International Journal of Drug Research and Dental Science
Volume 3 Issue 1 (Page: 33-38), 2021 ISSN: 2582-0826

Current Concept and Trend in Management of Patients Undergoing Oral and Maxillofacial Surgery During COVID-19

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Review Article

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Crossref doi: https://doi.org/10.36437/ijdrd.2021.3.1.E

ABSTRACT

The surgical pathology of the oro-maxillofacial district is highly specific and the maxillofacial surgeon can be exposed to pathogenic microorganisms, including viruses and bacteria that infect the oral cavity and respiratory tract. Maxillofacial care settings invariably carry the risk of 2019-nCoV infection due to the specificity of its procedures, which involves face-to-face communication with patients, This study attempts to provide a brief overview on the structure of the virus, it's modes of transmission and clinical features of the same. The risk of infection during the diagnosis and treatment of oral diseases. It has been an attempt to present a protocol to standardize facial pathology triage, precautions to minimizing the risk of transmission, protocols to provide optimum surgical care and simultaneously prevent nosocomial infection in operative settings.

Keywords: COVID-19, Oral, Maxillofacial Surgery, Trend in Management.

Introduction

The mammouth named Coronavirus Disease 2019 (COVID-19) rapidly became a widespread pandemic, creating global health and economic crisis. COVID-19 is a novel virus, distinct from SARS-CoV and MERS-CoV, having Chinese horseshoe bats as the most probable origin. Transmission is primarily through droplet spread or contact routes.

Given the widespread transmission of SARS-CoV-2, healthcare providers are at an increased risk of contracting the infection and becoming potential carriers of the disease. According to Occupational Safety and Health Administration (OSHA), dental health care personnel (DHCP) including oral and maxillofacial surgeons are placed in a very high exposure risk category, owing to the proximity and nature of work in a dental setting. This has lead to the suspension of non-urgent outpatient oral treatments while catering to the emergencies of

the oro-maxillofacial region, represented by trauma, malignant neoplasms, and infections, which demand timely treatment.

This article attempts to provide a brief overview of the structure of the virus, its modes of transmission, and its clinical features of the same. The risk of infection during the diagnosis and treatment of oral diseases were also assessed. It has been an attempt to present a protocol to standardize facial pathology triage, precautions for minimizing the risk of transmission, protocols to provide optimum surgical care and simultaneously prevent nosocomial infection in operative settings.

Material and Methods: The records starting February 29 to 16 April, 2020, about the medical schedules of all patients hospitalized in the Oral and Maxillofacial Unit of Bharati Hospital, Pune have been collected. During this tenure, 30 patients were treated. The patient's age, sex, and pathology were taken into consideration; also, all have undergone two triages, one by telephone, and one at the time of admission.

Results : 30 patients were included in this study; 24 males and 6 females with a male to female ratio of 4:1. The age group ranged from 20years to 80 years with a mean age of 60.53 years. During this period of COVID-19 scare, the main pathologies were trauma and non-differentiable oncological diseases, precisely accounting for 25 cases of maxillofacial fractures and 5tumour afflicted patients.

Of the 5 cancer patients, 3 have been surgically intervened under general anesthesia, for oral squamous cell carcinoma, squamous skin cancer, and submandibular gland mucoepidermoid carcinoma respectively.

Screening questionnaire

1. Do you have fever or have you experienced fever within the past 14 days?
2. Have you experienced a recent onset of respiratory problems, such as a cough or difficulty in breathing within the past 14 days?
3. Have you, within the past 14 days, travelled to risk areas or visited neighborhoods with documented 2019-nCoV transmission?
4. Have you been exposed to a patient with confirmed 2019-nCoV infection within the past 14 days?
5. Have you recently participated in any gathering, meetings, or had close contact with many people you are not acquainted with?

A baseline screening is essential to accurately identify suspicious or high-risk patients. For all 33 patients, their temperature was < 37 °C, nobody had presented with a cough, diarrhea, or breathing difficulties and there was no history of viral exposure in the past 14 days.

