

Tooth extractions prior to chemoradiation or bioradiation are associated with weight loss during treatment for locally advanced oropharyngeal cancer

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Purpose

Prior to radiotherapy combined with chemotherapy (CRT) or biotherapy (BRT) for oropharyngeal squamous cell carcinoma (OPSCC), teeth with poor prognosis that pose a risk for post-RT osteoradionecrosis (ORN) are removed. The effect of tooth loss on body weight loss and tube feeding (TF) dependency during CRT/BRT is unknown. This study aimed to evaluate the effect of incomplete dentition, tooth extractions prior to CRT/BRT, and the subsequent loss of functional units on: (1) weight loss during CRT/BRT and (2) the need for TF during CRT/BRT for OPSCC.

Methods

OPSCC patients treated with CRT/BRT between 2013 and 2016 were included in this retrospective cohort study. Dental status was determined during the dental assessment at first visit and after tooth extractions prior to the start of CRT/BRT. Weight loss during CRT/BRT was scored dichotomously, comparing weight loss >5% to stable or increased weight. Potential factors associated with weight loss were identified, including patient, tumor, and treatment characteristics.

Results

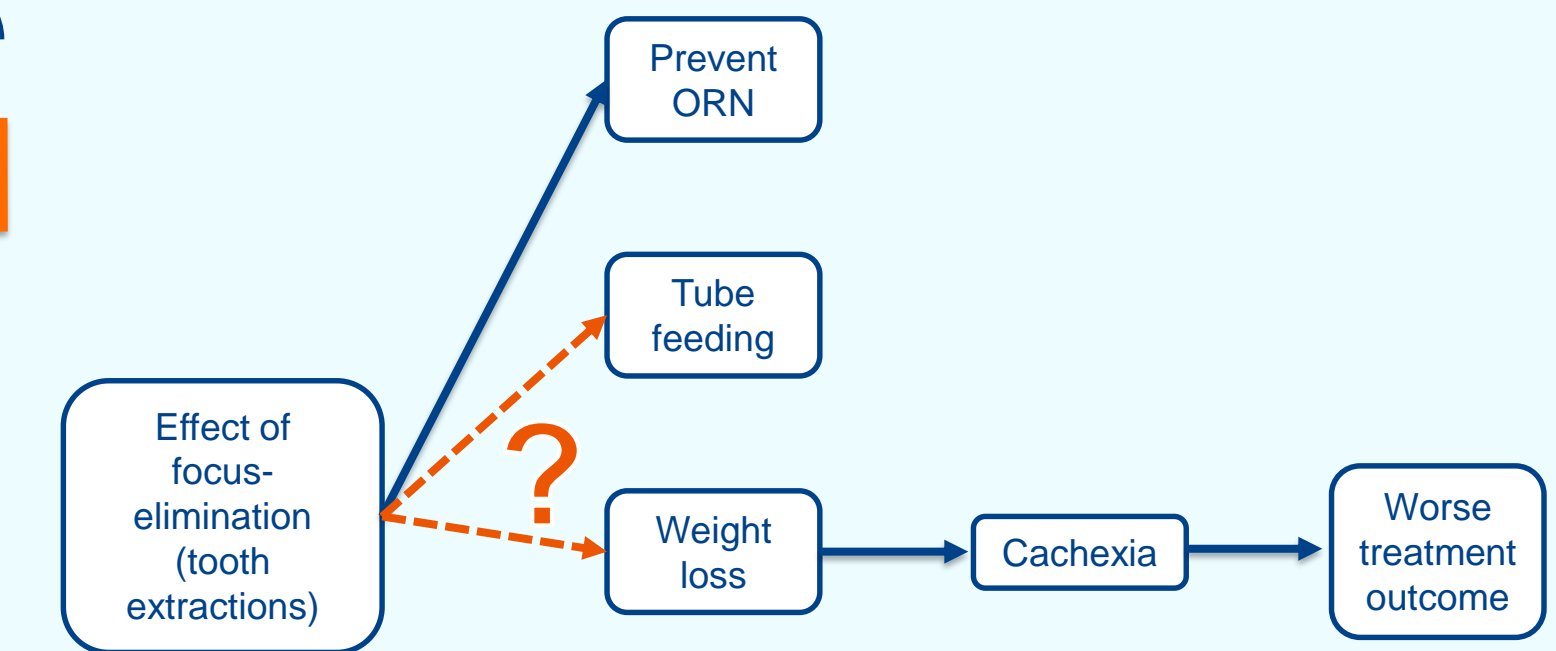
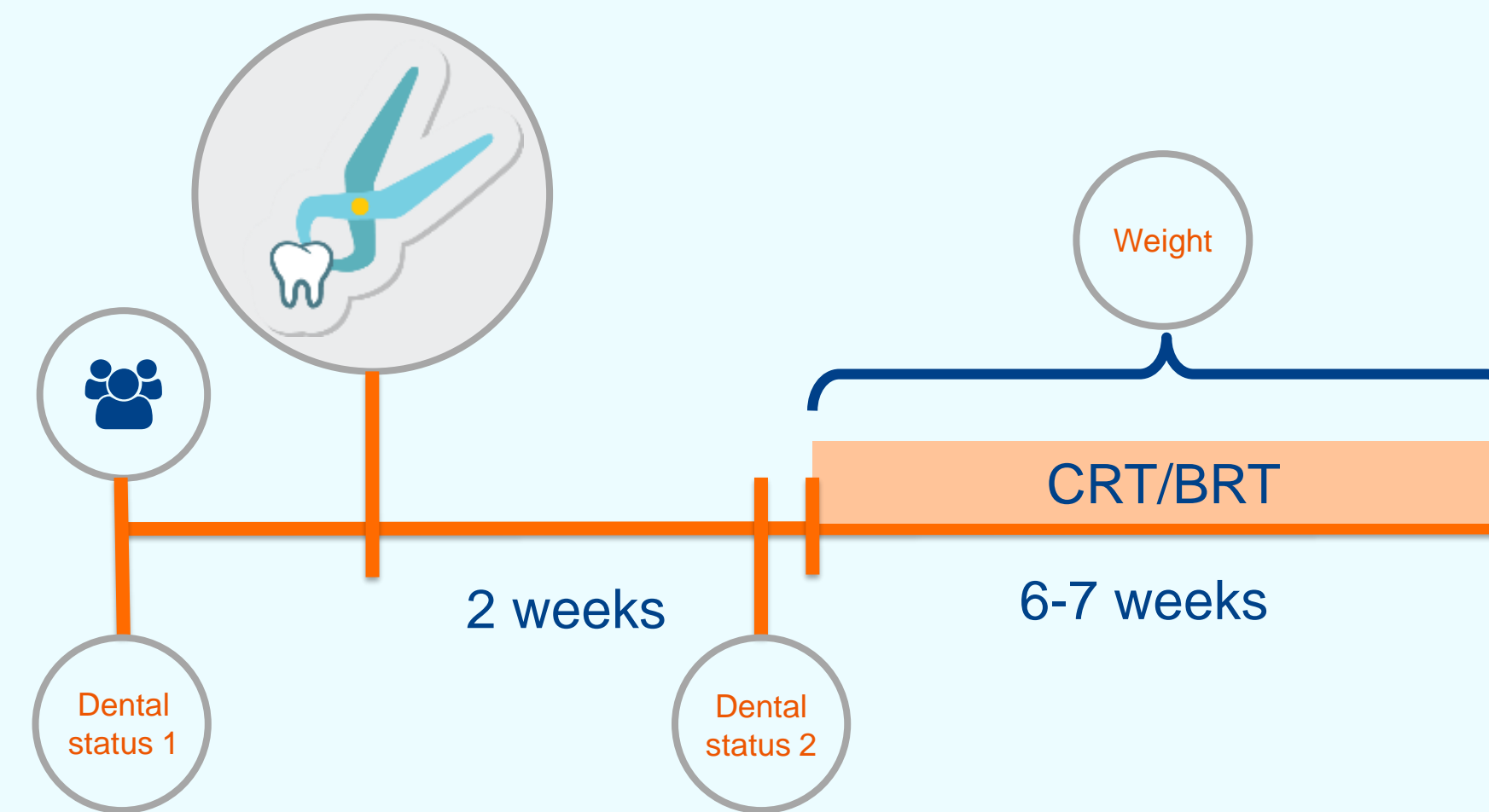
Seventy-seven OPSCC patients were included. Forty patients (52%) experienced weight loss >5% during CRT/BRT. Extractions were performed in 66% of the OPSCC patients. The mean number of extracted teeth was 4.1 ± 5.6 per patient. Tooth extractions prior to CRT/BRT were associated with weight loss >5% during CRT/BRT (HR 1.130 (95% CI 1.011-1.262), p=0.031). None of the dental status-related parameters showed any significant associative value for TF during CRT/BRT.

