

Importance

The prognostic significance of bone invasion in oral cavity squamous cell carcinoma (OCSCC) after accounting for other factors including tumor size, nodal spread, and surgical margins is controversial. OCSCC with bone invasion is considered pT4a in AJCC 8th edition and generally prompts a recommendation for adjuvant radiotherapy or concurrent chemoradiation (RT/CCRT).

Objective

To determine whether patients with pT4aN0 oral cavity squamous cell carcinoma with bone invasion have improved overall and disease-free survival with adjuvant treatment.

Design

Retrospective case series based on a single-center experience for patients with oral cavity cancer who underwent surgery from 2000-2020.

Setting

Single head and neck oncology center of a primary academic medical center.

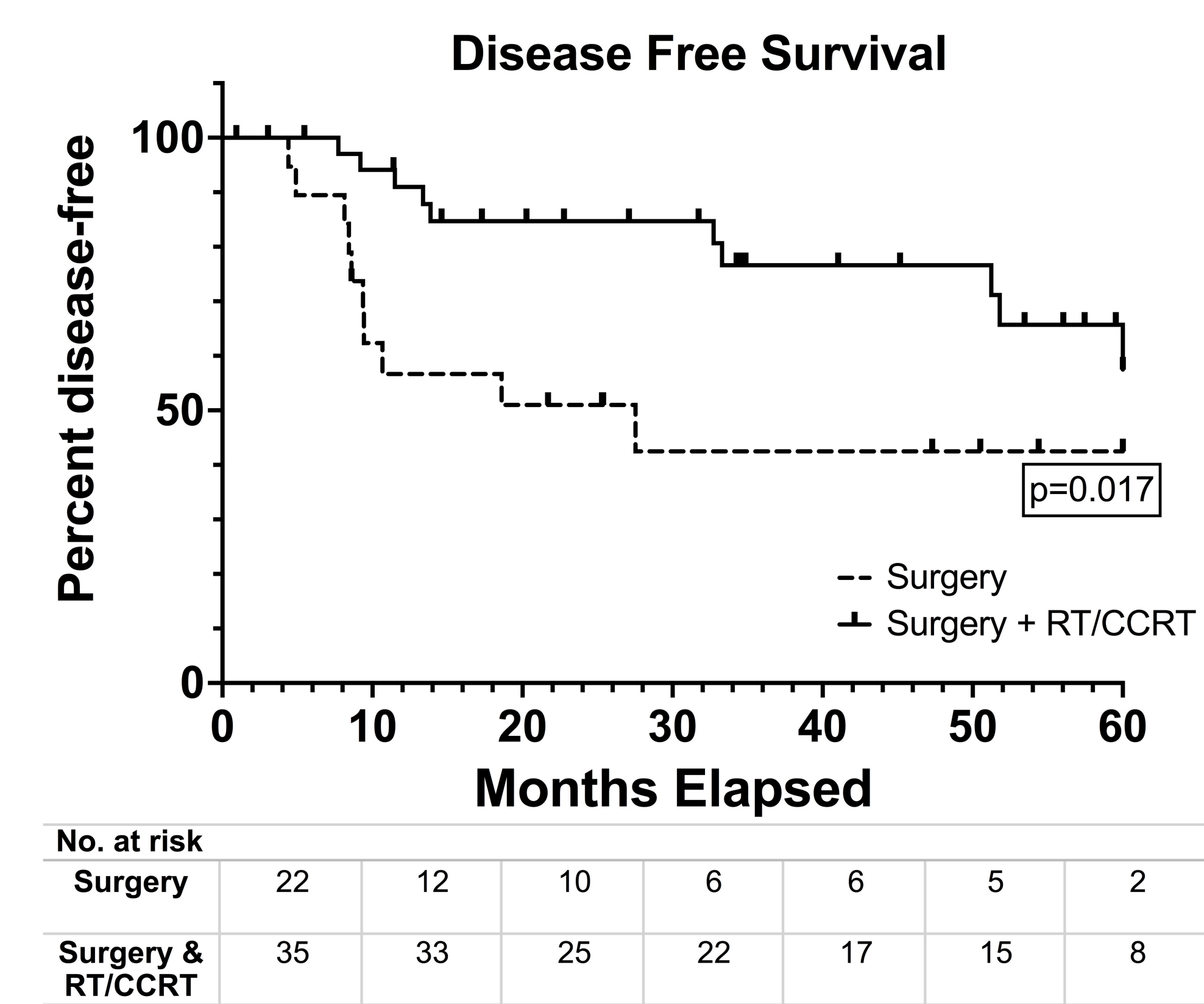
Participants

Sixty-four patients were identified on retrospective chart review as stage pT4aN0 due to mandibular involvement and having received either surgery or surgery and RT/CCRT. Patients with other etiologies of pT4a staging (ie. extrinsic tongue involvement, skin involvement) were excluded.

