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【 LETTERS TO THE EDITOR 】

Acute Bacterial Epiglottitis and COVID-induced Angioedema of the Larynx Are Possible Differential Diagnoses

Key words: COVID-19, acute epiglottitis, any other respiratory viruses or bacterial organism, COVID-induced angioedema of larynx

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To the Editor We read the article, "A Case of COVID-19 Presenting with Acute Epiglottitis," published by Yamada A et al. in *Internal Medicine* Advance Publication 0163-22 (1) with great interest. The authors carefully assessed, treated, and described this potentially life-threatening illness that can lead to complete upper airway obstruction. However, we have two major concerns about their conclusion due to a lack of details. Therefore, we would like to know the details with regard to this patient's clinical course.

Epiglottitis is associated with various pathogens, including bacteria, viruses, and fungi (2). We suspected that the patient had superinfection with bacteria pathogen based on the neutrophil-dominant inflammatory reaction and susceptibility to antibiotics. Although the authors seem to interpret this case as a rare case of acute epiglottitis caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, acute bacterial epiglottitis should also be considered, as COVID-19 is often asymptomatic in young people without complications, such as hypertension and diabetes mellitus (3). Our first concern that we would like the authors to address is whether or not the patient had evidence of any other respiratory viruses or bacterial organism infections, such as Influenza A, Influenza B, or *Haemophilus influenzae*. The reply to this point is very critical in order to clarify whether or not SARS-CoV-2 can cause acute epiglottitis and to help establish a treatment modality for acute epiglottitis caused by SARS-CoV-2 infection. Treatment with corticosteroids, antibiotics, and epinephrine inhalation, which the authors performed on this patient, is also effective for acute bacterial epiglottitis. Furthermore, if the diagnosis of this case was indeed acute epiglottitis caused by SARS-CoV-2 infection, we ask the authors to explain why they did not administer Remdesivir.

Another differential diagnosis is COVID-induced angioedema. Angiotensin-converting enzyme (ACE) is responsible for degrading bradykinin. The use of ACE inhibitor medications can cause angioedema of the larynx that mimics acute epiglottitis, by increasing the levels of bradykinin (4). Because SARS-CoV-2 spike proteins binding to ACE2 receptors can cause downregulation of the ACE2 protein, SARS-CoV-2 infection can likely also lead to angioedema of the larynx, as Kuzemczak et al. reported a patient who developed angioedema of the tongue after SARS-CoV-2 infection (5). To deny this possibility, the authors should be clear about whether or not this patient complained of facial swelling, macroglossia, and other characteristic of angioedema. In particular, it is important to know whether or not this patient had macroglossia, as macroglossia can cause dysphagia, which was one of this patient's complaints.

The authors state that they have no Conflict of Interest (COI).

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References

1. Yamada A, Yamazaki K, Sugimoto T. A case of COVID-19 presenting with acute epiglottitis. Intern Med **61**: 2699-2700, 2022.
2. Bridwell RE, Koyfman A, Long B. High risk and low prevalence diseases: adult epiglottitis. Am J Emerg Med **57**: 14-20, 2022.
3. Rashedi J, Mahdavi Poor B, Asgharzadeh V, et al. Risk factors for COVID-19. Infez Med **28**: 469-474, 2020.
4. Saxena S, Gierl B, Eibling DE. Supraglottic swelling may not correlate with tongue swelling in angiotensin converting enzyme inhibitor-induced angioedema. Laryngoscope **120**: 62-64, 2010.
5. Kuzemczak M, Kavvouras C, Alkhalil M, Osten M. ACE inhibitor-related angioedema in a COVID-19 patient-a plausible contribution of the viral infection? Eur J Clin Pharmacol **77**: 933-934, 2021.

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