

# H & N M&M

2025.06.10

Present: R1 陳竑瑋

Supervise: VS羅武嘉

Patient profile

- 陳O江, 72M, 1405033
- 157cm, 37 kg, BMI: 15
- Chief complaint:  
hoarseness persist for months with easy choking
- Personal history:  
A(-), B(+, quitted 30 yrs), C(+, 1 ppd for 20 yrs, quitted 30 yrs)

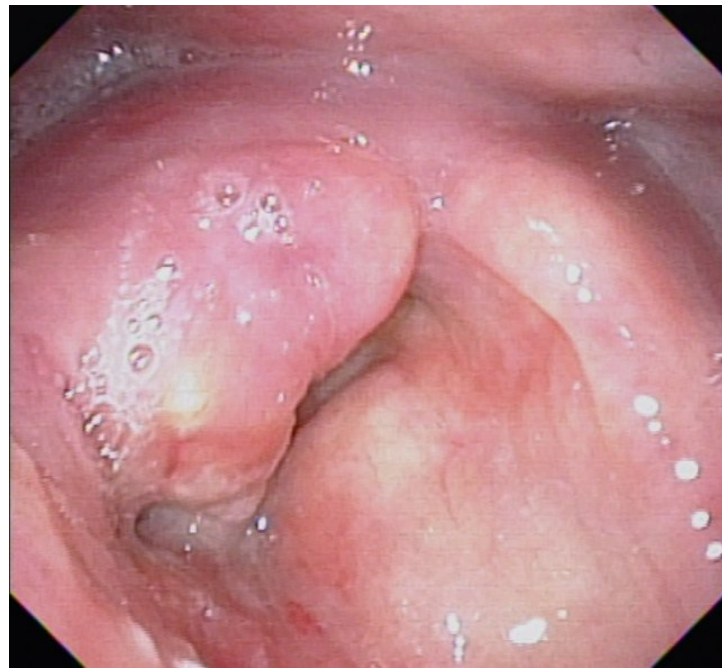
# Past history

- Laryngeal carcinoma, cT2N0M0, stage II, with acute airway compromise status post endotracheal intubation with mechanical ventilator support since 2023/2/15 -2/19, status post tracheostomy on 2023/2/17, post local RT (70Gy/35fx) from 2023/3/3-2023/5/1 with CR

# Present illness

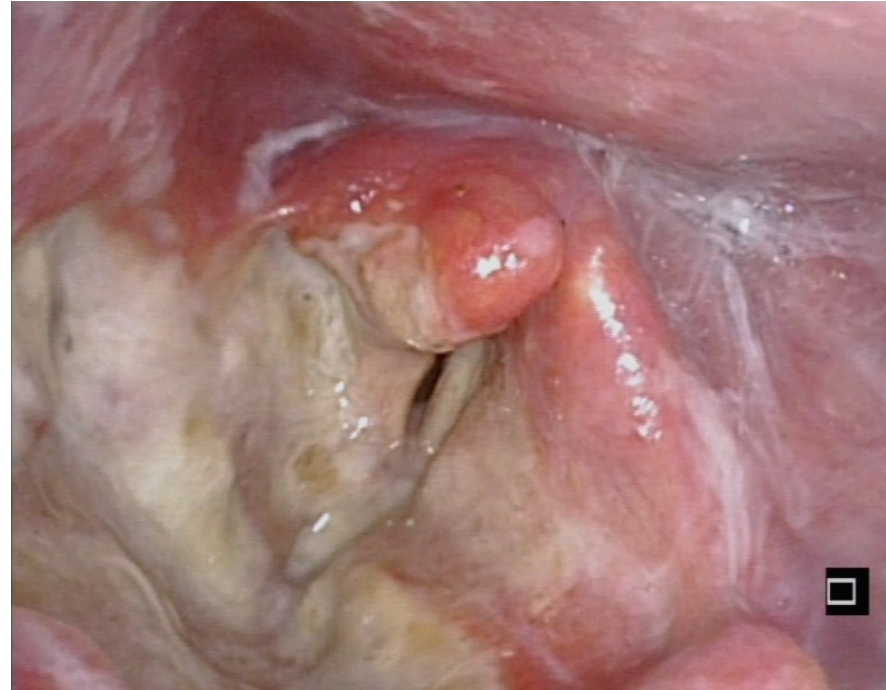
- 2024.06.28 ENT OPD  
hoarseness persist, loss follow up for 9 months(2023.09.22)  
Fiber: right supraglottic tumor
- 2024.07.06 LMS biopsy  
Patho: **Squamous cell carcinoma**
- 2024.07.14 Staging  
Right supraglottic SCC, rcT3N0M0

