Oculoplastic, Orbital, and Lacrimal Care in the Coronavirus Disease 2019 Pandemic: A Shared Experience From Melbourne

To the Editor:

The Orbital, Plastic, and Lacrimal clinic at the Royal Victorian Eye and Ear Hospital, Melbourne, consists of 12 sub-speciality ophthalmologic consultants, a clinical fellow, and a trainee registrar. We provide elective and emergency care for a population of 7 million people, spread over a large geographical area. We discuss our basis for delivery of care in the coronavirus disease 2019 (COVID-19) era to offer some guidance and reassurance to others in this time of uncertainty.

AN UNIMAGINABLE CRISIS

The World Health Organization officially declared COVID-19 (caused by severe acute respiratory syndrome coronavirus 2) a pandemic on March 11, 2020. Severity of symptoms is highly variable with asymptomatic carriage also reported. This novel virus is highly infectious being transmitted primarily through respiratory droplets and contact with infected persons, in the presymptomatic and early symptomatic phase. Detection of the virus in tears and conjunctival secretions has been speculated, and conjunctivitis may be the presenting symptom.2,3 As clinicians, we rely on experience and the published literature to guide us. We acknowledge the published consensus from international ophthalmologists discussing the preparedness of general ophthalmologists in the COVID-19 era.4 An oculoplastic perspective from Hong Kong shows some similarities to our approaches taken.5 Our adaptation to deliver care for our patients while minimizing risk to them, ourselves, and our colleagues is discussed here.

CHALLENGES IN THE DELIVERY OF PATIENT CARE

Numerous strategies have been adopted across the globe to contain the spread of the virus, including social distancing, self-quarantining if symptomatic, and cocooning of the elderly. The individual national efforts aim to spread the number of infected cases over a longer time period, and success appears dependent on the timing and extent of implementation of these measures. Our unit is guided by the Department of Health and Human Services guidelines issued by the Victoria State Government, Australia.6 Guidelines change almost in real time with hospital management briefing staff daily by email. Current restrictions have huge implications for the delivery of care in our subspecialty in ophthalmology.

Assigning Priority. We adopted the consensus guidelines from the Royal Australian and New Zealand College of Ophthalmologists, in turn broadly adopted from the Moorfields Eye Hospital guidelines, and the American Academy of Ophthalmology.7-9 Priority is given to potentially sight- or life-threatening conditions. Due to the high risk of infection from the upper aerodigestive tract, nasal syringing, any sinonasal surgery including lacrimal outflow surgery, and nasal endoscopy are being avoided where possible. Stents post nasolacrimal duct bypass surgery are left in situ if the patient is comfortable. If removal is required, the stent is divided between the puncta and the patient is asked to blow their nose away from other people. Nunchaku (FCI Ophthalmics, Tokyo, Japan) bicanalicular stenting offers the advantage of removal via the conjunctival aspect. Similarly, if bony orbital decompression surgery is necessary, only the lateral wall is decompressed. The majority of our current workload involves high-risk periocular malignancies (melanoma, sebaceous carcinoma, squamous cell carcinoma, high-risk basal cell carcinoma, medial canthal, recurrent, high-risk subtype, locally advanced or orbital invasion. Orbital inflammatory disease, sight-threatening orbital lesions (e.g., vascular anomalies), or orbital disease suggestive of a systemic life-threatening condition (e.g., lymphoma or metastatic malignancy) continue to be investigated, including orbital biopsy if relevant. Similarly, dysthyroid optic neuropathy requires treatment to preserve vision. Emergency presentations such as traumas and infections are treated in the usual manner.

An audit of the Orbital, Plastic, and Lacrimal waiting list is currently being undertaken by the unit to defer nonurgent, changing face-to-face consultations to phone or telehealth consult and discharging patients whose condition has resolved. This also allows clinicians to work remotely from home via the hospital’s Information Technology arrangements.

Patient Consultations. Priority is given to patients with the above conditions. Where possible, phone or telemedicine consultations are undertaken. Telemedicine consultations have been proposed to be suitable for almost all consultations, at least for triaging.2 However, the technology can be difficult for elderly patients or those without internet connection, and there are gaps in the physical examination. Where face-to-face consultations are necessary, personal protective equipment and slit-lamp shields are used according to Australian guidelines and time spent in close proximity to the patient and carer is minimized.10 Icare (Icare, Helsinki, Finland) tonometers with single-use probes are used to measure intra-ocular pressure.

Temperature checks, travel history, and respiratory symptoms are screened by a concierge nurse at the hospital entrance. Strict visitor controls allow only 1 chaperone if necessary. Patients who fail screening are isolated, and an Orbital, Plastic, and Lacrimal doctor is consulted who reviews the urgency of the consultation in the context of a possible COVID-19 diagnosis. The patient is referred to a nearby fever clinic for testing if appropriate. Social distancing is employed throughout the hospital.

