Lymph Node Yield Is Not Associated with Survival in Total Laryngectomy Patients

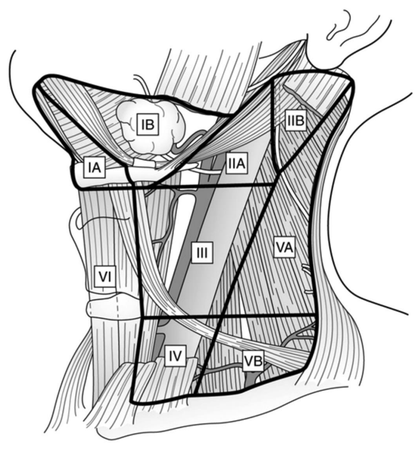
Whitney Jin, BA[1]; Daniel R Habib, BA[2]; Clara D Si, BA[2]; Brooke B Swain, BS[2]; Sindhura Sridhar, BS[1]; Robert Sinard, MD[1]; Michael C Topf, MD, MSCI[1]

[1]Department of Otolaryngology – Head and Neck Surgery, Vanderbilt University Medical Center, Nashville, TN
[2] Vanderbilt University School of Medicine

VANDERBILT UNIVERSITY MEDICAL CENTER

INTRODUCTION

- Lymph node yield (LNY) during neck dissection is a potential quality metric in the surgical management of head and neck squamous cell carcinoma (HNSCC).[1,2]
- Studies have demonstrated improved overall survival (OS) when LNY > 18 during elective neck dissection for oral cavity SCC, although this is less described in laryngeal and hypopharyngeal cancers.[2,3]



OBJECTIVE: To determine the impact of LNY on OS, disease-free survival (DFS), and regional recurrence free survival (RRFS) in patients undergoing total laryngectomy and neck dissection

METHODS

- Single-institutional large retrospective analysis
- **Inclusion criteria:** all patients who received total laryngectomy (TL) with uni/bilateral neck dissection for HNSCC between 1999-2024
- **Exclusion criteria:** patients who received TL for afunctional larynx and had no tumor
- *Covariates: age, pathology T and N stage, lymphovascular invasion (LVI), perineural invasion (PNI), extranodal extension (ENE), prior radiation, adjuvant radiation, adjuvant chemotherapy
- **Analysis**: Chi-square test and independent t-tests for categorical and continuous variables. Kaplain-Meier (log-rank) and Cox Proportional Hazards for univariate and multivariate survival analysis