Plan: **salvage RT + Ufur**



# Present illness

- 2024.10.29 ENT OPD  
easy choking  
(R/T: 4200/6000 cGy, 21/30 fx)  
  
Plan: salvage total laryngectomy  
+ right thyroid lobectomy



Ward course

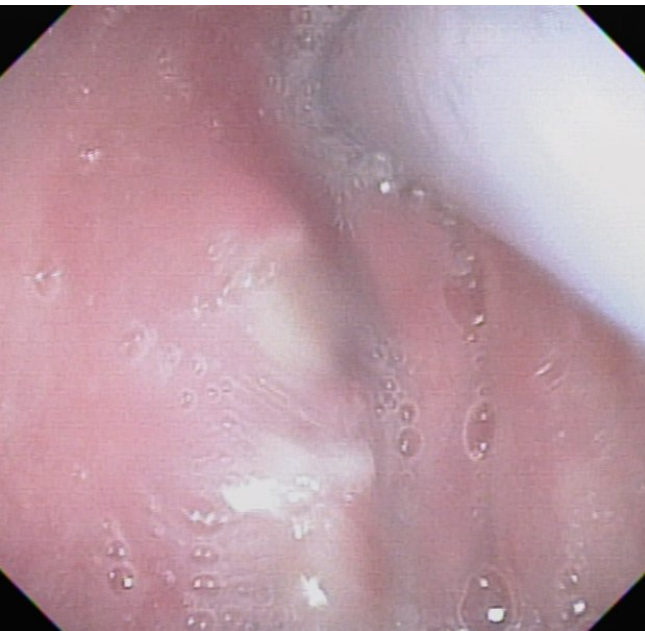
# OP day 2024.11.06

- Salvage total laryngectomy + Partial pharyngectomy + Right thyroidectomy + Cricopharyngeal myotomy

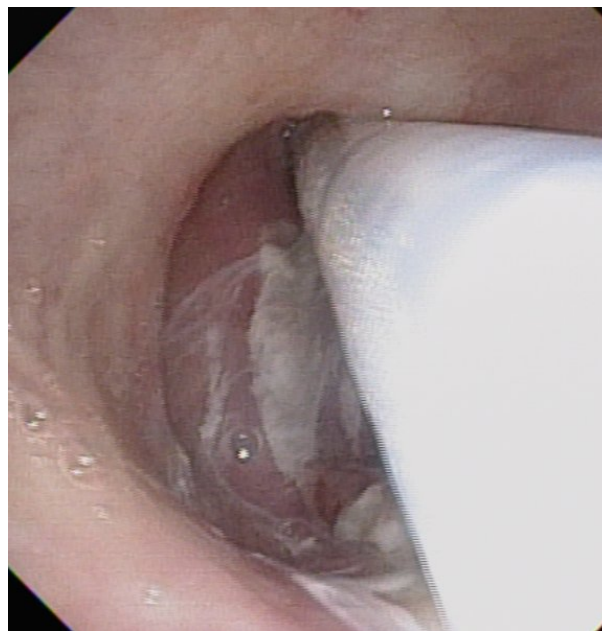




POD 1



POD 4



POD 5

2024-11-11 (血清免疫)

