



Evaluating Quality of Life and Functional Outcomes in Salvage Surgery for Head and Neck Cancer



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Introduction

- Salvage surgery is often the only curative option in patients with recurrent head and neck cancer (HNC)¹
- Multiple studies examine survival outcomes in salvage surgery, with 5-year survival consistently poor (10-50%)²⁻⁴
- Salvage surgery is associated with increased risk of complications⁵
- Quality of life (QoL) studies in HNC literature typically investigate primary surgery⁶
- While research into QoL following radiation therapy for salvage treatment of recurrent HNC exists,⁷ there is little research investigating QoL following salvage surgery
- QoL and functional outcomes are important in perioperative counselling, patient decision making, and for development of survivorship resources.
- The purpose of this study is to describe patient-reported quality of life and functional outcomes in patients with recurrent/persistent head and neck cancer undergoing salvage surgery**

Methods

- All patients undergoing surgery for HNC treatment in Department of Otolaryngology – Head & Neck Surgery were administered FACT-HN survey between the dates of July 10, 2015 and September 2, 2020
- Patients were divided into groups according to whether their surgery was considered salvage surgery. Salvage surgery defined as surgical treatment after failure of primary therapy, in the form of local/regional recurrent disease or new HNC primary
- Quality of life:*
 - The FACT-HN survey is divided into 5 subsections (below) with higher scores indicating greater patient reported QoL
 - Physical wellbeing (PWB) - range 0-28
 - Social wellbeing (SWB) - range 0-28
 - Emotional wellbeing (EWB) - range 0-24
 - Functional wellbeing (FWB) - range 0-28
 - Head & Neck Cancer Symptom (HNCS) - range 0-40
- Functional outcomes:*
 - Include tracheostomy and feeding tube dependence, with long term dependence defined as ≥ 30 days
- T-test and ANOVA used to analyze associations between post-operative scores with patients and tumor characteristics
- Multivariable logistic and linear regression models were used to investigate the effect of salvage surgery on QoL scores and functional outcomes

Results

Table 1. Baseline Characteristics of Patients With HNC Undergoing Surgery				
		Salvage Status		Parametric P-value*
		Non-Salvage Surgery Total N=89 N (%)	Salvage Surgery Total N=39 N (%)	
Age	Median (±SD, range)	60 (12.24, 23 – 86)	61 (9.07, 42 - 87)	0.602
Sex	Female	28 (32.94)	11 (28.21)	0.598
	Male	57 (67.06)	28 (71.79)	
Marital status	Not Partnered	33 (38.82)	14 (40)	0.904
	Partnered	52 (61.18)	21 (60)	
Race	White	73 (85.88)	31 (81.58)	0.408
	Black	10 (11.76)	7 (18.42)	
	Other	2 (2.35)	0 (0)	
Education level	Less than High School	10 (12.66)	6 (16.67)	0.565
	High School or greater	69 (87.34)	30 (83.33)	
Alcohol use	None	15 (17.65)	5 (12.82)	0.031
	Some	39 (45.88)	10 (25.64)	
	Abuse	31 (36.47)	24 (61.54)	
Tobacco use	Current	25 (29.76)	17 (43.59)	0.180
	Former	32 (38.1)	15 (38.46)	
	Never	27 (32.14)	7 (17.95)	
Charlson Comorbidity Index	0	54 (63.53)	27 (69.23)	0.536
	≥1	31 (36.47)	12 (30.77)	
Feeding tube >30d		4 (4.49)	8(20.51)	0.5152
Tracheostomy >30d		7 (7.87)	2 (5.13)	0.2289

Table 2. ANOVA P-values of post-operative QoL outcomes according to Pre-operative characteristics						
Variable	PWB post	SWB post	EWB post	FWB post	HNCS post	Total post
Salvage Surgery Status	0.9307	0.1340	0.5795	0.8852	0.0442	0.3176
Clinical T Classification	0.5442	0.9128	0.5366	0.3275	0.3710	0.5609
HPV status	0.4431	0.333	0.5575	0.4898	0.8180	0.5081
Neck dissection	0.7394	0.6730	0.9552	0.6361	0.6286	0.7152
Extracapsular extension	0.8442	0.7657	0.2084	0.5659	0.6758	0.4687
Use of systemic therapy	0.3901	0.2836	0.8240	0.1207	0.0021	0.0519

Table 3. Mutlivariable Linear Regression of QoL Outcomes according to Salvage Surgery Status				
Outcome	Slope Estimate	Lower confidence limit	Upper confidence limit	p-value
PWB post-op score	-0.8055	-3.9390	2.3281	0.6144
SWB post-op score	4.6981	-0.3037	9.6998	0.0656
EWB post-op score	0.1943	-2.3655	2.7542	0.8817
FWB post-op score	-1.9577	-5.0913	1.1758	0.2208
HNCS post-op score	-5.7753	-10.4257	-1.1250	0.0149
Total post-op score	-11.2195	-22.7579	0.3189	0.0567
Note: each variable of interest is adjusted for the following variables: age, marital status, race, education, alcohol use, T stage, N stage, smoking history, and sex.				

Results

- Quality of life:*
 - Patients undergoing salvage surgery have significantly worse FACT-HNCS subscale scores than non-salvage patients
 - Patients undergoing salvage surgery have post-surgery HNCS score which is 5.78 points lower on average than non-salvage patients (p=0.04)
 - Patients with hx of systemic therapy had lower HNCS scores on average (p=0.002)
 - No significant differences in total FACT-HN score or among the subscales of PWB, SWB, EWB, FWB were observed in patients undergoing salvage surgery
 - In tumor site analyses, patients post-salvage total laryngectomy have higher SWB and FWB scores
- Functional outcomes:*
 - Significantly higher rates of feeding tube dependence was observed in those undergoing neck dissection (p=0.008) and with previous systemic therapy (p=0.003)
 - No significant difference between salvage and non-salvage surgery patients in rates of long term tracheostomy (p=0.23) or feeding tube (p=0.51) dependence

Conclusions/Discussion

- A significant decrease in H&N Cancer Scale sub-score was observed in the salvage surgery cohort compared to the non-salvage surgery cohort. No significant differences in the total FACT-HN or other subscales was observed
- Salvage surgery was not a predictor for significantly worse functional outcome (long-term tracheostomy and feeding tube dependence)
- These findings should aid patients in making informed decisions and physicians in counselling patients faced with salvage surgery in H&N cancer
- Primary limitations of this study include small sample size and lack of long term follow up data on QoL following salvage surgery
- Future investigations with larger cohorts should further stratify predictors of QoL and functional outcomes among patients undergoing salvage surgery for H&N cancer

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