RESULTS

LNY ≥ 18 LNY < 18

Figure 1. Overall Survival

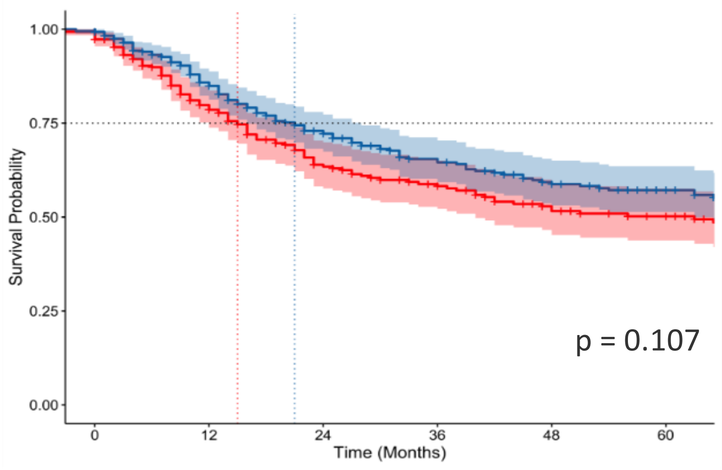


Figure 2. Disease-Free Survival

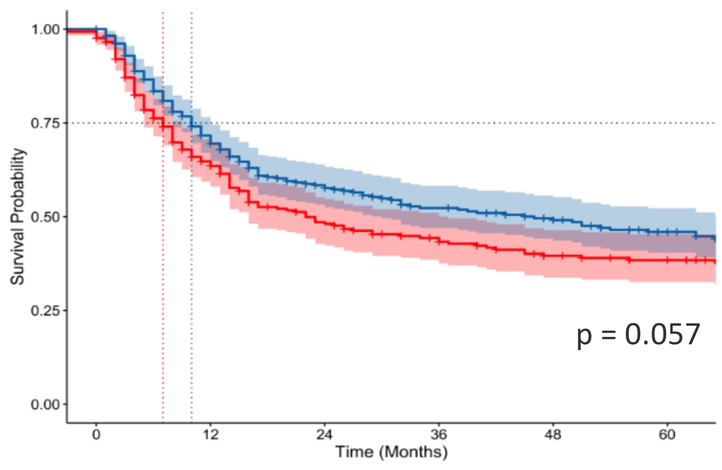


Figure 3. Regional Recurrence Free Survival

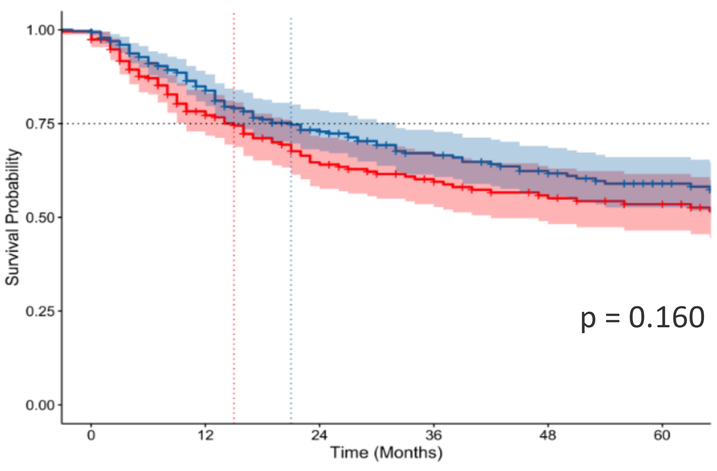


Table 2. Cox Proportional Hazards Models

Variable	Outcome	HR (95% CI)	*p-value*
LNY ≥18	OS	0.80 (0.56 – 1.16)	.240
	DFS	0.78 (0.57-1.07)	.126
	RRFS	0.79 (0.53-1.17)	.357
Prior Radiation	OS	0.89 (0.57-1.40)	.620
	DFS	1.62 (1.06-2.46)	**.024**
	RRFS	1.27 (0.82-1.96)	.280

*covariates in methods

Table 1. Patient Characteristics

	Primary (n = 255)	**Salvage (n = 444)**	*p-value*
Age (years)			0.60
Mean (std)	61.9 (10.1)	62.3 (9.4)	
Range	36-89	29-89	
Sex			0.52
Male	213 (83.5)	360 (81.3)	
Female	42 (16.5)	83 (18.7)	
Neck Dissection			**< 0.001**
Bilateral	229 (89.8)	323 (73.7)	
Unilateral	26 (10.2)	115 (26.3)	
cT stage			**< 0.001**
T1/T2	4 (3.2)	**49 (33.3)**	
T3/T4	120 (96.8)	98 (66.7)	
pN stage			**< 0.001**
N0	100 (44.2)	284 (71.2%)	
N1	30 (13.3)	31 (7.8%)	
N2	52 (23.0%)	52 (13.0%)	
N3	44 (19.5%)	32 (8.0%)	
Lymph node yield			**< 0.001**
Mean (std)	28.4 (13.6)	18.5 (16.5)	
Lymph node yield			**< 0.001**
≥ 18	199 (44.9)	199 (78.8)	
< 18	244 (55.1)	54 (21.2)	
Lymph node ratio			**< 0.001**
Mean (std)	0.058 (0.100)	0.032 (0.086)	
ENE			**0.007**
No	131 (64.5)	220 (76.1)	
Yes	72 (35.5)	69 (23.9)	
PNI			**0.009**
No	122 (57.3)	162 (45.5)	
Yes	91 (42.7)	194 (54.5)	
Fistula			**0.002**
No	117 (26.4)	327 (73.6)	
Yes	41 (16.1)	117 (26.4)	
Final Margin Status			0.170
Negative	227 (89.7)	368 (85.8)	
Positive	26 (10.3)	61 (14.2)	

CONCLUSIONS

- Radiation significantly reduces lymph node yield in patients undergoing TL with neck dissection.
- In this large single-institution cohort of patients who underwent total laryngectomy and neck dissection, **LNY≥18 was not independently associated with improved oncologic outcomes.**

Contact at:
Whitney Jin, whitney.jin@vumc.org @whitneyjin_
Michael C. Topf, Michael.topf@vumc.org @TopfHNS

ABSTRACT

REFERENCES