Impact of covid-19 in prosthodontic practice: A review.

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Abstract
The Covid-19 pandemic has brought about significant changes in the lifestyle of mankind. Dental professionals who are at the highest risk to encounter the virus should be careful to contain the spread of infection. Prosthodontics is a speciality of dentistry which deals with services aimed at oral prosthetic rehabilitation to patients, especially the geriatric age group. Prosthetic rehabilitation can be provided through Complete Denture Prosthesis, Removable Dental Prosthesis, Overdentures, Crown and Bridge, Implants and Maxillofacial Prosthesis. Most of these prosthodontic treatments require multiple visits by the patients resulting in more chances of exposure to the virus. Fabrication of all of these prosthesis involves contact with oral fluids such as saliva and aerosol which can be possible sources for spread of infection. Unlike other routine dental procedures, one very crucial aspect in prosthodontic practice is lab service. Lab work involves multiple people in a chain like the doctor, assistant, lab supervisor, laboratory technician. More human in chain increases probability of possible contamination. In this article guidelines for handling different prosthodontic procedures, sterilization and disinfection procedures are discussed.

Keyword: Coronavirus, SARS-CoV-2, Dental Laboratory, Disinfection, Pandemic, Sterilization.

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1. Introduction

It is well believed and accepted that healthcare practitioners should provide uniform treatment to all individuals. To ensure unbiased treatment in times of pandemic in an era of globalization, it is vital to uniquely and exclusively depend on the pillars of prevention and precaution. Prosthodontics, which is a specialty of dentistry deals with services to oral prosthetic rehabilitation to patients especially the geriatric age group in form of Complete Denture, Removable Denture, Implant supported Prosthesis and Crown and Bridge. The New York Times noted that dentistry was the most risky profession during COVID19 pandemic as compared to other various occupations.[1] Based on the nature of the dental procedures, and the proximity of the dental team to patients, the disease could readily spread from infected patients to the dental team, and vice versa, and subsequently to other patients through cross-contamination, if appropriate infection control measurements are not undertaken.[2] It is more difficult in case of Prosthodontic practice because of factors such as presence of excessive saliva and exposure to aerosols during tooth preparation for crown and bridge . A good percentage of patients visiting prosthodontist belongs to geriatric age group who are more susceptible to getting infected. Contrary to other routine dental procedures which can be finished in single sitting, most prosthodontic treatment demands multiple visits by patients, which throws a unique

challenge to ensure safety at every visit. Dental laboratory service, in any form of prosthodontic treatment is a must unlike other specialities of dentistry is a concern. It is very important to consider the fact that lab work involves multiple people in a chain like the doctor, assistant, lab supervisor, laboratory technician. Involvement of too many persons increases probability of possible contamination. It is also very important to understand Dos & Don'ts for patients as soon as they arrive in dental clinic.[3]

2.1 Review of coronavirus disease

The novel human corona virus, also called as Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) has been found to be the causative microorganism of COVID-19 outbreak. Coronaviruses belong to Family Coronaviridae of Order Nidovirales. The SARS-CoV-2 is a positive-stranded RNA virus containing single stranded RNA.[4] SARS-CoV-2 is composed of four proteins-spike (S), envelope (E) glycoprotein, nucleocapsid (N), membrane (M) protein. Coronaviruses are minute in size (65-125) with a size ranging from 26 to 32 kilobases (kb) in length. Alpha (α), beta (β), gamma (γ), and delta (δ) are the subgroups of coronavirus family. Other than SARS-CoV-2, there are six types as humans coronaviruses have been identified, namely, HCoV-229E, HCoV-OC43, SARS-CoV, HCoV-NL63, HCoV-HKU1, and MERS-CoV. Due to the presence of crown-like spikes on the outer surface, the virus was named coronavirus (Figure 1).[5,6]
Main source of infection of Sars-CoV-2 is through droplet infection and air. Spread of Covid-19 occurs through both direct means (droplet and human to human transmission) and by indirect contact (contaminated objects). Airborne infection occurs through droplets released by coughing, sneezing, exhalation or speech; direct-contact infection occurs through contact with contaminated surfaces and subsequent touching of the eyes, nose or mouth. Saliva plays a critical role in the spread of infection, through both droplet and direct-contact pathways.[7]

