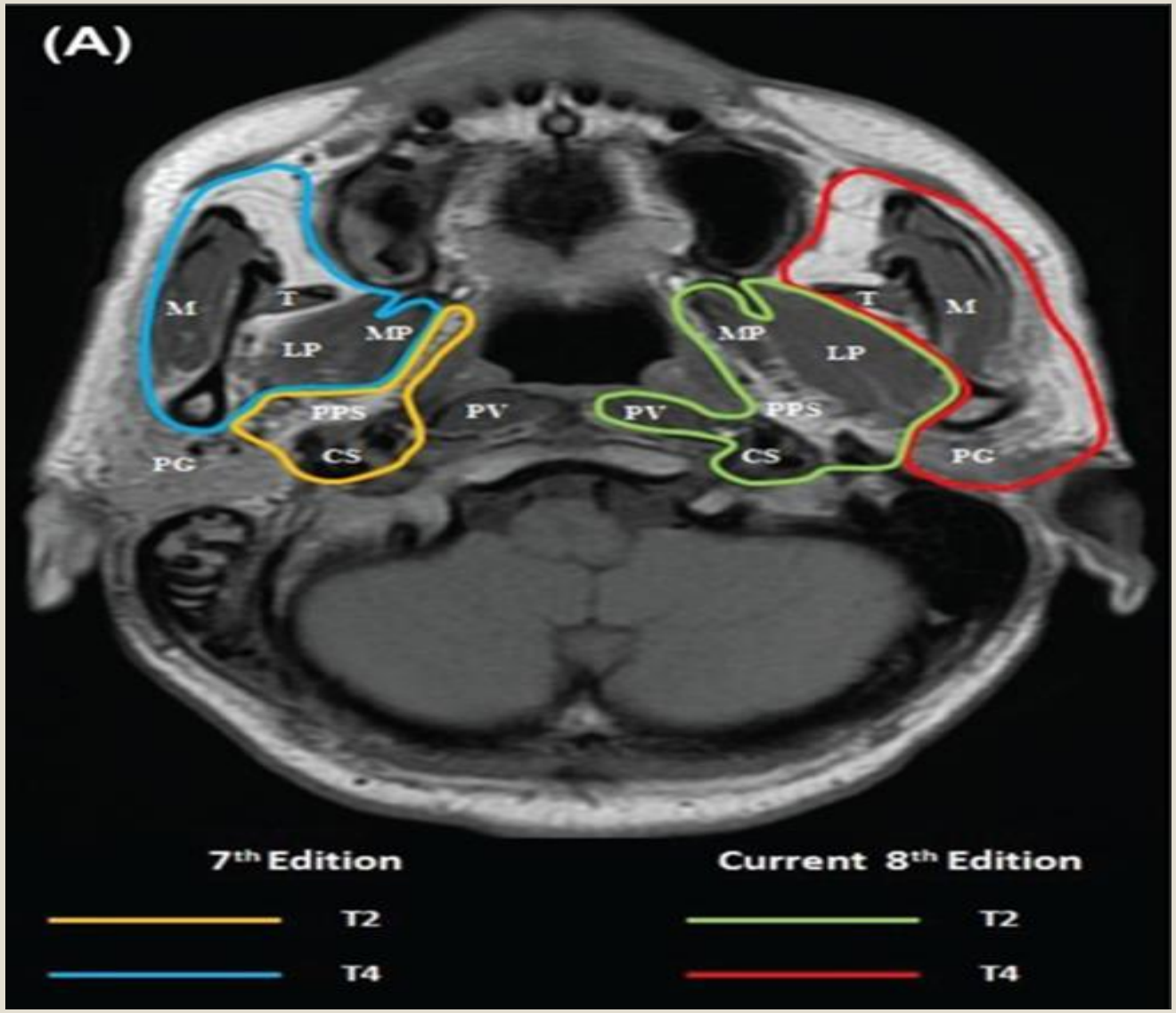
