

# EFFECT OF VAPING ON LARYNGOSCOPIC FINDINGS IN PATIENTS WITH DYSPHONIA

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## INTRODUCTION

- E-cigarette use is increasing, but effects on the voice and laryngeal anatomy remain unclear
- In-vitro studies show epithelial changes to vocal folds, yet clinical data are limited.<sup>1</sup>
  - Inhaled nicotine and toxins may contribute to laryngeal irritation or malignancy.<sup>2</sup>
  - Vaping is often marketed as a cessation aid but may also act as a gateway to cigarette use.<sup>3,4</sup>
  - Dual users (vape + cigarette) may face compounded risks.<sup>4</sup>

**This study examines laryngoscopic findings in active vapers with dysphonia to explore potential vaping-related laryngeal pathology.**

## METHODS

At a single-center voice clinic, from October 2022 to June 2024,

- 20 adult patients with a primary complaint of dysphonia who actively vaped and did not currently smoke were recorded
- Age and sex-matched comparative cohorts of cigarette smokers (n=18) and non-smokers/non-vapers (n=18) were created

Retrospective chart review was performed.

- Data collected included demographics, relevant medical history, vaping/smoking history, Voice Handicap Index (VHI-10) scores, and laryngeal stroboscopy results
- Laryngeal lesions were categorized as neoplasm, polypoid corditis, phonotrauma, paralysis, or none/other

Statistical analysis included:

- Continuous variables analyzed using one-way ANOVAs
- Categorical variables examined using Chi-squared tests ( $\alpha = 0.05$ )

## RESULTS

**Table 1.** Patient characteristics.

Group, median [IQ range], n (%)	Vaping	Smoking	Neither
Age	61.0 [45.3, 68.0]	61.5 [45.3, 66.5]	61.0 [46.0, 68.3]
Sex			
Male	3 (16.7%)	3 (16.7%)	3 (16.7%)
Female	15 (16.7%)	15 (16.7%)	15 (16.7%)
Race/ethnicity			
White	14 (77.8%)	12 (66.7%)	13 (72.2%)
Black	3 (16.7%)	6 (33.3%)	4 (22.2%)
Hispanic	0 (0.0%)	0 (0.0%)	1 (5.6%)
Unknown	1 (5.6%)	0 (0.0%)	0 (0.0%)
Pulmonary disease			
COPD	6 (33.3%)	4 (22.2%)	1 (5.6%)
Asthma	4 (22.2%)	1 (5.55%)	2 (11.1%)
Laryngospasm	1 (5.6%)	0 (0.0%)	0 (0.0%)
Small airways disease	2 (11.1%)	1 (5.55%)	1 (5.6%)
None	10 (55.6%)	12 (66.7%)	14 (77.8%)