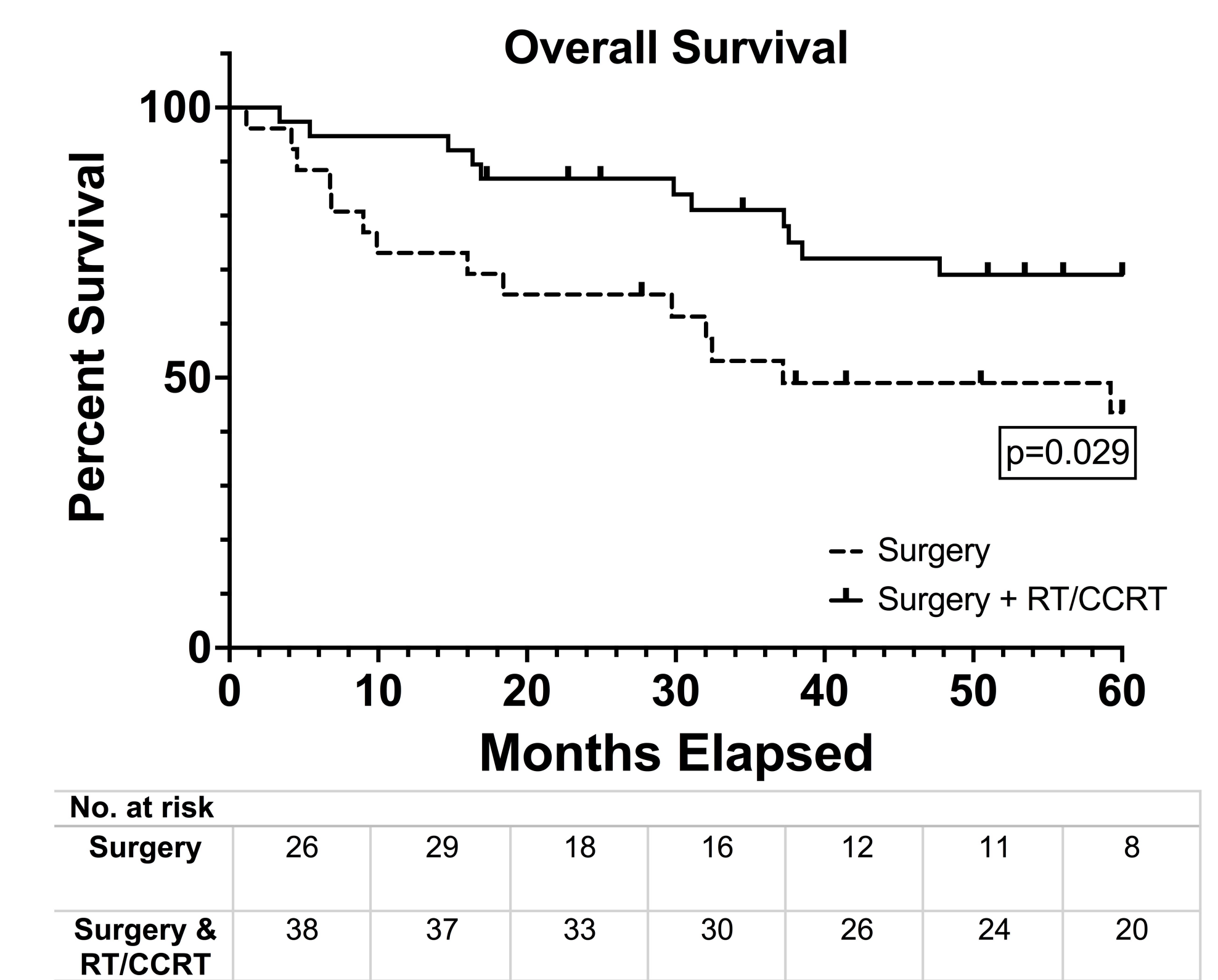
Main Outcome Measures

Primary outcomes included disease-free survival and overall survival from first date of treatment to date of recurrence. The prognostic impact of adjuvant therapy was assessed using multivariate analysis and reported as hazard ratios.

