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Introduction

- Oral cavity cancers have the highest positive margin rate of all solid malignancies impacting both genders.¹
- If a positive margin is identified on frozen section analysis, this is communicated back to the surgeon and a re-resection is performed.
- Surgeons have difficulty relocating the positive margin site.^{2,3}
- The likelihood of a re-resection containing additional malignancy and its impact on local control and survival remains understudied.
- We aim to evaluate the rate at which carcinoma is present in the re-resection and its impact on oncologic outcomes.

Methods

- **Study Design:** Single institution retrospective chart review from 2000 – 2022. A tumor bed approach to margin analysis was used for the vast majority of cases.
- **Inclusion criteria:**
 - Patients who underwent surgical resection of an oral cavity cancer
 - **Initial positive margin on intraoperative frozen section analysis with subsequent re-resection performed**
 - Initial positive margin defined as severe dysplasia, carcinoma in situ (CIS), or carcinoma.
- **Data analysis:** The following tests were performed with R studio
 - Descriptive statistics
 - Cox regression
 - Kaplan-Meier with log rank analysis - overall survival (OS), disease-free survival (DFS), locoregional free survival (LRFS)

Result

- **29%** of re-resections contained further malignancy (Figure 1)
- **31%** of patients with initial positive margins have final positive margins (Table 2)
- **50%** of final positive margins were in a different anatomic location than the margin that had been re-resected
- **Re-resection with cancer and positive final margin status** is associated with **worse OS** (Fig 4 & 5)