項目		檢驗值	單位
[ Blood ]			
<a href="#">TSH</a>	<a href="#">圖</a>	1.510	μIU/mL
<a href="#">FREE T4</a>	<a href="#">圖</a>	1.14	ng/dL
<a href="#">PTH intact</a>	<a href="#">圖</a>	24.0	pg/mL

2024-11-11 (生化)

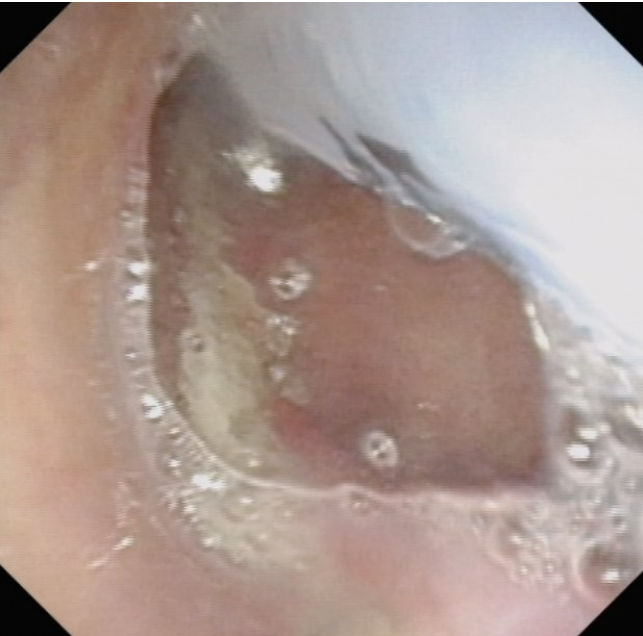
項目		檢驗值	單位
[ Blood ]			
<a href="#">Na</a>	<a href="#">圖</a>	136	mmol/L
<a href="#">K</a>	<a href="#">圖</a>	3.8	mmol/L
<a href="#">Ca</a>	<a href="#">圖</a>	7.8	mg/dL
<a href="#">BUN</a>	<a href="#">圖</a>	21	mg/dL

# Pathology

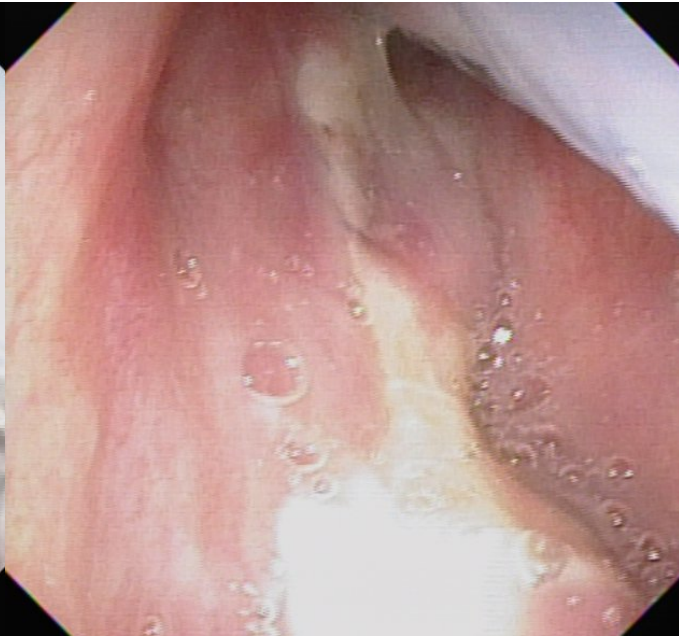
- Histologic Type: squamous cell carcinoma (focal keratinizing)
- Histologic Grade: G2-3, moderately to poorly differentiated
- Lymphovascular Invasion: Not identified
- Perineural Invasion: Not identified
- SPECIAL STUDIES: p16 by immunohistochemistry: positive; p40: positive in tumor cells
- MARGINS: distal margin uninvolved by invasive tumor, > 1.5 cm
- Number of Lymph Nodes with Tumor: 0

