



American Head and Neck Society - Journal Club

Volume 28, September 2019

The AHNS Journal Club regularly reviews the leading head and neck cancer-related journals, sharing with AHNS members some of the most relevant and important manuscripts, and providing summaries and critiques of the work.

The Journal Club members are: Samer Al-Khudari, MD; Daniel Brickman, MD; Nathan Hales, MD FACS; Jason Kass, MD PhD; Luiz Kowalski, MD PhD; Vikas Mehta, MD MPH FACS; Alirio Mijares Brinez, MD; Alvaro Sanabria, PhD; Mark Varvares, MD; Vivian Wu, MD MPH.

Table of Contents – [click the page number to go to the summary and full article link.](#)

<i>Sentinel Lymph Node Biopsy Versus Elective Neck Dissection for Stage I to II Oral Cavity Cancer.</i>	<i>page 1</i>
<i>Stage II Oral Tongue Cancer: Survival Impact of Adjuvant Radiation Based on Depth of Invasion.</i>	<i>page 3</i>
<i>Predictors of Gastrostomy Tube Dependence in Surgically Managed Oropharyngeal Squamous Cell Carcinoma</i>	<i>page 4</i>
<i>Assessment of the NSQIP Surgical Risk Calculator in Predicting Microvascular Head and Neck Reconstruction Outcomes.</i>	<i>page 5</i>
<i>Lobectomy Is Feasible for 1-4 cm Papillary Thyroid Carcinomas: A 10-Year Propensity Score Matched-Pair Analysis on Recurrence</i>	<i>page 7</i>

[Sentinel Lymph Node Biopsy Versus Elective Neck Dissection for Stage I to II Oral Cavity Cancer](#)

Cramer JD, Sridharan S, Ferris RL, Duvvuri U, Samant S.

*from **Laryngoscope**, January 2019*

Objectives: Sentinel lymph node biopsy (SLNB) has been shown to be an accurate technique for staging the neck in early-stage oral cavity squamous cell carcinoma (OCSCC) and has been incorporated in treatment guidelines as an option instead of elective neck dissection (END). However, utilization of SLNB in the United States remains unclear, and existing prospective studies did not directly compare survival between SLNB and END.

Methods: We conducted a retrospective cohort study of patients with stage I to II OCSCC (cT1-2cN0cM0) who underwent staging of the neck in the National Cancer Data Base from 2012 to 2015. We compared the practice patterns and outcomes of patients who underwent SLNB versus END.

Results: We identified 8,328 eligible patients with a median follow-up of 35.4 months. SLNB was used for 240 patients, or 2.9% of stage I to II OCSCC. Completion neck dissection was

avoided in 63.8% of patients undergoing SLNB. SLNB was associated with reduced perioperative morbidity, with median length of hospital stay of 1.0 days versus 3.0 days after END ($P < 0.001$). Perioperative 30-day mortality was 0% after SLNB versus 0.7% after END ($P = 0.42$). Overall 3-year survival was 82.0% after SLNB and 77.5% after END ($P = 0.40$). After adjustment, overall survival was equivalent between patients who underwent SLNB versus END (adjusted hazard ratio 1.03, confidence interval 0.67-1.59).

Conclusions: SLNB for stage I to II OCSCC is associated with reduced length of hospital stay and equivalent overall survival compared with END. Despite these attributes, SLNB remains rarely used in the United States.

Summary

- Patients with oral squamous cell carcinoma (including lip) classified T1-2/N0 treated with surgery plus SLNB or END from the National Cancer Data Base (NCDB) during 2012-2015
- Univariate and multivariate analysis with adjustment with clinical and pathological variables.
- Patients in the SLNB group had less advanced tumors (T2 29% vs 50%) with less deep of invasion (0-4 mm (25% vs 11%) and lower rate of lymph node metastasis (14% vs 23%)
- Patients in the SLNB group avoided a neck dissection in 64% of cases, made an immediate neck dissection in 30% and needed a rescue neck dissection rate of 6%
- Patients in the SLNB group needed less radiotherapy (17% vs 30%) and chemotherapy (4% vs 10%)
- The number of nodes in the SLNB group was 3.6 and 33% collected more than 3 lymph nodes.
- There were no differences in postoperative mortality
- Overall 3-y survival was 82% for SLNB and 77% for END, without statistically significant differences after multivariate analysis

Strengths

- Homogenous and comprehensive capture of data from the NCDB
- Follow up of 35 months
- Multivariate analysis
- Adjustment by lip subsite
- Two thirds of patients can avoid a neck dissection