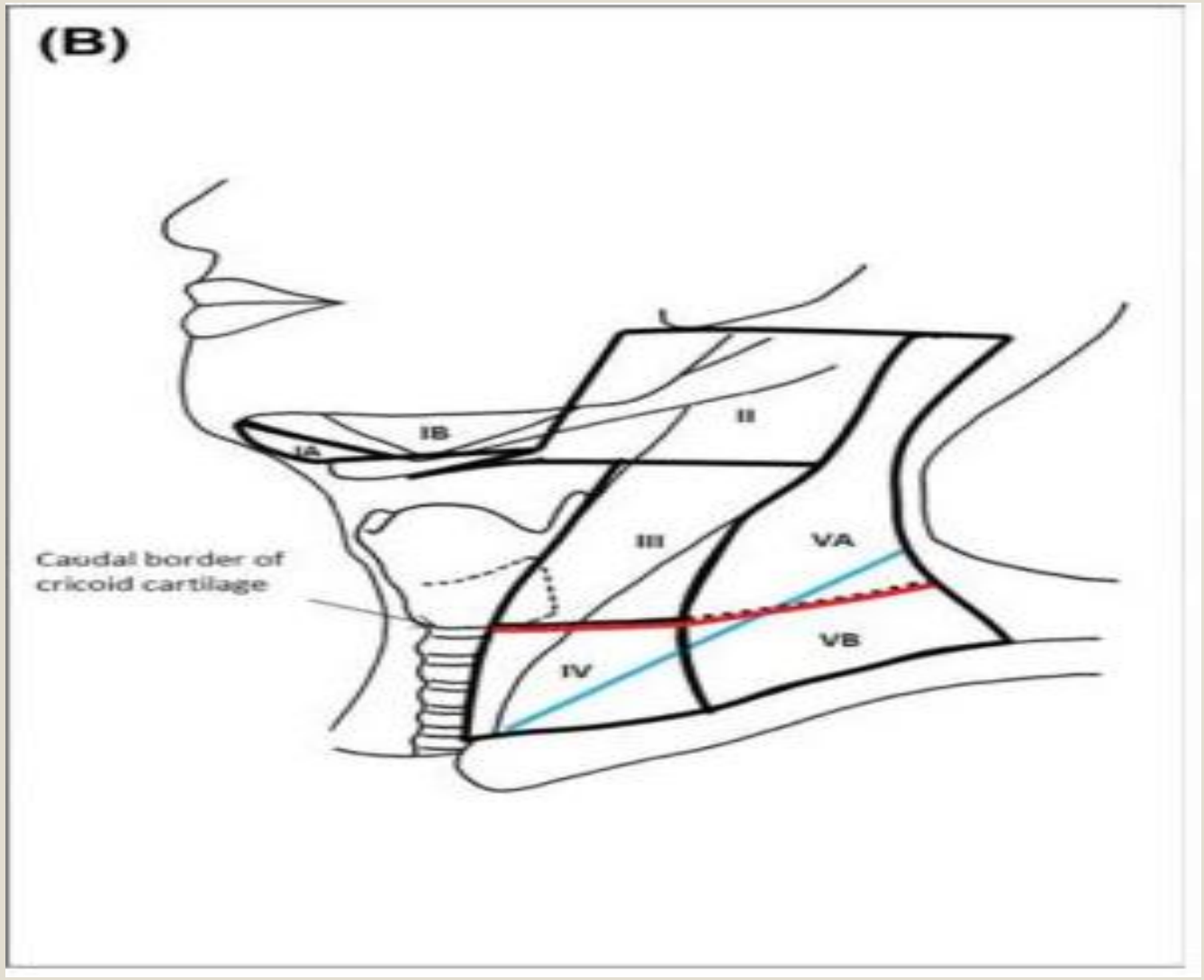


