



Review Article

A new challenge for ‘Dental Professionals’ during this pandemic situation of COVID-19

Pragati S Dubey^{1,*}, Neelam Mittal¹, Prabhat Chandra²

¹Faculty of Dental Sciences, Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India

²ITS Dental College, Greater Noida, Uttar Pradesh, India



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ABSTRACT

The world is facing new crises with emergence and spread of COVID 19. The COVID 19 has given challenge to health care professional and dental practitioner due to lack of symptoms to ARDS and eventually death. Dental practitioners are exposed to high risk due to route of transmission. This article will address proper possible information regarding outbreak of this pandemic situation on dental practice. Dental specialist in upcoming days will come across with patients of COVID 19, which will have to ensure the prevention of infection. Here we will discuss about how to minimize the spread of infection during dental practice. This review presents a protocol of management from available literatures which help to formulate a possible plan for evaluation and prevention of COVID 19 from patients to dental practitioner or vice versa.

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1. Introduction

Severe Acute Respiratory Syndrome (SARS) caused by novel corona-virus has become a pandemic and countries all over the world are largely affected from it.¹ It was first discovered in WUHAN, a province of Peoples Republic of China and has spread to all parts of the earth. Allegedly a zoonotic infection caused by bats and pangolins, COVID-19 virus belongs to a family of single stranded RNA virus known as coronaviridae.² It is a cross species viral mediated diseases. On January 30, 2020 WHO declared Wuhan virus a pandemic.³

According to WHO 13,824,739 casualties and 591,666 have been reported and the number continues to increase.⁴ In India, from Jan 30 to 12:16pm CEST, 18 July 2020, there have been 1,038,716 confirmed cases of COVID-19 with 26,273 deaths. Measurements of identification and prevention must be in place to fight from this pandemic.⁵ Proper management of current cases and casualties is also necessary to curb the spread of virus. Dental professionals

are at high risk because they work in proximity of oropharyngeal region and practices due to which aerosol formation takes place due to which dentist and dental offices becomes the potential carrier of the virus.⁶

2. Symptoms⁷⁻⁹

According to literatures and reports, symptoms of corona virus may be categorized into two parts as follows:

2.1. Clinical symptoms

1. Dry Cough.
2. Myalgia.
3. Nausea.
4. Hyposmia/ microsmia which is loss of sense of smell.
5. Dysgeusia which is abnormal taste sensation.

2.2. Radiographs

Radio graphically abnormal chest can be seen. Ground glass opacities can be differentiated in CT scan even in the initial stages, affect both lungs, in particular the lower lobes, and

* Corresponding author.

E-mail address: ruchidubey008@gmail.com (P. S. Dubey).