Weaknesses

- Only 240 patients (3%) underwent SLNB.
- Disbalance in the indication of SLNB that makes groups non comparable.
- A third of patient underwent immediate neck dissection. This should confound the effectiveness of SLNB
- Almost a third of patients underwent a larger procedure similar to a classical neck dissection



Stage II Oral Tongue Cancer: Survival Impact of Adjuvant Radiation Based on Depth of Invasion

Samuel J. Rubin, Ellen B. Gurary, Muhammad M. Qureshi, Andrew R. Salama, Waleed H. Ezzat, Scharukh Jalisi, and Minh Tam Truong

from Otolaryngology–Head and Neck Surgery, January 2019

Objective. To determine if adjuvant radiation therapy for patients with pT2N0 oral cavity tongue cancer affects overall survival.

Study Design. Retrospective cohort study. Setting. National Cancer Database. Subjects and Methods. Cases diagnosed between 2004 and 2013 with pathologic stage pT2N0 oral cavity tongue cancer with negative surgical margins were extracted from the National Cancer Database. Data were stratified by treatment received, including surgery only and surgery with postoperative radiation therapy. Univariate analysis was performed with a 2- sample t test, chi-square test, or Fisher exact test and log rank test, while multivariate analysis was performed with Cox regression models adjusted for individual variables as well as a propensity score.

Results. A total of 934 patients were included in the study, with 27.5% of patients receiving surgery with postoperative radiation therapy (n = 257). In univariate analysis, there was no significant difference in 3-year overall survival between the patient groups (P = .473). In multivariate analysis, there was no significant difference in survival between the treatment groups, with adjuvant radiation therapy having a hazard ratio of 0.93 (95% CI, 0.60-1.44; P = .748). Regarding tumors with a depth of invasion .5 mm, there was no survival benefit for the patients who received postoperative radiation therapy as compared with those who received surgery alone (hazard ratio = 0.93; 95% CI, 0.57-1.53; P = .769).

Conclusion. An overall survival benefit was not demonstrated for patients who received postoperative radiation therapy versus surgery alone for pT2N0 oral cavity tongue cancer, irrespective of depth of tumor invasion.

Summary statements: In this retrospective National Cancer Center Database study the authors attempted to match 2 cohorts of patients with Pathologic Stage II oral tongue cancer with clear margins as designated by the NCDB with and without radiation specifically to see if adjuvant radiation +/- concurrent chemotherapy offered benefit to patients with tumor depth of invasion greater than 5 mm. Primary outcome measure was overall survival.

With a median follow up was 28.4 +/- 10.4 months, in multivariate analysis they found no significant difference in overall survival between patients who had surgery alone versus surgery with adjuvant therapy (HR, 0.93, 95% CI, 0.60-1.44, P= .748). Tumor invasion to a depth of > 5mm also did not demonstrate a significant difference in overall survival (HR, 1.20, 95%, CI, 0.82-1.75, P= .340) with no significant difference in overall survival in this group based upon treatment (HR, 0.93, 95% CI 0.57-1.53, P= .769).



Strengths: Large study, reasonably matched cohort based on the data available. All patients with pathologically proven N0 status (all had neck dissection) to avoid regional disease influencing overall survival (the primary outcome)

Weaknesses: No information on disease specific survival/local recurrence, which would be more informative particularly given the relatively short follow up. Retrospective study without information that would inform why one group of “matched” patients were sent for adjuvant therapy and the other was not. Potential clinical factors that were not available that may have stratified these patients include perineural invasion, lymphovascular invasion, the need to revise a resection to obtain clear margins and other factors.

[back to top](#)

Predictors of Gastrostomy Tube Dependence in Surgically Managed Oropharyngeal Squamous Cell Carcinoma

Vivek R. Varma, MD, MBA ; Antoine Eskander, MD, ScM; Stephen Y. Kang, MD; Bhavna Kumar, MS; Nicole V. Brown, MS; Songzhu Zhao, MS; Guy Brock, PhD; Amit Agrawal, MD; Ricardo L. Carrau, MD; Matthew O. Old, MD; Enver Ozer, MD; James W. Rocco, MD, PhD; David E. Schuller, MD; Peter T. Dziegielewski, MD; Michael J. Cipolla, MD; Theodoros N. Teknos, MD

*From **Laryngoscope**, February 2019*

Objectives: To elucidate predictive factors in the perioperative period resulting in gastrostomy tube (G-tube) dependence for patients undergoing primary surgical treatment of oropharyngeal squamous cell carcinoma (OPSCC) in the modern era.