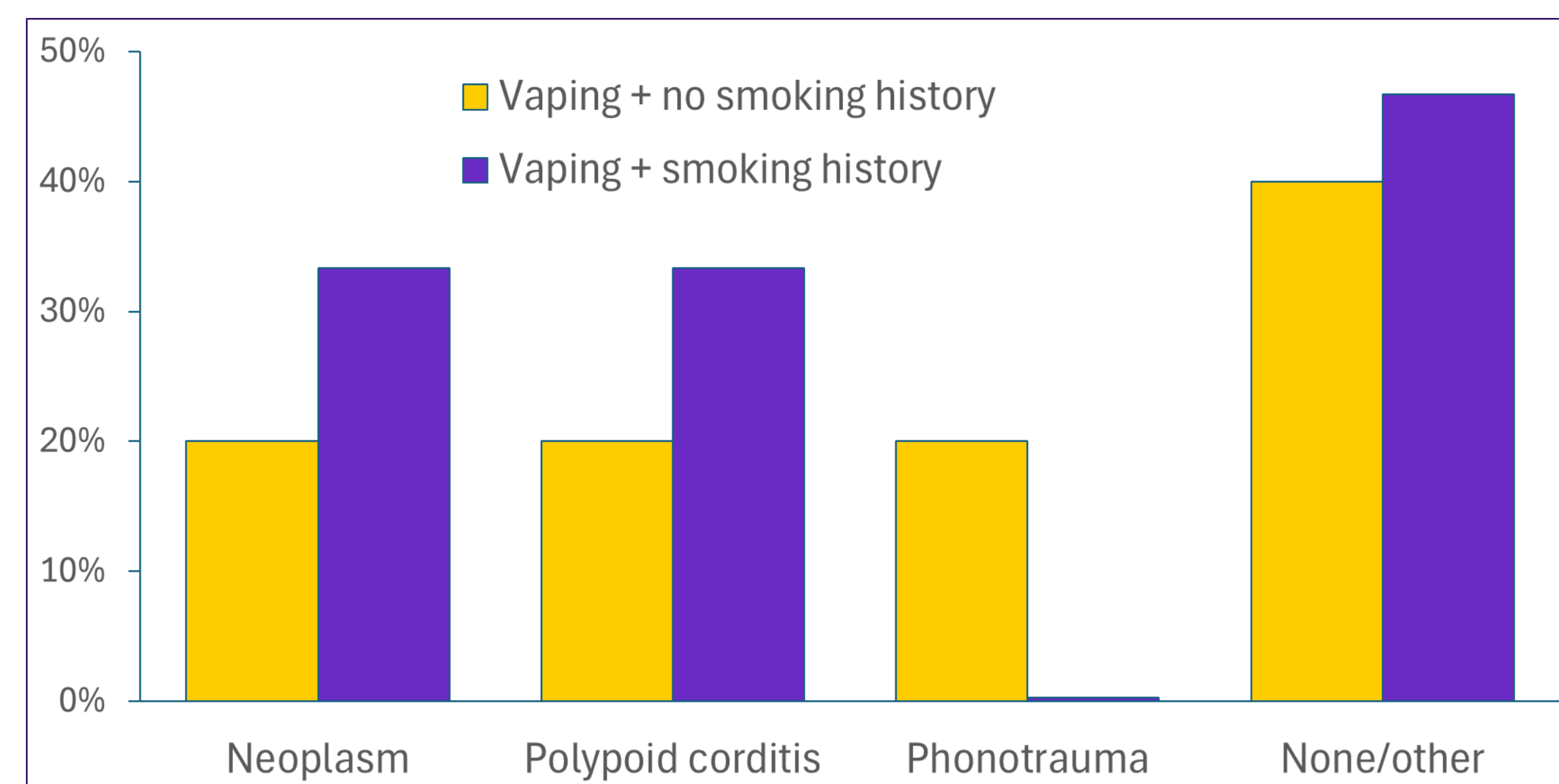
**Table 2.** Dysphonia appointment findings.

Group, median [IQ range], n (%)	Vaping	Smoking	Neither
Voice Handicap Index (VHI-10)	15 [14.0, 23.0]	21.0 [15.3, 25.8]	25.0 [11.0, 27.5]
Presence of dysphagia	6 (30%)	6 (30%)	1 (5%)

**Table 3 and Figure 4.** Laryngoscopy findings.

Group, n (%)	Vaping	Smoking	Neither
Neoplasm	6 (30.0%)	4 (21.1%)	2 (20%)
Polypoid corditis	6 (30.0%)	8 (42.1%)	3 (0.0%)
Phonotrauma	0 (0.0%)	2 (10.5%)	2 (11.1%)
Paralysis	0 (0.0%)	1 (5.3%)	5 (27.8%)
None/other	8 (40.0%)	4 (21.1%)	6 (33.3%)

**Table 3.** Laryngoscopy findings were not significant overall ( $p=0.067$ ). Findings were significantly different between vaping and non-smoking/non-vaping groups ( $p=0.037$ ).



**Figure 4.** Laryngoscopy findings in the vaping group (n=20), stratified by smoking history (no smoking history: n=5; smoking history: n=15). No significant differences between groups ( $p=0.573$ ). Bars represent the percentage of each subgroup with the pathology.

## DISCUSSION

These findings suggest that patients who vape may carry laryngeal risks similar to those who smoke cigarettes.

- Patients who vape had higher rates of malignancy and polypoid corditis compared with patients who neither smoke nor vape, though sample sizes were small.
- Lesion patterns in patients who vape were similar to those in cigarette smokers, suggesting that vaping may not reduce smoking-related laryngeal risks.
- VHI-10 did not differ significantly across groups ( $p=0.0672$ ), suggesting that subjective voice symptoms may not reliably reflect underlying laryngeal pathology.

While not significant, a history of smoking appears to amplify risks within patients who vape.

- Patients with prior cigarette use had higher rates of malignancy and polypoid corditis.
- Small sample size, single-center retrospective design, and variable smoking histories in vapers limit interpretation of vaping's independent effects.

## CONCLUSIONS

- Patients presenting with dysphonia who vape should undergo careful laryngoscopic evaluation, even if they have no history of smoking.
- Self-reported voice symptoms (VHI-10) may not reflect severity of underlying laryngeal pathology, highlighting the need for objective assessment.
- Larger, multicenter, prospective studies are needed to clarify the long-term effects of vaping on laryngeal health.
- Further studies will evaluate laryngeal pathology in those who smoke in comparison to those who vape, as well as potential interactions between prior smoking history and vaping to better understand cumulative or synergistic effects.

### References:

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