2.2 Clinical and laboratory features

The symptoms of the disease are varied. In patients with COVID-19, the most common clinical symptoms are fever and cough, shortness of breath in addition to other nonspecific symptoms, including headache, dyspnea, anosmia, fatigue and muscle pain . Moreover, some patients also report digestive symptoms such as diarrhoea and vomiting. Patients initially have fever with or without respiratory symptoms, various degrees of lung abnormalities develop later in patients, and these can be seen on chest CT. Initiation of typical COVID-19 pneumonia is with small, subpleural, unilateral, or bilateral frosted glass opacities in the lower lobes, which then develop into a crazy-paving pattern and subsequent consolidation.[8] Later, the lesions are gradually absorbed with residual frosted glass opacities and subpleural parenchymal bands.A meta-analysis evaluating clinicopathological characteristics of 8697 patients with COVID-19 reported laboratory findings that included lymphopenia (47.6%), elevated C-reactive protein levels (65.9%), elevated cardiac enzymes (49.4%), and abnormal liver function tests (26.4%), leukopenia (23.5%), elevated D-dimer (20.4%), elevated erythrocyte sedimentation rate (20.4%), leukocytosis (9.9%), elevated procalcitonin (16.7%), and abnormal renal function (10.9%) (Figure 2).[9]

Depending on the clinical symptoms, laboratory and radiographic abnormalities, hemodynamics, and organ function, the severity of illness is assessed. The National Institutes of Health (NIH) guidelines classify COVID-19 into five different types.

- **Asymptomatic Infection**: Individuals with positive SARS-CoV-2 test without any clinical symptoms associated with COVID-19.
- **Mild illness**: Individuals who have any symptoms of COVID-19 but without shortness of breath or abnormal chest imaging
- **Moderate illness**: Individuals presenting clinical symptoms or radiologic evidence of lower respiratory tract disease and having oxygen saturation (SpO2) ≥ 94% in room air.
- **Severe illness**: Individuals who have (SpO2) ≤ 94% in room air; a ratio of partial pressure of arterial oxygen to fraction of inspired oxygen, (PaO2/FiO2) <300 with marked tachypnea with respiratory frequency >30 breaths/min or lung infiltrates >50%.
- **Critical illness**: Individuals who have acute respiratory failure, septic shock, and/or multiple organ dysfunction. There may be development of acute respiratory distress syndrome (ARDS) that tends to occur approximately one week after the onset of symptoms.[10]

3. History of pandemics

Walking down the realms of pandemic history, we have seen that the protocols for sterilisation and disinfection have been modified and upgraded each time. With the incidence of each pandemic and major threats to healthcare system, the sterilisation and health care facilities get ameliorated and prevention protocols become stringent. The first pandemic outbreak dates back to 3000 B.C. in Circa. Modern day pandemic started from descent of Philadelphia Yellow Fever of 1793. With this outbreak, quarantine laws got regulated and started getting implemented. Dr. James Lind, during this era suggested washing of cargo ships with vinegar as a method of sterilising them. Fumigation by far, became the mainstay of preventing and containing the disease. The H1N1 Spanish Flu of 1918-1919 is the most devastating pandemic on record. Since the outbreak of HIV pandemic in 1981, there has been constant improvisation in regulation of precautionary methods. HIV pandemic elicited a radical upgradation in dental sterilisation protocol. Dental sterilisation technique has been the pivot of attention after the disclosure of occupational HIV transmission to and from dentists. Steam autoclaving of dental equipments became the fundamentals of sterilising. Chemical vapour, dry heat was also advocated as feasible alternatives (Figure 3).[11]

4. Goals of prosthodontic practice during covid-19

Currently, COVID-19 pandemic is a rerun of the past episodes and is the main unsettling incident of this era. This pandemic has compelled us to re-evaluate and scrutinize our current precautionary regulations and sterilisation protocols to contain the spreading disease.

The novel Coronavirus called SARS-COV2 is the strain responsible for the pandemic of 2019. Since prosthodontics is a core speciality tending to oral pathologies, practitioners are at the highest risk to encounter the virus, by obvious routes of transmission through saliva. The situation calls for an urgent, organised care-delivery system by well informed , judicious and well-equipped team of prosthodontists. While working in dental clinic during the critical pandemic phase, implementation of rational thinking and judicious decision-making can create a high level of barrier mechanism against cross-contamination.

The main goal in clinical practice is to ensure minimal pathogenic load in clinic during and

after treatment and thus, maintain a contamination free dental office.

