

Review Article

New normality among orthodontists amid pandemic COVID-19

ABSTRACT

The most recently found illness COVID-19 is a viral disease that started in Wuhan, China, in December 2019. The dental procedures consist of the use of aerosols when treating patients. Orthodontists, hence, must be aware of the available evidence and guidelines to create a safe environment for themselves, their patients, and the entire orthodontic team. The following literature includes various protocols, ways out to deal with the pandemic situation, as well as describes the new normality to be accepted post pandemic in clinics as well as college departments.

Keywords: COVID-19, dentistry, orthodontic emergencies, orthodontist, pandemic

INTRODUCTION

Coronavirus (CoV) is a large family of viruses which may cause illness in animals or humans. In humans, several CoVs are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East respiratory syndrome and severe acute respiratory syndrome.^[1] The most recently found illness COVID-19 is a viral disease that started in Wuhan, China, in December 2019. COVID-19 is now declared as a pandemic affecting many countries globally.^[2] Common symptoms of COVID-19 are fever, dry cough, and tiredness. Other symptoms that are less common and may affect some patients include aches and pains, nasal congestion, headache, conjunctivitis, sore throat, diarrhea, ageusia (loss of taste), anosmia (loss of sense of smell), a rash on skin, or discoloration of fingers or toes.^[1] These symptoms are usually mild and begin gradually. Some people become infected, but only have very mild symptoms.^[3]

The CoV (COVID-19) epidemic is a public health worldwide problem for which specific guidelines are published, constantly updated by the World Health Organization and, in India,

by the Indian Council of Medical Research. The competent ministries and the regions directly or indirectly contribute to risk management through the identification of suspected cases and the activation of containment and quarantine measures for people who have had contact with suspicious cases.^[4]

The dental procedures consist of the use of aerosols when treating patients. Patients being in contact with multiple asymptomatic carriers or including those who accompany the patients will pose an additional risk for dental professionals and other patients. This imposes higher risk of acquiring COVID-19 on dental professionals including orthodontists; hence, they must be aware of the available evidence and guidelines to create a safe environment for themselves, their patients, and the entire orthodontic team.^[2]

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Received: 12-Jun-2020 Revised: 01-Oct-2020
Accepted: 14-Sep-2020 Published: 19-Jan-2021

Access this article online

Website:

www.orthodrehab.org

DOI:

10.4103/ijor.ijor_27_20

Quick Response Code



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How to cite this article: Chakraborty P, Mathur P, Tandon R, Chandra P, Dhingra R. New normality among orthodontists amid pandemic COVID-19. *Int J Orthod Rehabil* 2020;11:189-92.

Braces treatment is a time-taking treatment, which ranges from 1 to 2 years;^[5] One can settle on a decision to postpone orthodontic appointments; however, patients ought to be taken in certainty and followed timely. Most orthodontists ought to disclose to their patients the need of keeping the clinics shut and guarantee them that they will be reopened when the hazard is less and vaccines have been introduced.^[4] Till then, just the emergency cases will be dealt with and virtual office visits will be engaged. If there should be an occurrence of reopening the clinics, just emergencies will be dealt with all the essential arrangements as indicated by the dental council rules.^[6]

VIRTUAL ASSISTANCE

The orthodontic treatment requires a monthly visit to the orthodontist, which was disrupted by the lockdown, which was imposed when the disease was widely spreading across the country. This was the time when orthodontists turned to the mode of virtual assistance and had appointments with their patients on various social media platforms and video conferencing apps. Patients were informed to report any mishappenings on messaging apps such as WhatsApp Messenger (Facebook Inc., Mountain View, California) or Telegram Messenger (Telegram FZ LLC Telegram Messenger Inc., London, United Kingdom). Our tele-orthodontics protocol included options such as Zoom Meetings (Zoom Video Communications, Inc.), Cisco Webex Meetings (Cisco Systems, Milpitas, California, United States), and a dedicated application (Smile Consult by Align Technology Inc.).

Nowadays, WhatsApp is the largest messaging app, and therefore, it is the most widespread and most usable even by inexperienced audiences. The best way to manage orthodontic emergencies is to decide step by step. The first step should always be virtual assistance, and WhatsApp may be considered a good tool to do that. The virtual assistance might be performed using photos, videos (better if with additional light source), or video call.^[4]

ORTHODONTIC EMERGENCIES

Table 1 shows some of the common orthodontic emergencies one can come.

