



Additional Occult Nodal Metastasis in Regionally Metastatic Cutaneous Squamous Cell Carcinoma

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INTRODUCTION

Context

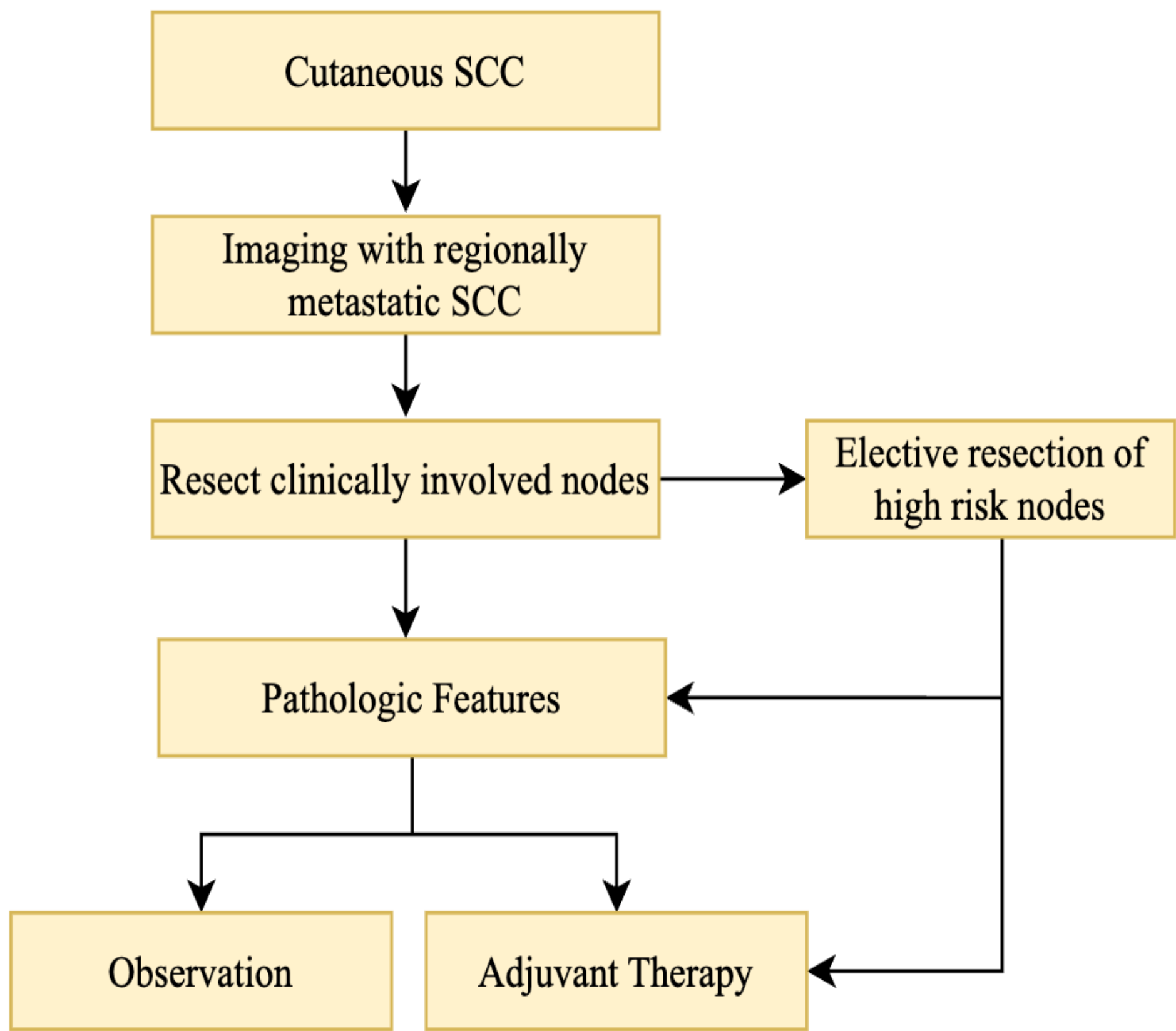
Patients with regionally metastatic cutaneous squamous cell carcinoma (cSCC) routinely undergo lymphadenectomy of clinically involved nodes. At risk nodal basins are also electively dissected, even in the absence of overt clinical evidence of metastasis.