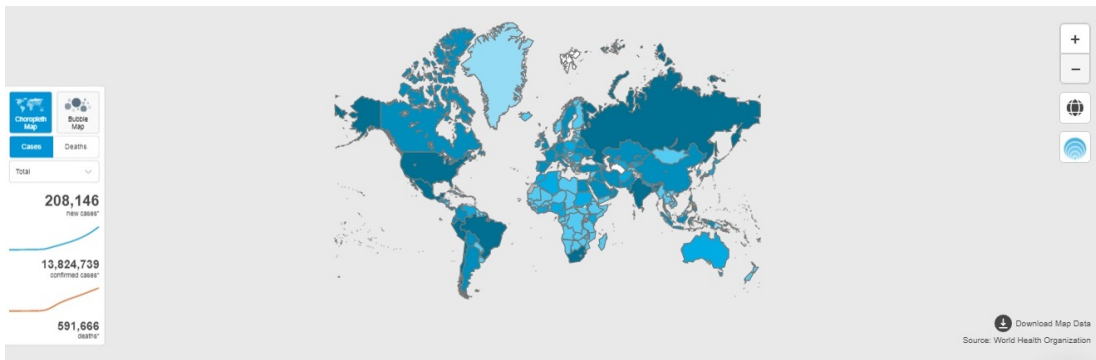


Fig. 1: Global data of COVID-19 cases

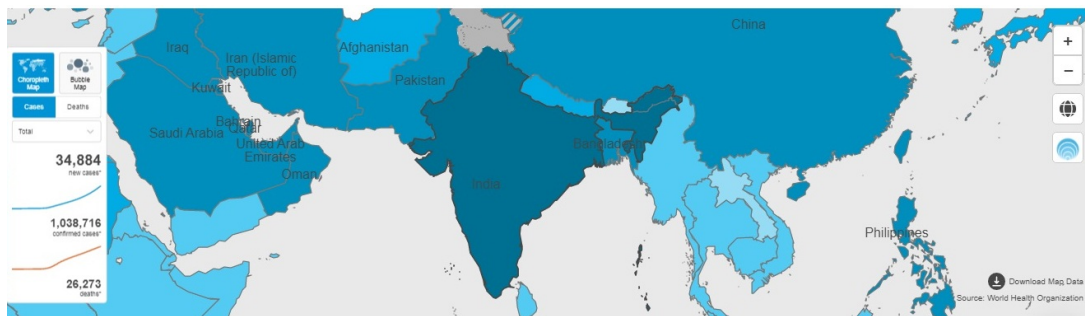


Fig. 2: Data of COVID-19 cases in India

especially the posterior segments, with a fundamentally peripheral and sub pleural distribution.

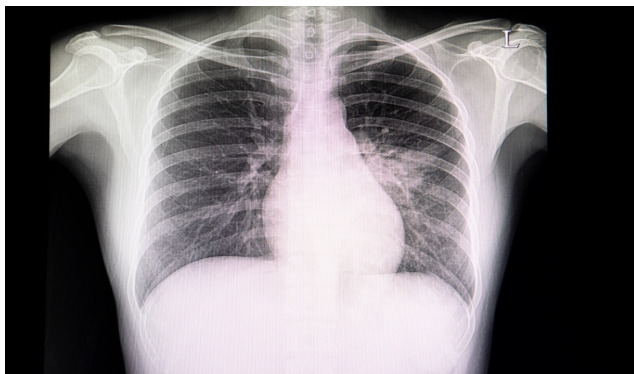


Fig. 3: X-Ray of corona virus positive patient



Fig. 4: CT scan of chest of corona virus positive patient

Apart from these symptoms 80% of the positive patients show flu- like symptoms and seasonal allergies which leads to increased undiagnosed cases. Incubation period of novel corona virus ranges from 0-24 days, so transmission of virus may occur before symptoms in infected person appears.¹⁰ These asymptomatic patients may act as a carrier also as a reservoir for re- surfacing of disease on a global scale People with mean age of 56 years with preexisting chronic diseases such as cardiovascular disease and immune suppression illness such as AIDS are at higher risk.¹¹

3. Routes of Transmission

CORONA VIRUS typically spreads through respiratory droplets or by contact (in the radius of approximately 6 feet). It also spread by touching the things on which respiratory droplets or touch of the infected person.¹² Thus disinfection of object and hand wash is necessary. Studies have shown the presence of COVID 19 virus in human saliva and feces.¹³ It is a known fact that Corona – SARS virus can bind to human angiotensin converting enzyme 2 receptors which are highly concentrated in salivary glands. Therefore potential transmission of COVID-SARS virus via aerosols, fomites and other feaco oral routs may contribute to further spread in a dental office.¹⁴

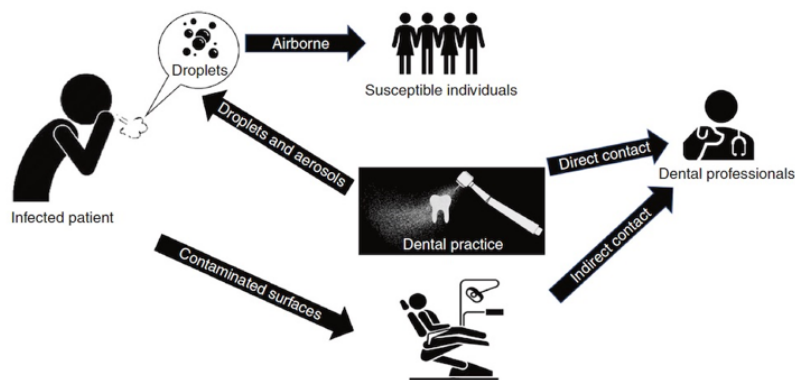


Fig. 5: Transmission of COVID 19 during dental practice

4. Patient Management and Prevention of Infection

Patient management during this pandemic time is necessary to stop spread of the virus in dental offices and dentist. The patient management by dental practitioner can be done in two types of verification steps as:

4.1. Telescreening

At the time of offering appointment to the patient via phones patients must be asked questions about as:

1. Any known exposure to COVID patient?
2. Area of the patient and dentist must check if the area has a high incidence of COVID virus?
3. Any febrile respiratory illness such as flu, common cough and cold?