-> ypT3N0

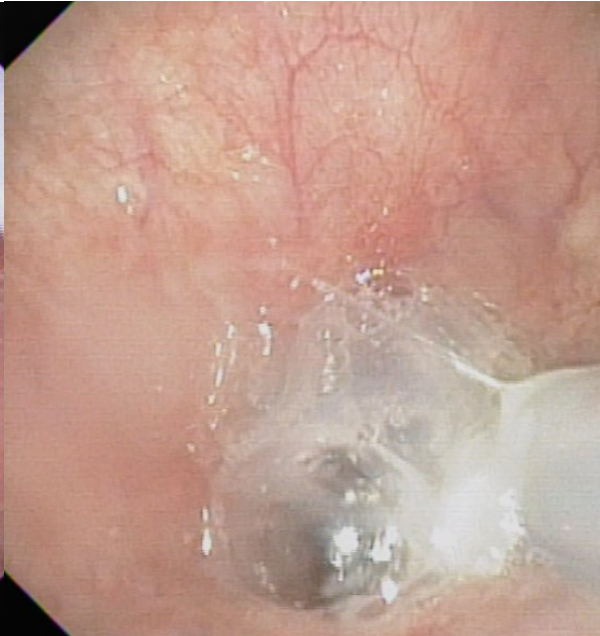
POD 10



POD 16



POD 19(Discharge)



# Final diagnosis




- Right supraglottic squamous cell carcinoma, ypT3N0, status post salvage total laryngectomy + Partial pharyngectomy + Right thyroidectomy + **Cricopharyngeal myotomy** on 2024-11-06

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# Predictors of Stricture and Swallowing Function Following Salvage Laryngectomy

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# Background

- Salvage total laryngectomy for recurrent/persistent laryngeal/hypopharyngeal cancer
- High complication rates:
  - Pharyngocutaneous fistula
  - Esophageal stricture
  - Swallowing dysfunction

# Introduction

- all cases of total laryngectomy, stricture and difficulty swallowing are known complications, but this rate is even higher in patients undergoing salvage total laryngectomy
- increased rate of gastrostomy tube dependency related to swallowing difficulty—between 20% and 40% in various studies.
- gastrostomy tube dependency has been shown to be associated with longer length of stay, increased complications, higher readmission rates, and poorer quality of life

# Study Objectives

- To identify predictors of:
  - Esophageal stricture
  - Swallowing dysfunction (G-tube dependence)



## Methods – Study Design

- Retrospective cohort (1997–2016)
- 233 patients at University of Michigan
- Inclusion criteria: Salvage TL after XRT/CRT
- Exclusion criteria:
  - Death <90 days
  - unrelated eating issues
  - Glossectomy (may induce swallowing dysfunction)

# Outcomes Measured

- Esophageal Dilation
  - Within 1 year
  - Over full follow-up
- G-tube Dependence
  - At 1 year
  - At last follow-up

# Patient Characteristics

TABLE 1. Demographic, Oncologic, and Treatment Factors across Population.		
Variable	N	%
Gender		
Male	185	79.4
Female	48	20.6
Chemotherapy with initial RT		
XRT	131	56.2
CRT	102	43.8
Time to recurrence		
<2 yr	166	71.2
≥2 yr	66	28.4
Missing	1	0.4
Initial site		
Glottis	120	51.5
Supraglottis	100	42.9
Subglottis	0	0.0
Hypopharynx	2	0.9
Unknown	11	4.7
Initial stage		
Stage I	57	24.5
Stage II	54	23.2
Stage III	51	21.9
Stage IV	45	19.3
Missing	26	11.2

# Patient Characteristics

Site of recurrence		
Glottis	120	51.5
Supraglottis	110	47.2
Subglottis	3	1.3
Clinical stage at recurrence		
Stage I	12	5.2
Stage II	76	32.6
Stage III	63	27.0
Stage IV	80	34.3
Missing	2	0.9
Pre-salvage pack years		
0–25	31	13.3
25–50	82	35.2
50–100	80	34.3
100+	18	7.7
Missing	22	9.4
Flap at Salvage		
No flap	108	46.4
Regional flap	20	8.6
Free Flap	105	45.1
Post-operative fistula		
None	160	68.7
Present	73	31.3

## Results – Dilation

TABLE 2.  
G-tube and Dilation Requirements.