The principal responsibility of the dentist is to first confirm that he/she or his staffs are not carrying any viral load of COVID-19. It is preferable to obtain precheck triages to check the temperature of every patient as a routine procedure. The risks while providing dental treatment to patients emanate from three sources (Table 1):

a) By direct contact with oral mucosa
b) By contact through saliva
c) Contact with saliva contaminated dental equipments or surfaces
d) To avoid any contamination, precautionary protocols should commence a lot prior to the real clinical treatment.

4.1. Organising appointments

To eliminate chances to encounter a COVID-19 positive patient, postpone appointments of patients with obvious symptoms of fever, dry cough, malaise etc or those with history of travel from high risk countries. It is vital to communicate with patients via digital networking and e-appointments to prevent unnecessary physical contact with patients. A detailed questionnaire should be prepared for tele-screening (Table 2). In case of any uncertainty regarding any patient, advise patient to test for COVID-19 by viral test from a pathologic laboratory. Only those who test negative for COVID-19 viral test should be treated in a clinical setup. Emergency treatment requires initial appointments (Table 3). It is necessary to schedule appointments in a way that there should be no overlapping appointment time between patients. This reduces any chance of possible contact between different patients in waiting area. Patients who avail private transport to visit the dentists can be requested to wait in their private cars, motorbikes etc instead of waiting in the waiting room before they are summoned inside the clinic for treatment. Patients should be advised to carry minimum accessories with them. Dentists should keep provisions for hand sanitation and disposable tissues for patients entering waiting area.

4.2. Cross-contamination prevention from patients

This is the most difficult stance. All the basic infection prevention control mechanisms of dental unit should be followed thoroughly along with few additives. Before starting any treatment, pre-procedural mouthrinse using 1% hydrogen peroxide or povidone iodine or 0.2% chlorhexidine can be given to the patient. It is shown that both SARS and MERS were highly susceptible to povidone mouth rinse. According to Bidra et al., mouth rinse prior to dental procedure using oral preparation of Povidone-Iodine (PVP-I) in a concentration as low as 0.5% for at least 15 s can completely deactivate the virus.[12,13] Jain et al proposed that chlorhexidine digluconate in 0.2% concentration could attenuate 99.9% of SARS CoV 2 virus, within contact time of 30 seconds.[14] Rubber dams are few of those indispensable dental equipments required to contain spread of pathogens during treatment because it significantly reduces aerosol splatter while using high speed handpieces or ultrasonic handpieces. Treatment solely for cosmetic purposes should be postponed. Handpieces with antiretraction valves is preferable because the prevent aspiration and expulsion of debris and fluids during dental procedure. [15] One of the radical initiatives that should be taken to improve working environment for the dental team is to eliminate spittoon completely from dental chair to control cross contamination. Also eliminating chair handle is a wise method to prevent cross contamination. The normal suction tip should mandatorily be replaced or adjuncted by a high vacuum suction. A high vacuum suction has a broad tip and has capability to remove any aerosol spray from

source. Extraoral aerosol suction can be used as an adjuvant which further eliminates any aerosol spread during treatment. It is also essential to limit dental procedures to short clinical chairside time (Figure 4).

4.3.Disinfection and sterilisation protocols

Floor disinfection is recommended at every two hour interval. Disinfectant in the form of benzalkonium chloride (0.05%), hydrogen peroxide (0.5%), ethyl chloride (70%), isopropranol (50%), sodium hypochlorite (0.05-0.5%) are quite effective against corona virus. 1% sodium hypochlorite solution can be sprayed in highest contaminated areas. However, spraying in between patient visits is not recommended because it has unpleasant odour. At intervals between patient visit, benzalkonium spray can be used followed by alcohol cleansing of contaminated surface. Contaminated equipments should be sterilized under standard protocols. Regular instruments like probe, mouth mirror tweezer should be sterilized using autoclave.

4.4. Clinic atmosphere viral control from fomites

Large quantities of aerosols are generated during the use of rotary instruments for dental preparations, or the finishing and polishing procedures of saliva-contaminated prostheses. Aerosols can be large (>5 μm in diameter) or small (≤5 μm in diameter) diameter particles .Large particles quickly descend to the ground, while the smaller ones can travel distances of up to 1.5 meters, remaining viable and infectious for up to 3 hours suspended within air. To consolidate and secure a contamination free clinical environment proper ventilation is required in the clinic as well as dental laboratory. Further technological assistance is required alongside this. [16,17]

A) Negative ion generator- Installation of negative ion generator is recommended in both clinical and hospital setup. The machine generates abundant negative ions which attach to glycoproteins of virus, cell wall of bacteria and neutralise them.

