

LETTER TO THE EDITOR

Salivary Diagnosis of COVID-19**Dear Editor**

It is indeed an honour for us to contribute towards the ongoing research regarding the latest contagion, Coronavirus disease (COVID-19) as caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) leading to global pandemic with variable clinical outcomes. COVID-19 positive individuals present with a variety of signs and symptoms as sore throat, cough, fever, dyspnoea, headache, myalgia, nausea, and vomiting whereas, some develop severe acute respiratory distress syndrome with a fatality rate of about 10%.¹ Possible oral findings include xerostomia, hypogeusia, and chemosensory alterations. Common routes of transmission being person-to-person via direct sneeze, cough, and droplet inhalation or by contact through mucosa of eyes, nose and saliva.

Detection of coronavirus is the first crucial step which is commonly done by collecting oropharyngeal and nasopharyngeal samples (swabs, sputum etc) or endotracheal aspirate along with serological testing.² The specimen collection requires close contact between healthcare provider (HCP) and infected individual posing high risk of virus transmission to HCP.² It may cause discomfort to patients and induce bleeding specifically in thrombocytopenia patients hence not recommended for disease monitoring.¹

Various studies have been conducted to understand the nature of COVID-19 to lessen the disease burden and improve clinical outcomes. SARS-CoV-2 uses human angiotensin-converting enzyme II as the host receptor which has shown high expression in salivary glands. Salivary diagnostics is an emerging field. Salivary biomarkers are being used in detection of dental caries, periodontal conditions, and oral cancers. Kits as Salivette, Quantisal, and Versi SAL, etc have been used in the past for collecting salivary samples for various contagious diseases.^{3,4} Advancements in Salivaomics have shown coronavirus in abundance in salivary secretions, salivary glands and specimens taken from nasopharynx of COVID-infected individuals which suggest use of salivary specimen as a potential medium for detection and monitoring COVID-19.²

Automated point-of-care (POV) molecular assays have markedly decreased the turn-around time of viral testing with a significant improvement through its simplicity and high accuracy.³ While comparing salivary

samples and nasopharyngeal aspirate of patients admitted with laboratory confirmed diagnosis of COVID-19, consistent detection of coronavirus was found only in the saliva with a subsequent decline of coronavirus in serial salivary samples among these patients, corresponding to their recovery.¹ Abundance of RNA isolation has been reported using quantitative real-time reverse transcriptase-polymerase chain reaction (RT-PCR) assay to investigate viral load in salivary samples of COVID-positive individuals.⁴

Dentists and dental care professionals (DCPs) are among high risk professionals for acquiring COVID-19 due to specificity of dental settings. As dentists, we highlight the role of saliva as a non-invasive fluid, cost-effective diagnostic marker allowing timely detection of COVID-19 and prevention of its transmission in the population especially in dental care settings. Salivary kits provide comfortable and sterile means of sample collection, less chances of aerosol generation during collection, reduction in time and cost, higher patient compliance without compromising the quality of samples orefficacy of results. They offer high consistency rates of up to 90% for coronavirus detection and ease for serial monitoring of COVID-19 with high sensitivity and specificity.^{1,2}

Keeping into account the upheaval of coronavirus, dentists and DCPs have a crucial role to act diligently and adapt infection control measures to prevent its spread. We suggest development and use of rapid diagnostic chairside kits and molecular point-of-care assays using salivary specimen in the form of liquid biopsy in Pakistan. This has pivotal role to devise strategies for prevention of risk of nosocomial transmission of COVID-19 for dentists, DCPs involved in performing aerosol-generating procedures, as well as among patients till an effective vaccine is available. Furthermore, a thorough oral examination needs to be carried out for COVID-positive individuals for possible oral lesions in order to understand pathogenesis of the disease.

Introduction and use of salivary kits should be encouraged in Pakistan to explore the potential of salivary samples with their diagnostics opportunity. This may enhance diagnostic capability of human salivary samples from COVID-infected individuals for quick identification of presence of coronavirus, optimizing cost-effective point-of-care technology (POCT/bedside testing), serial sampling and monitoring, reduction in hazards risk as well as discomfort to the patients.^{1,3,5}

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We believe that dentists have a central role to ensure safe dental practice post COVID-19.

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