If the patient has a positive response of the either three question appointment must be cancelled and the dentist should motivate the patient to go for self-isolation /quarantine for t2 weeks and the patient must contact his primary health care personal via telephone or e-mail.^{15,16}

4.2. Arogya Setu-App

Dentist must encourage the patient to download AROGYA SETU APP in mobile phone and answer the questionnaire present in it so that the patient can self –evaluate the presence of virus affected areas in his vicinity.¹⁷

5. Patient Evaluation and Cohurting

In dental office patient must be given a questionnaire mentioning complete and detailed medical history form and COVID screening questionnaire.¹⁸ Upon patient arrival in dental office dental professionals must measure the body temperature by non contacting thermal scanner. Patient with risen temperature or with respiratory disease should be deferred. As per center for disease control and prevention guidelines, patient with suspected infection should be seated

in a separate, in well ventilated area and atleast 6 feet away from unaffected patient seeking dental care.¹⁹ Patient should be suggested to wear facemask and follow proper respiratory hygiene such as covering mouth and nose while sneezing or coughing and then discarding the tissue. Dental professional should advice such patients to contact their physician to rule out the possibility of COVID infection.

6. Pharmacologic Management

In suspected or confirmed patient if the patient requires urgent dental care for conditions such as tooth ache and swelling pharmacologic management in the form of antibiotics or analgesics can be prescribed.²⁰ This approach may offer symptomatic relief to the patient and provide dental professional sufficient time to either refer the patient to a specialist or deliver dental care with all the appropriate measures in place to prevent the spread of the infection.²¹

7. Dental Treatment Recommendation

1. Pre- Procedural hand washing.
2. Steps to wear PPE KIT.
3. Pre-Procedural mouth rinse: Studies have shown that pre procedural mouth wash of Iodine 0.2% OR 0.5-1% of hydrogen peroxide before any surgical procedure reduces the colony of corona virus upto some extent which is present in saliva.
4. Use of disposables: Disposable odontoscope, syringes and blood pressure cuffs should be used to prevent cross contamination.
5. Extra-Oral Radiograph: Extra- oral radiographs should be used to avoid cough or gag–reflex. If intra-oral radiograph is mandatory sensors should be double barriered to prevent perforation and contamination, barrier should be discarded as soon as the intraoral radiograph has been taken.
6. Use of Rubber Dam: Rubber Dam is a mandatory tool because it helps to minimize splatter generation also may be more advantageous because it covers the nose.

