

COVID-19 control protocol for rhinologic surgery*

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To the Editor,

In January 2020, 14 medical staff members engaged in endonasal endoscopic pituitary surgery at a hospital in Wuhan, China, were infected with a novel infection, coronavirus disease 2019 (COVID-19) ⁽¹⁾. Since the nasal mucosa is a potential source of COVID-19 infection ⁽²⁾, close attention has been paid to infection control in rhinologic surgery during the COVID-19 pandemic ⁽³⁾. There are also many reports from other countries on COVID-19 infection among otolaryngologists, and these reports suggest that the risk of COVID-19 transmission is particularly high in rhinologic surgery ^(4,5). On the other hand, Sanmark et al. showed that the observed aerosol exposure during rhinologic surgery is lower or similar to exposures during coughing ⁽⁶⁾. However, medical staff may be exposed to high level of aerosol in removing the nasal packing usually used during hospitalization in Japan. In addition, the prevalence of COVID-19-related olfactory dysfunction and taste dysfunction was 57.8% and 40.2%, respectively in a Japanese nationwide study ⁽⁷⁾. To obtain a better perspective on virus control measures, we report our experience attempting to control COVID-19 for rhinologic surgery at our hospital during the coronavirus pandemic.

The subjects were 305 patients scheduled for rhinologic surgery such as endoscopic sinus surgery, septoplasty, and turbinate surgery at our hospital in Narita, Japan, between April 2020 and March 2023, during which we experienced 8 waves of the pandemic. All patients were examined using either SARS-CoV-2 polymerase chain reaction (PCR) or antigen test together with a computed tomography (CT) scan of the chest and fever check just before admission (Figure 1). The patients were required to remain in the hospital after these examinations, which took between 30 minutes to a couple of hours to receive the results, to limit their chances of being infected with COVID-19. The rate of COVID-19-related surgical discontinuation and the postoperative COVID-19 infection rate were reviewed. The ethics committee of International University of Health and Welfare Narita Hospital approved this research and the study protocol

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During the study period, surgeries for 4 patients were cancelled (cancellation rate: 1.31%). The first case had negative PCR results on admission, but the operation was cancelled due to a fever of 37.5°C after admission. The fever in this patient subsequently resolved. The second and third cases were not admitted due to cluster outbreaks of COVID-19 in our hospital. The surgery for the fourth case was cancelled because the patient became infected with COVID-19 13 days before the scheduled operation. There were no cases of COVID-19 infection after the rhinologic surgeries, including among the medical staff.

The novel coronavirus receptor, angiotensin-converting enzyme 2 (ACE2), is expressed on the airway mucosa, including the nasal mucosa, and promotes infection via the transmembrane protease serine 2 and a protease called Furin ⁽²⁾. The Japanese Society of Otorhinolaryngology, Head and Neck Surgery (JORL-HNS) issued a warning to avoid performing rhinologic surgery under certain circumstances during the COVID-19 pandemic ⁽⁸⁾. The risk of infection was stratified by region according to the cumulative number of new infections, and whether the surgery should be performed or not was considered (Supplemental Table 1). We made decisions regarding the treatment of patients in reference to the JORL-HNS guidelines, including the selection of personal protective equipment (PPE) and postponement of surgery. For example, if a patient is in a high-risk area and there are any findings indicating pneumonia on chest CT or the preoperative PCR is positive, we consider either postponing surgery or performing an alternative treatment. If there are no findings in the lung field on chest CT and the preoperative PCR is negative, standard PPE should be worn, and if PCR testing is not available, full PPE should be used ⁽⁸⁾.

From our experience, rhinologic surgery seems to be possible when a patient shows negative results for infection confirmed by appropriate antigen testing together with negative findings

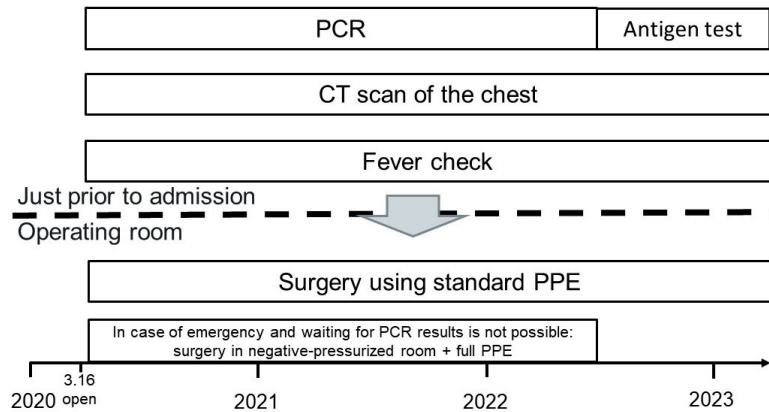


Figure 1. Changes in the COVID-19 control protocol for rhinologic surgery between April 2020 and March 2023. PCR and antigen tests are performed, CT scan of the chest is taken, and a fever check is conducted just prior to admission. Decisions are then made according to the JORL-HNS guidelines for rhinologic surgery, including the selection of standard or full PPE and postponement of surgery. PCR: polymerase chain reaction, CT: computed tomography, PPE: personal protective equipment.

on lung CT and the absence of clinical symptoms including fever just before admission, and then requiring that the patient remains in the hospital after these examinations. Although COVID-19 is not a serious or high-rate infection anymore, this protocol seems to be effective for controlling the spread of COVID-19 and may be beneficial in future respiratory pathogen pandemics.

Abbreviations

COVID-19: coronavirus disease 2019; CT: computed tomography; PCR: polymerase chain reaction; ACE2: angiotensin-converting enzyme 2; JORL-HNS: Japanese Society of Otorhinolaryngology, Head and Neck Surgery; PPE: personal protective equipment

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Authorship contribution

RT and MO developed the concept and wrote the draft of the manuscript. AO partly wrote the draft of the manuscript. HK, MK, MA, KK, YW, YI and YN developed the concept and reviewed the manuscript. All authors contributed to the interpretation of the data and writing of the manuscript.

Conflict of interest

The authors declare that they have no competing interests.

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Supplemental Table 1. Protocol for rhinologic standby surgery. The decisions to choose PPE and postponement of surgery are based on regional risk levels, chest CT findings, and preoperative PCR results.

Region	Chest CT	Preoperative PCR	Countermeasures
Low risk		Not recommended	Standard PPE
High risk	Good	Negative	Standard PPE
		PCR unavailable	Full PPE
		Positive	Postponement / Alternative treatment
	Bad	Negative	Postponement / Alternative treatment (/ Full PPE)*
		Positive	Postponement / Alternative treatment
Super high risk			Postponement is strongly recommended

*If surgery is unavoidable. PPE: personal protective equipment, CT: computed tomography, PCR: polymerase chain reaction.