A Case Report

Covid 19 Pandemic - Present and Future Recommendations/ Guidelines to Manage the Patients in Oral & Maxillofacial Surgery

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Abstract

Coronavirus disease (COVID-19) is caused by one of the new strain of Coronavirus (SARS-CoV-2) which was initially discovered in December 2019 in Wuhan city of China. The common symptoms of this disease are fever, cough and shortness of breath.

As a professional we are going through a situation that we have not seen before. Oral & Maxillofacial surgeon are facing dilemmas over patients and treatment selection, safety of medical personal and patients and the most appropriate use of available resource in our hospitals.

This advice guideline discusses the medical protection measures required in the outpatient clinic as well as in Operation Theater in oral and maxillofacial surgery department.

The aim of this article is to provide a brief overview of virology, diagnostic test, transmission route, incubation period, clinical manifestation and treatment of corona virus. In addition, the main goal of this article is that we have to make certain recommendation/guideline on patient selection, procedure selection and discussing the measures to be taken to prevent the spread of virus at our workplace during this era of pandemic.

Keyword: COVID-19, recommendation, Maxillofacial surgeon, pandemic,

INTRODUCTION

n December 2019, multiple cases pneumonia with unknown etiology was seen Wuhan city of China.¹The virus as a causative agent was identified through throat swab test conducted by the Chinese Centre for Disease Control and Prevention (CCDC) on dated 7/01/2020, and that virus was named as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The WHO Director-General, Dr. Tedros, on 11th of Februray,2020 announced that the disease caused by this new corona virus was a "COVID-19," is miniature form of "coronavirus disease 2019".² On 11th march 2020, WHO declare Noval corona virus disease (COVID-19)out break as a pandemic³ Based on the World Health Organization (WHO) report, as of May 29, 2020, (Table 1) there are 5701337 confirmed cases of COVID-19 and 357588 deaths, of which 1675258 were reported in the USA, and 4026079 in other 213 countries and regions, including the United Kingdom, Spain, Iran, Italy, Australia, India etc.

Specific data on the risk of infection in oral and maxillofacial surgeons are not available. However, one of the earliest reports from Wuhan, China, where COVID-19 was first identified, found 40 health care workers among the first consecutive 138 patients hospitalized. 10% of the COVID-19 confirmed cases in China⁶ and 9% of COVID-19 confirmed cases in Italy were the healthcare workers.

There is a high viral load in nasal

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mucosal, oral, pharyngeal, and pulmonary secretions; any operative procedure that involves these surfaces is high risk to the entire operating room personnel.⁸

Therefore the oral and maxillofacial surgeon has to focus on the following preventive parameters to avoid the COVID-19 infection, like patient/ procedure selection, hand hygiene, Personal protective equipment (PPE), General examination, disinfection of surfaces, outdoor setup unit, indoor setup, precaution in the operative room and disposal of medical waste.

Virogy of Covid-19

Coronaviruses are enveloped positive sense RNA viruses (subgenus sarbe covirus, Ortho coronavirinae subfamily)⁹ size between 60-140 nm in diameter. The virus has spikes like projections on its outer surface that look like a crown when viewed under electron microscope; that's why it is

How to cite this article: Dr. Sukhvinder Singh Rana, Covid 19 Pandemic - Present and Future Recommendations / Guidelines to Manage the Patients in Oral & Maxillofacial Surgery, HTAJOCD.2022 Jan-Feb(3):37-40

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Access this article online

Website

www.healtalk.in

10.5473/zenodo.5820735

Quick Response Code



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There are four types of Coronavirus. α -coronavirus, β coronavirus, γ -coronavirus, and δ -coronavirus. The first two (α -coronavirus and β -coronavirus) infect the mammals only, and later two (γ -coronavirus and δ -coronavirus) infect both birds and mammals.

There are seven types of human corona virus,⁹

- 1. HCoV-229E (α -corona virus)
- 2. HCoV-NL63 (α -corona virus)
- HCoV-OC43 (β-corona virus)
- 4. HCoV-HKU1 (β-corona virus)
- 5. MERS-CoV (Middle East respiratory syndrome related β-coronaviruse)
- 6. SARS-CoV (severe acute respiratory syndrome-related β -coronavirus) and
- 7. SARS-Cov-2 (the noval corona virus that causes COVID-19).



Fig1: Illustration of the COVID-19 virion."