Knowledge Gap

The incidence of additional occult metastasis to these electively dissected nodal basins in regionally metastatic cSCC remains poorly characterized, as do the clinicopathological factors that predict this occult spread. Furthermore, the relationship between additional occult nodal metastasis and long-term oncologic outcomes is not well established.

Significance

Clarifying these patterns may improve patient selection for extended lymph node resections and guide adjuvant treatment decisions.



STUDY AIMS

- 1 Determine the rate of additional occult nodal metastasis in patients undergoing lymphadenectomy for known regional metastatic cSCC
- 2 Identify factors associated with occult nodal metastasis
- 3 Assess the relationships between occult nodal metastasis and oncologic outcomes

METHODS

Retrospective cohort study of patients who underwent lymphadenectomy for regionally metastatic cSCC. Occult nodal metastasis was defined as histologically positive lymph nodes not identified by preoperative physical exam or imaging. Logistic regression was used to identify factors associated with additional occult nodal metastasis. Cox proportional hazards modeling assessed associations between clinicopathologic variables and disease-free survival (DFS) and overall survival (OS).

RESULTS

Demographic		Additional Occult Metastasis Status	
		Yes (n=29)	No (n=31)
Sex	Male	25 (86.2%)	28 (90.3%)
	Female	4 (13.8%)	3 (9.7%)
Age (at surgery)	Mean	76.7 (56-91)	70.6 (50-91)
	Median	78	72
Comorbidity	Hypertension	21 (72.4%)	18 (58.1%)
	Hyperlipidemia	7 (24.1%)	8 (25.8%)
	Cardiovascular	15 (51.7%)	9 (29%)
	OSA	1 (3.4%)	1 (3.2%)
	Diabetes Mellitus	10 (34.5%)	10 (32.3%)
	GERD	5 (17.2%)	6 (19.4%)
	Respiratory	6 (20.7%)	3 (9.7%)
	Renal	7 (24.1%)	0
Smoking History	Current	3 (10.3%)	6 (19.4%)
	Former	11 (37.9%)	7 (22.6%)
	Never	15 (51.7%)	18 (58.1%)
Immunosuppressed	Yes	4 (13.8%)	5 (16.1%)
	No	25 (86.2%)	26 (83.9%)

