



## **ORAL PATHOLOGISTS DURING PANDEMIC COVID- 19: RISKS AND PREVENTION**

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### **ABSTRACT**

The Corona virus was named as the 2019-novel coronavirus (2019-nCoV) by World Health Organization (WHO). WHO officially named the disease as coronavirus disease 2019 (COVID-19) and Coronavirus Study Group (CSG) of the International Committee proposed to name the new coronavirus as SARS-CoV-2. Human to human transmission was very common and many methods have been followed to prevent the community spread. Health care workers are also getting impacted during the treatment of infected patients. Dental field also faces the similar impact due to aerosol productions during clinical procedures. As Oral Pathologists, certain precautions have to be taken while handling the biopsy specimens and microscopic slides.

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### **INTRODUCTION**

**Corona Virus**

They are enveloped viruses with a positive single stranded RNA genome sequence. Corona virus can be divided into four genera: alpha, beta, gamma and delta corona viruses. Alpha and Beta family mostly infects mammals while the gamma and delta infects birds. They are 6 different alpha & beta variants of corona viruses that infects human. Among these, four of them (alpha HCoV-229E & HCoV- NL 63 and beta HCoV-HKU1 & HCoV-OC43) usually causes mild symptoms similar to flu/ common cold while two of the beta corona viruses causes severe respiratory distress which leads to Severe Acute Respiratory Syndrome Corona Virus (SARS- CoV) and Middle East Respiratory Syndrome Corona Virus (MERS-CoV) and recently novel Corona Virus (2019-nCoV).<sup>1</sup>

On January 2020, novel Corona virus (nCoV) was officially announced as the causative pathogen of COVID-19 by the Chinese Center for Disease Control & Prevention (Li et al 2020). This epidemic was first started from Wuhan, China (last December) and now have become a challenging major health problem worldwide. On 11<sup>th</sup> March 2020, the World Health Organisation (WHO) declared COVID -19 as a pandemic.<sup>2,3</sup>

**Routes of Transmission**

SARS CoV infections typically spread through respiratory droplets by sneezing, coughing or having contact with infected individuals (within the radius of 6 feet). Thus led to follow the social distancing to reduce the community spread. Studies

have also shown that presence of SARS CoV-2 in both saliva and feces of affected person.<sup>3</sup>

SARSCoV-2 also binds to human Angiotensin Converting Enzyme-2 receptors (ACE-2) that are highly concentrated in salivary glands, thus this proves the presence of SARSCoV-2 in secretory saliva. These ACE-2 cells are abundantly present in the respiratory tract, thus prone to affect the lungs.<sup>3,4</sup>

**Clinical Manifestations**

The clinical manifestations of COVID-19 range from early, prodromal asymptomatic cases to severe pneumonia with multiple organ failure.

The common symptoms are fever, cough, sore throat, headache, fatigue, myalgia and shortness of breath. In addition, patients also manifests with gastro-intestinal symptoms like diarrhea and vomiting. Elders with underlying disorders (hypertension, diabetes, chronic obstructive pulmonary disease, cardiovascular disease, immunosuppressed conditions) developed ARDS, septic shock, coagulation dysfunction leading to death.<sup>4,5</sup>

**Investigations**

Laboratory investigations with advanced techniques have been a major tool for the diagnosis of viral infections. The examination sample includes blood, saliva and swab test. So, a basic alteration in blood test may provide an insight for a probability of an underlying COVID infection. Decreased white blood cell (lymphocytopenia), increased creatinine, neutrophil count, blood urea, D-dimer. The inflammatory factors like interleukins (IL-6, IL-10), tumour necrosis factor

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alpha (TNF  $\alpha$ ) are increased indicating the immune status of the individuals.<sup>6</sup>

Chest CT scan shows patchy shadows and ground glass opacities in lungs. But the diagnostic sensitivity of radiograph is limited, so it is necessary to confirm with clinical symptoms and viral RNA detections. Sample collection for the detection of COVID 19 infection should be carried out as early as possible in suspected patients by following a proper personal protective measures by the health care workers. The personal protective equipment (PPE) must be worn to provide an efficient and effective barrier that includes protective eye wear, a face shield, a face mask, disposable working cap, appropriate gloves, gowns and impermeable shoe cover.<sup>6,7</sup>

The recommended sample for the detection of COVID 19 infection is the nasopharyngeal swab. It involves a 6 inch long swab into the cavity between nose and mouth for 15 seconds and rotating it several times. The swabbing is repeated on the other side of the nose to make sure enough material is collected. The swab is then inserted into a container and sent to a lab for testing.<sup>8</sup>

### Impact of Covid on Dentistry

COVID 19 has a devastating impact on dental industry and with the pandemic still on the growth curve, it is difficult to ascertain the extent and severity of its long term impact at this point of time. Practicing at this stage is challenging and there is an increased risk in handling and performing dental cases. The most important concern in dental clinics is the transmission of nCoV via droplets and aerosols produced during the procedures.<sup>9,10</sup> So elective procedures can be performed if necessary under proper protective measures. COVID 19 patients should not be treated in a regular dental care setting without special considerations. Use of proper infection control measures, mouth rinses, rubber dam isolation, disinfectants, anti-retraction hand pieces and finally managing the medical waste appropriately can prevent the disease to some extent.<sup>11,12</sup>

### Precautions of Oral Pathologist During the Pandemic

Being an Oral Pathologist, while handling of biopsy specimens or reporting of slides, certain precautions has to be taken to prevent getting infected as COVID 19 samples may also be submitted.<sup>12,13</sup>

- Grossing and tissue processing should be done using gloves, surgical masks and disposable operating gowns and caps. Avoid splatter or splash of formalin and other liquids during the procedure.
- Wear gloves while handling slides and avoid touching the face, eyes, nose or mouth during microscopy.
- Wear surgical masks while viewing the slides under the microscope.
- Wear protective eye glasses during microscopy and try not to share microscope with multiple users.
- Disinfect the microscope before and after use. Sanitizer in gauze can be used to wipe the microscope and cover the microscope with its plastic cover after using it.
- Usage of stationery items such as pens, biopsy forms and reporting sheets should be done carefully preferably with gloved hands and clean hands with soap and water after handling these items.<sup>13</sup>

### Prevention and Management of Covid Infection

#### Prevention is always better than cure

Thus by following the proper precautions and hygiene we can prevent the community spread. For this government has taken many measures to prevent the disease in community level, but it has now been increasing in peak. The treatment of COVID depends on the clinical manifestations of the patient. Drugs such as hydroxyl chloroquine, lopinavir, ritonavir and antibiotic azithromycin have been given.<sup>11,12</sup> The vaccine for COVID is still on the process and will be given in community level if this succeed.

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