Variable	N	%
G-tube dependence at 1 yr		
Dependent	11	4.7%
No dependence	175	75.1%
Missing	47	20.2%
G-tube dependence at last follow-up		
Dependent	24	10.3%
No dependence	204	87.6%
Missing	5	2.1%
Dilated within first year		
No	187	80.3%
Yes	46	19.7%
Esophageal dilation by last follow-up		
None	165	70.8%
One or more times	68	29.2%

TABLE 3.

Cox Proportional Hazards Model for Dilation Requirement and  
Logistic Regression Model for Dilation Requirement at 1 Year.

Variable	HR (95% CI)	<i>P</i>	OR (95% CI)	<i>P</i>
Gender				
Male	—		—	
Female	1.39 (0.67, 2.90)	.38	2.10 (0.82, 5.39)	.12
Time to recurrence, yr	1.09 (1.03, 1.17)	.01	1.03 (0.92, 1.15)	.61
Pre-operative pack yr <sup>†</sup>	1.19 (1.10, 1.30)	<.001	1.09 (0.95, 1.26)	.22
XRT vs. CRT				
XRT	—		—	
CRT	0.64 (0.32, 1.28)	.21	0.86 (0.34, 2.17)	.75
Recurrence Site				
Glottic or subglottic recurrence	—		—	
Supraglottic recurrence	1.38 (0.67, 2.84)	.38	1.82 (0.70, 4.66)	.22

# Stage at Recurrence

Stage I and II	—		—	
Stage III and IV	1.31 (0.67, 2.56)	.43	2.07 (0.80, 5.4)	.13
Reconstruction at salvage				
No flap	—		—	
Flap	1.28 (0.66, 2.48)	.46	1.34 (0.55, 3.24)	.52
Post-operative fistula				
No	—		—	
Yes	2.10 (1.06, 4.13)	.03	1.71 (0.70, 4.17)	.24

<sup>†</sup>Per 10 pre-operative pack years.

— = reference; CRT = radiotherapy with chemotherapy; XRT = radiotherapy alone.

