




# In Reference to Risk Perception of Septic Shock with Multiple Organ Failure Due to Acute Exacerbation of an Infectious Dental Disease [Letter]

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## Dear editor

We read with interest the article “Risk Perception of Septic Shock with Multiple Organ Failure Due to Acute Exacerbation of an Infectious Dental Disease” by Sato et al.<sup>1</sup>

In December 2019, the outbreak of coronavirus disease 2019 (COVID-19) by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was reported in Wuhan, China.<sup>2</sup> While it was recommended to postpone the treatment for patients with non-urgent diseases, emergent diseases such as peritonsillar abscess, acute supraglottitis, acute deep neck infection, and septicemia due to acute exacerbation of infectious dental disease like this case must receive emergent conservative or surgical management even during the COVID-19 pandemic. Furthermore, Takahashi et al suggested that periodontopathic bacteria promotes SARS-CoV-2 infection by increasing the expression of angiotensin-converting enzyme 2 (ACE2) which is the host cellular receptor and that pro-inflammatory cytokines such as interleukin-6 and -8 also stimulate SARS-CoV-2 infection.<sup>3</sup>

Thus, we have serious concerns about the increase in the mortality of SARS-CoV-2 by infection of the periodontopathic bacteria in this case. At first, the authors should indicate this case report before or during the COVID-19 pandemic, and also, explain the reason why the swelling spreads to the left buccal region, nevertheless pus discharge from the periodontal pocket was observed. Of course, one reason is the fact that antibiotics were not prescribed in this case. As another reason, it is possible that the abscess is not unilocular but multilocular. The abscess at masticator space frequently extends from the molar teeth, and the abscess can result in trismus,<sup>4</sup> leading to more difficulty while eating like this case. Furthermore, deep neck abscess such as parapharyngeal space and danger space infection can lead to severe life-threatening complications such as mediastinitis and septic shock. Chest CT in this case indicated pleural effusion. Taken together, we speculate that deep neck abscess which extended from the molar teeth resulted in trismus, mediastinitis, and septic shock.

Please clarify the possible pathway of the extension from infectious dental disease to septic shock, in addition to the infecting organism. We do not know

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accurate onset of sepsis in this case, although the authors speculate that “the patient’s rapid progression from dental infection to dehydration and septicemia may have been related to the difficulty while eating for three days”. When screening for sepsis, doctors often use the Systemic Inflammatory Response Syndrome (SIRS) or the quick Sepsis-related Organ Failure Assessment (qSOFA) or the National Early Warning Score (NEWS). Usman et al indicated that NEWS is the most useful for the early identification of sepsis out of these evaluations.<sup>5</sup> Thus, we regret that the dentist did not evaluate NEWS daily in this case when sterilization was performed daily. We hope to hear the author’s opinion at this point.

## Disclosure

The authors report no conflicts of interest in this communication.

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