Oculoplastic Surgery Practice in The Era of COVID-19

Bercin TARLAN[1], Onur KONUK[2]

ABSTRACT

The world is battling against a pandemic of emerging infectious disease called coronavirus disease 2019. This virus can lead to a range of conditions, ranging from mild to severe illness, pneumonia, multi-organ failure, severe acute respiratory syndrome, and death. Investigators are still learning about the disease ve might be transmitted when people have contact with hands or surfaces that contain the virus and touch their eyes, nose, or mouth with the contaminated hands. New strategic plans are used to prepare for and respond to this outbreak and limit the number of health care personnel exposed to the virus.

Keywords: Coronavirus, Pandemic disease, Oculoplastic surgery.

INTRODUCTION

On December 31, 2019, Chinese authorities were informed of the presence of the 41 cases with pneumonia who were later diagnosed with novel coronavirus (novel coronavirus, nCoV) infection associated with exposures in one seafood market in Wuhan, Hubai Province of China.[1] The official name of the virus was stated as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) which causes the disease officially named coronavirus disease (COVID-19).[2]

The outbreak was declared a public health emergency of international concern by World Health Organization on 30 January 2020.[3]

COVID-19 can result in fatal pneumonia with acute respiratory distress syndrome, including hospitalization, admission to an intensive care unit, and death. Guidelines have rapidly evolved over the past three months over the world, but local instructions may vary according to the regional prevalence of infection.

Each subspecialty group within ophthalmology has developed its own strategic plan during the pandemic and global emergency care clinical practice guidelines were provided by international groups to limit transmission of the virus while providing urgent patient care.

One of the first challenges that clinicians will face is making broad decisions regarding proceeding with semi-urgent, and non-urgent surgeries must be performed.

The purpose of this document is to review considerations in evaluating patients since oculoplastic surgeons should adopt all necessary procedures and protocols during the pandemic to limit the transmission of COVID-19.

Why do we need to care as an ophthalmologist?

It has been recognized that conjunctivitis is uncommon even as it relates to COVID-19. A series of recent studies indicated that this novel coronavirus might cause shedding viral particles in tears and conjunctival secretions regardless of the presence of mild follicular conjunctivitis.[4,5]

Conjunctivitis is a common presenting condition overall in emergency and ophthalmology departments, which can be caused by either novel coronavirus or other viruses. Since the viral transmission might occur via aerosol contact with conjunctiva and a patient with COVID-19 may have the virus in ocular secretions regardless of presenting diagnosis, risk factors, indication for a visit, or geographic location, ophthalmologists are front-line physicians to evaluate patients possibly infected with COVID-19 and at increased risk of exposure.

1- Assistant Prof. MD., Gazi University School of Medicine, Dept of Ophthalmology, Ankara, Turkey

2- Prof. MD., Gazi University School of Medicine, Dept of Ophthalmology, Ankara, Turkey

Received: 08.06.2020
Accepted: 08.06.2020
Glo-Kat 2020; 15: 79-84
DOİ: 10.37844/glauc.cat.2020.15.16

Correspondence Adress:
Bercin TARLAN
Gazi University School of Medicine, Dept of Ophthalmology, Ankara, Turkey

Phone: +90 312 202 6327
E-mail: bercintarlan@gmail.com

A study found that SARS-CoV-2 was more stable on plastic and stainless steel than on copper and cardboard, and the viable virus was detected up to 72 hours after application to these surfaces. This report indicated that the virus could remain viable and infectious in aerosols for hours and on surfaces, up to days (depending on the inoculum shed) the estimated median half-life of SARS-CoV-2 was approximately 5.6 hours on stainless steel and 6.8 hours on plastic.[6]

It also could be spread if people contact an object or surface with a virus present from a patient with the disease, and then touch their mouth, nose, or eyes. Decontamination of surfaces and protection of the mucous membranes are vital to reduce the transmission risk.

