

COVID-19: Impact and Dealings in Orthodontic Practice Design Post Viral Outbreak and Lockdown

Mayank Trivedi

Department of Orthodontics & Dentofacial Orthopedics,
Rajarajeswari Dental College and Hospital, Bangalore - 560074, India.
*Corresponding author E-mail: 1987.mayank@gmail.com

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Covid-19 or corona virus is a novel virus causing an infectious disease which is responsible for causing respiratory discomforts like difficulty in breathing along with cough and fever. Orthodontic workstation is no different than any other situation where a disease like COVID-19 can be transmitted as there are high probability of transmission of this deadly virus through coughing and sneezing or by coming in contact with object or a surface and indirectly exposing the doctor treating the patient and vice versa. Dealing with an orthodontic emergency should be planned in advance along with the preventive measures in cases of emergencies have to be the mainstay as patient and the orthodontist are not allowed to visit the each other during the COVID-19 outbreak. Hence a virtual approach has to be ready on the orthodontist's part to deal with an orthodontic emergency. Taking into consideration the duration of an orthodontic treatment, a periodic follow up is very necessary normally and also in emergencies as the patient needs to be assured every now and then to have confidence in the orthodontist. Importance should be given to the overall orthodontic process so that an individual can benefit from it in the best possible way.

Keywords: Covid-19, Orthodontics, Emergency, Virtual treatment, Protocols.

The corona virus belongs to the family of viruses found mainly in animals worldwide and has been reported to have affected humans in a place in Wuhan, Hubei Province, China in December 2019 where it was related to a local Huanan South China Seafood Market. COVID-19 has been named by WHO, and it also goes by a reference name called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Symptoms of breathing difficulty, lung infection, fever and pneumonia were observed in patients in whom the virus had infested.

Population have shown its resemblance to Severe Acute Respiratory Syndrome (SARS) and Middle East respiratory syndrome (MERS). The virus has a predilection for age, sex and pre-existing biological conditions or ailments.¹

Situations of quarantine are debatable and many differences in opinion prevail during these harsh times but the question arises about the safety of the others and the rights of the individual who are not infected but can be at a risk of infection and such factors also needs be stressed upon.

Self-isolation is a way of buying time in order to find a solution for the existing outbreak hence it is the need of the hour to carry on activities that are unusual and different than the regular activities as it can put a healthy individual at risk of infection because the emerging infection does not respect anyone in terms of social boundaries.²

Elective dental treatment needs to be postponed for a minimum of 3 weeks as directed by the American Dental Association (ADA) on 16th March 2020 and emergency treatment should be delivered on a priority basis. Treating a patient in person should be delayed as much because any patient can be a source of infection and can go undetected as the incubation period of the virus is 0-24 days. Health care workers should be equipped with the necessary screening and preventing measures for themselves as well as their respective staff members including their infection control measures.³

Among such restrictions in place, health care workers are switching to virtual mode of delivering an advice or consultation for the patients in regards to treatment which temporarily eliminates the need for visiting a doctor in person. The practice of delivering virtual treatment started from China during the pandemic and it was easier to attend to hundreds of patients in a day compared to the numbers they actually attended in a clinical scenario.⁴

The aim of this paper is to spread knowledge over the on going COVID-19 outbreak that has led to a lockdown for the reason of preventing the spread of infection and has forced people to stay and work from the comforts of their home. In such situation a dental or an orthodontic follow up is required whether it is an emergency or a routine follow up. The matters discussed will surely benefit a patient and the overall outlook towards carrying out orthodontic/dental protocol during quarantine.

Virtual support during a lockdown

It is inexpensive and valuable for providing health care instructions and requires interactive applications with necessary audio-visual functions in order to have discussion related to an upcoming appointment or an emergency situation. With the use of Wats App and other available technology it is now easier to deliver instant messages through audio or video conferencing.⁴

What are orthodontic emergencies and how can it be dealt with?