Three dimensional(3D)presentation coronaviruses. (Fig. 1)¹¹ COVID-19 can easily connect to the human cell (angiotensin-coverting enzyme 2(ACE2) receptor) through the viral structural spike(S). There is a high affinity between ACE2 and COVID-19 S-protein. COVID-19 can easily use ACE2 as a receptor to get enter into the human cells, which may promote transmission of virus from one person to another.¹²

Diagnostic Test

Diagnostic test of Covid-19 is the only key to controlling the spread of this disease, according to WHO.¹³Diagnostic test of COVID-19 can be done by molecular test(swab test) and second by serological test (antibody test).¹⁴

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Transmission routes of COVID 19

Airborne spread

The airborne spread of COVID-19 is well-reported in many literatures. Patient's cough and breading during procedure can generate aerosol and droplets. In addition, in our profession there are many procedures produce aerosols and droplets mixed with saliva and blood of patients infected with virus.¹⁵ The transmission of COVID-19 through aerosol and droplets mixed with saliva or even blood during the surgical procedure at workplace is hard to avoid. So, this is the main concern at workplace for we people.¹⁶

Contact spread

Our profession involves frequent and repeated contact to human fluid (mainly saliva), patient contact, contact with the contaminated surgical instruments or contact with the surfaces of workplace, these contact make a favorable routes to spread of COVID-19.¹⁶ COVID-19 can survive on the surfaces of metal, glass, cardboard or plastic for up to a nine days.¹⁷ Hence coming in contact with these contaminated surfaces repeatedly in hospital settings can help in spread of this disease.

Sources of Transmission.

Patients with symptoms of COVID-19 is the main source of spread of this disease but some recent studies also suggest that the patients without symptoms and the patients in their incubation period are also spread COVID-19.^{18,19} Furthermost, it still remains to be proved that this virus can spread in the recovery phase.¹⁹

Incubation Period

The incubation period this COVID-19 is up to 14 days following according to various studies but mostly symptoms appear with four to five days after exposure to this disease.^{1,18,20}

Clinical Presentation

In a study describing 1099 patients with COVID-19 pneumonia, the most common clinical features at the onset of illness were: fever (88.7%), cough (67.8%), fatigue (38.1%), sputum production (33.4%), shortness of breath (18.6%), sore throat (13.9%), and headache (13.6%).²⁰

Treatment

Till date no vaccine/medicine available for the treatment of COVID-19. Only the symptomatic treatments are available at this time. Patients are treated for their symptoms i.e. fever, cough, difficulty in breathing etc.²¹

Recommended Measure(guidelines) During Covid 19 Pendemic For Maxillofacial Surgery On Infection Prevention And Control During Patient Management.

As a professional we need to be able to identify a patients suspected with COVID-19. Whenever possible, Telescreening of the patient is strongly recommended. Before coming to the department a questionnaire should be used to screen patients with possible infection of COVID-19. The patients should triage according to their urgency. We should select only urgent and emergency cases at this time. When testing is not possible in emergency cases the entire patient plan for surgery under emergency condition considered as

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COVID-19 positive until proven otherwise.

The non-emergency procedure should be delayed as advised by The American College of Surgeons (ACS),²² The U.S. Centers for Disease Control and Prevention²³ and The United States Surgeon General.²⁴

We should focus on the urgent and life threatening emergency procedures during this time of pandemic. On dated 11/04/2020, National health services (NHS) of the united kingdom, with the support of the other surgical colleges, published its "clinical guide to surgical prioritization during the COVID-19 pandemic".²⁵

Patients requiring surgery during the COVID-19 crisis have been classified in the following groups:

Priority level 1a Emergency - operation needed within 24 hours

Haemorrhage from maxillary/mandib ular trauma not responsive to conservative Rx (reduction and IR)

Dental Sepsis - not responding to conservative Rx and threatening life/airway/sight/brain.

Orbital Compartment Syndrome/Muscle Entrapment - threatening sight

Jaw Dislocation - not responding to conservative Rx Priority level 1b Urgent - operation needed with 72 hours Facial fractures - not suitable for conservative Rx Priority level 2 Surgery that can be deferred for up to 4 weeks

MDT Directed orpphayngeal/tonsil/ tongue cancer resection +/- reconstruction

Facial Fractures causing diplopia/ occlusal problems

Mandibular/maxillary othrognathic surgery - airway compromise unresponsive to conservative Rx AND unsuitable for tracheostomy - adults and children

Dental extractions - Adult and paediatric if unresponsive to conservative Rx (severe pain/infection)

Craniofacial - ocular complication/Raised Intracranial Pressure

Priority level 3 Surgery that can be delayed for up to 3 months

MDT directed resection of head and neck skin cancer - moderately/well differentiates with no metastases.

