

Oncologic outcomes of salvage surgery and immune checkpoint inhibitor (ICI) therapy in recurrent HNSCC: a single institution retrospective study



Neeraja Konuthula, MD; Olivia Do; Ted Gobillot; Cristina Rodriguez, MD; Neal Futran, MD; Jeffrey Houlton, MD; Brittany Barber, MD

Introduction

Survival outcomes in patients with recurrent head and neck squamous cell carcinoma (HNSCC) are poor. Recently, immune checkpoint inhibitors (ICIs) have been shown to have long-term durable activity in a small subset of this population. This study aimed to compare survival outcomes between salvage surgery and ICIs in patients with locally recurrent advanced HNSCC.

Methods

This was a single institution retrospective study approved by our institutional IRB. Demographic, tumor and treatment data were collected among patients with local recurrence after curative intent therapy that involved platinum based chemoradiation. Patients with early stage (Stage I or II) disease, distant metastases, nasopharyngeal carcinoma, or carcinoma of unknown primary were excluded to allow for comparable treatment groups. Survival was estimated using the Kaplan-Meier method, and Cox regression was used for multivariate logistic regression.

Results

Between January 2006 and December 2015, 110 patients with advanced stage (Stage III or IV) locally recurrent HNSCC after treatment with platinum-based chemotherapy were identified. Patients who recurred were divided into two groups: those who received salvage surgery (66 patients) and those who received ICI therapy (44 patients). 5-year disease-specific survival after patients underwent salvage surgery patients was 55.4% with mean survival of 36.7± 3.2 months. 2-year disease-specific survival after patients underwent salvage surgery for advanced stage (stage III or IV) patients was 68.6%. 5-year disease-specific survival after patients underwent immunotherapy for advanced stage patients was 8.2% with mean survival of 14.6 ± 2.1 months. 2-year disease-specific survival after patients underwent immunotherapy patients was 24.6%. Multivariate logistic regression showed that salvage surgery was associated with improved survival but did not reach statistical significance (HR 0.12, range 0.003-4.6,p=0.25). Sex, history of smoking, CCI, age, p16 status, and site of primary tumor were not independently associated with survival (p>0.05).

Subgroup analysis of oral cavity and oropharyngeal patients noted improved survival with salvage surgery over immunotherapy in multivariate logistic regression (hazard ratio 0.006, p=0.01) and decreased survival with neutrophily-lymphocyte ratio(NLR) > 5 (hazard ratio 6.4, p=0.02).

Conclusion

Our retrospective single institutional data suggests that appropriately selected patients may have improved survival with salvage surgery compared to ICIs.

		Salvage surgery (n = 66)	Immunotherapy (n = 44)	p-value
		Number (%)	Number (%)	
Age at the time of treatment	<60	30 (45.5%)	14 (31.8%)	p = 0.15
	>60	36 (54.5%)	30 (67.2%)	
Sex	Male	50 (75.6%)	37 (84.1%)	p = 0.29
	Female	16 (24.4%)	7 (15.9%)	
CCI	<6	53 (80.3%)	2 (4.8%)	p < 0.05
	>6	13 (19.7%)	42 (95.2%)	
History of smoking	Yes	48 (72.7%)	23 (52.3%)	p < 0.05
	No	18 (27.3%)	21 (47.7%)	
Site	Oral Cavity	34 (51.5%)	12 (27.2%)	p < 0.05
	Oropharynx	15 (22.7%)	18 (40.9%)	
	Hypopharynx	1 (1.5%)	6 (13.6%)	
	Larynx	13 (19.7%)	1 (2.3%)	
	Nasal Cavity	2 (3.0%)	1 (2.3%)	
NLR	Cutaneous	1 (1.5%)	6 (13.6%)	
	< 5		16 (36.4%)	
	> 5		22 (50.0%)	
	Unknown		6 (13.6%)	