Recurrence by Treatment Modality

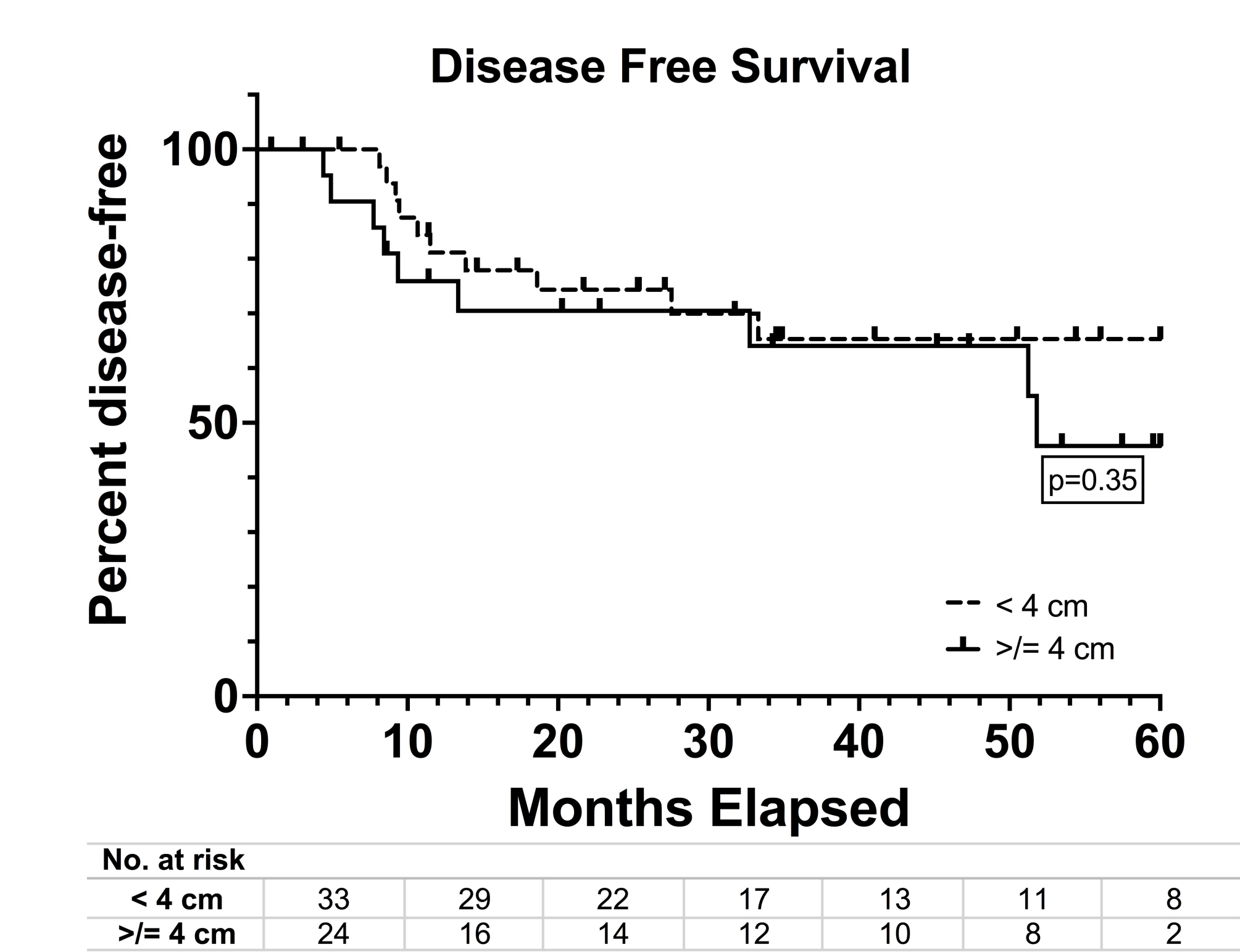


5-year disease free survival:
Surgery + RT/CCRT: 65.9% (SE: 9.8%), Surgery alone: 42.5% (SE: 12.5%) (p=0.017)

