

TREATMENT AND SURVIVAL IN T3 LARYNGEAL CARCINOMA WITH VOCAL CORD FIXATION

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Purpose

- Laryngeal cancer is one of the few cancers where the survival is decreasing over time in the United States
- Non-surgical treatment of laryngeal cancer has increased in recent decades
- Randomized trials and database studies have shown similar survival for T3 laryngeal cancers with surgical vs non-surgical treatment
- T3 laryngeal cancers may or may not have vocal cord fixation
- Vocal cord fixation is a negative prognostic sign for laryngeal cancer, but its implications for treatment selection and survival outcome are unknown.

Hypothesis: Surgical treatment of T3 M0 laryngeal cancer is associated with improved overall survival, specifically among those with fixed vocal cords

Methods

- The National Cancer Database was queried for all T3 laryngeal carcinoma cases from 2004-2015
 - All subsites
 - Exclusions: Prior malignancy, no documented treatment, treated with chemotherapy only, or radiation prior to surgery
- Cases stratified on presence/absence of vocal cord fixation
- Further stratified by treatment type (surgery +/- adjuvant therapy vs nonsurgical)
- Primary outcome measure was overall survival
- Comparative statistics for factors associated with surgical treatment
- Kaplan-Meier and Cox proportional hazard survival analysis

References

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- Elcin et al. Comparison of Current Surgical and Non-Surgical Treatment Strategies for Early and Locally Advanced Stage Glottic Laryngeal Cancer and Their Outcome. *Cancers* 2020;12(3), 732
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	Vocal Cord Fixation (n= 5200)			No Vocal Cord Fixation (n=6135)		
	No Surgery	Surgery		No Surgery	Surgery	
N (%)	4136 (79.5)	1064 (20.4)		4276 (69.7)	1859 (30.3)	
Female Sex (%)	888 (21.5)	248 (23.3)	0.21	1239 (29.0)	464 (25.0)	0.001
Insurance (%)						
	Uninsured	352 (8.6)	91 (8.7)	294 (7.0)	146 (8.0)	0.139
	Private	1277 (31.4)	315 (30.0)	1404 (33.5)	578 (31.7)	
	Medicaid	645 (15.8)	189 (18.0)	746 (17.8)	360 (19.8)	
	Medicare	1684 (41.4)	436 (41.6)	1642 (39.1)	698 (38.3)	
	Other government	112 (2.8)	18 (1.7)	109 (2.6)	39 (2.1)	
Median Income Quartile						
	< \$30,000	815 (20.4)	218 (21.2)	921 (22.2)	394 (21.7)	0.174
	\$30,000 - \$34,999	885 (22.2)	253 (24.7)	888 (21.4)	435 (24.0)	
	\$35,000 - \$45,999	1169 (29.3)	302 (29.4)	1219 (29.4)	516 (28.5)	
	\$46,000 +	1123 (28.1)	253 (24.7)	1118 (27.0)	467 (25.8)	
Charlson Comorbidity						
	0	2940 (71.1)	673 (63.3)	2996 (70.1)	1166 (62.7)	<0.001
	1	864 (20.9)	276 (25.9)	943 (22.1)	494 (26.6)	
	2+	332 (8.0)	115 (10.8)	337 (7.9)	199 (10.7)	
Facility Type						
	Community	407 (10.0)	71 (6.8)	344 (8.1)	106 (5.8)	<0.001
	Comprehensive Community	1700 (41.7)	352 (33.6)	1508 (35.6)	460 (25.0)	
	Academic/Research	1523 (37.4)	537 (51.2)	1910 (45.1)	1115 (60.6)	
	Integrated Network	446 (10.9)	89 (8.5)	470 (11.1)	159 (8.6)	
Race/Ethnicity						
	American Indian	25 (0.6)	4 (0.4)	18 (0.4)	5 (0.3)	0.374
	Asian/Pacific Islander	45 (1.1)	8 (0.8)	36 (0.9)	21 (1.1)	
	Black	746 (18.2)	206 (19.7)	738 (17.5)	298 (16.3)	
	Hispanic	192 (4.7)	43 (4.1)	164 (3.9)	62 (3.4)	
	White	3085 (75.4)	787 (75.1)	3273 (77.4)	1446 (78.9)	
Margin Status Positive (%)	37 (51.4)	73 (8.7)	<0.001	23 (46.9)	175 (11.0)	<0.001
N Stage						
	0	2569 (63.6)	601 (66.8)	1882 (44.9)	897 (56.8)	<0.001
	1	527 (13.0)	115 (12.8)	667 (15.9)	217 (13.7)	
	2	882 (21.8)	179 (19.9)	1549 (37.0)	454 (28.7)	
	3	62 (1.5)	5 (0.6)	90 (2.1)	12 (0.8)	
Subsite (%)						
	Glottis	2014 (48.7)	485 (45.6)	604 (14.1)	367 (19.7)	<0.001
	Other	312 (7.5)	118 (11.1)	658 (15.4)	353 (19.0)	
	Supraglottis	1810 (43.8)	461 (43.3)	3014 (70.5)	1139 (61.3)	