1. Tooth pain – Pain can be experienced by the patient after the placement of fixed orthodontic appliances especially if it's a fixed appliance and applies heavier amounts of force than expected. In such situations an analgesic may be able to relieve the pain and patient should be asked to stick to softer diet until the pain subsides.

2. Bleeding gums – If patient complains of bleeding from the gums it may probably be due to accumulation of debris around the brackets which is a site for plaque accumulation resulting in gingivitis. Patient should be asked to brush and use mouthwash to keep the area clean.

3. De-bonded/Loose brackets – Can be secured to the tooth (if not fallen off) and the archwire with the help of a relief wax that is easily available at the nearby chemist outlet.

4. Ulceration as result of poking arch wire/ligature tie dislodgement – Such situations again can be dealt with placing a relief wax until the next appointment. Use of gel for ulcerations is advised.

5. Expansion therapy – Patients undergoing palatal expansion treatment are advised to stop activation as there are chances of dislodgement of the appliance.

6. Fixed orthopaedic appliances – Such appliances if dislodged/broken are advised to be discontinued until further appointment.

7. Removable retainers – Patients can be taught about the activation of the removable appliance by pressing of the U- loops and lifting the anterior component of the labial bow using fingers.

8. Invisible aligners – Patient can simply choose to discontinue the treatment in cases of breakage of an aligner or are advised to go for the next tray that has been provided.

All the present objectives of orthodontic emergencies can be dealt by virtual appointments where a systematic approach is applied for interaction between the doctor and the patient. Virtual appointment scheduling should not only be restricted to emergency situations but it should also have a goal towards patient access, ensure care and continuity for better outcomes.⁵

How to achieve such objectives:

Virtual examination is a feasible alternative to conventional examinations technique,

however identifying and developing a patient friendly platform is most required when carrying out initiatives. Through virtual examination of a patient the x-rays and images can also be assessed for reference if they are prior fed on to a data base system and are handy for an orthodontist to access when the need be.⁶ Some important consideration on the part of the patient to be kept in mind are:

1. Patient should be able to take notes of his/her problems in order to explain his troubles one by one for better understanding by the orthodontist.
2. Patient should have a focussing light device such as a torch or a phone light that can be used for the ease of visualization by the orthodontist.
3. Ideal visualization is needed for accurately diagnosing an emergency which can take place by proper cheek retraction. For this purpose, two spoons can be used to retract and visualize under the supervision of the orthodontist. Through a photographic observation it is easier as it is a difficult task to keep the mouth open for such a long duration in the absence of cheek retractors in cases of video examinations. Clicked photo could be sent to the treating orthodontist by the use of web-based applications for clarity.

Unavoidable situations of orthodontic emergencies

Certain conditions cannot be avoided as it is going to hamper the process of mastication and may lead to food lodgement followed by chewing difficulties. Such situations cannot be attended by the orthodontist especially if it concerns him/her to visit far off places for orthodontic consultations. Hence those problems require immediate intervention by a locally situated general dental practitioners (GDP).⁷ It is at the discretion of the GDP to attend such emergencies if there is a provision for allowing the GDP to see a patient by the government or regulating health authorities. Few unavoidable problems could be:

1. Loose molar bands and tubes – Can be re-cemented with glass ionomer cement by carefully lifting the loose band after drying the tooth in question and carefully applying the cement to all the corners of the band before readapting it to the tooth. Can be carried out with the use of tweezers.⁷
2. Anchorage components such as Nance button/TPA and lingual arch: All these components can show signs of damage during a period of

prolonged lockdown. If it is concerned with a loose fit of the band, it can be re-cemented. If a soldered joint is damaged on the one side, the part on the normal side can be cut and removed. These steps are helpful in conditions of soft tissue impingement in the regions of the palate and lower lingual parts of the mandible which can often be associated with ulceration and bleeding.⁷

