

# Dysphonia from COVID-19 Infection

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## INTRODUCTION

Dysphonia is abnormal voice production that can be structural or functional.<sup>2</sup> It can affect patients of any gender or age but occurs more frequently in patients who use their voice more often. Laryngopharyngeal reflux is when stomach acid flows backwards to the larynx and pharynx.<sup>2</sup> COVID-19 can have varying and long lasting effects. We will discuss a case of a female with dysphonia from COVID-19 infection.

## CASE DESCRIPTION

A 63 year-old female with a history of diabetes, hypertension, depression, and hypothyroidism complains of hoarseness. She was admitted to the hospital for syncope. During her admission, she developed severe sore throat and was subsequently diagnosed with COVID-19. She was treated with dexamethasone and remdesivir. She was discharged with lozenge, phenol topical spray, and Robitussin. One week after discharge, she presented to the Urgent Care for unresolved sore throat and was prescribed doxycycline for acute pharyngitis. She was then seen in our office for hoarseness. She was instructed to use OTC meds and voice rest. At her follow up visit, she was referred to ENT since she continued to have worsening hoarseness and difficulty speaking.

## RESULTS & DISCUSSION

### WORKUP & TREATMENT:

- Nasopharyngolaryngoscopy showing inflammation of the both vocal cords and erythema in her posterior commissure. She was started on famotidine 40mg nightly and sent to a laryngologist.
- Fiberoptic laryngoscopy with stroboscopy revealed laryngeal muscle tension and laryngopharyngeal reflux. for which she was prescribed medrol dosepak, azithromycin 500mg daily for 7 days, and voice therapy.
- Completed 6 weeks of voice therapy with some improvement in her voice. She continues to follow up with a speech pathologist for voice therapy.

### DISCUSSION:

This patient was a telephone operator and has not been able to work. The dysphonia has impacted her life immensely and made her depression worse. Her dysphonia was likely related to COVID-19 infection. She was not intubated during her hospitalization and had no other inciting factors. Her cardiac workup for syncope and head and neck CT were all normal. Dysphonia has been noted to be a sequela of COVID-19 and more often in females. A multicenter center study collected data from 19 European hospitals and out of 702 patients with mild to moderate COVID infection, 188 patients had dysphonia. A meta-analysis conducted in Iran found that dysphonia was more prevalent in females than males (32.8% vs 28.2%).<sup>1</sup> A study in Europe reported that 76% of COVID patients with dysphonia were female.<sup>3</sup>

The exact etiology of COVID-19 infection and dysphonia is not clear. Possible etiology could be due to inflammation of the laryngeal nerve and/or edema of the vocal cords. Another hypothesis is that the coronavirus binds to angiotensin-converting enzyme 2 (ACE2) receptors on the vocal cords.<sup>3</sup> An ongoing study at the University of Mons found that vocal folds had a high expression of ACE2, which are also expressed in the lungs, small intestine, vascular endothelium, oral cavity, and abdominal and chest wall which can contribute to dysphonia (Figure 1).<sup>3</sup>

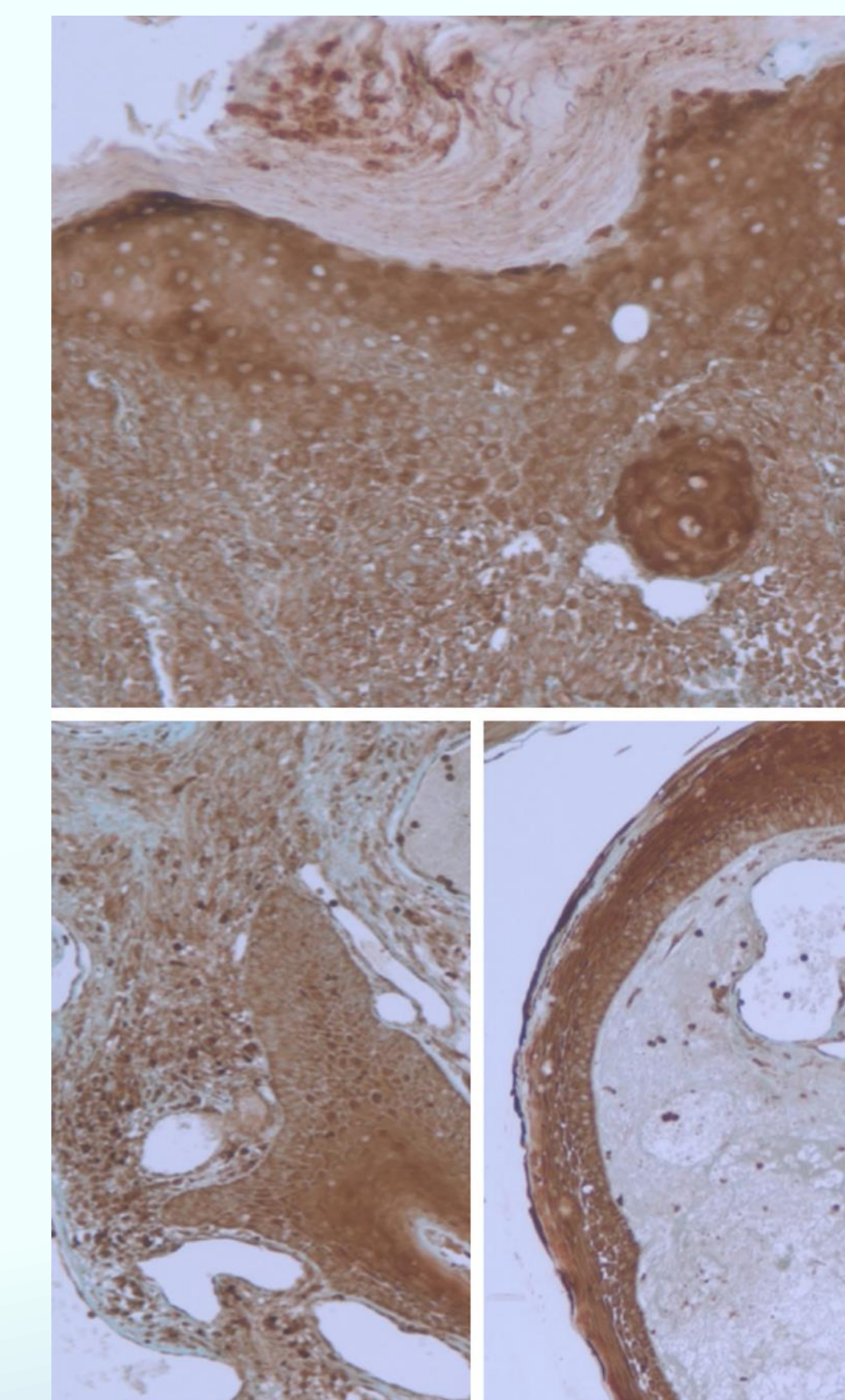


Figure 1. Immunohistological staining of high expression of ACE2 in human vocal fold tissues

## CONCLUSION

Dysphonia from COVID-19 is more common in females. More studies are needed to investigate the exact pathophysiology as to why COVID-19 infection can cause dysphonia. It is important to realize that dysphonia can greatly impact a patient's life.

## REFERENCES

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