Preoperative treatment: Before entering the ward, the triage was repeated, the nasopharyngeal swab (RT-PCR) followed by clinical examination by a physician was performed at the time of admission and after 24 hours and the patients remained in dedicated areas until the results were available.

All the patients tested negative for the swab tests. They were isolated in well-ventilated rooms and had to wear surgical masks. Visits were limited to one accompanying person with an individual protection measure. Blood pressure, body temperature, heart rate, and oxygen saturation were constantly monitored. Since the patients were negative for COVID-19, normal preoperative tests were performed, ECG, and chest radiograph. All medical measures, including medical history, physical examination, and any auxiliary tests were performed

in the patient's room. Also, in this case, a preoperational antimicrobial mouth rinse containing 1% hydrogen peroxide or 0.2% povidone was given.

Intraoperative Protection: Healthcare staff must strictly implement preventative measures as indicated by the interim guidance of WHO. Healthcare staff used Personal protective equipment (PPE): N95 or FFP2 mask, eye protection, fluid-resistant gown, and surgical gloves. The number of personnel attending and the consumables used during the procedure had been reduced.

Postoperative management: The patients remained hospitalized in individual rooms. They underwent medical therapy reducing the use of glucocorticoids and periodic control of the values of blood pressure, body temperature, heart rate, and oxygen saturation. The devices used for monitoring clinical values were different for each individual patient.

The dressings were performed in the patient's room by the medical and paramedical staff who operated with medical masks with eye protection, gowns, and gloves. Patient mobilization was also started early in order to reduce hospitalization. The patients had a usual hospital stay of about 5 days excluding those who underwent operations for oral cavity cancer for whom it was 7 days.

Discussion: The first indigenous case was confirmed in Italy on February 21, 2020, followed by an exponential increase in infections, making Italy the second-highest country in the world by virtue of active cases and by the number of total cases, training after the United States, and the first in the world by the number of deaths. This situation made it necessary for not only the application of measures to limit the spread of the infection, but also the identification of health facilities capable of managing patients infected by COVID-19.

A clinical management protocol for both suspected and confirmed cases has been adopted. This was meticulously followed in the diagnostic and therapeutic pathway of patients affected by traumatic and oncological pathology.

The surgical pathology of the oro-maxillofacial district is highly specific and the maxillofacial surgeon can be exposed to pathogenic microorganisms, including viruses and bacteria that infect the oral cavity and respiratory tract. Maxillofacial care settings invariably carry the risk of 2019-nCoV infection due to the specificity of its procedures, which involves face-to-face communication with patients, and frequent exposure to saliva, blood, and other body fluids (if during the clinical examination the patient coughs the smallest droplets of saliva floats in the air for a long time, also some strains of viruses have been detected in the saliva for up to 29 days after the infection).

For trauma patients, the domestic accident has been the main cause of trauma, in contrast with the literature, in which the most frequent causes are road accidents, followed by sports injuries, although this is difficult to establish due to the limited number of cases.[1,2] The reason could be due to the severe restrictions applied during this epidemic period, including the prohibition on travelling from one municipality to another with your own or public means, except for work needs, absolute urgency, or health reasons. Considering that the COVID-19 virus is a new type and its biological behaviour and the treatment of pneumonia caused by it are still in the research phase and to date, there is no clear specific therapeutic drug, in the treatment of maxillofacial diseases, prevention is the best way to reduce the risk of spreading the epidemic by medical activities.

Considering that the COVID-19 virus is a new type and its biological behaviour and the treatment of pneumonia caused by it are still in the research phase and to date, there is no clear specific therapeutic drug, in the treatment of maxillofacial diseases, prevention is the best way to reduce the risk of spreading the epidemic by medical activities.