Methods: Two hundred and thirty patients with known OPSCC treated with primary surgery were screened and selected from a retrospective database spanning from 2002 to 2012 at The Ohio State University Wexner Medical Center (Columbus, Ohio), with univariable and multivariable logistic regression modeling used to determine independent predictive factors resulting in G-tube dependence (defined as tube persistence/presence 1 year after surgery).

Results: Surgical approach, baseline characteristics, tumor (T)-nodal-metastasis stage, human papillomavirus status, extent of tissue resected, surgical complications, reconstructive technique, preoperative G-tube presence, and adjuvant treatment were recorded. Patients undergoing open surgery for OPSCC without adjuvant treatment had 42.9% G-tube dependence (44.6% with adjuvant chemoradiation [CRT]) compared to 0% for those undergoing transoral nonrobotic surgery (8.1% with adjuvant CRT) and 0% for those undergoing transoral robotic surgery (10.3% with adjuvant CRT). In multivariable analysis, greater than 25% of the oral tongue resected (odds ratio [OR] 12.29; P 0.03), an open surgical approach (OR 5.72; P < 0.01) and T3/T4 tumor stage (OR 2.84; P 0.02) were independent and significant predictors of G-tube dependence.

Conclusion: Surgical approach, advanced tumor stage, and oral tongue resection may influence the development of nutritional dependence for surgically treated patients with OPSCC.

Strengths:

- Provides pre-operative advice for patients, particularly when discussing a resection that will involve >25% of the base of tongue
- Robotic-assisted approaches are not surprisingly superior to open approaches when considering the risk of G-tube dependence

Weaknesses:

1. Retrospective single-institution study
2. Simplifies the complex process of swallowing rehabilitation to one single timepoint (g-tube at 1 year)

[back to top](#)

Assessment of the NSQIP Surgical Risk Calculator in Predicting Microvascular Head and Neck Reconstruction Outcomes

Yue Ma, MD, Benjamin M. Laitman, MD, PhD, Vir Patel, MD, Marita Teng, MD, Eric Genden, MD, Samuel DeMaria Jr, MD, and Brett A. Miles, DDS, MD

from *Otolaryngology–Head and Neck Surgery*, January 2019

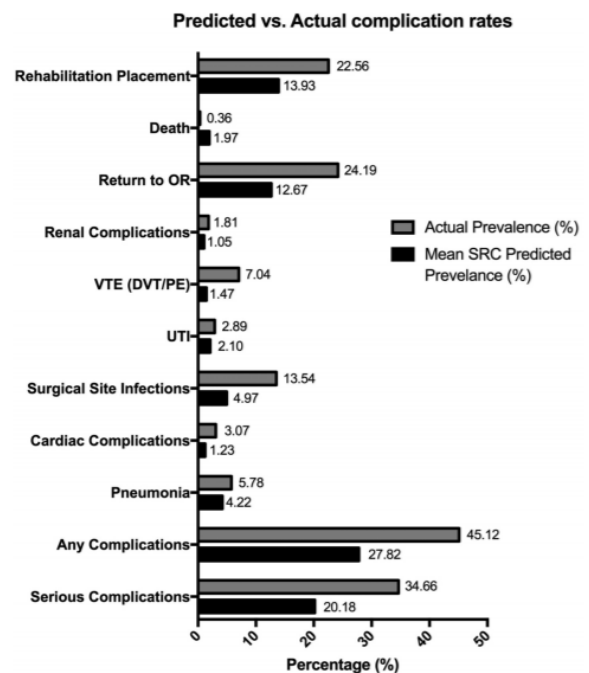
Objective. This study evaluated the accuracy of the Surgical Risk Calculator (SRC) of the ACS NSQIP (American College of Surgeons National Surgical Quality Improvement Program) in predicting head and neck microvascular reconstruction outcomes.

Study Design. Retrospective analysis.

Setting. Tertiary medical center.

Subjects and Methods. A total of 561 free flaps were included in the analysis. The SRC-predicted 30-day rates of postoperative complications, hospital length of stay (LOS), and rehabilitation discharge were compared with the actual rates and events. The SRC’s predictive value was examined with Brier scores and receiver operating characteristic area under the curve.

Results. A total of 425 myocutaneous, 134 osseous (84 fibula, 47 scapula, and 3 iliac crest), and 2 omental free flaps were included in this study. All perioperative complications evaluated had area under the curve values 0.75, ranging from 0.480 to 0.728. All but 2 postoperative





complications had Brier scores .0.01. SRC-predicted LOS was 9.4 6 2.38 days (mean 6 SD), which did not strongly correlate with the actual LOS of 11.98 6 9.30 days ($r = 0.174$, $P \backslash .0001$).