PROTOCOLS DURING COVID-19 PANDEMIC PRIVATE CLINICS

Every dental clinic is unique in itself; hence, the dentist should formulate the protocols accordingly.

First coming to clinical protocols:

1. Patients should call and take their appointment prior to their visit
2. Social distancing should be maintained in the reception area
3. Personal protection for receptionist and other staffs should be advised
4. Cleaning, disinfection, and sterilization after every operatory procedure
5. Clinic disinfection (most important).

Looking into the administrative protocols, the clinic timings should be revised with a gap of 1 h in between two appointments regardless of the treatment time; staffs should be called on rotation basis and should be properly screened before entering the clinic area. A special meeting session must be helpful for all the staffs to know about the new protocols to be followed along with their revised duties. Reading materials should be removed from the waiting areas. The work of the receptionist before putting down any appointment must be to ask the patients few relevant question: history of cough, immunocompromised diseases in their family, about containment of their areas, any quarantine history, and also the dental history with the present problem (emergency cases to be prioritized); patients should be asked to be accompanied by only one person and should carry masks and sanitizers of their own; and digital payments should be preferred. The principle of the moment should be "SEE LESS PATIENTS BUT WISELY." Early in the morning, the clinic floor should be cleaned using 1% sodium hypochlorite. Stickers should indicate on the doors to remove footwear outside and use of elbows or shoulders to open the doors. Disposable footwear along with a headcap can be provided to the patient when entering the clinic. A self-declaration/screening form, consent form should be filled most preferably online. The temperature, pulse rate, and oxygen saturation must be measured and noted at the reception using an infrared thermometer and pulse oximeter.

Now coming to the operatory protocol, the staffs should wear autoclavable full-sleeve surgical gown, headcap, foot cover, goggles, double surgical masks and over it cloth mask, face shield, and disposable gloves. The dentist should wear surgical scrubs over which full-sleeve surgical gown, disposable plastic apron for nonaerosol procedure, and water and fluid proof gown for aerosol procedures. Both of the above persons should have a separate exit from the operatory room, which must have an area of donning and doffing and should avoid coming to the reception area. Furthermore, we should provide the patient with a full drape in the operatory

Table 1: Various orthodontic emergencies and their solutions for the patients

Appliance	Category	Solution provided
Removable appliances	Functional Aligner	If it is broken or does not fit, send photos to the orthodontist and suspend the use Remain on the current/go on with the treatment following clinician's instructions If broken or lost, get back to the previous set and contact the orthodontist
	Retainers	If broken or lost, ask the dentist to evaluate buying hot customizable preforms on e-commerce sites
Fixed appliances	Non-removable appliances (PAE appliances)	Loose bracket Send a photo to orthodontist Eventually remove with a Tweezer
		Poking distal wire Send a photo to orthodontist Use ortho wax Cut with a disinfected nail cutter or hardware cutter
		Poking ligature wire Send a photo to orthodontist Use ortho wax Push it back with the eraser in the back of a pencil
		Abscess around a band Send a photo to orthodontist Prescribe topical NSAID sprays or ointment If persists, prescribe antibiotics Also, hot saline rinses
	Non-removable appliances activated by patients (face masks, head gears, palatal expanders)	Must be suspended prior to prevent any emergency
Preactivated non removable appliances (pendulum, forsus, distal jet, TPA)	Take a picture every 20-40 days and send it to orthodontist If the patient complains of any swelling or pain, contact orthodontist. It should be treated as an emergency and removed from the oral cavity	

NSAID: Nonsteroidal anti-inflammatory drug

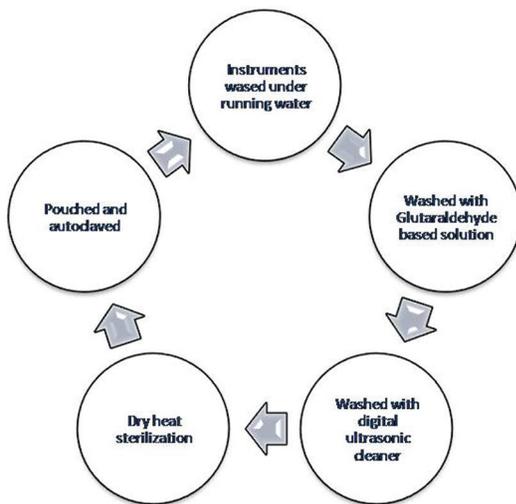


Figure 1: Maintenance of instruments after checking each patient

which are autoclavable and waterproof.