B)HEPA filters- HEPA filter is a 3 layer filter through which air is continuously being recycled. The air is cleaned in UV radiation which attenuates the pathogens. It has been documented that HEPA filters remove 99% of particles measuring 0.3 μm in diameter. According to the filtration efficiency, HEPA-13 or HEPA-14 are recommended, it's size depending on the total area of the clinic. However, these filters are an addition to the core strategies needed to combat the transmission. Due to their high efficiency, HEPA filters can be a leading technology in controlling contamination by viral fomite in dental clinics (Figure 5).[18,19]

4. 5. Personal protection

Personal protection of the dentist and the staff is however the most important factor because the clinician and assistants are continuously at risk, being exposed to various challenges in terms of maintaining prevention protocols and sterilisation standards while providing quality treatment. Standard precautions include hand sanitation, use of personal protective equipment (PPE), prevention from any sharp injury, sterilisation of their instruments and linen. For protection of face during treatment, it is mandatory to wear at least a NIOSH-certified N-95, EU FFP2 or equivalent mask on the mouth, use goggles and face shield for rest of the face. The FFP2 is analogous to N95 in its filtration capacity and it provides two-way protection. [20,21]A clean, non-sterile, long sleeved fluid resistant gown and gloves are the standard requirements. Hand hygiene should be performed before and after each patient contact. Hand hygiene includes cleansing with either alcohol-based handrub or with soap and water for twenty seconds.[22] Using of PPE rationally is effective in preventing

contact with virus during aerosol-generating procedures. However, one might find it most effective if it is complemented with proper hand sanitation, regular supplies and adequate staff training. Dentists and supporting staffs should refrain from touching their eyes, nose or mouth with potentially contaminated hands (Figure 6).

4.6 Dental Laboratory Disinfection Protocols

All dental specimens like impressions, casts, and prostheses should be considered potentially infectious. Disinfection of impression are often done by immersion or spray. The clinical staff and dental laboratory technicians should adhere rigorously to standard precautions to minimize any chances of cross contamination. The materials should be disinfected using sodium hypochlorite and transported in leakproof bags. Dental impressions, casts, prosthesis or appliances should be thoroughly disinfected prior to handling both at the clinic or at the lab and prior to delivery. Laboratory surfaces should often be disinfected using the disinfectant spray. The dental laboratory should be fumigated on a daily basis. Dental burs, polishing points, rag wheels, or laboratory knives that are potentially contaminated should be heat-sterilized. The lathe machine should also be disinfected. Articulators should be disinfected by spraying with a hospital-level disinfectant followed by rinsing. Non-sterilizable equipments such as some face bow components must be cleaned with soap solution. Though difficult, it is important for the prosthodontist to ensure that dental laboratories adhere to appropriate COVID-19 safety protocols (Table 4).[23]

5. Conclusion

The impact of COVID in dental practice shall not only amend sterilisation protocols but may additionally affect treatment protocols. Progressive spread of COVID-19 pandemic is related to increased possibility that clinicians are going to be exposed to COVID-19 infected patients. Therefore it has become all the more important for dental professionals to include all precautions in their routine practice and additional safety measures if treatment of patients with COVID-19 becomes necessary. Every patient should be considered potentially infected by this virus, and all dental practitioners need to review their infection control policies. Currently, there are no specific protocol or guideline for dental care provision to active or suspected COVID19 cases. Because of this, it is advisable to practice dentistry with utmost precautionary measures. Digital prosthodontic practice like using of digital impressions, CAD/CAM, virtual facebow and articulator has higher potential of preventing cross contamination. So these modalities of workflow should be slowly opted. Hence, we should always remember one thing about crisis is that it creates a momentum for rapid growth in near future, and the best thing about crisis is that it definitely ends.[24,25]