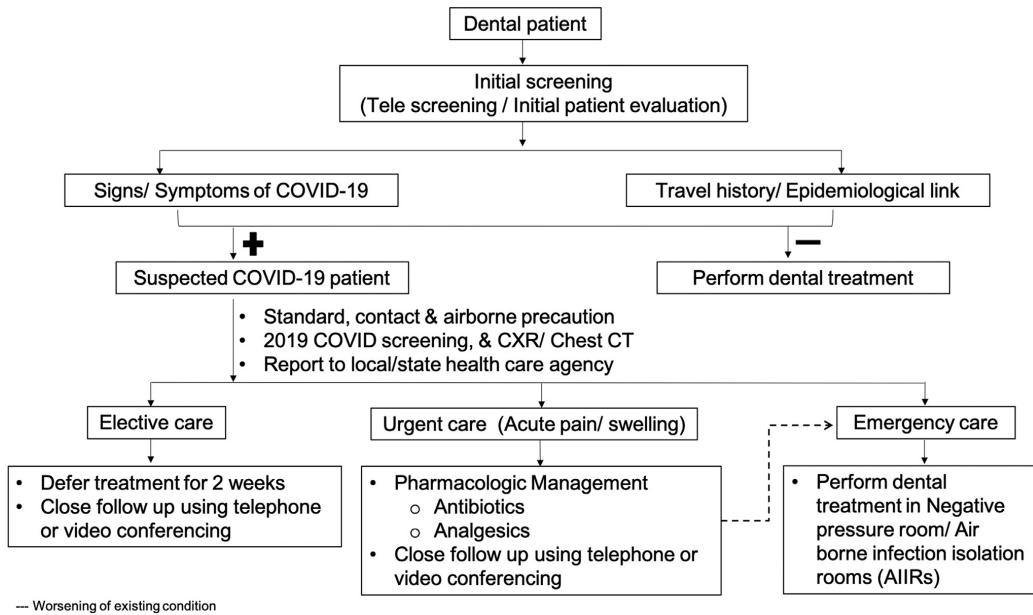


Fig. 6: Management of COVID positive patient in Dental practice



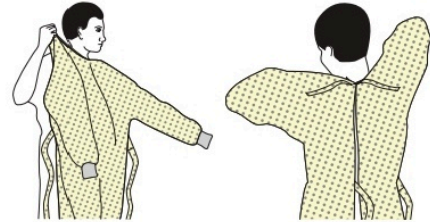
Fig. 7: Pre-procedural hand washing

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



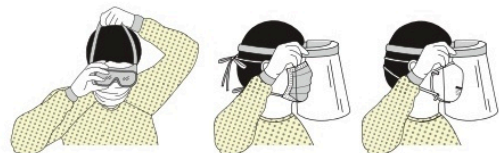
2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



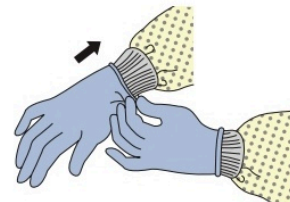
3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



4. GLOVES

- Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene



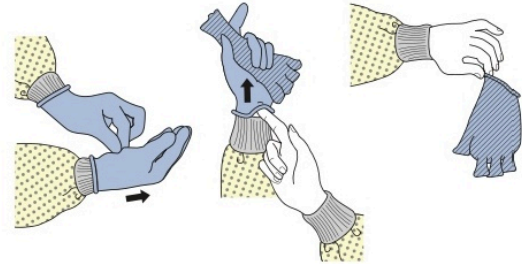
Fig. 8: Steps to wear PPE KIT

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container



2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container



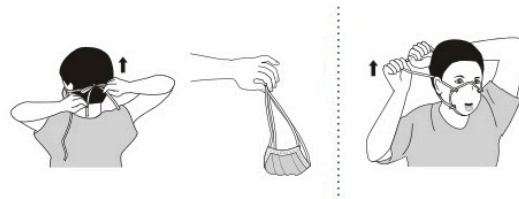
3. GOWN

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

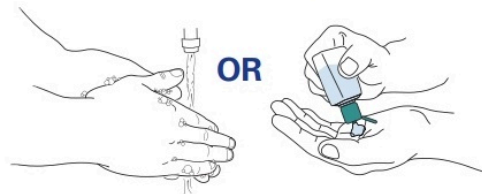


4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE



Fig. 9: Procedure to remove PPE KIT

7. Procedure for Removal of PPE KIT.

SARS COVID remains viable in aerosol and can survive upto 3 days on dormant surfaces at room temperature therefore dental staff should make sure to disinfect dormant surfaces using chemicals approved for COVID such as sodium hypochlorite.²²

8. Discussion

The uncontrolled spread of SARS COVID-19 increases the liability that dental practitioner will treat this subset of patient population. The precautions are critical to minimize the spread of infection of corona virus in patients. This review showed further precaution is necessary that include careful prescreening of patients and additional measures before starting any dental treatments. Asymptomatic patient causes high risk of exposure to dental health professional, so it is mandatory to postpone any elective treatment until there is an emergency. There is also need for cultural changes in dental practice which will help to prevent cross infection of disease.

9. Source of Funding

None.

10. Conflict of Interest

None.

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Author biography

Pragati S Dubey Ph.D Scholar

Neelam Mittal Professor

Prabhat Chandra Dental Professional

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