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Oral Radiology Center as a Potential Source of COVID-19 Transmission; Points to Consider

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Dear Editor—Spreading from China, the pandemic of COVID-19 is the foremost health issue globally. The major mode of transmission is via direct or close contact with infected secretions or aerosol droplets (1). Prevention of COVID-19 is based on containment measures and experience shows that the spread can be slowed in the short-term (2).

Dental procedures, especially the use of ultrasonic devices and high-speed dental handpieces cause an aerosol release, and routine dentistry has been suspended in several countries, including IRAN, to reduce virus transmission. However, emergency dental care, as in odontogenic infections or trauma, should be provided with appropriate personal protective equipment.

Individuals with COVID-19 may be asymptomatic or presymptomatic (20%–86% of all infections). Thus, it is common that asymptomatic patients with undiagnosed COVID-19 present emergently to dental clinics. Unfortunately, the respiratory viral load and transmission rates in asymptomatic individuals are the same as symptomatic patients (3). The oral radiology center of dental clinics can be a source of COVID-19 transmission to both personnel and dental patients. Aside from routine preventive protocols such as hand hygiene, disinfection of the setting, and personal protective measures, other issues deserve special consideration. Just as in hospitals (4) care must be taken to control the spread of coronavirus in dental clinics.

First, during taking oral radiographs, either intraoral or extraoral, the patient is asked not to wear a face mask. Hence, it is of utmost importance that the distance from an x-ray room to the dental operatory (treatment room) should follow a standard guideline to prevent aerosol transmission. There is evidence that dental aerosol can reach 1–3 meters from its source and remain in the air for a considerable amount of time (5). Therefore, it is recommended that oral radiology section would be at least 3 meters away from the dental operatory. Moreover, in the x-ray room, negative pressure facilities are strongly recommended to keep the possible viral load to a minimum.

Second, hard copies of images can be a major means of transmission of COVID-19 since disinfection with solutions can affect the quality of the radiographs and jeopardize the diagnostic information; therefore a Teleradiology system is recommended to prevent contamination.

Third, extraoral radiographs are preferred to intraoral images. The quality of extraoral digital panoramic radiography is improved so that subtle caries, an estimation of the position of the alveolar crest, and periapical changes can be diagnosed by panoramic radiographs or extraoral bitewings and periapical views (6,7). A high quality digital panoramic view is possibly all a dental clinic needs in an emergency setting. In cases of dental trauma, small field of view cone beam computed tomography are best. They give detailed information about the crown and root of the teeth without oral contamination (8). Procedural periapical radiographs, however, are unavoidable. In these circumstances, an antimicrobial oral rinse before taking the image is mandatory. Mouth rinse containing oxidative agents such as 0.2% povidone or 1% hydrogen peroxide is recommended due to the vulnerability of COVID-19 to oxidation (9). Measures to prevent gag reflex are advised, as activation of the gag reflex may elicit coughing and coronavirus spread. A preventive approach can be psychological, pharmacological, or even technical.

In conclusion, many aspects of oral and maxillofacial radiology, including the type of the image, taking the radiograph, and transferring the diagnostic information to the clinician should be strictly revised to further reduce the chance of COVID-19 transmission.

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