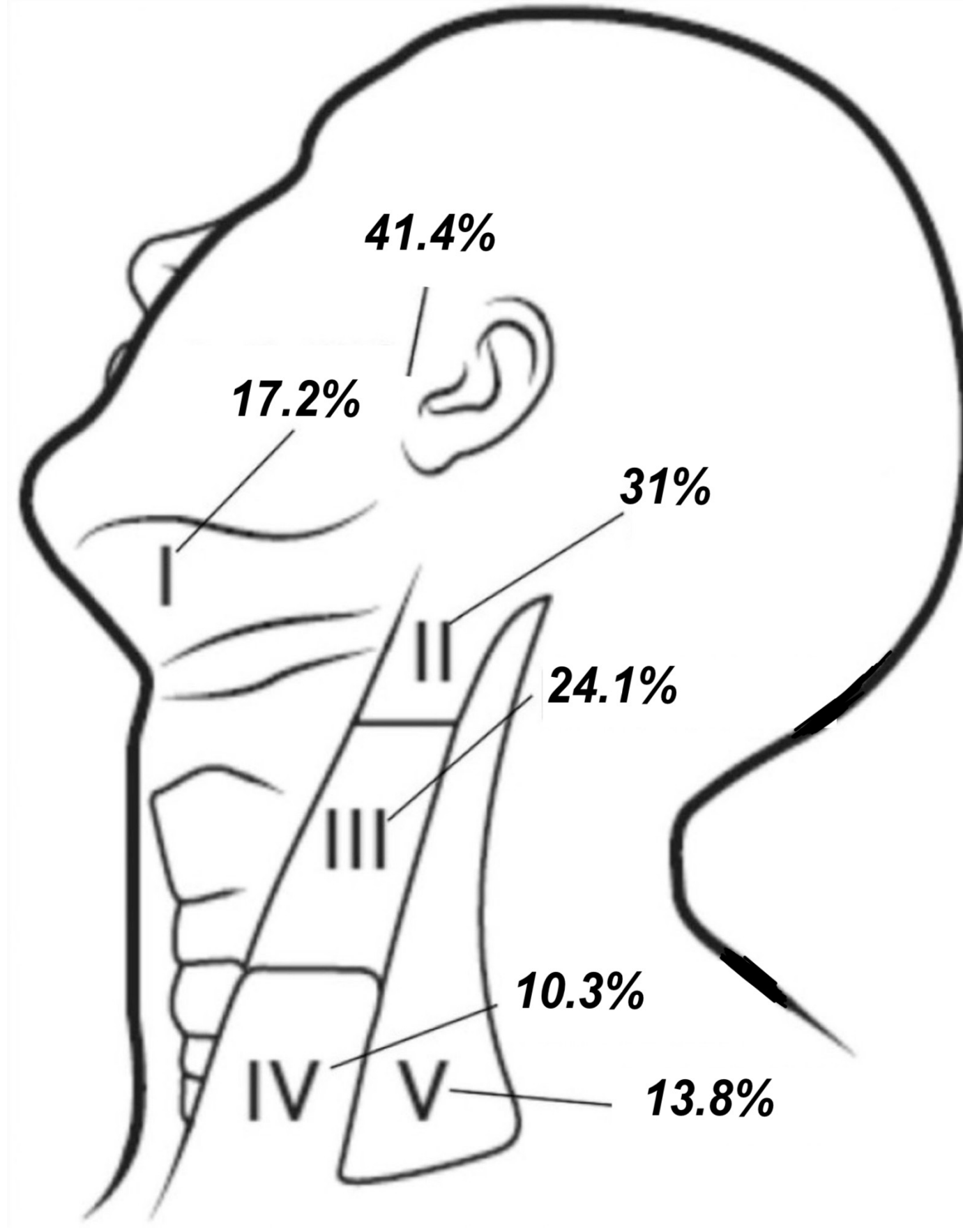
Table 1. Demographic characteristics of patients with and without occult nodal metastasis.

Pathology Findings	Additional Occult Metastasis Status	
	Yes (n=29)	No (n=31)
PNI	13 (44.8%)	10 (32.3%)
LVI	9 (31%)	1 (3.2%)
ENE	14 (48.3%)	17 (54.8%)

Table 2: Pathologic features of nodes status post lymphadenectomy.

Postoperative Outcomes	Additional Occult Metastasis Status	
	Yes (n=29)	No (n=31)
Adjuvant Treatment	25 (86.2%)	23 (74.2%)
Recurrence (p = 0.3)	16 (55.2%)	12 (38.7%)
Distant Recurrence	4 (13.8%)	3 (9.7%)
Average Overall Survival (months)	44.2	46.1
Average Follow Up (months)	14.5	20.8

Table 3: Rates of adjuvant therapy post-surgery, recurrence, distal recurrences, average survival and average follow up according to occult metastasis status.



Note: Adapted from "Occult Metastasis in Laryngeal Squamous Cell Carcinoma: A Systematic Review and Meta-Analysis" by D D. Sharbel, M. Abkemeier, 2021, *Annals of Otolaryngology, Rhinology & Laryngology*, 130(1):67-77 (doi:10.1177/0003489420937744). CC BY-NC.

Figure 1: Rates of additional occult positive nodes based on neck levels.