Operatory care constitutes of proper ventilation with outdoor environments by the means of mechanical ventilation systems like AC to be run on fan mode with room temperature around 24°–30° and air filters (HEPA-H14), humidity must be around 40%–70%, and fans should be used for enhancing air movement. The air must flow from less contaminated zone (dentist) to more contaminated zone (patient). The dental chair light handles, counter top drawer handles,

etc., should be covered by barrier films/wraps. After every procedure, surface disinfection of the dental chair, handles, and door handles must be carried out with ethanol- and propanol-based solutions, spittoons should be disinfected by sodium hypochlorite, and the film barriers should be changed. Furthermore, patients are advised to rinse their mouth with 0.2% povidone iodine solution before and after the procedure. Four-handed dentistry and rubber dam application is a must for aerosol-generating procedures (AGPs).

We as orthodontists are a bit safe from the aerosol-producing procedures, but has one of the dangerous AGP if the patient gags when making impressions. Hence, test for gag is important before attempting an impression or if possible, go for digital intraoral scanners. We should avoid IOPAs as much as possible as it may cause saliva contamination.

After every procedure, the floor must be mopped using 1% sodium hypochlorite solution or 70% ethanol. Important point to be noted is that the air disinfection must be carried out before the chair and instrument disinfection after every procedure.

PROTOCOLS DURING COVID-19 PANDEMIC DENTAL COLLEGE

The patient should be given an appointment via telephonic conversation. All the PG students should decide among themselves the number of appointments to be kept on

a single day. Even in a single time slot, not more than 6–8 patients should be present in the clinics. The patient should be informed strictly that he/she should not be accompanied by not more than 1 attendant; otherwise, he/she should be told to come alone.

When entering the college, the patients should be first asked to wash hands at the main gate. Near the main gate, a screening room should be made for thermal screening for the patients using an infrared thermometer and asking for their address and travel history which should be properly recorded. Then, on reaching the department waiting area, the patients' hands should again be sanitized. They should be instructed to sit on alternate chairs. They should leave their footwear. Shoe covers/disposable footwear should be provided to the patients.

The patients should be treated on alternate dental chairs. Treatment time allotted for each patient should not be more than 30–40 min. After every slot of patients, the clinic should be properly fumigated and the floor should be mopped with 1% sodium hypochlorite or 70% ethanol and the wet floor should be left for 4–5 min as such and fans should be switched on after 5 min. The spittoon should also be cleaned after every procedure with 1% sodium hypochlorite.

The orthodontist/PG student should also keep all his precautions when treating a patient. He/she should treat every patient thinking that he/she is a COVID-19-positive patient, thus taking all the necessary precautions and following all the sterilization protocols when treating the patients. The clinician should be equipped with the personal protective equipment (PPE) when treating a patient, which includes coveralls, N95 mask, surgical mask, shoe cover, double gloves, and face shield. If the PPE is not available, a washable surgical gown is to be worn followed by a water impermeable long apron. Four-handed dentistry should be followed. Both the clinician and the assistant should be in the PPE.

Proper sterilization protocols should be followed. The instruments should first be washed in soap water followed by glutaraldehyde-based solution. They should then be placed in an ultrasonic instrument cleaner, then into hot air ovens, and finally placed in pouches to be autoclaved [Figure 1].

All the procedures involving the production of aerosols should be strictly avoided. Use of 3-way syringes and air turbines is strictly prohibited. Before the procedure is started, the patient can be asked to rinse his mouth with povidone iodine solution. In the bonding procedures, the etchant can be removed with a moist cotton and thrown. Then, use a dry cotton dab to dry the tooth surface. Light-cured resin-modified glass ionomer cement can be used without any prior enamel preparation such as polishing, etching, or drying. This option reduces the need for an absolutely dry field, in turn reducing the need for any AGP. Self-etch primers can also be used without prior enamel preparation and etching. Moisture insensitive primers can be used. Self-etching primers can also be used. Adhesive precoated brackets should be used to minimize bonding steps. Avoiding the use of ultrasonic scalers and high-speed air turbines during the removal of gross composites on the teeth after debonding procedures is to be avoided. Howe's plier with sharp beaks, debonding plier, anterior band removing plier, and even scalpel blade can be used for removing the remaining composite on the tooth.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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