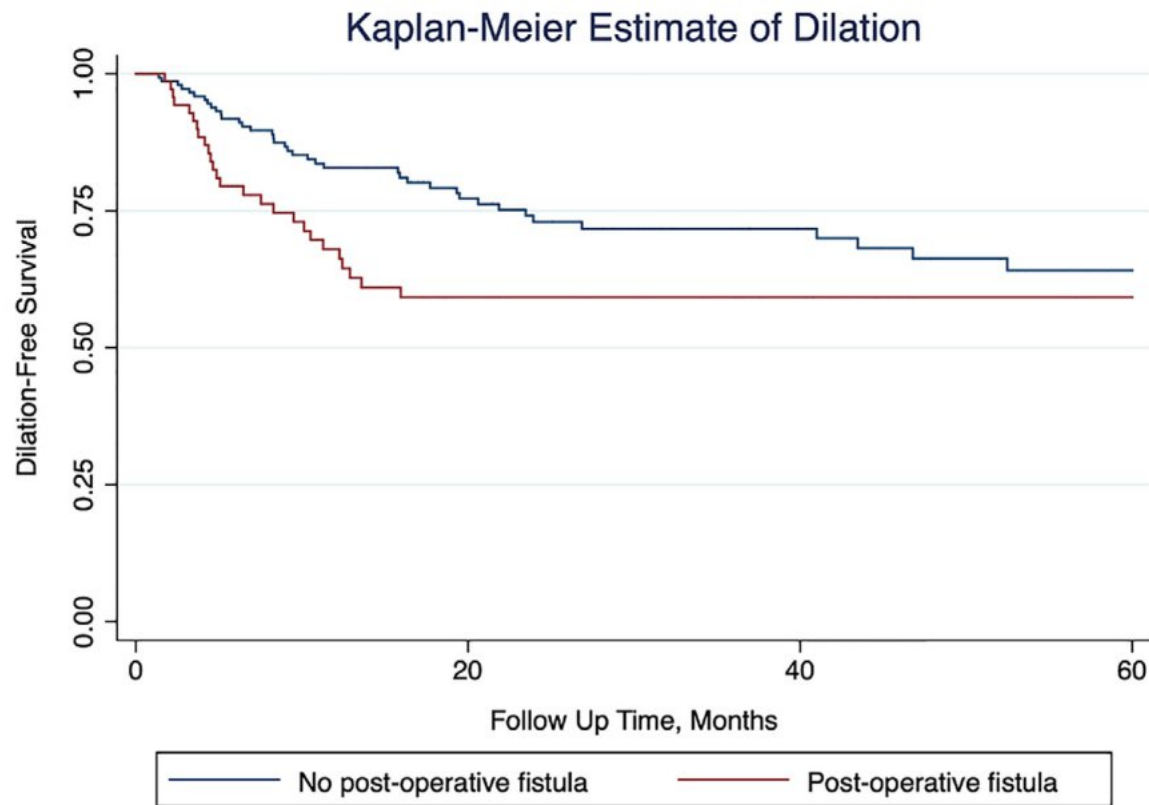