From a perspective of oculoplastic and orbital surgery

According to the statements released by professional organizations, all ophthalmologists should stop providing treatment other than urgent or emergent care immediately.

While some cases can be delayed for an unspecified period, some cases with a progressive disease such as malignant neoplasm, vascular pathology, traumatic injury will continue to progress in the absence of surgical invention. It is crucial to know that it is not always possible to define the medical urgency of a case, and the decision to perform or postpone a surgical procedure must be made by considering both medical and logistical conditions.

Triage should be based on national, local, and regional conditions, and regional variation of the pandemic may cause significant differences in decision making.

Risk assessment should include both the risk of the proceeding and the real risk of delay of unspecified time.

Administrative support personnel plays a vital role in determining logistical feasibility for a specific procedure. The decision to perform or cancel the surgery must be made by the surgeon certified in the relevant subspecialty.

Telemedicine has been an alternative method that has been used by many countries during the pandemic to screen many new patients with emergent conditions and to delay patients with non-urgent conditions.[7]

Oculoplastic and orbital surgery has been limited mostly to the repair of traumatic injuries and the management of vision-threatening and life-threatening conditions during the outbreak because operating rooms have been in use only for emergent cases. Aerosolization during monitored anesthesia care, intubation, extubation, endoscopy, irrigation of the lacrimal drainage system are procedures that carry a high risk of contamination.

Orbital surgery carries a higher risk of transmission due to viral load in the upper respiratory tract mucosa of infected individuals even before the onset of symptoms.[8,9] Endoscopic surgery may aerosolize virus particles, which may stay in the air dor hours.6 Wherever possible, all nasolacrimal or endonasal procedures should be avoided or undertaking with heightened protection. Mandatory virus testing before sinonasal procedures has been performed at many centers, and surgeries such as dacryocystorhinostomy or orbital decompression have been rescheduled.

Patients undergoing surgery involving respiratory mucosa or intubation may undergo testing as a standard preoperative requirement.

Under the circumstances, each surgeon may develop modified surgical strategies based on each patient's status. Also, some modifications may be necessary, like staying outside of the operating room during intubation and extubation, waiting between the cases with high-risk of viral aerosolization.

Indication for surgery is defined as elective/non-urgent, semi-urgent, and urgent/emergent. Our recognized health authorities defined urgent procedures not to be delayed.[10-13] Below is the list of the urgent/emergent procedures of the eyelid, orbit, lacrimal system, and socket.

Eyelid

- Upper lid entropion or retraction in the presence of progressive sight-threatening corneal exposure/disease
- Tarsorrhaphy in the presence of impending corneal compromise
- Excision of rapidly progressive adnexal malignancy
- Repair of the eyelid and canalicular lacerations
- Repair of severe congenital ptosis with uni or bilateral frontalis sling operation
- Botulinum toxin injections in case of severe blepharospasm

Orbit

- Canthotomy and cantholysis for sight-threatening conditions
- Drainage of an orbital or periorbital abscess
- Exenteration in life-threatening infection or tumor
- Orbital incisional or excisional biopsy for life or sight-threatening condition
- Repair of orbital fracture in the presence of oculocardiac reflex and hemodynamic instability

- Orbital decompression in case of
  - optic neuropathy or corneal perforation if other treatments have failed or are contraindicated
  - orbital tumor with impending vision loss
- Temporal artery biopsy in suspected giant cell arteritis
- Orbital exploration in case of life-threatening or sight-threatening conditions
- Repair of upper or lower lid entropion determining severe corneal compromise, unresponsive to non-surgical measures

Lacrimal

- Decompression of dacryocystocele in a neonate with obstructive respiratory compromise
- Probing of nasolacrimal duct in a case of dacryocystocele
- Drainage of an infected mucopyocoele
- Suspected lacrimal outflow malignancies

Socket

- Enucleation for ocular trauma, infection, intractable glaucoma, globe perforation, intractable pain, or intraocular malignancy
- Evisceration for sight-threatening infection, or intractable pain
- Optic nerve sheath fenestration for progressive visual loss