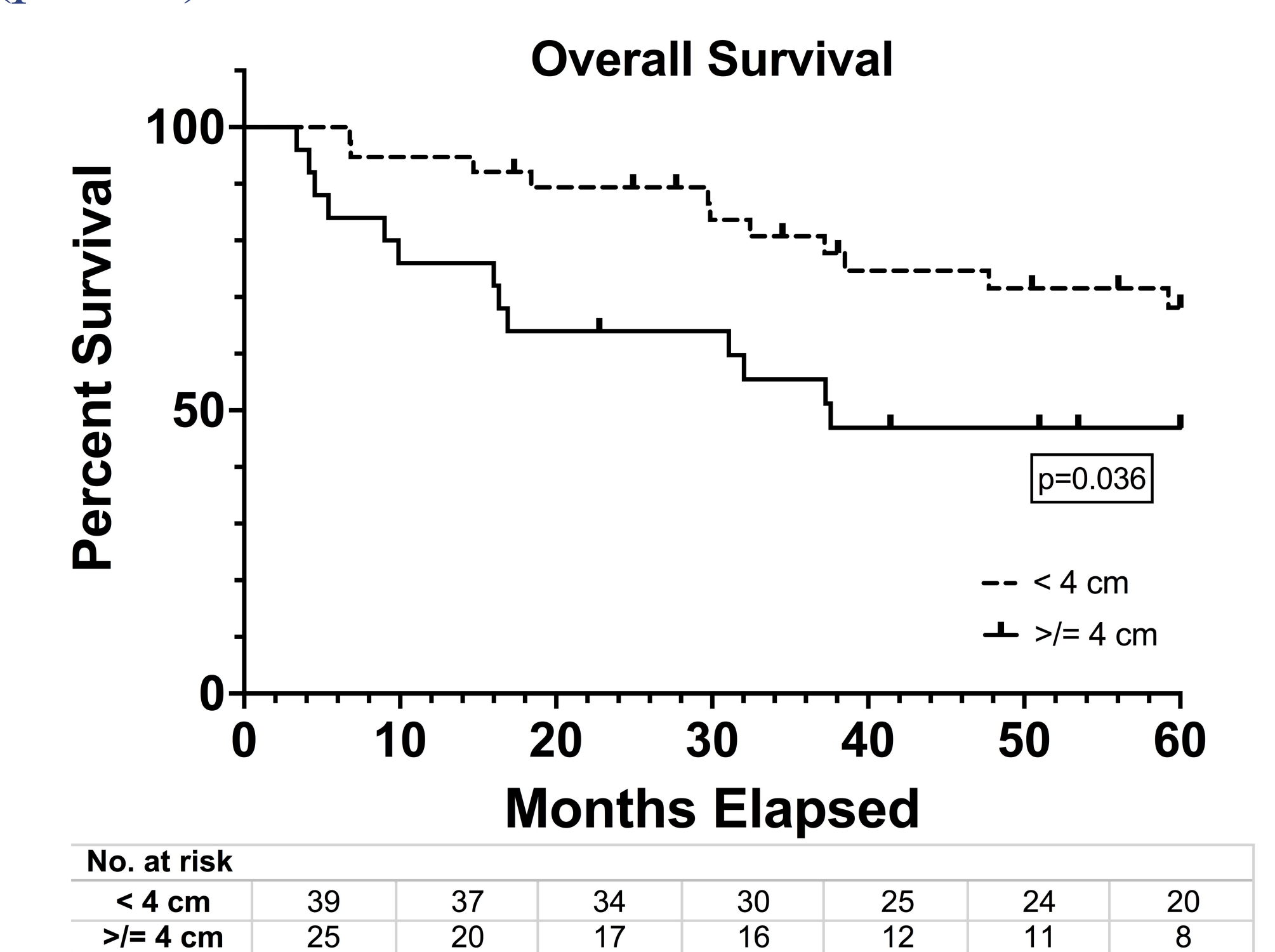


Five-year overall survival:
Surgery + RT/CCRT: 69.0% (SE: 7.8%)
Surgery Alone: 43.6% (SE: 10.2%) (p=0.029)

Recurrence by Tumor Size



Disease-free survival did not differ between patients with tumors <4 cm or >= 4 cm diameter at 5 years (p=0.35)



Fiver-year overall survival:
Tumors <4 cm: 68.1% (SE: 8.0%).
Tumors >= 4 cm: 46.9% (SE: 10.1%). (P=0.036)

PNI Increases Risk of Death while Adjuvant Treatment Decreases Risk of Death

Adjusted Hazard Ratio for 5-year Risk of Death (n=64)

Covariate	Hazard Ratio for Recurrence	Lower 95% CI	Upper 95% CI	p-value
Age	0.98	0.94	1.03	0.45
Gender	0.54	0.20	1.51	0.24
Comorbidity Index	1.29	0.97	1.70	0.08
Alcohol use (present)	1.10	0.36	3.32	0.87
Smoking (>10 pack years)	2.34	0.80	6.81	0.12
Tumor (>= 4cm)	1.69	0.64	4.51	0.29
PNI (present)	7.43	2.31	23.85	0.001
LVI (present)	0.84	0.08	8.86	0.89
Margins (positive)	0.83	0.28	2.49	0.74
Adjuvant RT/CCRT	0.10	0.03	0.32	<0.001
Adjuvant chemotherapy	3.02	0.66	13.79	0.16

covariates: age, gender, smoking, alcohol use, CCI, tumor characteristics (size, PNI, LVI, margins)

Conclusions

Adjuvant RT/CCRT in patients with pT4N0 OCSCC with mandibular bone involvement is associated with improved disease-free- and overall survival. This association was significant regardless of tumor pathologic features such as size or margin status. These findings may help guide physicians in counseling patients regarding risks and benefits of adjuvant RT/CCRT and help inform practice guidelines.

*Corresponding author: Gaelen.Stanford-moore@ucsf.edu