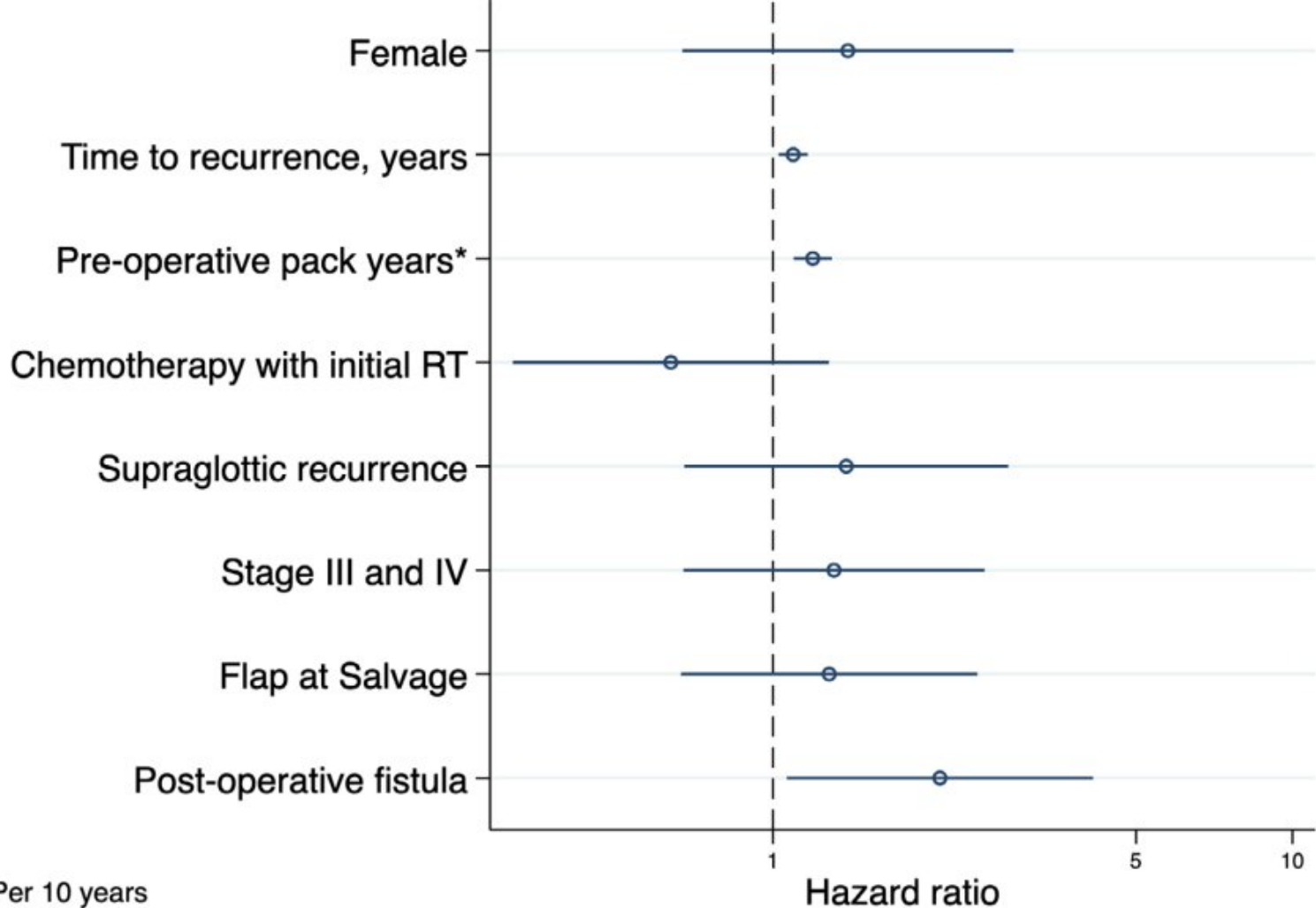