MDT directed salivary gland tumours (low grade)

Priority level 4 Surgery that can be delayed for more than 3 months

All orthognathic Surgery

Dental extractions - adult and paediatric MDT Directed Salivary Gland Tumours – benign Post-traumatic / Cancer Facial Deformity Benign dental lesions -mandible/ maxilla Temporo-mandibular joint surgery

*Multidisciplinary team (MDT)

We can avoid virus transmission in our operative/work place by following certain guideline. These guidelines are:

- A. Hand hygiene.
- B. Personal protective equipment (PPE) Kit.
- C. General examination
- D. Disinfection of surfaces.
- E. Outpatient care.
- F. Indoor patient care.
- G. Precaution in operation theater
- H. Disposal of medical waste.

Hand Hygine

Hand hygiene has been considered as the most important way to reduce the risk of transmitting infection in patients.²⁶ We should wash our hands with soap and water for at least 20 seconds before or after contact with patients or if soap and

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water are not available then we should use an alcohol-based hand sanitizer with contain at least 60% alcohol.

Personal Protective Equipment (PPE) Kit

The use of Personal protective equipment (PPE) is one of the best ways to protect you. When patient's risk of COVID-19 is unknown and health care workers has to examine the patient. At that time the new guidelines on use of personal protective equipment (PPE) by our healthcare workers significantly expands the potential use of various eye protection equipment and fluid resistant surgical mask.² Maxillofacial surgeons should wear fluid resistant aprons, surgical masks, eye protection, head cap and glove (Table 2) because there is a risk transmission of virus during procedure through droplets or aerosol. There are some asymptomatic patients infected with virus, Public Health England said in a statement.²⁸We should strictly follow correct sequence of wearing and removal of PPE.²⁹ Hand hygiene should be performed after removal of PPE. Table 2; What should you use when?

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Clinical presentation	-Fever -Cough	
	-Shortness of breath	
Incubation period	2-14 days	
Patients infected globally	5701337	
Death globally	3,57,688	
Mortality	6.3%	

Table1: Tabulated data of covid-19, accurate as on 29/5/2020

Situation	Mask or respirator	Apron or gown	Eye protection	Gloves
Performing AGPs on patient with suspected or confirmed covid-19 OR all patients in context of sustained covid-19 transmission	FFP3 respirator	Long sleeved, disposable, fluid repellent gown	Full face shield or visor repellent gown	Disposable gloves
Face-to-face assessment or direct care where risk of covid-19 cannot be established before the consultation	Fluid resistant surgical mask	Apron	Eye protection	Disposable gloves
Within higher risk acute inpatient care areas (where AGPs are regularly performed)	FFP3 respirator	Long sleeved, disposable, fluid repellent gown (with disposable plastic apron underneath if only a non-fluid resistant gown is available)	Eye protection	Disposable gloves
Inpatient area with suspected or confirmed covid-19 patients (not giving care)	Fluid resistant surgical mask	Not applicable	Not applicable	Not applicable
Inpatient area with suspected or confirmed covid-19 patients (giving direct care)	Fluid resistant surgical mask	Apron	Eye protection	Disposable gloves
Inpatient areas with no identified suspected or confirmed cases	Local risk assessment	Local risk assessment	Local risk assessment	Local risk assessment
Emergency or acute admissions, possible or confirmed cases (or all cases subject to local risk assessment)	Fluid resistant surgical mask	Apron	Eye protection	Disposable gloves
Transfer of possible or confirmed cases	Fluid resistant surgical mask	Apron	Local risk assessment	Disposable gloves
Operating theatres without AGPs, treatment of possible or confirmed cases (or all patients subject to local risk assessment)	Fluid resistant surgical mask	Local risk assessment	Eye protection	Standard IPC procedure
Labour ward (not AGPs or surgery) for possible or confirmed cases (or all patients subject to local risk assessment)	Fluid resistant surgical mask	Long sleeved, disposable, fluid repellent gown, apron	Eye protection	Disposable gloves
Primary care, direct care of possible or confirmed case (or all patients subject to local risk assessment)	Fluid resistant surgical mas	c Apron	Local risk assessment	Disposable gloves

