

Survival and Treatment Outcomes in Head and Neck Squamous Cell Carcinoma Patients with Pulmonary Oligometastases

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Abstract

Objectives: Outcomes of oligometastatic disease after surgical therapy for primary head and neck carcinoma have not been well documented. Treatment guidelines for oligometastatic disease remain unclear and interventions vary widely. Metachronous distant metastases in the lung account for the most oligo-recurrence of all other organ sites. Here we report outcomes of patients with head and neck carcinoma found to have delayed recurrence in the lung.

Study Design: Case Series

Methods: Electronic chart review of patients with primary head and neck squamous cell carcinoma (HNSCC) that developed delayed pulmonary oligometastases after Transoral Robotic Surgery (TORS) were reviewed. Oligometastases were defined as metastasis to five or fewer biologically distinct locations.

Results: Sixteen patients were included: 15 male and 1 female. Fifteen patients had primary HNSCC at the oropharynx and 1 patient had a cancer of unknown primary site. The majority were P16+ squamous cell carcinoma (SCC) (68.8%), followed by P16- SCC (25.0%), and clear cell carcinoma (6.25%). All patients were diagnosed with pulmonary oligometastases on follow up imaging, with 68.7% confirmed pathologically. Metastases at additional distant sites were evident in some of these patients, including liver (2), brain (2), bone (1), kidney (1), and pancreas (1). No patient had greater than 4 sites of metastatic disease. Average patient follow-up length after TORS was 3.5 (range 0.2-4.5) years. Mean time to diagnosis of oligometastatic disease was 1.42 (range 0.43-4.48) years. Treatment course following identification of lung metastases included chemotherapy (6), radiation (4), wedge resection (2), lobectomy (1), cryotherapy (1), and no treatment (5). Overall mortality is high at 81.3%, with an average of 2.1 (range 0.1-5.1) years between delayed pulmonary recurrence and death.

Conclusion: The prognosis for delayed metastatic disease in HNSCC is poor and management of this population remains challenging. Some patients with non-synchronous presentation of distant disease may be well treated with resection or ablative procedures, but more study is needed to investigate further.

Introduction

- Oligometastases is defined as metastasis to five or fewer sites at biologically distinct locations¹
- With improved treatment at the primary cancerous lesion, head and neck squamous carcinoma (HNSCC) oligometastatic disease has emerged as a burgeoning cause of mortality²
- Currently, there is no standardized treatment algorithm for oligometastatic HNSCC

Methods

- Patients with primary HNSCC that developed delayed pulmonary oligometastases after Transoral Robotic Surgery (TORS) were identified from a single institution between January 2010 to December 2017
- Charts were reviewed for demographic, pathologic, and intervention data as well as clinical course following identification of oligometastatic disease

Results

- Of the 16 patients who presented with pulmonary metastatic disease following initial diagnosis, the mortality rate is high at 81.3%
 - Following initial HNSCC diagnosis, 15 patients underwent adjuvant treatment (chemotherapy (6), radiation (4), wedge resection (2), cryotherapy (1), lobectomy (1)), 5 patients declined adjuvant treatment
 - Patients declining adjuvant treatment had shortest time between TORS to oligometastases (.21 years) relative to those receiving treatment (1.6 years)
- Single site distant pulmonary metastases were found in 10 patients. 16 patients had metastases at additional sites including the liver (2), brain (2), bone (2), kidney (1), and pancreas (1)
 - Of the 10 patients who had single site distant metastases, salvage therapy with wedge resection (2), lobectomy (1), and cryotherapy (1) have a higher rate of survival at 75% compared to those who underwent chemoradiation (4) at 0% survival rate
- Mean time to diagnosis of oligometastatic disease from initial HNSCC diagnosis was 1.42 (range 0.43-4.48) years
- Mean time to death from diagnosis of oligometastatic disease was 2.1 (range 0.1-5.1) years
- No significant association was identified between treatment type for recurrent oligometastatic disease and mortality (p<0.05)

Demographics	
Age in Years [mean ± SD]	68 ± 10
Gender	
Male	15 (94%)
Female	1 (6%)
Race	
Caucasian	15 (94%)
African American	1 (6%)
Medical History	
BMI [mean ± SD]	27 ± 5
Smoking History	
Never Smoker	8 (50%)
Former Smoker	6 (38%)
Current Smoker	2 (12%)
Alcohol History	
Never Drinker	6 (38%)
Current Drinker	10 (62%)

Table I. Demographics

Diagnosis and Intervention	
Primary Site	
Oropharynx	15 (94%)
Unknown	1 (6%)
SCC Histology Type	
P16+ SCC	11 (69%)
P16- SCC	4 (25%)
Clear Cell Carcinoma	1 (6%)
Treatment For Recurrent Disease	
Chemotherapy	6 (38%)
Radiation	4 (25%)
Wedge Resection	2 (12%)
Cryotherapy	1 (6%)
Lobectomy	1 (6%)
No Treatment	5 (31%)