References

1. Coulthard P. Dentistry and coronavirus (COVID-19)-moral decision-making. British Dental Journal. 2020 Apr;228(7):503-5.
2. Banakar M, Lankarani KB, Jafarpour D, Moayedi S, Banakar MH, MohammadSadeghi A. COVID-19 transmission risk and protective protocols in dentistry: a systematic review. BMC Oral Health. 2020 Dec;20(1):1-2.
3. Sekhsaria S, Sharma A, Tiwari B, Sharma A, Mahajan T. Changing paradigm in prosthodontics practice post COVID-19 outbreak. IP Ann Prosthodont Restor Dent. 2020 Jun 15;6(2):1-6.
4. Pal M, Berhanu G, Desalegn C, Kandi V. Severe acute respiratory syndrome

coronavirus-2 (SARS-CoV-2): an update. Cureus. 2020 Mar;12(3).
5. Ouassou H, Kharchoufa L, Bouhrim M, Daoudi NE, Imtara H, Bencheikh N, ELbouzidi A, Bnouham M. The pathogenesis of coronavirus disease 2019 (COVID-19): evaluation and prevention. Journal of immunology research. 2020 Jul 10;2020.
6. Schoeman D, Fielding BC. Coronavirus envelope protein: current knowledge. Virology journal. 2019 Dec;16(1):1-22.
7. Lotfi M, Hamblin MR, Rezaei N. COVID-19: Transmission, prevention, and potential therapeutic opportunities. Clinica chimica acta. 2020 Sep 1;508:254-66.
8. Pan F, Ye T, Sun P, Gui S, Liang B, Li L, Zheng D, Wang J, Hesketh RL, Yang L, Zheng C. Time course of lung changes on chest CT during recovery from 2019 novel coronavirus (COVID-19) pneumonia. Radiology. 2020 Feb 13.
9. Zhu J, Zhong Z, Ji P, Li H, Li B, Pang J, Zhang J, Zhao C. Clinicopathological characteristics of 8697 patients with COVID-19 in China: a meta-analysis. Family medicine and community health. 2020;8(2).
10. Cascella M, Rajnik M, Aleem A, Dulebohn S, Di Napoli R. Features, evaluation, and treatment of coronavirus (COVID-19). StatPearls. 2021 Apr 20.
11. Aranda-Anzaldo, A., Viza, D., Busnel, R.G. 1992. Chemical Inactivation of Human Immunodeficiency Virus in Vitro. *J Viro Meth* 37:71-82.
12. Ayyed, A.B. Dental Practice Infection Control. Measurements: Coronavirus Disease (COVID-19) Outbreaks. *Int. J. Clin. Pediatric Dent.* **2020**, *13*, 279–283.
13. Bidra AS, Pelletier JS, Westover JB, Frank S, Brown SM, Tessema B. Rapid in-vitro inactivation of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using povidone-iodine oral antiseptic rinse [published online ahead of print, 2020 Jun 8]. J Prosthodont. 2020. https://doi.org/10.1111/jopr.13209.
14. Jain A, Grover V, Singh C, Sharma A, Das DK, Singh P, Thakur KG, Ringe RP. Chlorhexidine: An effective anticovid mouth rinse. Journal of Indian Society of Periodontology. 2021 Jan;25(1):86.
15. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci*. 2020;12(1):9. Published 2020 Mar 3. doi:10.1038/s41368-020-0075-9
16. Li Y, Ren B, Peng X, Hu T, Li J, Gong T, et al. Saliva is a non-negligible factor in the spread of COVID-19. Mol Oral Microbiol. 2020 Aug;35(4):141–5. https://doi.org/10.1111/omi.12289
17. Van Doremalen N, Bushmaker T, Morris DH, Holbrook MG, Gamble A, Williamson BN, et al. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. N Engl J Med. 2020 Apr;382(16):1564–7. https://doi.org/10.1056/NEJMc2004973
18. Ge ZY, Yang LM, Xia JJ, Fu XH, Zhang YZ. Possible aerosol transmission of COVID-19 and special precautions in dentistry. Journal of Zhejiang University-SCIENCE B. 2020 May;21(5):361-8.
19. Zhao B, Liu Y, Chen C. Air purifiers: A supplementary measure to remove airborne SARS-CoV-2. *Build Environ*. 2020;177:106918. doi:10.1016/j.buildenv.2020.106918
20. . Salvi SS. In this pandemic and panic of COVID-19 what should doctors know about masks and respirators? http://apiindia.org/wp-content/uploads/pdf/coronavirus/ review-article-on-mask.
21. Jiao Wang, Lijun Pan, Song Tang, John S. Ji, Xiaoming Shi,Mask use during COVID-19: A risk adjusted