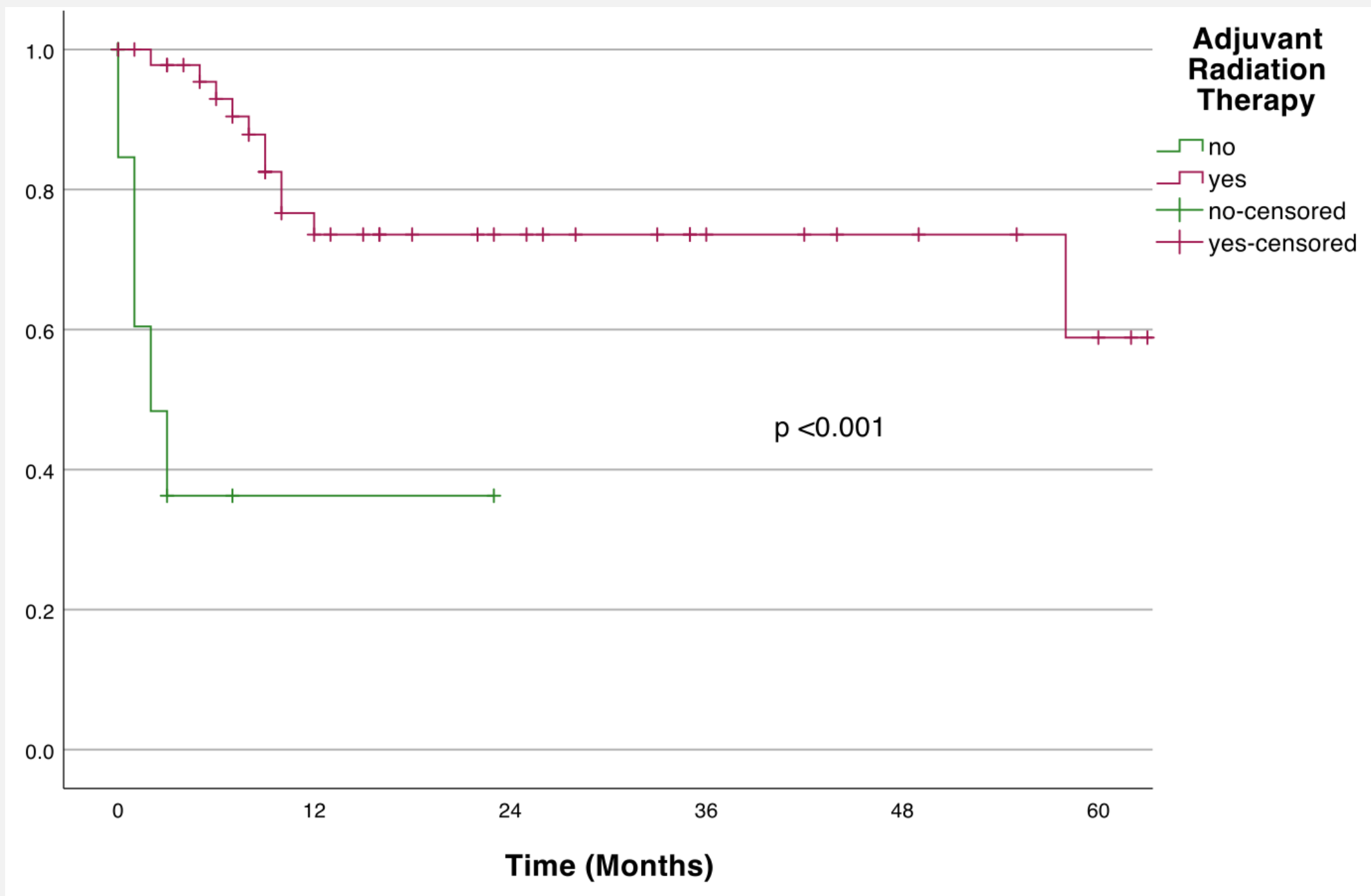


Figure 2: Overall survival with and without adjuvant XRT.