In T4, the original " infratemporal fossa/masticator space" is replaced by specific description of soft tissue involvement BEYOND THE LATERAL SURFACE OF LP MUSCLE to avoid potential ambiguity

Pan JJ, Ng WT, Zong JF, Chan LL, O'Sullivan B, Lin SJ, Sze HC, Chen YB, Choi HC, Guo QJ, Kan WK, Xiao YP, Wei X, Le QT, Glastonbury CM, Colevas AD, Weber RS, Shah JP, Lee AW. Proposal for the 8th edition of the AJCC/UICC staging system for nasopharyngeal cancer in the era of intensity-modulated radiotherapy. Cancer. 2016 Feb 15;122(4):546-58. doi: 10.1002/cncr.29795. Epub 2015 Nov 20. PMID: 26588425; PMCID: PMC4968037.



- The previous N3b criterion of “supraclavicular fossa” is now changed to “ below caudal border of cricoid cartilage”

- N3a and N3b are merged into a single N3

Pan JJ, Ng WT, Zong JF, Chan LL, O'Sullivan B, Lin SJ, Sze HC, Chen YB, Choi HC, Guo QJ, Kan WK, Xiao YP, Wei X, Le QT, Glastonbury CM, Colevas AD, Weber RS, Shah JP, Lee AW. Proposal for the 8th edition of the AJCC/UICC staging system for nasopharyngeal cancer in the era of intensity-modulated radiotherapy. Cancer. 2016 Feb 15;122(4):546-58. doi: 10.1002/cncr.29795. Epub 2015 Nov 20. PMID: 26588425; PMCID: PMC4968037.

Seventh edition		Eighth edition	
IVC	Any T, any N M1		
Summary of changes			
T category			
T0 is added for EBV-positive cervical node(s) involvement despite unidentified primary tumor			
• Involvement of medial pterygoid, lateral pterygoid, and prevertebral muscles is now staged as T2			
• In T4, the original " infratemporal fossa/masticator space" is replaced by specific description of soft tissue involvement to avoid potential ambiguity			
N category			
• The previous N3b criterion of "supraclavicular fossa" is now changed to " below caudal border of cricoid cartilage"			
• N3a and N3b are merged into a single N3			
Stage group			
• The previous Stages IVA and IVB are merged into IVA The previous IVC is now upstaged to IVB			

Guo R, Mao YP, Tang LL, Chen L, Sun Y, Ma J. The evolution of nasopharyngeal carcinoma staging. Br J Radiol. 2019 Oct;92(1102):20190244. doi: 10.1259/bjr.20190244. Epub 2019 Jul 12. PMID: 31298937; PMCID: PMC6774596.

Changes to T0 category

- Elimination of the T0 category for all oral cavity, skin, larynx, salivary gland, H PV - oropharynx, hypopharynx, and sinus.

- For patients with a malignant cervical node, with no known primary- needs to be staged according to the staging for unknown primary with neck node

- T0 category is retained for 2 scenarios-

  Node is positive for p16 ⟹ p16+ OPC staging

  Node is positive for EBV ⟹ NPC staging

Cutaneous SCCof the Head and Neck

- A new staging classification in the 8th edition
- Cutaneous squamous cell carcinoma (CSCC) and other nonmelanoma skin carcinomas of the head and neck (except Merkel cell carcinoma [MCC]) (including the dry vermilion part of lip)*

TX Primary tumor cannot be identified
Tis Carcinoma *in situ*
TI Tumor smaller than 2 cm in greatestdimension
T2 Tumor 2 cm or larger, but smaller than 4 cmin greatest dimension
T3 Tumor 4 cm or larger in maximum dimension or minor bone erosion or perineural 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

AJCC cancer staging 8th edition

Why look further BEYOND traditional TNM??