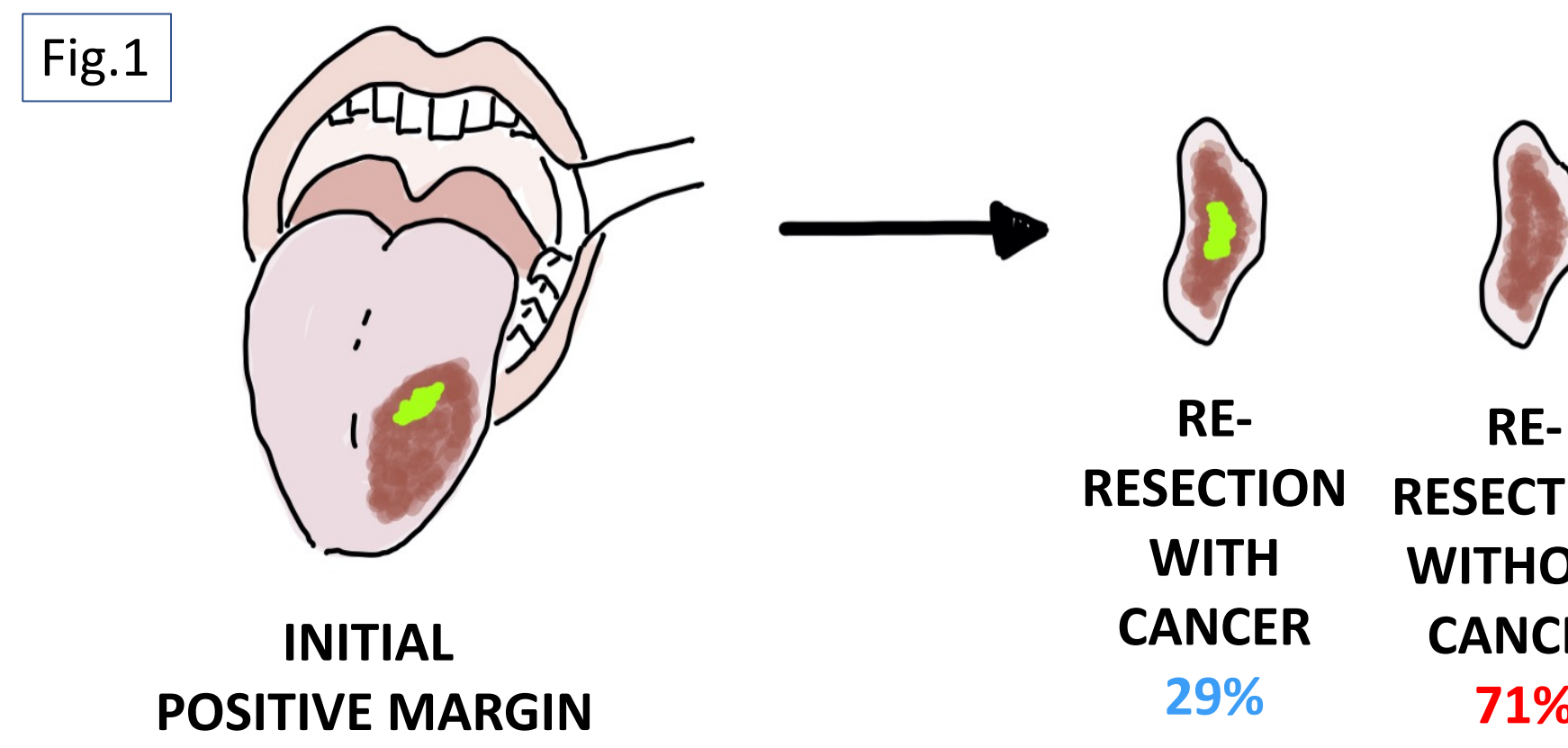


Table 1. Clinical Characteristics (N=190)

Age (median (range))	65 (54, 72)
Sex	
Female	81 (43%)
Male	109 (57%)
Mean Follow-up (Days)	636 (230, 1,537)
T Stage	
1/1a	56 (32%)
2	43 (24%)
3	12 (6.8%)
4/4a/4b	66 (37%)
Unknown	13
Prior oral cavity cancer	
Yes	67 (35%)
No	123 (65%)