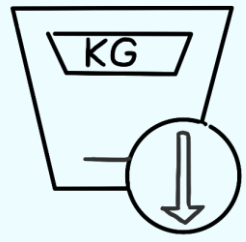
Conclusions

Pre-CRT/BRT tooth extractions intended to reduce the risk of ORN, are a risk factor for weight loss during CRT/BRT for OPSCC.


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	Stable weight or less than 5% during CRT/BRT	>5% weight loss during CRT/BRT	p value
	N=37 (48%)	N=40 (52%)	
BMI at start RT (kg/m ²); mean ± SD	24.5 ± 5.0	26.7 ± 4.2	0.039 ^b
Tooth extractions before CRT/BRT	20 (54%)	31 (78%)	0.030 ^d
No tooth extractions before CRT/BRT	17 (46%)	9 (23%)	

	Univariable analysis				Multivariable analysis			
	OR	CI-95%		p value	OR	CI-95%		p value
		lower	upper			lower	upper	
BMI	1.113	1.003	1.236	0.044	1.130	1.011	1.262	0.031
Tooth extractions (yes vs. no)	2.928	1.094	7.834	0.032	3.360	1.185	9.529	0.023

	Univariable analysis				Multivariable analysis			
	OR	CI-95%		p value	OR	CI-95%		p value
		lower	upper			lower	upper	
Weight loss prior to CRT/BRT	1.187	1.001	1.407	0.049				
Cetuximab vs cisplatin (ref)	0.355	0.127	0.995	0.049	0.226	0.070	0.731	0.013
RT dose to contralateral gl. submandibularis	1.048	1.001	1.096	0.044	1.067	1.013	1.124	0.015
RT dose to m. cricopharyngeus	1.088	1.010	1.173	0.026				

