Maxillofacial surgery beyond the perfect storm of COVID-19

Tae-Geon Kwon

After the first report of SARS-CoV-2 virus infection in December 2019, the outbreak of acute respiratory syndrome, coronavirus disease 2019 (COVID-19) affected national and global health care system and economy. The World Health Organization (WHO) declared the COVID-19 outbreak as a global pandemic on March 2020 [1]. The respiratory droplets of COVID-19 patients can be a direct or indirect source of person-to-person transmission. In dental office, there are a lot of face-to-face communications for treatments and the possibility of aerosol formation that contain patients’ saliva, blood, and other oral fluids. The SARS-CoV-2 can be persisted on the surface of instruments of days and in aerosols for hours [2]. Moreover, COVID-19-positive patients without signs or symptoms of COVID-19 also can transmit the disease, the exact scientific data on SARS-CoV-2 viral transmission during dental procedure [3]. However, aerosols generated from dental procedures in COVID-19 patients also can contain SARS-CoV-2 virus and potentially transmit the virus to the practitioners and other patients [4]. It is the standard recommendation to wear proper personal protective equipment (PPE) including a surgical mask, face shield, protective gown, cap, and gloves during dental procedure contacting or splashing the body fluid or blood [5, 6]. Especially for the aerosol-generating procedures, respiratory protection with N95 or FFP2 respirator is recommended because it can filter the droplet and protect exhalation [3, 5]. Therefore, WHO and most of the other countries recommended to delay non-urgent oral health care. Urgent or emergency care can be provided in patients with infection, swelling, bleeding, trauma, or severe pain that cannot be controlled with routine analgesics [1, 3]. Therefore, maxillofacial surgeries such as orthognathic surgery, cleft, or reconstructive surgeries were not a primary target of treatment during the COVID-19 outbreak period. The COVID-19 pandemic completely changed the pattern of the treatment for elective surgery cases. During the severe outbreak period of COVID-19, from March to April 2020 in Korea, University hospitals in the author’s city were fully occupied with critical care for severe COVID-19 patients. Therefore, it was difficult to carry out maxillofacial surgery because of the insufficiency in assisting nurses at the operation room. In the future, COVID-19 would be controlled by a variety of efforts and development of vaccination.

The current question is “how can we perform maxillofacial surgery in the post-pandemic era?” It is not likely to return to the pre-pandemic health care environment because we do not have enough knowledge on the safety of a routine dental treatment or elective surgery on the aerosol-mediated transmission of COVID-19. It is interesting that even with the fundamental risk of transmission of COVID-19 via dental procedures, the reported case of transmission is not frequent. According to a survey on 2195 US dentists, 355 were tested for SARS-CoV-2 and 20 dentists were confirmed or probable COVID-19 infection. In most of the COVID-positive dentists (75%, n = 15), a probable source of infection was not identified and 5 patients were related with community transmission [7]. From an Italian report, the transmission between the patient and dental practitioners or assistants was not found after single or multiple dental consultations after the lockdown of a city [8]. A recent case report showed that even for a confirmed SARS-CoV-2-positive patient, there was no viral SARS-CoV-2 RNA was detected in oral mucosa via PCR assay [9]. Based on these reports, more prospective studies need to be performed to clarify the real risk of transmission of COVID-19 under the current protocol for disease prevention.
In the author’s hospital, from March 2020, every patients were tested for SARS-CoV-2 before admission for surgery. Emergency patients who could not perform a COVID-19 test before surgery were regarded as potential COVID-19 patients. Therefore, the elective oral and maxillofacial surgery could be selectively performed under general anesthesia. Now we are returning to a new normal. A review of current COVID-19 prevention strategies and cases of clinic-based transmission of COVID-19 need to be more thoroughly investigated.

Author’s contributions
The author read and approved the final manuscript.

Funding
This study received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Competing interests
The authors declare that they have no competing interests.

Published online: 22 February 2021

References
1. WHO. Director-General’s opening remarks at the media briefing on COVID-19 - 21 December 2020, https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19-21-december-2020.
2. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B (2020) Transmission routes of 2019-nCoV and controls in dental practice. Int J Oral Sci 12:9
3. CDC, Guidance for Dental Settings; Interim Infection Prevention and Control Guidance for Dental Settings During the Coronavirus Disease 2019 (COVID-19) Pandemic. https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html 2020; Updated Dec. 4, 2020.
4. Fallahi HR, Keyhan SO, Zandian D, Kim SG, Cheshmi B (2020) Being a front-line dentist during the Covid-19 pandemic: a literature review. Maxillofac. Plast Reconstr Surg 42:12
5. WHO. Considerations for the provision of essential oral health services in the context of COVID-19. https://www.who.int/health-topics/oral-health-2020.
6. Keyhan SO, Fallahi HR, Motamedi A et al (2020) Reopening of dental clinics during SARS-CoV-2 pandemic: an evidence-based review of literature for clinical interventions. Maxillofac Plast Reconstr Surg 42:25
7. Estrich CG, Mikkelsen M, Morrissey R et al (2020) Estimating COVID-19 prevalence and infection control practices among US dentists. J Am Dent Assoc 151:815–824
8. Farronato M, Tadakamadla SK, Ali Quadri MF et al (2020) A call for action to safely deliver oral health care during and post COVID-19 pandemic. Int J Environ Res Public Health 17
9. Troeltzsch M, Berndt R, Troeltzsch M (2021) Is the oral cavity a reservoir for prolonged SARS-CoV-2 shedding? Med Hypotheses 146:110419

Publisher’s Note
Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.