When surgery is considered an option, the patient must be informed of the risks and expected outcomes of surgical delay versus in-hospital COVID-19 exposure. Informed consent specific to COVID-19 should be obtained, and the surgeon should engage in decision making with the patient. The process of providing information and assistance to patients should be documented.[14,15]

Before surgery, questions should be asked to identify patients with possible exposure to virus:

- Does the patient have a sore throat, fever, fatigue, loss of smell, or respiratory symptoms?
- Has the patient been in the presence of someone with known COVID-19 in the last 2 to 14 days?

In urgent cases, it is safest to assume that any patient could be infected with SARS-CoV-2 and to proceed accordingly.[15] Health care providers who encounter patients meeting these criteria must notify both infection control personnel and the local public health department.

For urgent positive encounters, physicians should follow guidelines provided by health organizations to decide which urgent eye conditions will require treatment despite a positive COVID-19 screening.

Depending on the patient's condition, the encounter may need to be facilitated at the hospital with increased protection and safety measures. Special precautions, including presurgical COVID-19 testing and use of full personal protective equipment (PPE), should be considered when performing surgeries. If COVID testing is positive or unavailable and the case cannot be delayed, full PPE, including a powered air-purifying respirator, is strongly recommended.

While in the operating room (OR), N95 respirators are recommended, especially when operating on confirmed or suspected COVID-19 patients.[16] For individuals at highest risk of exposure at institutions that are unable to provide N95 masks to all members of the OR team, we recommend that all surgeons and other personnel who are not wearing N95s evacuate the OR during intubation, extubation, and other procedures that may generate aerosolized small particles.[16]

A paper from Singapore, where only three healthcare workers were reported to be infected until now, described operating room preparation when a patient with COVID-19 needs an operation. An operating room with a negative pressure environment with separate access is designated for all confirmed or suspected cases. The same operating room and the same anesthesia machine will only be used for cases with COVID-19 during the pandemic. All drugs and the equipment required for anesthesia are placed onto a tray to avoid handling drug trolley during the case. A disposable airway is used and a minimum one hour is planned between the cases.[17]

Is there an acceptable delay for patients with the diagnosis of malignant neoplasm?

From an oncologic perspective, each patient needs to be evaluated individually. When dealing with adnexal and orbital neoplasm, an oculoplastic surgeon should consider proceeding with surgery when non-surgical management has been failed and when delaying surgery may result in prolonged hospitalization, readmission, or higher morbidity.

It is essential to define the patient with advanced or high-grade cancer conditions that may disease progression and become urgent cases. It would be reasonable to re-evaluate patients at no longer than every 2-4 weeks intervals.

Prioritization of surgical oncology cases is essential and surgical procedures for treating malignant tumors, and vision-threatening benign tumors should be performed without delay since the consequences of the delayed care are devastating.

The higher-risk procedures are primarily in the oculoplastics field in ocular oncology.[18]

Emergent cases should be performed within 24 h or as soon as possible to preserve life and sight, and the following procedures are considered emergent:

- Orbital biopsy for malignancy
- Enucleation for intractable glaucoma/globe perforation from an intraocular tumor

Urgent cases should be performed within the week, considering the availability of resources of the center:

- Enucleation for retinoblastoma
- Orbital biopsy for processes causing optic neuropathy and vision loss
- Orbital decompression for impending visual loss (optic neuropathy or corneal perforation) secondary to orbital tumor

Semi-urgent cases should be performed within 1–2 months, considering the availability of resources of the center:

- Exenteration (case by case: rapidly growing tumor may need urgent biopsy; a slowly growing one could be semi-urgent)

Non-urgent cases should be deferred for at least 2–3 months or until improved availability of local and national operating room resources and the following procedures are considered non-urgent:

- Biopsy of suspected benign eyelid tumor
- Biopsy of suspected basal cell carcinoma, unless monocular patient
- Biopsy of a suspected benign conjunctival tumor
- Biopsy of a suspected benign orbital tumor

While data are quite limited and subject to considerable confounding, to change treatment algorithms to favor enucleation over globe salvage is not recommended by global guidelines. Patients with cancer undergoing hospitalization or chemotherapy/radiation treatment may be at a higher risk of COVID-19 infection. Surgery should be considered in these populations only when a significant delay would result in a higher risk of patient harm or threat to life.