strategy,Environmental Pollution,Volume 266, Part 1,2020,
22. Association of periOperative Registered Nurses. Recommended practices for prevention of transmissible infections in the perioperative practice setting. AORN journal. 2007 Feb;85(2):383-96.
23. Bhat VS, Shetty MS, Shenoy KK. Infection control in the prosthodontic laboratory. The Journal of Indian Prosthodontic Society. 2007 Apr 1;7(2):62.
24. Papi P, Di Murro B, Penna D, Pompa G. Digital prosthetic workflow during COVID-19 pandemic to limit infection risk in dental practice. Oral diseases. 2020 May 27.
25. Kinariwala N, Samaranayake LP, Perera I, Patel Z. Concerns and fears of Indian dentists on professional practice during the coronavirus disease 2019 (COVID-19) pandemic. Oral Diseases. 2020 Jun 7.
26. World Health Organization. Rational use of personal protective equipment for coronavirus disease (COVID-19) and considerations during severe shortages: interim +
27. Pruthi G, Parkash H, Vijaya Bharathi P, Jain R, Gupta A, Rai S. Comprehensive review of guidelines to practice prosthodontic and implant procedures during COVID-19 pandemic. Journal of Oral Biology and Craniofacial Research. 2020 Oct;10(4):768.
28. Barabari P, Moharamzadeh K. Novel coronavirus (COVID-19) and dentistry–A comprehensive review of literature. Dentistry journal. 2020 Jun;8(2):53.
29. Batista AU, Silva PL, Melo LA, Carreiro AD. Prosthodontic practice during the COVID-19 pandemic: prevention and implications. Brazilian Oral Research. 2021 Mar 12;35.
30. Sharma P, Kanwar R, Nagpal A, Singh G, Jindal V. COVID-19 and facility preparedness in the field of prosthodontics. IP Annals of Prosthodontics and Restorative Dentistry. 2020 Dec 15;6(4):184-8.
31. Sharma P, Kanwar R, Nagpal A, Singh G, Jindal V. COVID-19 and facility preparedness in the field of prosthodontics. IP Annals of Prosthodontics and Restorative Dentistry. 2020 Dec 15;6(4):184-8.
32. Bhanushali P, Katge F, Deshpande S, Chimata VK, Shetty S, Pradhan D. COVID-19: Changing trends and its impact on future of dentistry. International journal of dentistry. 2020 May 29;2020.
33. Sa Y, Lin WS, Morton D, Huang C. Coronavirus disease 2019 (COVID-19): Experiences and protocols from the Department of Prosthodontics at the Wuhan University. The Journal of prosthetic dentistry. 2021 Jul 1;126(1):41-50.

FIGURES:

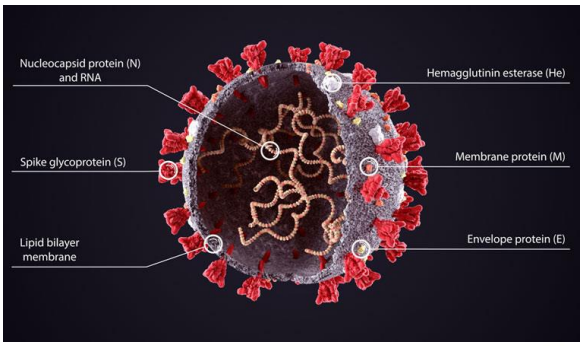

Figure 1: Source: The Week,June 30,2020

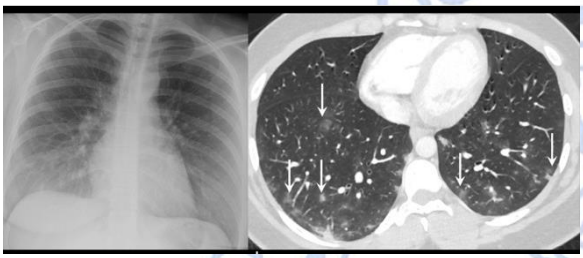

Figure 2: Source: European Journal of Radiology Open, Volume 7,100239, Review of Chest CT Manifestations of Covid-19 Infections

Figure 3: Source: Barry, John M. *The Great Influenza: The Story of the Deadliest Pandemic in History*. Penguin Random House, 2005

Figure 4: Source:Li Y et al. Saliva is a non-negligible factor in the spread of COVID-19.Mol Oral Microbio,2020