Table 1. Demographic information for advanced stage (Stage III and IV) patients

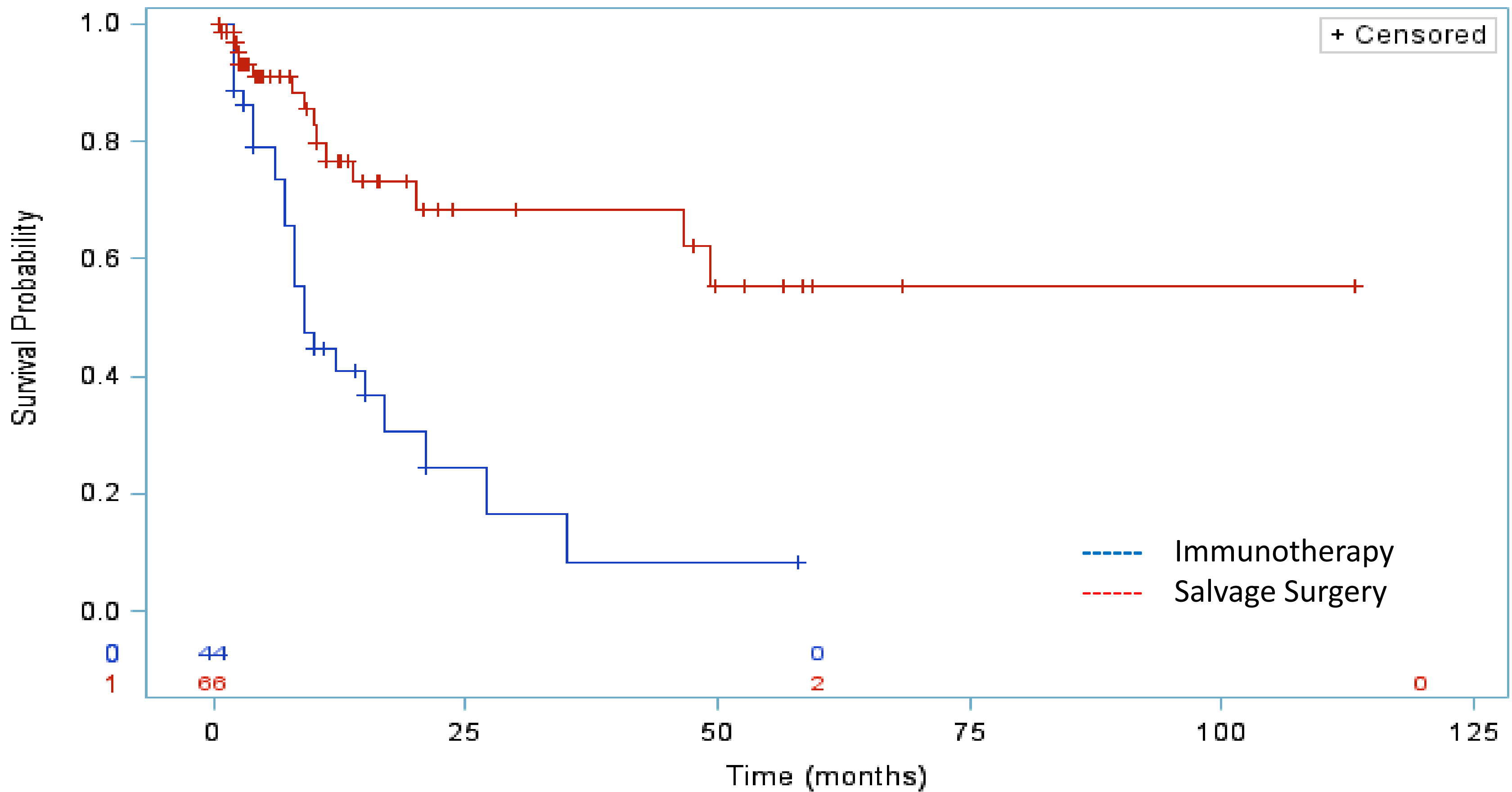


Figure 1. Kaplan Meier survival curves for immunotherapy versus salvage surgery

References

1. Chang JH, Wu CC, Yuan KS, Wu ATH, Wu SY. Locoregionally recurrent head and neck squamous cell carcinoma: incidence, survival, prognostic factors, and treatment outcomes. *Oncotarget* 2017;**8**(33):55600-12 doi: 10.18632/oncotarget.16340[published Online First: Epub Date]].
2. Leon X, Aguero A, Lopez M, et al. Salvage surgery after local recurrence in patients with head and neck carcinoma treated with chemoradiotherapy or bioradiotherapy. *Auris Nasus Larynx* 2015;**42**(2):145-9 doi: 10.1016/j.anl.2014.10.002[published Online First: Epub Date]].
3. Zenga J, Gross J, Fowler S, et al. Salvage of recurrence after surgery and adjuvant therapy: A systematic review. *Am J Otolaryngol* 2018;**39**(2):223-27 doi: 10.1016/j.amjoto.2018.01.009[published Online First: Epub Date]].
4. Pagh A, Grau C, Overgaard J. Failure pattern and salvage treatment after radical treatment of head and neck cancer. *Acta Oncol* 2016;**55**(5):625-32 doi: 10.3109/0284186X.2015.1117136[published Online First: Epub Date]].
5. Hamoir M, Schmitz S, Suarez C, et al. The Current Role of Salvage Surgery in Recurrent Head and Neck Squamous Cell Carcinoma. *Cancers (Basel)* 2018;**10**(8) doi: 10.3390/cancers10080267[published Online First: Epub Date]].
6. Esteller E, Vega MC, Lopez M, Quer M, Leon X. Salvage surgery after locoregional failure in head and neck carcinoma patients treated with chemoradiotherapy. *Eur Arch Otorhinolaryngol* 2011;**268**(2):295-301 doi: 10.1007/s00405-010-1365-1[published Online First: Epub Date]].
7. Vermorken JB, Mesia R, Rivera F, et al. Platinum-based chemotherapy plus cetuximab in head and neck cancer. *New England Journal of Medicine* 2008;**359**(11):1116-27