Fig. 1. Dilation over time by fistula. Kaplan-Meier estimate of dilation-free survival stratified by presence of post-operative fistula. [Color figure can be viewed in the online issue, which is available at [www.laryngoscope.com](http://www.laryngoscope.com).]



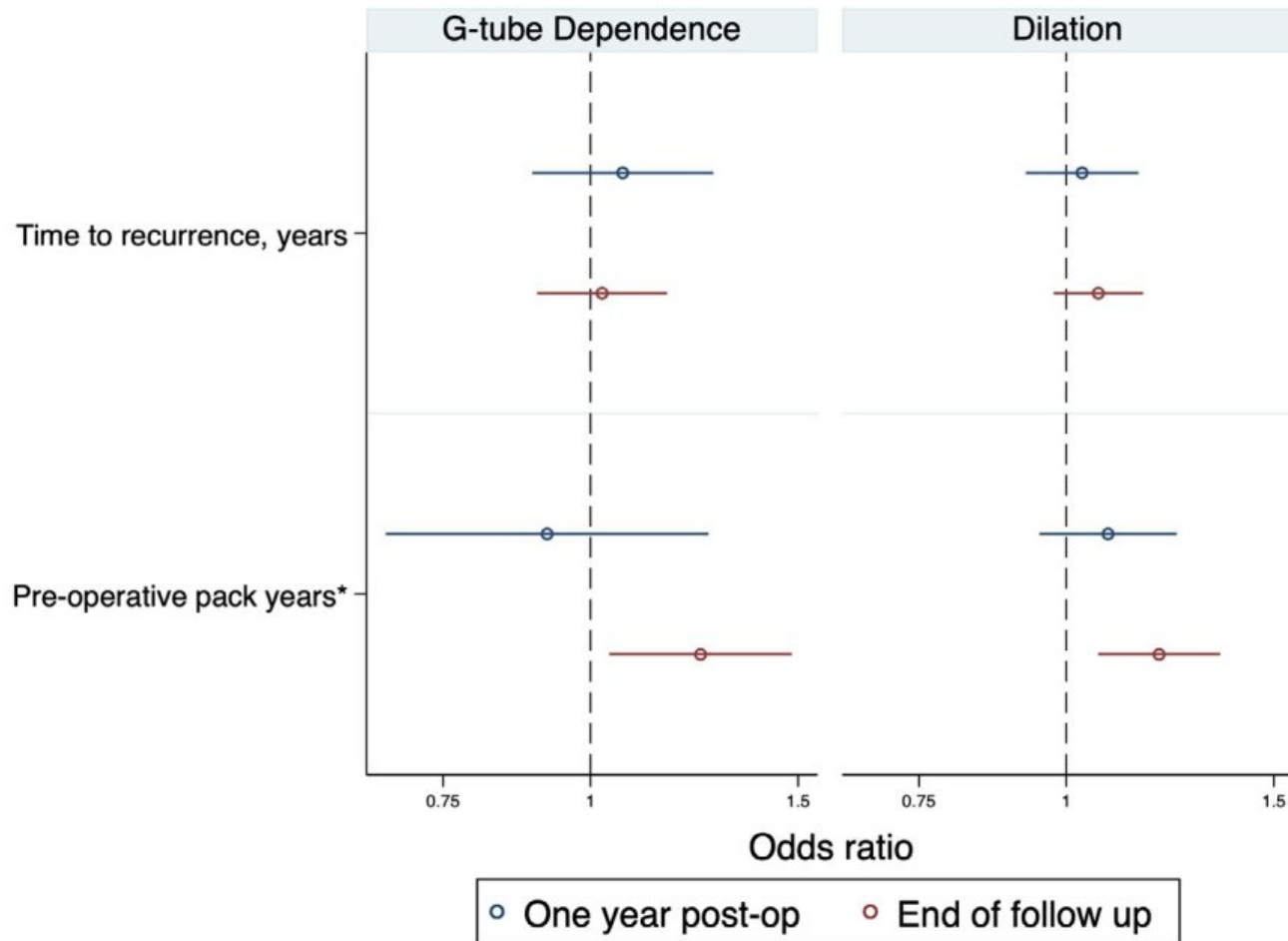


\*Per 10 years

TABLE 4.  
Logistic Regression Models for G-tube Requirement.

	G-tube requirement at 1 yr		G-tube requirement at end of follow-up	
	OR (95% CI)	P	OR (95% CI)	P
Gender				
Male	—		—	
Female	0.24 (0.02, 2.26)	.21	0.85 (0.16, 4.54)	.85
Time to recurrence, yr	1.07 (0.90, 1.28)	.45	1.02 (0.90, 1.16)	.73
Pre-operative pack years <sup>†</sup>	0.92 (0.68, 1.26)	.61	1.24 (1.04, 1.48)	.02
XRT vs. CRT				
XRT	—		—	
CRT	0.36 (0.07, 1.77)	.21	0.57 (0.14, 2.31)	.43
Recurrence site				
Glottic or subglottic recurrence	—		—	
Supraglottic recurrence	16.61 (1.73, 160.23)	.02	1.08 (0.26, 4.48)	.91
Stage at recurrence				
Stage I and II	—		—	
Stage III and IV	0.54 (0.11, 2.71)	.46	1.44 (0.38, 5.47)	.59
Reconstruction at salvage				
No flap	—		—	
Flap	3.10 (0.51, 18.89)	.22	2.01 (0.50, 8.04)	.32
Post-operative fistula				
No	—		—	
Yes	1.61 (0.37, 7.08)	.53	2.03 (0.53, 7.74)	.30

<sup>†</sup>Per 10 pre-operative pack years. XRT = radiotherapy alone, CRT = radiotherapy with chemotherapy, — = reference.



# Discussion

- need for dilation : post-operative fistula, preoperative pack years, and time from the completion of the initial course of radiation to salvage
- G-tube dependence: Supraglottic recurrence(1 year) & smoking
- CRT vs. XRT → no significant difference
- Supports better pre-op counseling
- Our rates of gastrostomy tube dependency were on the lower end of the literature, with a rate of 13.7% for any gastrostomy tube dependency at the end of follow-up, with only 6.6% taking no food by mouth. ☾ relatively high percentage of reconstruction with flaps in our cohort might contribute to a lower rate of gastrostomy tube dependence based on previous studies.

# Study Strengths & Limitations

- Strengths:

- Large cohort
- Long follow-up

- Limitations:

- Missing data (radiation type, MDADI 病人自評分數)
- No flap-type detail

# Conclusion

- Smoking history, Longer the time to recurrence, fistula ☾ higher esophageal dilation rate
- Supraglottic recurrence, smoking history ☾ higher PEG dependent
- Key for managing expectations and patient care post-salvage TL

- thanks