PATTERNS OF OCCULT NODAL METASTASIS AFTER SALVAGE LARYNGECTOMY

Gross JH, Studer MB, Switchenko JM, El-Deiry M, Baddour HM, Boyce BJ, Solares CA, Sebelik ME, Chen AY, Kaka AS, Schmitt N, Magliocca KR, Patel MR

Winship Cancer Institute of Emory University

EMORY WINSHIP CANCER INSTITUTE
National Cancer Institute-Designated Comprehensive Cancer Center

Introduction:

The decision to perform an elective neck dissection (END) during salvage laryngectomy remains controversial. Occult nodal disease may be more prevalent in recurrent supraglottic or advanced laryngeal tumors, but the survival benefit after an END is unclear. There is a potential increased risk of postoperative complication after END. Data to support which nodal stations to electively dissect in an irradiated field is also inadequate. The goal of this study is to use a large database to determine clinical and oncologic outcomes after elective neck dissection versus observation in salvage laryngectomy patients. Both groups will be evaluated for location of occult nodal metastasis or recurrence, postoperative fistula rates, and survival differences.

Methods:

This study was approved by the IRB at Emory University. A retrospective review was performed on patients ≥18 years old treated with a salvage total laryngectomy (TL) between 2009 and 2018 at a single, high-volume tertiary care center. Patients with recurrent, clinically N0 larynx or hypopharynx tumors after initial radiation therapy were included. Patients with prior surgery for their disease were excluded. Collected and analyzed data included demographics, comorbidities, TNM clinical and pathologic staging, nodal disease presence and location, recurrence-free and overall survival (OS).

Results:

One hundred four patients treated with salvage TL (67 END, 37 observation) met inclusion criteria. The END rate of occult nodal positivity was 22% (20% of glottic, 22% of hypopharynx, 29% of supraglottic). Almost every patient with positive nodes (94%) had an advanced T-stage (T3-T4) recurrent tumor. Of each level dissected, the rate of occult nodal positivity was: 12% in level 6, 11% in level 3, 10% in level 2, 5% in level 4, 0% in level 5, and 0% in level 1.

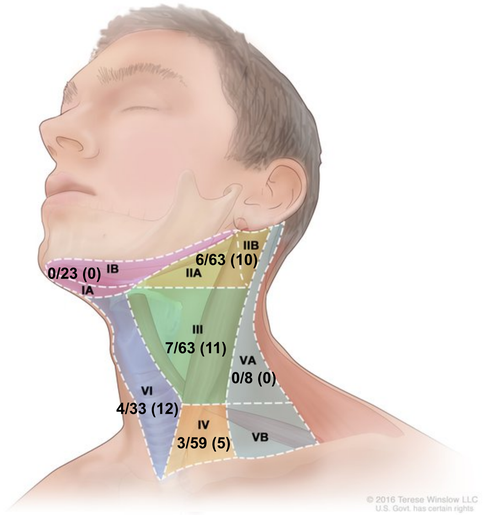

Image 1: Location of occult positive nodes during salvage laryngectomy END, out of total number of neck dissections in each level (n/total, %)

A significantly higher number of patients with advanced T-stage tumors underwent END (78% vs 22%, p>.001) versus observation (Table 1). Therefore, selection bias precludes the ability to calculate differences in survival and/or recurrence rate. The fistula rate between both groups was similar (27% vs 18%, p=0.32). Fifteen percent (5/33) of patients with level 6 dissection and 8% (6/71) of those without it developed postoperative hypocalcemia.

Covariate		Neck Dissection		Parametric p-value
		No (N=37)	Yes (N=67)	
Tumor Subsite	Glottic	19 (51)	41 (61)	0.12
	Supraglottic	16 (43)	17 (25)	
	Hypopharynx	2 (5)	9 (13)	
Clinical T-Stage (Recurrent 7th ed.)	T1-2	11 (65)	13 (22)	<.001
	T3-4	6 (35)	47 (78)	
Post-operative Complication Rate (n, %)		12 (32)	34 (51)	0.07
Fistula Rate (n, %)		9 (27)	8 (18)	0.32
Occult positive nodal rate (n, %)		NA	15 (22)	NA
Postoperative hypocalcemia (n, %)		Level 6 Neck Dissection		0.30
		No (N=71)	Yes (N=33)	
		6 (8)	5 (15)	

Table 1: Descriptive statistics

Conclusion:

In patients undergoing END during salvage TL, levels 2, 3, and 6 should be preferentially dissected. Levels 1 and 5 are not clinically significant. Dissection of level 6 does not impact the rate of postoperative hypocalcemia.

Contact: jhgros3@emory.edu