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

Arielle Best

Wayne State University School of Medicine, keisha.best@med.wayne.edu

Nitika Tripathi

Wayne State University School of Medicine, nitika.tripathi@med.wayne.edu

John Riley

Henry Ford Health System, jriley5@hfhs.org

Amy Williams PhD

Steven Chang MD

*See next page for additional authors*

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**Authors**

Arielle Best, Nitika Tripathi, John Riley, Amy Williams PhD, Steven Chang MD, and Samantha Tam MD

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

K. Arielle Best, MS; Nitika Tripathi, BS; John B. Riley, DO; Amy M. Williams, PhD; Steven S. Chang, MD; Samantha Tam, MD

### INTRODUCTION

Unique challenges surround treatment for residual or recurrent head and neck squamous cell carcinoma (HNSCC). Of the limited treatment options for residual or recurrent HNSCC, salvage surgery is often the best option. However, salvage surgery can result in significant morbidity, affecting both quality of life (QoL) and functional outcomes. Few studies have examined QoL outcomes following salvage surgery in the setting of HNSCC. Our goal is to analyze the head and neck related quality of life, and functional outcomes in patients with head and neck cancer who underwent salvage surgery.

### METHODS

In this study, FACT-HN Version 4 was administered pre-operatively and 6 months post-operatively to patients undergoing salvage surgery for HNSCC between November 4, 2014 and March 30, 2020. Retrospective cohort analysis was performed on this population with major outcome being postoperative QoL score. Functional outcomes included post-operative tracheostomy and feeding tube status. Simple logistic regression was used to determine characteristics associated with presence of permanent tracheostomy and feeding tube, defined as presence greater than 30 days. Chi-square fisher's exact test was used to assess tumor characteristics with functional outcomes greater than 30 days. QoL outcomes were compared using paired t-tests and ANOVAs.

### RESULTS

Overall, 39 patients undergoing salvage surgery for HNSCC and were included in this analysis. Salvage surgeries consisted of total laryngectomy (36.0%), definitive neck dissection (24.0%), mandibulectomy (16.0%), parotidectomy (8.0%), with total laryngectomy/total glossectomy, radical tonsillectomy, TORS base of tongue excision, and transoral laser laryngeal excision all comprising 4% of cases.

Statistically significant differences between salvage and non-salvage patients were observed with alcohol use, with 5 (12.8%) salvage patients reporting no alcohol use, 10 (25.6%) reporting some, and 24 (61.5%) reporting abuse, when compared to 15 (17.7%), 39 (45.9%), and 31 (36.5%) in non-salvage patients, respectively.

Preoperative scores for salvage patients were not found to be associated with functional outcomes of having a feeding tube and/or tracheostomy for more than 30 days. For non-salvage patients, the odds of having a tracheostomy more than 30 days decreases with higher pre-op HNCS score ( $p=0.0462$ ). Of the patients with a feeding tube for more than 30 days, 52.14% do not have a secondary total laryngectomy versus 42.86%, 18% did not use systemic therapy while 81.82% did, and 57.14% had a neck dissection while 42.85% did not.

Patients with tertiary total laryngectomy have higher Social Well-Being (SWB) postoperative scores (mean 27.33 vs 21.75) and higher Functional Well-Being (FWB) postoperative scores (mean 25.50 vs 17.39). Patients with salvage surgery and use of systemic therapy had lower HNCS post scores with means 19.39 vs 23.96 and 19.65 vs 26.82, respectively. Salvage patients also have a lower preoperative HNCS mean of 25.8 vs. 29.1.

There is a statistically significant positive association between preoperative Physical Well-being (PWB) score and postoperative PWB score (correlation coefficient of 0.56), preoperative SWB score and postoperative SWB score (correlation coefficient of 0.56), and preoperative Emotional Well-Being (EWB) score and postoperative EWB score (correlation coefficient of 0.90) in salvage patients. In non-salvage patients, a similar positive correlation was found between preoperative and postoperative PWB (correlation coefficient of 0.51) and FWB (correlation coefficient of 0.64). Using a regression model we found that in salvage patients, for every one-point increase on preoperative PWB score, SWB score, and EWB score, the predicted postoperative score would be 0.63, 0.47, and 0.97 points higher, respectively. Similarly, in non-salvage patients, for every one-point increase in PWB, FWB, and HNCS pre-op score, the predicted postoperative was 0.86, 0.42, and 0.73 points higher, respectively.

### CONCLUSIONS

This study provides important information about quality of life and functional outcomes for patients undergoing salvage surgery for HNSCC. There is a lower rate of long-term tracheostomy and feeding tube dependence in non-salvage patients when preoperative HNCS score was higher, and of the patients who had permanent feeding tube, a significant

percent used secondary therapy and had a neck dissection. Patients who underwent salvage surgery had positive association between preoperative and postoperative social well-being, physical well-being and emotional well-being, with the preoperative value being a strong predictor for postoperative well-being. This information should be taken into consideration when counselling and managing patients with residual or recurrent HNSCC.