The patients who presented with facial trauma had the first triage at the Emergency Department of their local hospital. Of the 25 patients observed, hospitalisation was required for only 15. For the 5 cancer patients, a pre-triage was performed the day before admission, repeated at the time of admission to the hospital.

For all the treated patients, the precautionary measures applied in the pre-hospitalisation and hospitalisation stages have made the diagnostic pathway more than safe.[3,4,5]

We recommend:

- Repetition of triage
- 48 hours of preoperative testing, before entering the ward, that includes two COVID-19 tests 24 hours apart (if both tests are negative, then surgery can proceed with enhanced airborne precautions).
- Accommodation in a single hospital room
- Speed of execution of the preoperative preparation.

The use of PPE was limited during the operating time because all patients were negative as indicated by interim guidance of WHO.[5]

Much attention was paid to preoperative and postoperative oral hygiene with the use of mouthwash containing 1% hydrogen peroxide or 0.2% povidone because 2019-nCoV is vulnerable to oxidation. In fact, some studies have shown that povidone-iodine effectively reduces the number of droplets and aerosols produced during oral operations.[6,7,8,9]

In the case of covid-19 positive patients, all surgical procedures should be performed in a negative pressure operating room.[10,11] as all of our patients were registered negative, they were treated in non-negative pressure operating rooms. The surgical therapeutic protocol adopted for oncological patients was that reported in the literature and specific to the site of injury. To reduce surgical time and hospital stay, patients underwent excision and reconstruction with local/regional flaps. During the operation, we used scalpels over monopolar cautery for mucosal or skin incisions and bipolar cautery on a lower power setting for haemostasis. For malignant neoplasms in a more advanced state, neoadjuvant therapy to control the development of the disease may be indicated. For non-critical cancer patients, elective surgery should be postponed, if this choice does not negatively affect the prognosis. Because these patients are often candidates for radiotherapy which must be performed 4-6 weeks after surgery, careful hygiene and disinfection are recommended to limit the spread of the infection.

Although some facial traumatic injuries are not emergent, they may necessitate surgical repair to prevent unacceptable sequelae that require more resources to treat than those required by the initial fracture. These sequelae can include infection, permanent functional deformity, and severe cosmetic deformity if left untreated.

All these precautions are needed to better allocate limited hospital resources while balancing long-term patient outcomes and the protection of medical personnel.

In fact, even if the stringent lockdown has made it possible to stop the advance of the virus where it emerges, there is always the possibility that it can recur with new outbreaks. Moreover, most of the population is still susceptible to infection, does not have an immune history, and since there isn't a vaccine; in addition, the numbers of the infected are too low to guarantee flock immunity to a population of 2 billion people. The above suggestions are based on the currently published scientific information available combined with the work experience and thinking of the hospitals involved in the front line to tackle and stem the pandemic and which will be further improved.

Conclusion: The COVID-19 epidemic situation is still serious and for a long time, preventative measures must be necessary to prevent and/or slow down the spread of the infection. Although maxillofacial surgeons are not frontline figures in the management of the epidemic, their support is indispensable in treating especially the traumatic pathology of the oromaxillofacial district that require urgent/emergency surgery. The choice of surgical technique must be based on careful evaluation and compliance with the treatment principles to simplify the intervention and reduce operating times. It is also necessary to establish continuous contact with the administrative control bodies of the hospital to minimise the risk of infection and spread of COVID-19.

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How to cite this Article: **Rajat Bhende, Rajesh Kshirsagar, Ruturaj Deshpande, Priyadarshini Banerjee , Arpita Amin, Prasamita Mishra;** *Current Concept and Trend in Management of Patients Undergoing Oral and Maxillofacial Surgery During COVID-19;* Int. J. Drug Res. Dental Sci., 2021; 3(1): 33-38, **doi:** https://doi.org/10.36437/ijdrd.2021.3.1.E
Source of Support: Nil, **Conflict of Interest:** Nil.
Received: 15-11-2020 **Revised:** 7-1-2021 **Accepted:** 11-1-2021