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Letter to the editor

Strategic plan for management in oral and maxillofacial surgery during COVID-19 epidemic

In late December 2019, a cluster of cases of SARS-like viral pneumonia emerged in Wuhan, Hubei province, China. In the following months, the disease has spread rapidly to the whole China and even more than 120 countries worldwide, and the number of patients infected has been gradually increasing. This viral pneumonia was caused by a kind of novel coronavirus [1], which was temporarily named 2019-nCoV by World Health Organization (WHO). Additionally, the disease was officially named Corona Virus Disease-19(COVID-19) on Feb 11 by WHO.

Like the SARS and MERS virus, 2019-nCoV can spread from person to person. Respiratory droplets and contact transmission are the main modes of transmission [2], but current studies showed that aerosol transmission and the fecal oral route could not be ruled out. Because COVID-19 has an incubation period of up to 24 days, and even asymptomatic virus carriers can still spread the virus, it will take at least an estimated 2 to 3 months to control the epidemic. However, in China, there are still numerous patients with other diseases, especially trauma and cancer requiring surgical treatment. Therefore, in this special time, how to do operations safely and effectively deserves our attention.

Due to betel quid abuse, oral cancer has a high incidence in Hunan province which is adjacent to Hubei and is also a seriously affected area in the epidemic. If the oral cancer patient also suffers from COVID-19 or is an asymptomatic virus carrier, check-up and treatment procedures probably cause the spread of the virus through droplets, posing a significant risk to the medical staff. During the epidemic, chemotherapy or radiotherapy can be used as the alternative to surgical treatment in some oral cancer patients. However, for early cancer or malignant tumor insensitive to chemoradiotherapy, such as sarcoma, surgical resection remains as the standard of care. This poses a challenge to Oral and Maxillofacial surgeons. So far, no confirmed cases have been found at our institute. Herein, based on our experience, we present our guidelines for screening coronavirus, determining priority patient groups, and containing the spread of the virus during perioperative period.

Before operation

First, doctors should investigate epidemiological history, clinical features and temperature. The majority of patients have symptoms of fever [3], and accordingly we can conduct preliminary screening of surgical patients. Patients with positive epidemic history or fever, cough and other respiratory symptoms should be guided to the fever center for treatment. For patients without the above conditions, we re-examined them through routine preoperative examinations, including blood routine, chest CT and respiratory function tests. However, owing to the lack of understanding of COVID-19, we are not sure whether asymptomatic virus carriers were admitted to hospital for planned surgery. Therefore, all the hospitalized patients should be arranged in

line with the strategy of single person and single room.

In view of the shortage of available hospital beds, we give priority to the diseases that may have significant adverse effects on patients if without surgery, such as severe trauma and cancer. In contrast, postponement of benign tumor surgeries will not have imminent unfavorable impact on patient survival.

During operation

The surgical personnel during operation are required to wear standard personal protection, including N95 masks, disposable protective clothing, disposable shoe covers, goggles or face screen protection. For suspected or confirmed patients during the operation, the operation can only be performed in the negative pressure operating room. To further reduce the possibility of infection, the types of items in the operating room should be reduced, disposable items should be used as much as possible, and surgical personnel should be streamlined. During the operation, in addition to protecting from blood and secretions, attention should also be paid to the smoke and aerosols produced by electrosurgical equipment. In reality, surgical masks were absolutely ineffective in protecting individuals from the toxic smoke [4]. Aerosols can be suspended in the air for a long time and then invade the human body through the respiratory tract. Oral and maxillofacial surgery generally involves the upper respiratory tract, and the surgical site is often contaminated by saliva, so when the electrosurgical equipment is used, powerful suction should be applied to reduce the diffusion of surgical smoke and aerosols. Also, it is recommended that ultrasonic scalpel should be given priority to reduce surgical smoke in those operations that can be performed with ultrasonic scalpel [5]. After completion of the operation, the anesthetic machine and the operating room need to be thoroughly disinfected before the next operation can be carried out.

After operation

In order to avoid obstructive and inspiratory asphyxia, preventive tracheotomy is frequently used in head and neck surgery. However, incidences of pulmonary complications after tracheotomy were reported to be 15% to 46%. If the patients with pulmonary infection after tracheotomy were unfortunately infected with the novel coronavirus, the consequences would be even worse. Moreover, for novel coronavirus-infected patients including asymptomatic virus carriers, the virus can spread through splashing of respiratory secretions when the patients cough. Therefore, health workers should still wear masks, goggles, protective clothing and disposable gloves when treating the ordinary patients, while the protection of treating patients receiving a tracheotomy should be more stringent, such as upgrading general surgical masks to N95 masks as list in Table 1.

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Table 1

Requirements for protection levels of medics on various occasions.

Usage	Surgical mask	N95 mask	Goggles/face screen protection	Disposable gloves	Disposable medical cap	Isolation gown	Protective clothing	Disposable shoe covers
Before operation	√		√	√	√			
During/After operation ordinary patients	√		√	√	√			√
Ordinary patients with tracheotomy		√	√	√	√	√		√
Confirmed/suspected patients	√	√	√	√	√	√	√	√

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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