Conclusion. The SRC is a poor predictor for surgical outcome among patients undergoing microvascular head and neck reconstruction.

Summary. The American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) developed a universal Surgical Risk Calculator (SRC) based on preoperative risk and postoperative morbidity and mortality data obtained from 393 hospitals and 1.4 million operations from 2009 through 2012. The SRC uses the input of 21 preoperative patient risk factors to calculate the probability of 11 postoperative events, as well as hospital length of stay (LOS). This study examined actual 30-day postoperative complications, rehabilitation facility discharge, and hospital LOS in a retrospective cohort of 554 patients who underwent head and neck free flap surgery. Outcomes were compared with the predicted 30-day postoperative outcomes generated by the SRC for each patient. The paper concludes that the SRC of the ACS NSQIP is a poor predictor for surgical outcomes among patients undergoing microvascular head and neck reconstruction. The SRC does not accurately predict 30-day postoperative complications, hospital LOS, and rehabilitation facility discharge in this population.

Strengths

- First and largest study to address this question
- “We also have yet to identify a procedure-specific perioperative risk calculator for free tissue transfer surgery that can guide clinical decision making.” This study demonstrates that the SRC is not an appropriate tool for cases involving free tissue transfer and any attempts to use this tool as a measure should be avoided.
- The discussion regarding the inappropriateness of the SRC for this population is valuable, “We believe that the reasons why the SRC did not perform well in this population are multifactorial. Perhaps the most obvious is that the SRC was designed and validated for acutely ill patients, often undergoing major abdominal surgery, and not for patients undergoing elective head and neck free tissue transfer reconstruction. The calculator includes such parameters as ventilator dependence, emergency case status, acute renal failure, ongoing dyspnea, and systemic sepsis, which do not pertain to patients undergoing microvascular reconstruction. However, factors that are unique to head and neck surgery and microvascular surgery—such as tumor location, tumor stage, history of radiation and chemotherapy, nutritional status, concomitant tracheostomy, and dysphagia—are unaccounted for and not part of the calculator. The SRC does not allow input of multiple procedure codes, which may also contribute to its poor predictive value in this arena. Free tissue reconstruction typically follows tumor resection. The extent of the tumor resection and the size of resultant deficits contribute to postoperative complications; however, such variability was not captured by the SRC to more adequately account for the complex nature of head and neck oncologic surgery.”

Weaknesses

- single institution retrospective review
- low event counts for some of the individual complications



Lobectomy Is Feasible for 1–4 cm Papillary Thyroid Carcinomas: A 10-Year Propensity Score Matched-Pair Analysis on Recurrence.

Eyun Song, Minkyu Han, Hye-Seon Oh, Won Woong Kim, Min Ji Jeon, Yu-Mi Lee, Tae Yong Kim, Ki Wook Chung, Won Bae Kim, Young Kee Shong, Suck Joon Hong, Tae-Yon Sung, and Won Gu Kim

from *Thyroid*, January 2019

Background: Current guidelines allow lobectomy as treatment for 1–4 cm papillary thyroid carcinomas (PTCs), as previous studies reported no clear survival advantages for total thyroidectomy (TT). However, data on recurrence based on surgical extent are limited.

Methods: This study enrolled 2345 patients with 1–4 cm PTC. Those with lateral cervical lymph node metastasis or initial distant metastasis were excluded. Disease-free survival (DFS) was compared after 1:1 propensity score matching by age, sex, tumor size, extrathyroidal extension, multifocality, and cervical lymph node metastasis.

Results: Lobectomy was performed in 383 (16.3%) and TT in 1962 (83.7%) patients. In the matched-pair analysis (381 patients in each group), no significant difference in DFS was observed during the median follow-up of 9.8 years (hazard ratio [HR] = 1.35 [confidence interval (CI) 0.40–1.36], $p = 0.33$). When stratified by tumor size, DFS did not differ between the group with 1–2 cm tumors and that with 2–4 cm tumors (HR= 1.57 [CI 0.75–3.25], $p = 0.228$; HR= 0.93 [CI 0.30–2.89], $p = 0.902$, respectively). Multivariate analysis showed that the surgical extent did not play an independent role in structural persistent/recurrent disease development (HR= 1.43 [CI 0.72–2.83], $p = 0.306$).