Table 2. Oncologic Outcomes

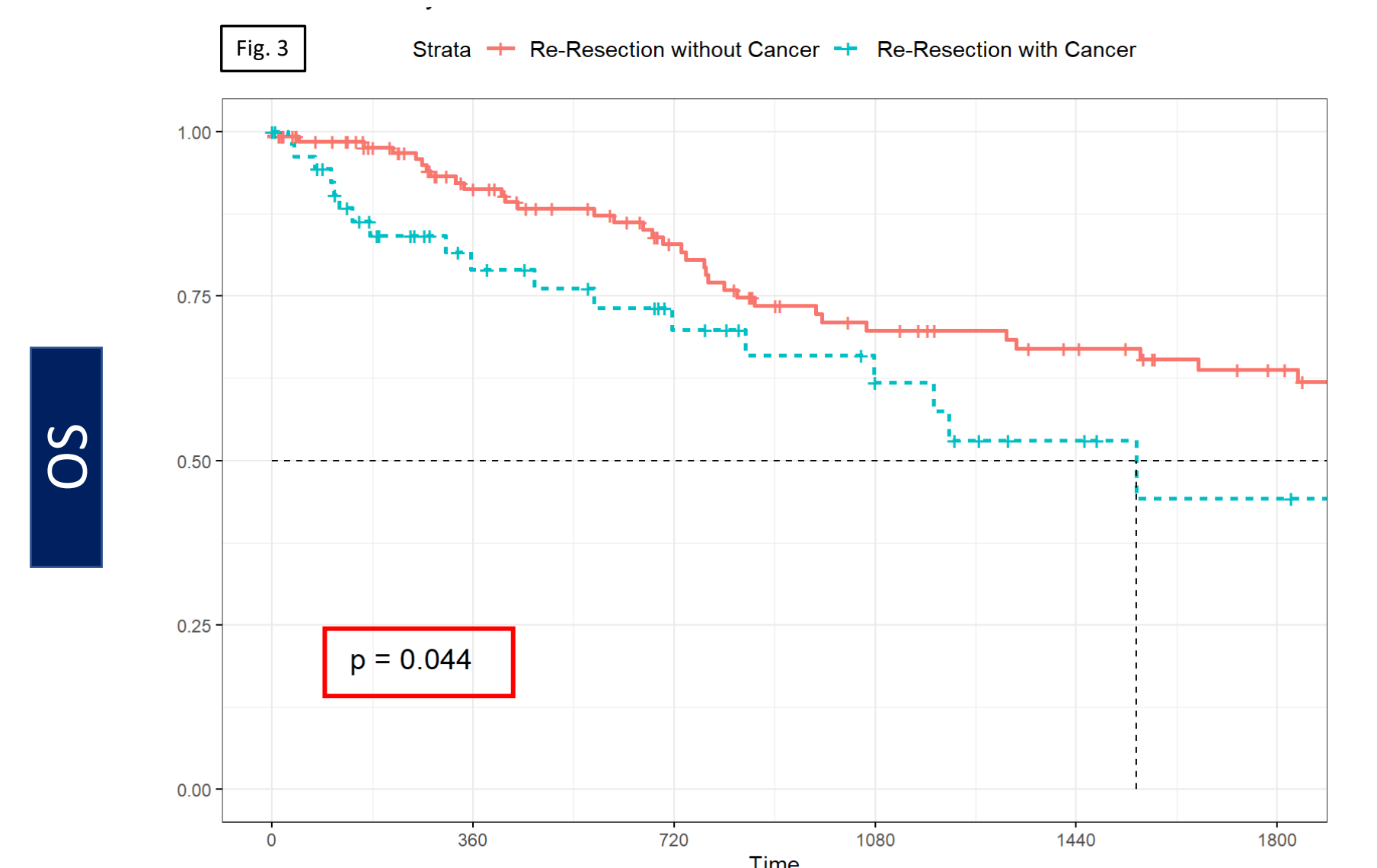
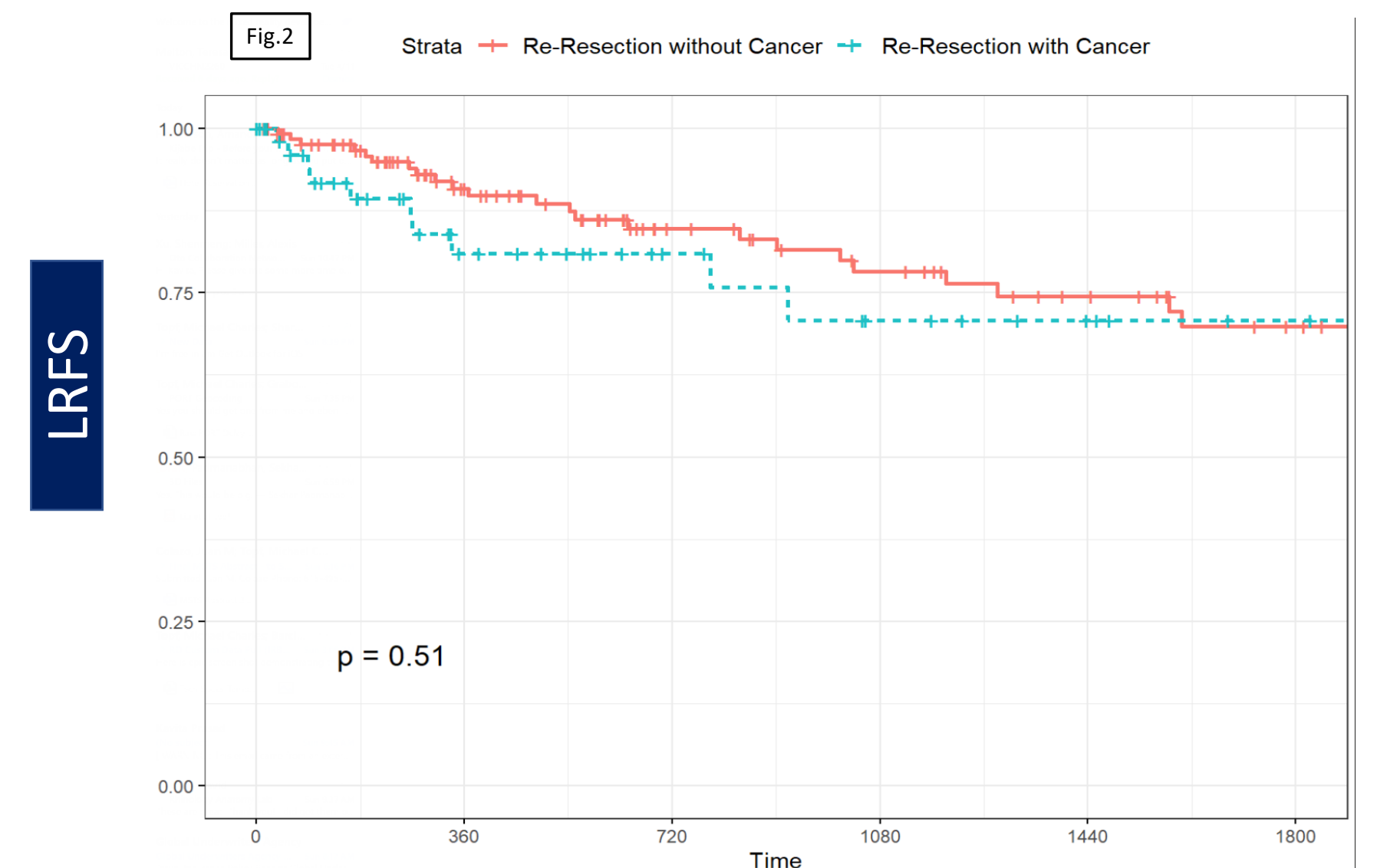
Re-resection With Cancer	56 (29%)
Final Positive Margin	58 (31%)
Local Recurrence	37 (19%)
Any Recurrence	82 (43%)
All-Cause Mortality	61 (32%)