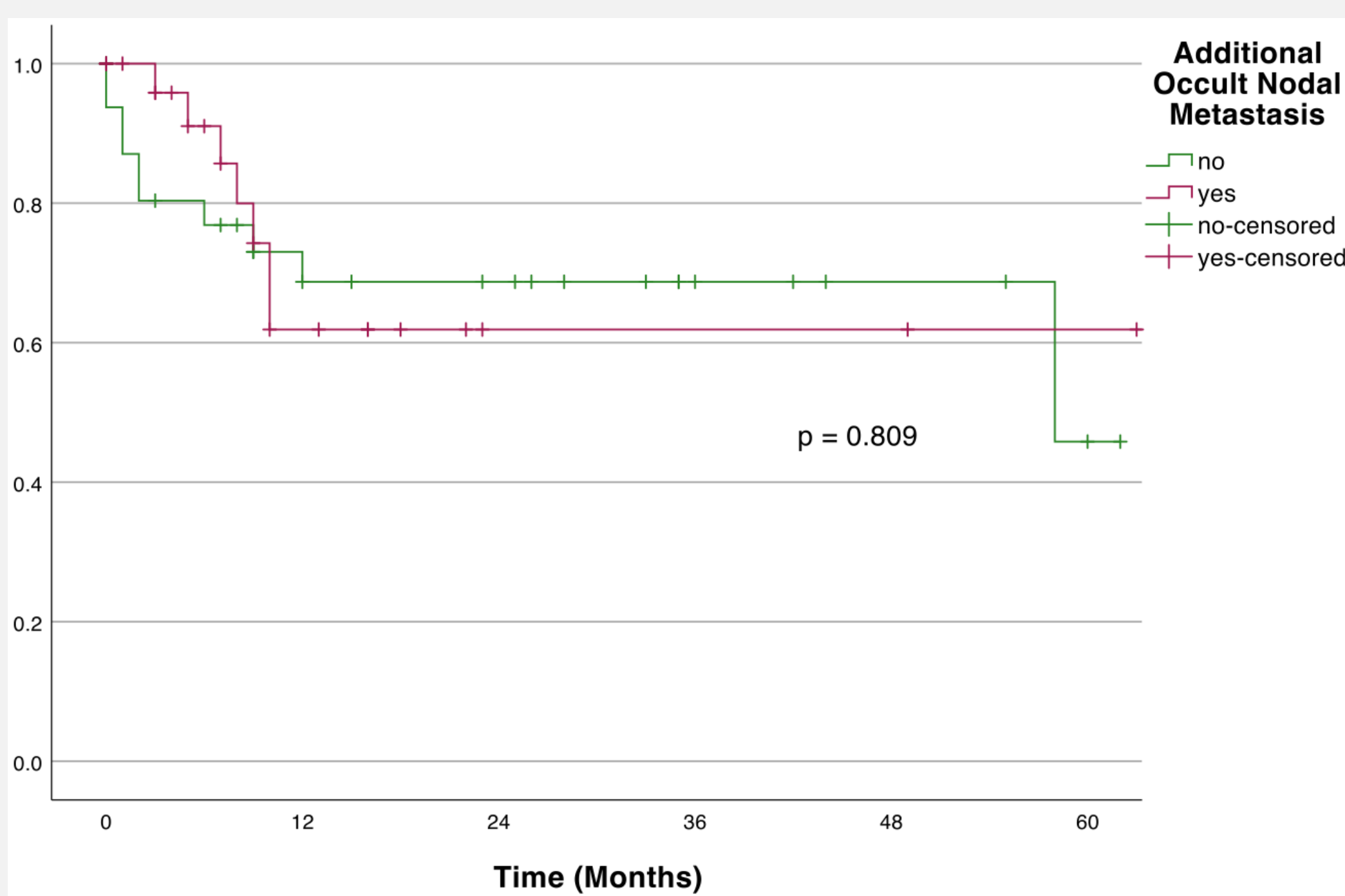


Figure 3: Overall survival with and without additional occult nodal metastasis

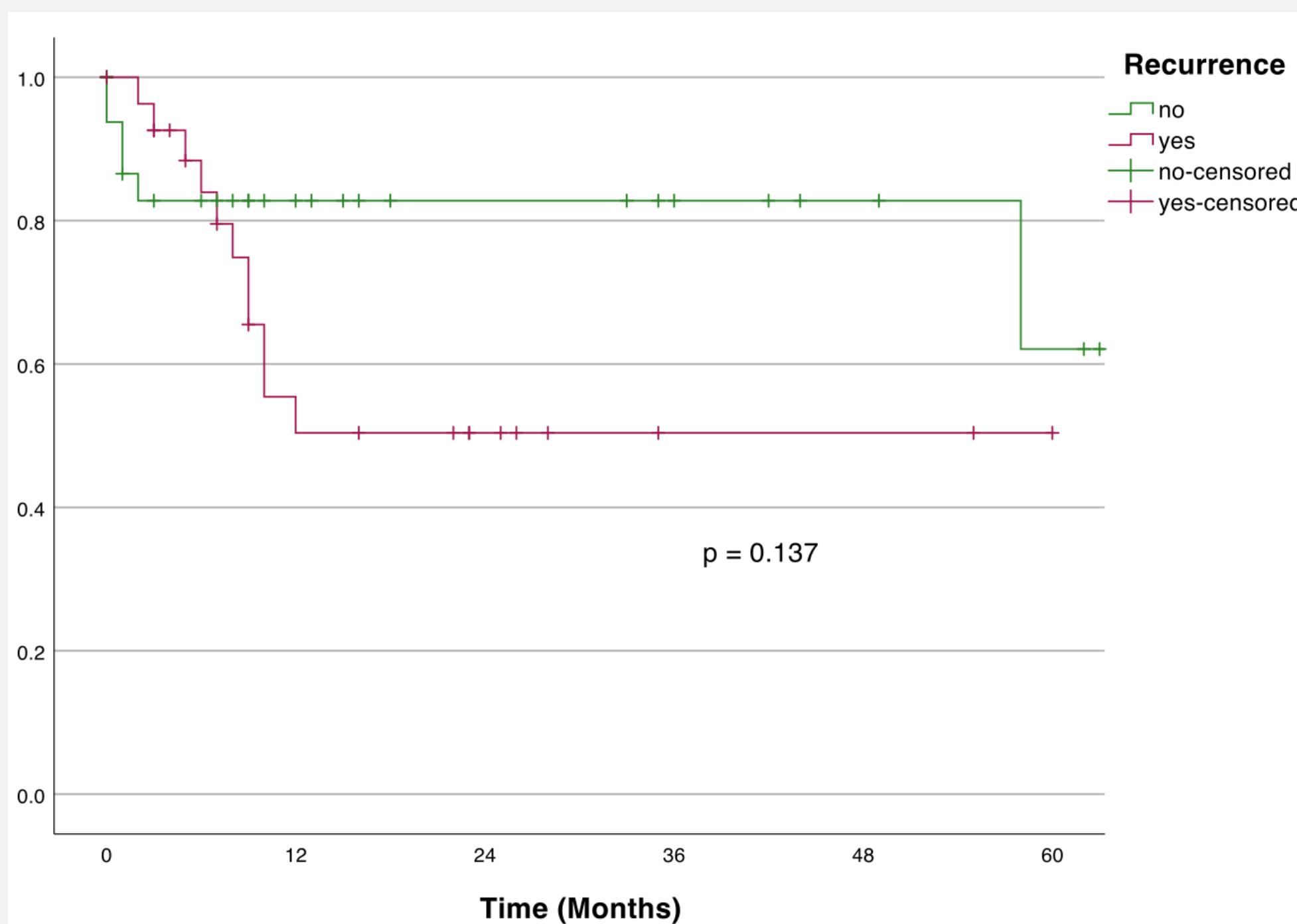


Figure 4: Overall survival with and without Recurrence free survival with and without additional occult nodal metastasis.

- 1 60 patients were included in the study and had an average follow-up duration of 17.8 months. All patients underwent preoperative imaging, most commonly CT scan (n=47, 78%) and PET (n=47, 78%). Despite preoperative imaging, 29 (48%) patients had additional occult metastasis at the time of lymphadenectomy for regionally metastatic cSCC.
- 2 Factors associated with additional occult nodal metastasis on both univariable, and multivariable analysis were increasing age (OR 1.07, 95% CI 1.01-1.13, p=0.027) and primary tumor lymphovascular invasion (OR 16.4, 95% CI 2.58-328, p=0.013).
- 3 The rate of recurrence among patients without additional occult metastasis was 38.7% compared to 55.2% for patients with occult nodal metastasis. Advanced T stage (HR 4.45, 95% CI 1.58-12.6, p=0.005) and receipt of adjuvant radiation therapy (HR 0.15, 95% CI 0.05-0.43, p<.001) were associated with overall survival, but occult nodal metastasis was not (HR 1.08, 95% CI 0.41-2.08, p=.88).

CONCLUSIONS

- Rate of additional occult regional metastasis in patients with metastatic cSCC was 48.3%.
- Older patients and patients with lymphovascular invasion on pathology review may be more likely to have occult metastases in regionally metastatic cSCC.
- Additional occult nodal metastasis was not associated with worse overall survival .
- Adjuvant radiation therapy was associated with a pronounced survival benefit.
- Elective nodal dissection for nearby nodal drainage basis at risk for additional occult nodal metastasis should be considered at the time of lymphadenectomy for regionally metastatic cSCC.
- Future studies may help define levels at risk, as well as options for treatment escalation.

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