

Ancillary considerations for endodontic emergency treatment of Covid-19 positive patients

As the SARS-CoV 2 (COVID-19) pandemic spreads worldwide to mitigate the spread of disease, American Dental Association (ADA), Center of Disease Control and Prevention (CDC), and National Institute for Health (NIH) have advised Dental Health Care Providers (DHCPs) to exercise extreme caution and limit dental work to treat dental emergencies only (<https://www.ada.org/en/member-center/coronavirus-resource-toolkit-for-ada-members>).

This is because DHCPs are classified into very high-risk category according to the Occupational Safety and Health Administration (OSHA) guidelines (<https://www.osha.gov/Publications/OSHA3990.pdf>).

With the number of COVID-19-positive patients reaching almost 4 million worldwide, it is almost inevitable that some of these patients may require acute dental care. Since antibiotics do not seem to be beneficial for urgent conditions in case of pulpal- and/or periapical-related pain,¹ endodontists will be required to perform definitive conservative dental treatment (DCDT) for pulpal- or periapical-related dental pain on a known COVID-19-positive patient. To date, there is no consensus on dental treatment protocols for a COVID-19 patient; in fact, authors have expressed concerns over the high risk of viral load transmission during endodontic treatment,² some experts suggest extracting the teeth instead of DCDT.³ A recent review has discussed the essential personal protective equipment (PPE) requirements, environmental, engineering, and administrative control in managing routine emergency dental care under the prevailing circumstances.⁴ In this communication, we will discuss ancillary requirements needed for emergency dental work on a known COVID-19 patient.

There is a significant body of evidence developing on potential airborne transmission as the COVID-19 virus remains viable and infectious in aerosols for several hours.⁵ COVID-19-positive patients, therefore, may be classified as a biosafety level three hazard, which means work involving microbes that can cause serious and/or potentially lethal disease via the inhalation route and for this reason, any aerosol-generating procedure should not be carried out in a primary dental setting.⁶

In hospitals, high-level isolation unit (HLIU) defined as a room provided with negative pressure, with at least six air changes per hour, and an anteroom may be more suitable for DCDT on a COVID-19 patient.⁷

Negative pressure is an isolation technique that prevents cross-contamination between rooms usually available in a tertiary care setting. It is maintained in the room by exhausting more air from an air-tight room, then the air is allowed to enter the room with the help of specialized ventilation system, and the air inside typically enters the room from beneath a gap under the door. The exhaust air is then treated with either UV light and/or chemical means before it is released into the environment.⁸

Another possible solution could be to make a portable dental operator utilizing a collapsible mobile negative pressure room and equipping it with a mobile dental unit and stocking emergency dental materials in it. Similar models have worked during the SARS epidemic (https://www.interhospi.com/uploads/tx_ttproducts/data-sheet/portable-collapsible-negative-pressure-ic-unit-for-isolation-of-patients-with-airborne-transmissible-diseases.pdf).

The latest PPE recommendations in the wake of COVID-19 for dental emergency consist of head cap, impervious disposable gown, cover shoes, gloves, goggles or face shield, and an N95 respirator.⁹

As we are aware that a SARS patient is most contagious during the acute phase of the disease, it seems only reasonable to have a much more strict PPE requirement while performing DCDT on COVID-19-positive patient.¹⁰

The DHCP will require full face and eye protection from splashes and aerosol not provided by filtering face piece respirators like an N95, and therefore a full face piece powered air purifying respirators (PAPR) may be a better choice in addition to the face protection. The blower of the PAPR creates positive pressure inside the face piece, which reduces inward leakage of potentially contaminated aerosols. Furthermore, the assigned protection factor of PAPR can be 5-10 times higher than that of an N95.

Pretreatment radiographs should be limited to extraoral radiography only, as intraoral radiograph may stimulate gag reflex and/or coughing.¹¹ Preoperative mouth rinse with hydrogen peroxide and/or povidone may be useful to decrease the viral load in saliva.¹²

Once initial emergency pulpectomy or pulpotomy is performed, definitive treatment may be postponed till the patient recovers, which should be at least 3 days postresolution of symptoms in concordance with CDC guidelines (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html>); however, it may be prudent to delay the procedure at least for a month since it is unknown for how long the virus may be present in convalescing patients.¹³

Such provisions may seem excessive but are necessary for operational excellence that will be critical in the new normal. We have made provisions for such a case in our tertiary care hospital in Pakistan.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

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