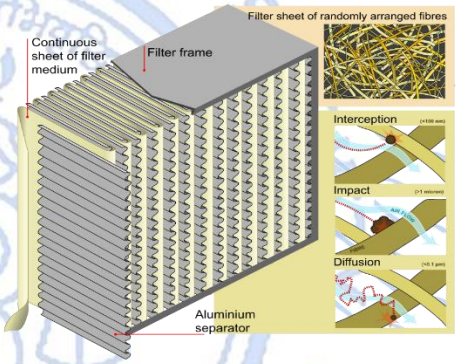

Figure 5: Source: Wikipedia

Figure 6: Source: Li Y et al. Saliva is a non-negligible factor in the spread of COVID-19. Mol Oral Microbio,2020

TABLES:

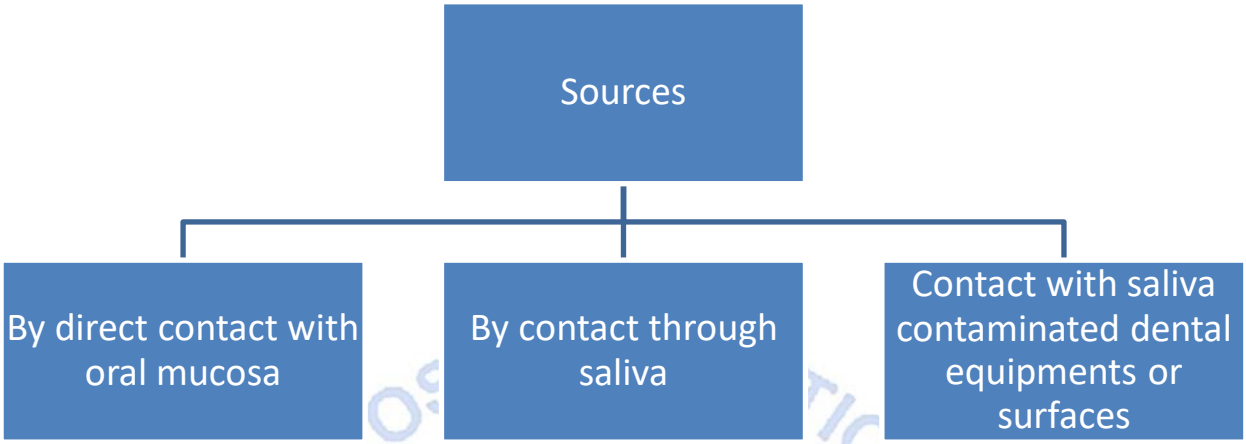

Table 1

PERSONAL DETAILS	
Patient's Name	
Age	
Contact No.	
MEDICAL HISTORY (COVID SPECIFIC)	
Fever	
Cough	
Breathing difficulty	
Diarrhea	
Altered sensation of smell or taste	
OTHER MEDICAL HISTORY	
Asthma	
Diabetes	
Hypertension	
Pregnancy	
History of hospitalization	
Past history of illness	
TRAVEL HISTORY WITH DURATION	
National/ International	
Mode of journey	
CONTACT HISTORY	
DENTAL HISTORY	
Chief complaint	
Previous treatment history	
Dental findings	

Table 2- COVID Screening Form

Presentation/condition	Consequences/risk	Intervention required
Mobile/Faulty prosthesis	Risk of aspiration	Removal with crown remover
Fixed faulty prosthesis	Pain/Continued inflammation of underlying tissues/food accumulation/source of infection	Removal with airotor/crown remover
Infection around prosthesis	Pain/Spread of infection	Removal of prosthesis
Perimplantitis	Pain/Spread of infection/Implant failure	Antibiotics/Currettage
Sensitivity/caries of abutment underneath fixed prosthesis	Pain/Pulp exposure	Endodontic intervention
Fabrication of surgical and interim obturators	Problems in speech and deglutition	Impression and delivery of prosthesis
Dislodged prosthesis needing recementation	Compromise in esthetics and function/pulpal sensitivity/supraeruption of teeth	Recementation

Table 3- Urgent Prosthodontic Procedures and its Managements

Impression materials	Disinfectant solution
Impression Compound	1:10 dilution Sodium Hypochlorite or Iodophor
Alginate	0.5 % Sodium Hypochlorite or iodophors or 2% Gluteradehyde
Zinc-oxide eugenol impression paste	2% Gluteraldehyde or Chlorine compounds
Elastomeric impression materials	2% Gluteraldehyde or Cidex

Table 4- Impression Disinfection protocols