Table II. Diagnosis and Intervention

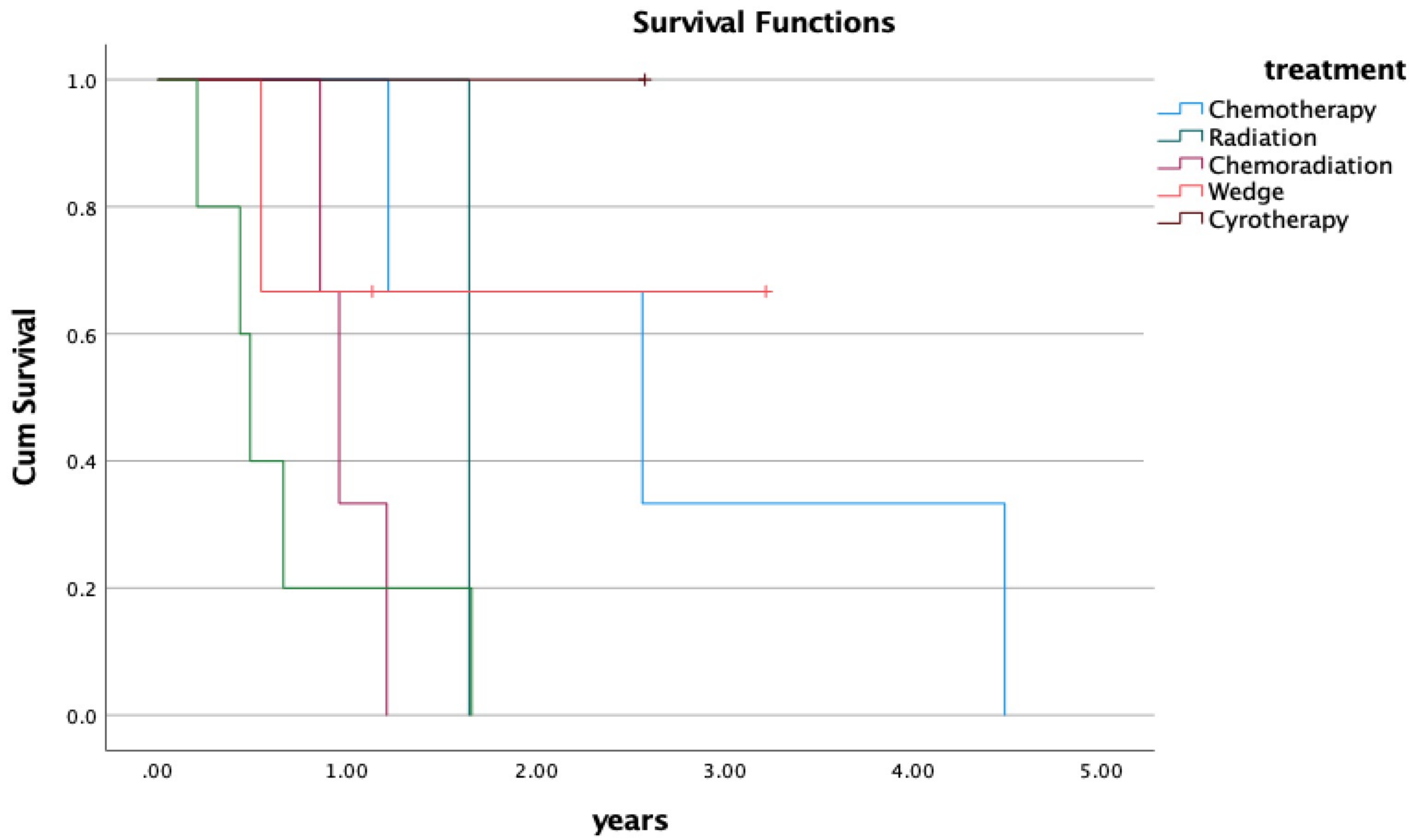


Figure I. Kaplan-Meier Survival Curve of Overall Cohort After Pulmonary Oligometastases

Discussion

- Amongst HNSCC patients who develop oligometastases, the common site of metachronous recurrent disease is the lung
- Disease-free interval from time of initial HNSCC diagnosis to oligometastases is short; accordingly, early and diligent screening post-TORS is imperative
- Regardless of the treatment modality targeting recurrent disease, outcomes remain poor and mortality is high

Conclusion

- HNSCC with pulmonary oligometastases remains difficult to treat despite advancement in multi-modal therapy at the primary disease site and early interventions at site of recurrence
- Surgical resection of subsequent pulmonary metastases may prolong survival but more studies are needed to develop and optimize treatment algorithms following identification of oligometastases

References

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