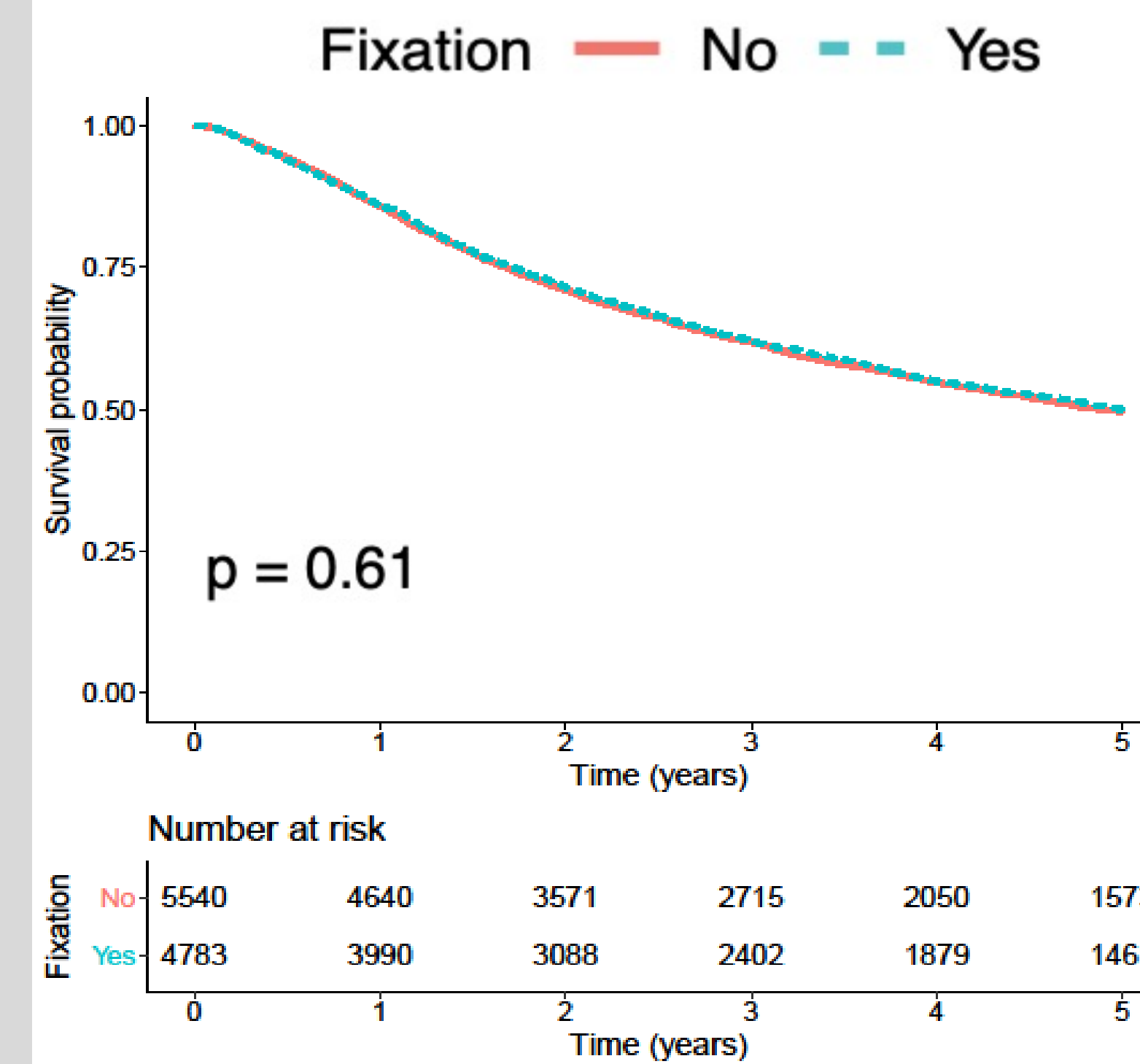


Fig 1. Survival analysis for all T3 cancers regardless of treatment modality, based on presence or absence of vocal cord fixation.