Returning to clinical practice

All physicians and centers should follow the requirements set by local and national authorities since the impact of the infection varies considerably throughout the world. The decision to return to clinical practice should be based on local public health authorities.

However, as physicians, since we are taking on an essential role in limiting transmission, we must be aware of global guidelines. American Academy of Ophthalmology (AAO) recommends all ambulatory surgery centers to follow essential requirements, including administration, infection prevention, life safety, sterilization, and pharmacy. AAO provides a checklist that is available online and can be adjusted to local conditions.[19]

New protocols should be set for patient selection, scheduling, and social distancing measures.

In preventing infection, the points to be considered are set protocols for screening COVID-19 in patients before surgery, arrangement for social distancing in the waiting room, informing patients that they must wear facial covering or masks based on health authorities recommendations and instructing them not to enter if they have fever or symptoms of respiratory infection.[15]

Personnel should advise patients to check their temperature at home before leaving for their visit and instruct patients to inform the facility before arriving if they have fever or symptoms of COVID-19.[15]

All patients should be asked upon entry to the health center if they have a fever or symptoms of COVID-19, including cough or shortness of breath, sore throat, or systemic symptoms like myalgia. [15]

Patients should wait at appropriate waiting areas, which should be organized to divide patients with symptoms from patients without symptoms. [15]

It is vital to ensure that patients with COVID-19 are wearing a cloth face covering. Recent studies reported that people who are infected but do not have symptoms likely also play a role in the spread of COVID-19. For this reason, source control measures should be implemented for everyone in the facility, regardless of symptoms. It is also important to keep a safe distance between both patients and staff as much as possible. [15]

If a patient reports not having symptoms and no fever is detected (by patient report or on active temperature monitoring if performed), they can be directed to a waiting area for patients without symptoms. Patients should still

wear their cloth face covering and maintain a safe distance from each other whenever possible.

Resuming elective surgery

American College of Surgeons recommends surgeons to look at the Elective Surgery Acuity Scale (ESAS) to triage non-emergent operations, and this scale may assist surgeons with general procedural classification and prioritization.[10]

In response to the first phase of pandemic, many regional authorities and specialties over the country recommended the cancelation of elected surgical procedures.[12,13,19,20]

Physicians have canceled elective procedures, and non-essential cases were postponed due to the pandemic condition. There will inevitably be a situation of excess demand for elective surgeries by the patients who were asked to wait. As far as the authors are aware, health care professionals and centers should be prepared to meet this demand.

It is critical to begin prioritizing patients now who have the most to gain from an operation once full services are restored.

Facility readiness to resume elective surgery will vary by geographic location.

Timing for reopening of elective surgery, COVID-19 testing prior surgery, personal protective equipment, case prioritization and scheduling, collection and management of data are some of the points to be considered.[19]

CONCLUSION

The current pandemic has caused an international public health challenge and each country responded in varying ways to reduce the risk of transmisson. It is important to be advised by recognized health authorities and WHO and each health center will need to make its own decisions about protocols for use of personal protective equipment, testing of staff and patients, setting new clinical protocols.

The lesson learned from this challenge is that the impact has been regional but we should use our experience and scientific data to establish international consensus and guidelines.

There are no financial conflicts of interest to disclose.

REFERENCES

1- World Health Organization. Novel coronavirus – China. Jan 12, 2020. http://www.who. int/csr/don/12-january-2020-novel-coronavirus-china/en/ (accessed May 10, 2020).