3. Expansion devices such as Quad helix and Hyrax type appliance: Such appliances can also have problems of dislodgement which can be dealt with easy removal of the appliance by cutting it from the undamaged side until a new appliance can be fabricated and delivered. All the matters of emergency are to be directed strictly by the treating orthodontist to the GDP via the patient under virtual scope of dealings with such conditions.⁷

Financial constraints

Patients seeking any sort of dental treatment or the staff employed by the doctor are bound to have problems related to finance in the times of recession where economic breakdown is inevitable and are forced to restrict themselves from expenditure that are non-essential and dentistry is not an exception in such situations of lockdown. Certain points are to be considered while taking steps towards making a harsh decision which would jeopardise the situation further as dental health is as important as medical health.⁸

1. Come up with a plan to deal with the situation and an offering which a patient would be ready to accept in terms of payment, i.e., it could be instalment schemes.
2. Consider accepting payments in full after the crisis is over.
3. Temporary cessation of payments as all treatments are delivered through a virtual approach and there is no contact between the doctor and the patient unless otherwise in situations of emergency.
4. Individuals (doctor and the patient) involved are to seek help from the state-run oral health care programmes for dealing with the situations of economic concerns.

Patientre-assurance

Re-assuring the patient regarding what will happen and what not will happen should be the concern for an orthodontist:

1. Your teeth will stop to move if no activations are performed.
2. Reach out in case of any emergency.

3. Follow regular oral hygiene procedures and limitation of orthodontic treatment are to be kept in mind to prevent damages.

4. Treatment will be resumed after the conditions are normal again and changes will happen.

5. Stay safe in the comfort of your homes, follow protocols and we are good to go.

DISCUSSION

Covid-19 is an infectious disease rapidly taking over the world. COVID-19 has the same etiological agent as SARS-CoV-2 but it is a different version of it that is prevailing which has a same receptor host: human angiotensin converting enzyme-2 (ACE2). In anticipation of getting infection with this deadly virus people are advised to follow the norms of social distancing, avoid large gathering, limiting themselves to work from home and use personal protective equipment such as masks and gloves in order to prevent exposure to the infection. Among these situations dental professional are at a higher risk of contracting the infection than any other health care professional or physician as conveyed by a New York times article titled "The Workers Who Face The Greatest Corona Virus Risk".⁹In such situations quarantine is the only available solution to prevent the spread of this infection which comes with responsibilities of patient care that has to be dealt without any contact with the patient until any permanent solution arises to deal with the cause.

The virtual treatment model initiates care needs of an individual in a community by using tele health technologies and electronically enabled health archives. In the past dental team led by the operating personal have made use of virtual treatment delivery system by reviewing electronic records, diagnosing and making treatment decisions and have been delivered to the community for their benefit.¹⁰In situations of emergency it is required to make use of such approach.

Orthodontic practice encounters emergencies not very frequently but is mandatory for an orthodontist or a health care professional to be ready for the unexpected. Even though patient is under a lockdown situation it is the foremost objective of the doctor to take the brief history of the problem that took place. Re-assuring the

patient from time to time is going to deal with such conditions as patient motivation is equally important.¹¹

Lastly, apart from performing the much-needed virtual approach for the patient it is also necessary to communicate with the general dental practitioner (GDP) as the orthodontist may not be in the position to attend to the patient as the circumstances are unavoidable. Handling such situations requires a joint effort from the patient, orthodontist and the GDP.

CONCLUSIONS

1. COVID-19 is a viral infectious disease that spreads through direct contact (cough, sneeze and droplet inhalation) and contact transmission (oral, nasal and eyes mucous membranes). Quarantine or self-isolation is a prevention protocol from preventing its spread. Such a practice has led to a situation of lockdown.

2. A lockdown may cause series of emergencies in orthodontics and various other fields of dentistry which may not be treated as the same way as in a clinical situation as the patient and the doctor are under limitations of social distancing or quarantine.

3. Virtual treatment is emerging as a dependable mode of dealing with such situations. Carefully controlling such situation of emergency and advising upon routine orthodontic procedures within the boundaries of quarantine should be the focus of an orthodontist.

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