Table 3. Multivariable Logistic Regression for Local Recurrence

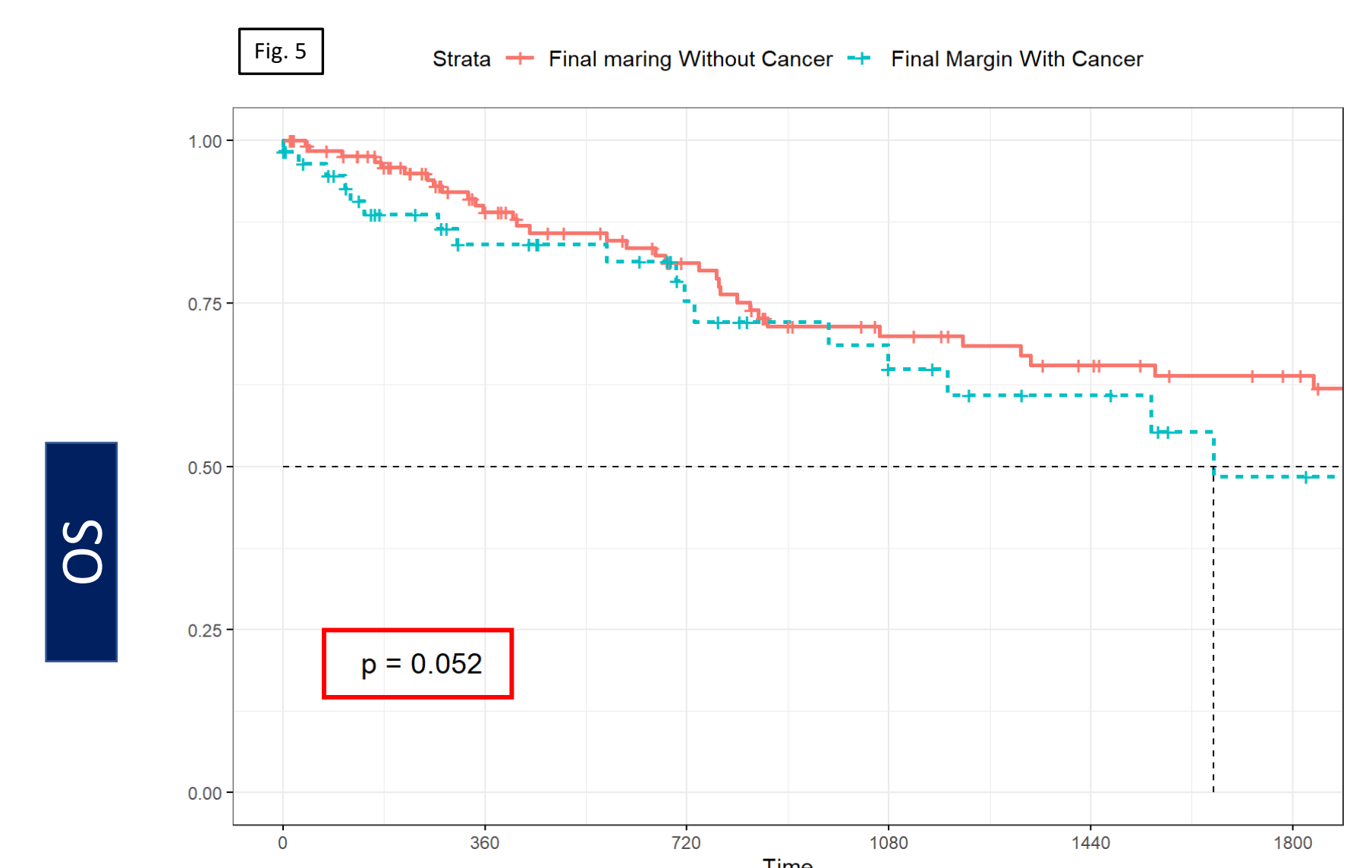
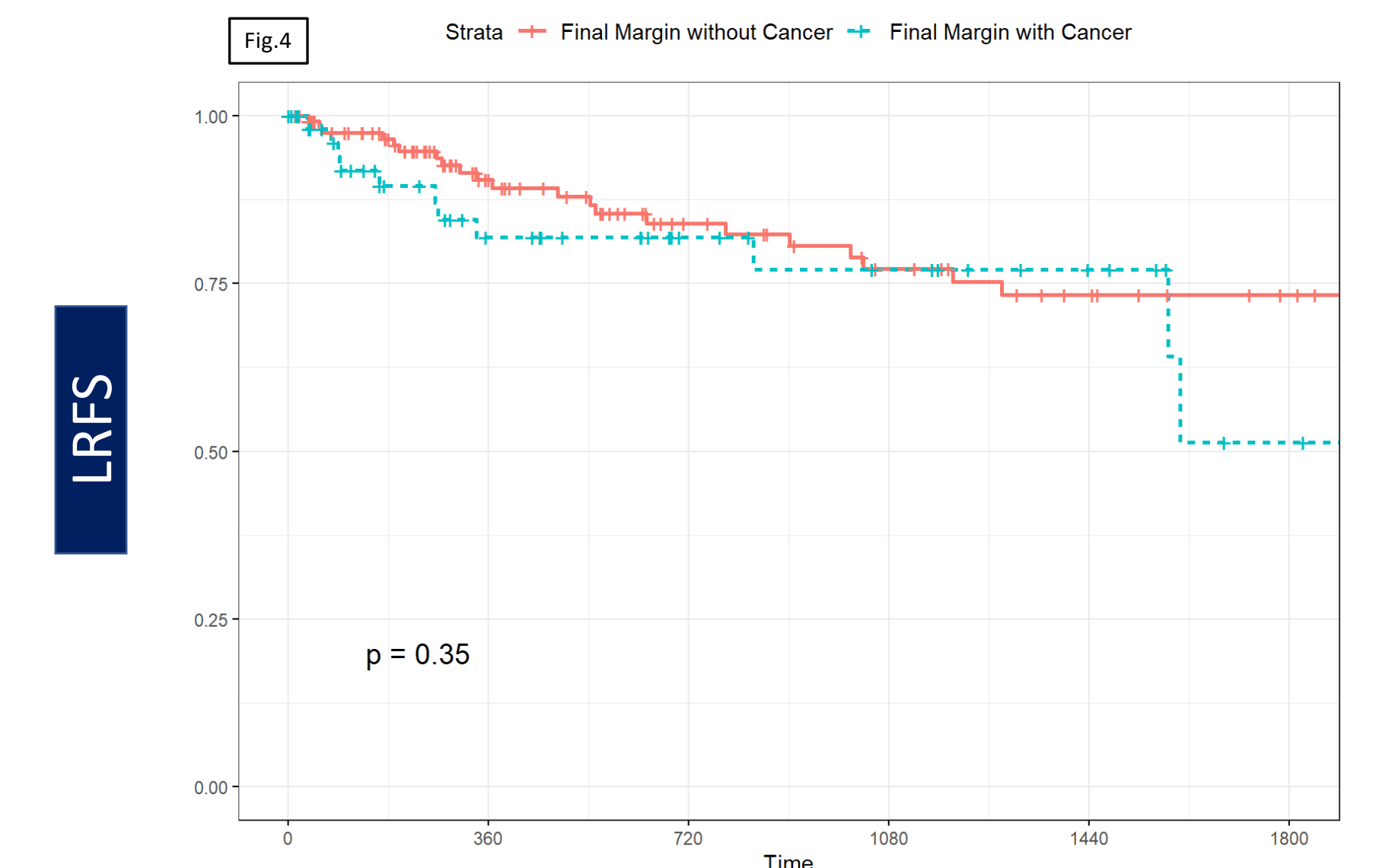
Characteristic	HR ¹	95% CI ¹	p-value
Age	1.01	0.99, 1.04	0.4
Recurrent disease	1.72	0.88, 3.36	0.11
Positive re-resection	0.95	0.41, 2.22	>0.9
Positive final margin	1.35	0.61, 3.02	0.5

¹ HR = Hazard Ratio, CI = Confidence Interval

BY RE-RESECTION STATUS



BY FINAL MARGIN STATUS



Discussion

- Only 29% of re-resections contained further malignancy, suggesting that surgeons may have difficulty relocating the site of positive margin and resecting the remaining cancer.
- 50% of the patients with a final positive margin had a positive margin at an anatomic site different than the one that was re-resected.
- Novel techniques such as 3D scanning⁴, intraoperative ultrasound⁵, augmented reality, and fluorescence may help guide accurate re-resection.

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