Cancer cachexia update in head and neck cancer: Pathophysiology and treatment

Marion E. Couch, MD, PhD, MBA,[1*] Kim Dittus, MD, PhD,[2] Michael J. Toth, PhD,[3] Monte S. Willis, MD, PhD,[4] Denis C. Guttridge, PhD,[5] Jonathan R. George, MD,[6] Eric Y. Chang,[7] Christine G. Gourin, MD,[8] Hirak Der-Torossian, MD, MPH[1]

[1]Division of Otolaryngology–Head and Neck Surgery, Department of Surgery, Vermont Cancer Center, University of Vermont, College of Medicine, Burlington, Vermont, [2]Division of Hematology–Oncology, Department of Medicine, Vermont Cancer Center, University of Vermont, College of Medicine, Burlington, Vermont, [3]Department of Molecular Physiology and Biophysics, University of Vermont, College of Medicine, Burlington, Vermont, [4]Department of Pathology and Laboratory Medicine, McAllister Heart Institute, University of North Carolina, Chapel Hill, North Carolina, [5]Department of Molecular Virology, Immunology, and Medical Genetics, Ohio State University, Columbus, Ohio, [6]Department of Otolaryngology – Head and Neck Surgery, University of California, San Francisco, California, [7]University of Vermont, College of Medicine, Burlington, Vermont, [8]Department of Otolaryngology – Head and Neck Surgery, Johns Hopkins Hospital, Baltimore, Maryland.

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Research

Original Investigation

Prognostic Importance of Comorbidity and the Association Between Comorbidity and p16 in Oropharyngeal Squamous Cell Carcinoma

S. Andrew Skillington, BA; Dorina Kallogjeri, MD, MPH; James S. Lewis Jr, MD; Jay F. Piccirillo, MD

ASSOCIATION BETWEEN DEPRESSION AND SURVIVAL OR DISEASE RECURRENCE IN PATIENTS WITH HEAD AND NECK CANCER ENROLLED IN A DEPRESSION PREVENTION TRIAL

Kathryn E. Lazure, MPAS,[1] William M. Lydiatt, MD,[2,3] David Denman, MD,[3] William J. Burke, MD[4]

[1]Department of Internal Medicine, University of Nebraska Medical Center, Omaha, Nebraska
[2]Department of Otolaryngology–Head and Neck Surgery, University of Nebraska Medical Center, Omaha, Nebraska. E-mail: wmlydiat@unmc.edu
[3]Nebraska Methodist Hospital, Omaha, Nebraska
[4]Department of Psychiatry, University of Nebraska Medical Center, Omaha, Nebraska

Accepted 3 October 2008
Published online 23 March 2009 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/hed.21046

WPOI
PNI
Smoking status
Grade

Future of HN cancer staging- moving further beyond TNM

Limitations of Current system

- Unable to easily adapt to advances in understanding of cancer biology and incorporate new prognostic variables as they become available
- Static system- unable to use subsequent events in the course of disease
- Still a population based approached, not personalised
- Main end point is OS

Precisión Medicine Core (PMC) of the AJCC

- Risk Models for Individualized Prognosis in the Practice of Precisión Oncology
- Work on prognostication models rather than prognostic classifiers with the belief than individualized predictions are more accurate and more useful for clinical decision making.
- Prognostication tools were identified in the form of equations, equations and risk scores, equations and calculators, nomograms, risk scores, and other presentations.

AJCC cancer staging 8th edition

Jatin P. Shah, Pablo H. Montero,New AJCC/UICC staging system for head and neck, and thyroid cancer,Volume 29, Issue 4,2018,Pages 397-404,

TAKE HOME MESSAGE

Oral cavity cancers have inclusion of **DOI**

OPC's are distinguished by **p16** IHC

Inclusion of **ENE** for all sites (except NPC and p16+ OPC)

Further reading-

-Risk Models for Individualized Prognosis in the Practice of Precision Oncology, chapter 4, AJCC 8th edition

-Kattan MW. Hess KR. Amin MB. et al. American Joint Committee on Cancer acceptance criteria for inclusion of risk models for individualized prognosis in the practice of precision medicine. *CA: acancer jo um a l fo r clinicians.* Jan 19 2016.

Acknowledgement

ICRO and AROI
Organisers
Dept. of Radiation Oncology, MMIMSR, Ambala
My teachers and patients

Thank-you