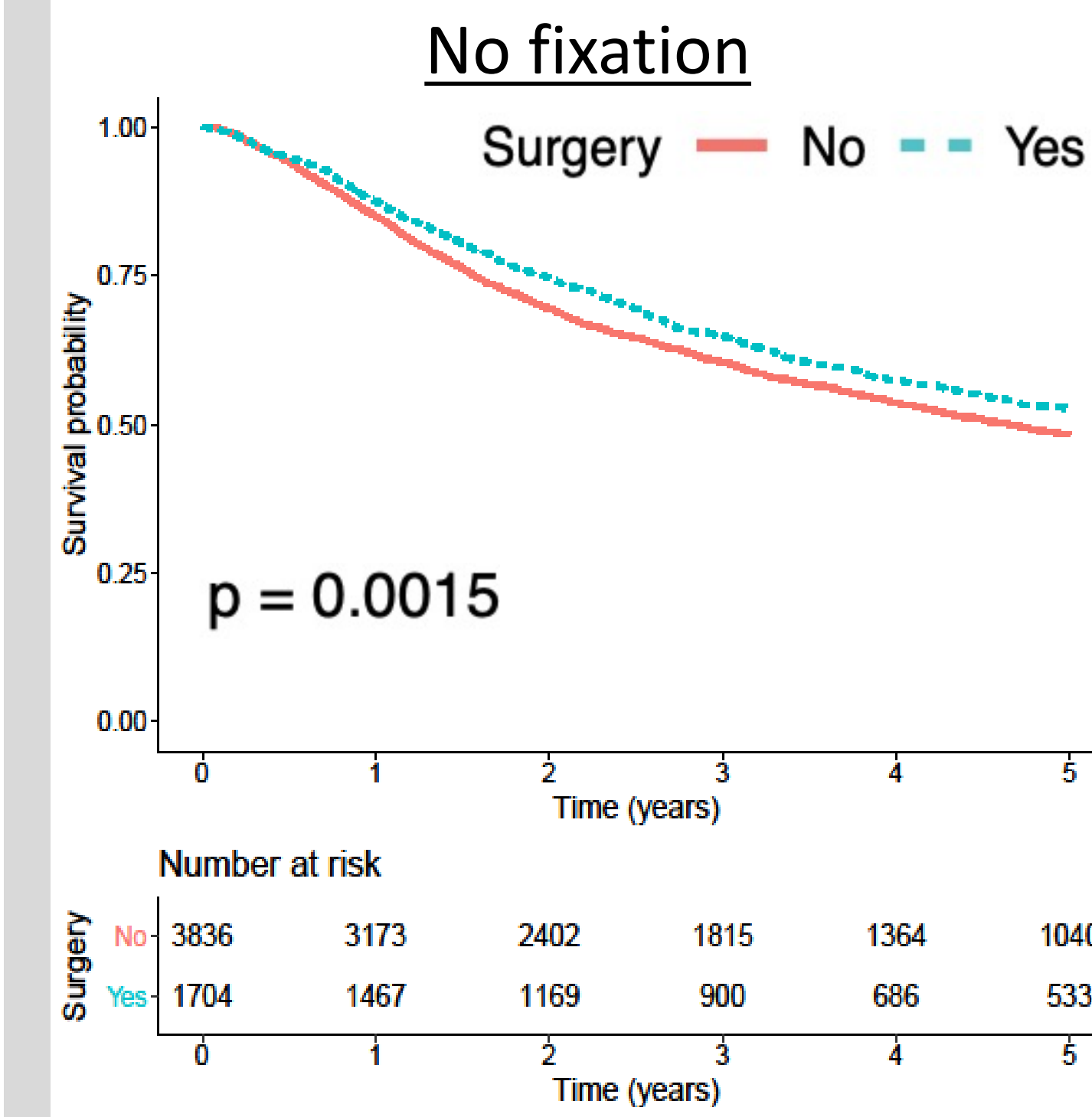


Fig 2. Survival analysis of T3 cancers without vocal cord fixation based on treatment modality