Conclusion: Patients with 1–4 cm PTCs who underwent lobectomy exhibited DFS rates similar to those who underwent TT after controlling for major prognostic factors. This supports the feasibility of lobectomy as initial surgical approach for these patients and emphasizes that tumor size should not be an absolute indication for TT.

Summary: This study retrospectively evaluated 1234 patients matching 383 lobectomy patients to 1962

total thyroidectomy patients using a propensity score matching method. Patient with lateral neck or distant metastatic disease at presentation were excluded.

TABLE 3. PATTERNS OF STRUCTURAL PERSISTENT/RECURRENT DISEASE IN STUDY PATIENTS

	Lobectomy (n=381)	Total thyroidectomy (n=381)	p-Value
Total recurrences	24 (6.3%)	18 (4.7%)	0.427
Lateral cervical LN only	3 (12.5%)	15 (83.3%)	
Both contralateral lobe and lateral cervical LN	7 (29.2%)	—	
Contralateral lobe only	11 (45.8%)	—	
Operation bed	2 (8.3%)	3 (16.7%)	
Distant organs	1 (lung and bone, 4.2%)	0 (0%)	

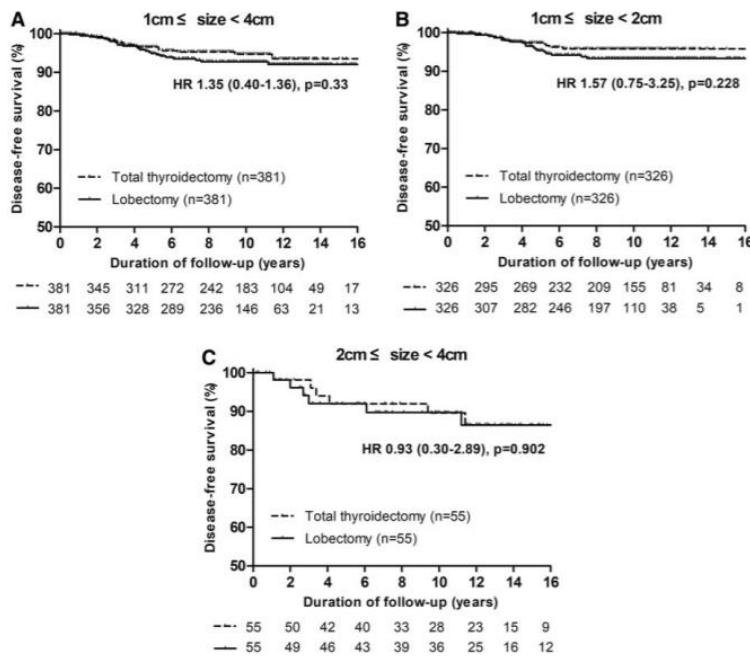


FIG. 1. Disease-free survival curve of (A) total patients, (B) patients with tumors measuring 1–2 cm, and (C) patients with tumors measuring 2–4 cm.

Regardless of their surgical extent, all patients were regularly followed with physical examinations, thyroid function tests, serum thyroglobulin (Tg), and anti-Tg antibody measurements every 6–12 months for at least two years after surgery. Neck ultrasonography was performed within the first 6–12 months after the initial surgery and was routinely repeated at 12- to 24-month intervals. If indeterminate or suspicious thyroid nodules or LNs were found, fine-needle aspiration cytology (FNAC) was used for evaluation.

Additional diagnostic

imaging was performed to detect recurrence or distant metastasis in some patients, such as neck or chest computed tomography, magnetic resonance imaging, or whole-body fluorodeoxyglucose positron emission tomography.

Their primary outcome was structural persistent/recurrent disease development. They further sub-stratified into groups with 1-2cm tumor size and 2-4 cm tumor size. Disease free survival showed no significant differences over median follow up time of 9.8 years

Strengths

- matched-paired analysis with large N
- propensity score matching method, patients who underwent lobectomy and TT were matched by age, sex, tumor size, ETE, multifocality, and cervical LN metastasis in a 1:1 ratio.
- Median follow up 9.8 years
- Subgroup analysis of 1-2 cm and 2-4 cm.

Weaknesses

- retrospective, single institution (central neck dissection is performed routinely on all patients who undergo lobectomy or total thyroidectomy for carcinoma). This diminishes the generalizability of the conclusions.
- The impact of RAI remnant ablation on the clinical outcomes of the majority of patients who underwent TT were not evaluated.
- Unilateral or bilateral prophylactic CCND was performed in patients who underwent lobectomy and TT, and a resulting effect on clinical outcomes cannot be excluded.