2- World Health Organization. Novel coronavirus – China. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it (accessed May 10, 2020).

3- World Health Organization. Novel Coronavirus(2019-nCoV) Situation Report – 11. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200131-sitrep-11-ncov.pdf?sfvrsn=de7c0f7_4 (accessed May 10, 2020).

4- Zhou, Y., Duan, C., Zeng, Y. et al. Ocular findings and proportion with conjunctival SARS-COV-2 in COVID-19 patients. (XX–XX) Ophthalmology. 2020; 12.

5- Xia J, Tong J, Liu M, et al. Evaluation of coronavirus in tears and conjunctival secretions of patients with SARS-CoV-2 infection. J Med Virol. 2020;92(6):589-94.

6- Doremalen NV, Bushmaker T, Morris DH et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. N Engl J Med 2020; 382:1564-7.

7- Langer PD, Bernardini FP. Oculofacial Plastic Surgery and the COVID-19 Pandemic: Current Reactions and Implications for the Future. Ophthalmology 2020 Apr 26. [Epub ahead of print].

8- Zou L, Ruan F, Huang M, et al. SARS-CoV-2 viral load in upper respiratory specimens of infected patients. N Engl J Med. 2020;382:1177e1179.

9- Bai Y, Yao L, Wei T, et al. Presumed asymptomatic carrier transmission of COVID-19. JAMA. 2020;323:1406-7.

10- American College of Surgeons. COVID-19: Guidance for Triage of Non-Emergent Surgical Procedures. https://www.facs.org/COVID-19/clinical-guidance/triage (accessed May 10, 2020)

11- European Society Of Ophthalmic Plastic And Reconstructive Surgery. Recommendations for oculoplastic surgeons during the COVID-19 pandemic. https://www.esoprs.eu/news/recommendations-for-oculoplastic-surgeons-during-the-covid-19-pandemic/ (accessed May 10, 2020)

12- Turkish Ophthalmological Association. Pandemi Nedeni ile Acil Kabul Edilen Göz Ameliyatları March 26, 2020 [Available from: https://koronavirus.todnet.org/pandemi-nedeni-ile-acil-kabul-edilen-gz-ameliyatlar. (accessed May 10, 2020)

13- American Academy of Ophthalmology. List of urgent and emergent ophthalmic procedures. https://www.aao.org/headline/list-of-urgent-emergent-ophthalmic-procedures (accessed May 10, 2020).

14- American Academy of Ophthalmology. Patient Screenings Require Documentation and Planning During COVID-19. https://www.aao.org/practice- management/article/patient-screenings-require-documentation-planning (accessed May 10, 2020).

15- Centers for Disease Control and Prevention. Screening and Triage at Intake. https://www.cdc.gov/coronavirus/2019-ncov/hcp/dialysis/screening.html.

16- American College of Surgeons. Other PPE Recommendations. https://www.facs.org/covid-19/ppe/additional (accessed May 10, 2020).

17- Z Ti, L.K., Ang, L.S., Foong, T.W. et al. What we do when a COVID-19 patient needs an operation: operating room preparation and guidance. Can J Anesth/J Can Anesth (2020). https://doi.org/10.1007/s12630-020-01617-4.

18- Considerations for the Management and Triage of Ocular Oncology Cases during the COVID-19 Pandemic Ocul Oncol Pathol 2020;6:219–22.

19- American Academy of Ophthalmology. Ophthalmic ASC checklist for reopening. https://www.aao.org/practice-management/article/ophthalmic-asc-checklist-reopening (accessed May 10, 2020).

20- Turkish Ministry of Health. Elektif işlemlerin ertelenmesi ve diğer alınacak tedbirler. March 17, 2020. https://dosyamerkez.saglik.gov.tr/Eklenti/36865,elektif-islemlerin-ertelenmesi-ve-diger-tedbirlerpdf.pdf?0 (accessed May 10, 2020).