Evaluating the Number of Pathologic Lymph Nodes In Oral Cavity Cancer

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Introduction

The epidemiology of head and neck squamous cell carcinoma (HNSCC) has been shifting with an increase in incidence of HPV-associated oropharyngeal HNSCC, which behaves less aggressively than HPV-negative HNSCC. This has prompted a paradigm shift in the newly released 8th edition American Joint Committee on Cancer (AJCC) staging guidelines for HPV-associated HNSCC pathologic nodal classification (counting positive lymph nodes), while HPV-negative HNSCC nodal staging has been largely unchanged from the 7th edition. This study aims to evaluate whether the pathologic number of lymph nodes is associated with oncologic outcomes in patients diagnosed with oral cavity HNSCC.

AJCC 8th Edition Nodal Staging HPV-Negative

N	N Criteria
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, ≤3cm and EN
N2a	A single ipsilateral node >3cm but ≤6cm and ENE(–) *or* metastasis in a single ipsilateral node ≤3cm and ENE(+)
N2b	Metastasis in multiple ipsilateral nodes, ≤6cm and ENE(–)
N2c	Metastasis in bilateral or contralateral lymph node(s), ≤6cn
N3a	Metastasis in a lymph node >6cm and ENE(–)
N3b	Metastasis in any node(s) with clinically overt ENE(+) (EN

AJCC 8th Edition Nodal Staging HPV-Positive

N	N Criteria PATHOLOGICAL
pNX	Regional lymph nodes cannot be assessed
pN0	No regional lymph node metastasis
pN1	Metastasis in ≤ 4 lymph nodes
pN2	Metastasis in > 4 lymph nodes

Methods

A retrospective case series study was performed that includes patients diagnosed with oral cavity HNSCC who underwent resection with concurrent neck dissection between 2004-2020. The primary outcomes were 5-year overall survival (OS), disease specific survival (DSS), and disease-free survival (DFS) to evaluate pathologic nodes using the 8th edition AJCC nodal staging used for HPV-associated HNSCC.

Figure 1. Distribution of pathological lymph nodes in patients

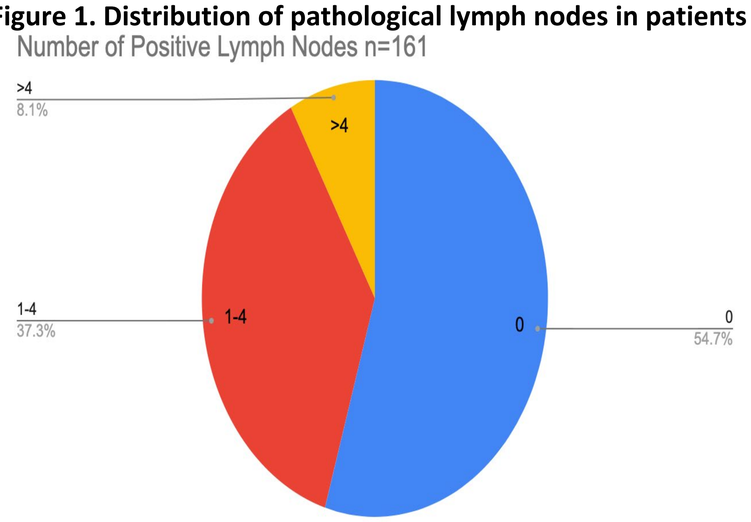

Table 1. Cohort characteristics by number of positive lymph nodes

	No Lymph Nodes (n=88)		1-4 Lymph Nodes (n=60)		>4 Lymph Nodes (n=13)	
	No.	%	No.	%	No.	%
Age Category						
Mean	61.31		65		53.62	
SD	16.04		13.68		23.34	
Sex						
Male	50	57%	37	62%	7	54%
Female	38	43%	23	38%	6	46%
Race						
White	66	75%	49	81.60%	8	61.50%
Black	1	1.10%	1	1.70%	0	0%
Asian	5	5.70%	3	5%	1	7.70%
Native American	0	0%	0	0%	0	0%
Other	11	12.50%	6	10%	3	23.10%
Unknown	5	5.70%	1	1.70%	1	7.70%
Smoking Status						
Never	38	43.20%	15	25%	5	38.50%
Former	37	42%	33	55%	6	46.20%
Current	13	14.80%	12	20%	2	15.30%
Alcohol Use						
None	48	54.50%	22	36.70%	7	53.80%
Former Use	7	8%	9	15%	2	15.40%
Current Use	32	36.40%	29	48.30%	4	30.80%

Results

Of 161 patients identified, 88 had 0 positive lymph nodes, 60 had 1-4 positive lymph nodes, and 13 had more than 4 positive lymph nodes (figure 1). Using the 8th edition AJCC pathologic nodal staging system showed a difference between the groups for DSS (p=0.047) and DFS (p=0.005) but not for OS (p=0.053) (table 2).

Table 2. Oncologic outcomes based on number of pathologic lymph nodes

	0	1-4	>4	P-Value
DFS (%)	68	40	7	**0.005**
OS (%)	79	42	7	0.053
DSS (%)	81	47	7	**0.047**

Discussion

Applying the 8th edition AJCC pathologic nodal staging system for HPV-associated oropharyngeal HNSCC to oral cavity HNSCC can be valuable for prognostication. The statistically significant differences noted by the DSS and DFS support this conclusion.

Future direction:

- Increasing number of patients
- Comparing number of pathologic lymph nodes and oncologic outcomes to the current staging system and control for variables
- Applying a statistical model to identify which staging system is better to discriminate between oncologic outcomes

References:

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