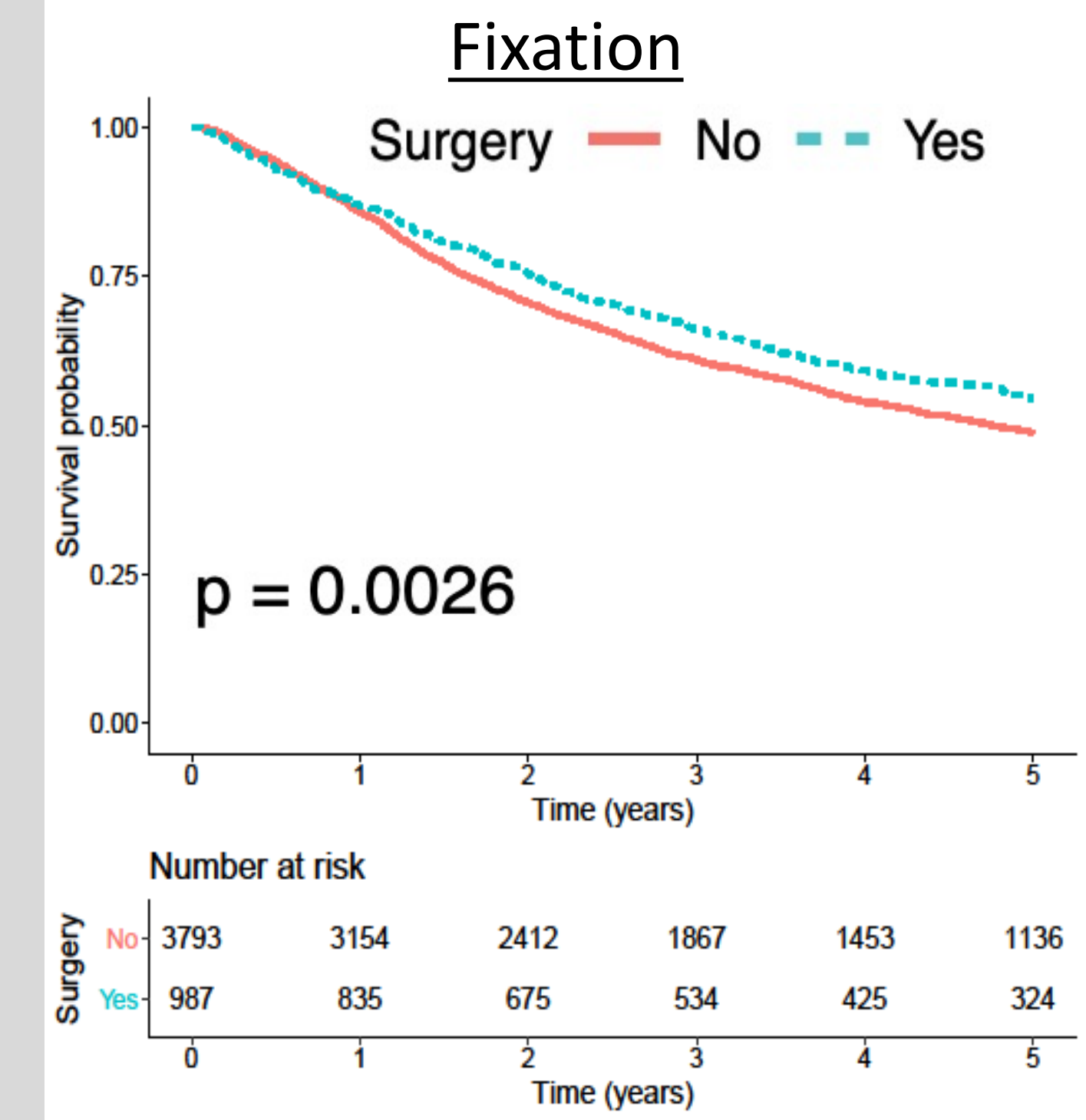


Fig 3. Survival analysis of T3 cancers with vocal cord fixation, based on treatment modality.

Results

- N = 11335
- Vocal cord fixation rate: 45.9%
- Increased rate of surgery in no vocal cord fixation group (30% vs 20%)
- Significant differences between surgical and nonsurgical treatment groups on comorbidity, facility type, margin status, and subsite for both fixation groups (Table)
 - Race, sex and N stage were only different between treatment modalities in nonfixed cord group
- Superior crude and adjusted overall survival associated with surgical treatment in both the fixed and non-fixed groups (Fig. 1-3)

Conclusions

- Surgical treatment of T3 laryngeal cancer patients with vocal cord fixation is associated with improved overall survival
- The presence or absence of vocal cord fixation is not an independent predictor of survival
- This observational study should be interpreted with appropriate caution.
- The improved survival benefit from surgery observed for T3 tumors conflicts with previously published studies, suggesting potential unaccounted-for confounding.