Surgical Procedures. General anesthetic procedures are avoided unless necessary due to the increased risk of aerosolized particles during intubation. If airway intervention or manipulation is required, only anesthetic staff are present in the operating theater for induction and extubating. We have discussed with our anesthetic colleagues efforts to avoid the sneezing reflex which can occur with periocular anesthetic injection, while the patient is sedated with the use of alfentanil or fentanyl.11-13 Hudson masks deliver oxygen to patients requiring sedation to provide a seal around the airway. A clear plastic drape taped to the oxygen mask is tucked behind the patient’s shoulders for further protection. After draping the surgical area, sterile adhesive transparent film dressings (Tegaderm, 3M Medical, Neuss, Germany) and adhesive disposable drapes are used to seal any potential gaps.

To date, no surgical procedure has been undertaken in a known COVID-19-positive patient at our institution. Only those procedures considered as priority have been undertaken.
Dissolvable skin sutures (6-0 plain gut) are preferred so postoperative care can be delivered by telemedicine.

Medical Management. The management of orbital inflammatory conditions has posed a significant challenge. We have adopted the UK guidelines issued by the Department of Public Health regarding ‘shielding’ for patients requiring immunosuppression.14 These measures include self-isolation, strictly avoiding contact with anyone displaying symptoms of COVID-19, and advise to maintain social contacts using technology as necessary. A template letter, adapted from the British College of Rheumatology, is provided to patients.15

The use of intravenous methylprednisolone for dysthyroid optic neuropathy is considered necessary, and patients are advised to “shield” afterward. Pulsed intravenous steroids for moderately active thyroid eye disease has been deferred on a case-by-case basis, and orbital radiotherapy considered as an alternative. An increased risk of serious COVID-19 disease in patients taking nonsteroidal anti-inflammatory drugs has also been postulated.16 Corticosteroids and nonsteroidal anti-inflammatory drugs may have a role in the management of COVID-19 infections; however, safe pharmacotherapy in COVID-19 is currently evolving.17,18

EDUCATION AND TRAINING

The fortnightly unit meeting has moved to a secure online platform. Conference leave has been cancelled with all local, national, and international meetings currently deferred or cancelled or moved to online Webinar format. Such meetings are crucial for sharing of ideas, self-development, and maintaining and building international collaborations. All Royal Australian and New Zealand College of Ophthalmologists trainees have had their training suspended for 6 months and have been diverted to work in eye casualty on separate teams without contact between different teams. As such, morale among trainees may be low with little or no surgical exposure and restricted interactions with colleagues. Online live teaching for registrars has been well attended.

PERSONAL IMPACT

Shortage of personal protective equipment for health care workers has been a constant concern.19 While ophthalmologists are not at the “coalface” treating the sickest patients, we are key players in recognizing and limiting its spread. Orbital, Plastic, and Lacrimal procedures are considered high risk due to the airway proximity or involvement of nasal or sinus mucosa.

The financial impact has been discussed widely in the media with a global economic depression predicted, despite national measures to retain employees generally and to simulate the economy.20 The current and future impact on private practice is of concern while uncertainty lingers on with further outbreaks and restrictions possible.

However, most have been able to spend more time with family and have an opportunity to balance life priorities and revisit incomplete projects. The importance of good collegial support and networks has never been more obvious, while people learn to adapt to current circumstances.

CHALLENGES LOOKING FORWARD

As Australia tentatively examines relaxing restrictions on the delivery of surgical procedures, we must consider how to continue to offer these services while protecting patients and staff. It is impossible to predict what the new “normal” will be. Will we ever shake the patient’s hand to establish rapport at the outset or end of a consultation again? The obvious benefits of telemedicine may encourage us to continue this where appropriate in the future.

Communication and education has been acknowledged as an area where clinicians need to lead in the effective response to this pandemic.21 We hope our description of how the Orbital, Plastic, and Lacrimal unit in Melbourne has adapted to delivery of care will be helpful to those in similar situations and we welcome suggestions from other international units as to their own experience of adaptation.

Micheal O’Rourke, F.R.C.S.I. Ophth., F.E.B.O., Ph.D.
Thomas Hardy, M.B.B.S., FRANZCO
Alicia Au, F.R.A.N.Z.C.O., M.B.B.S.
Benjamin Burt, F.R.A.N.Z.C.O., F.A.C.S.
Rodger Davies, M.B.B.S., F.R.A.N.Z.C.O., F.R.A.C.S., F.A.N.Z.S.O.P.S.
Justin Friebel, M.B.B.S., F.R.A.N.Z.C.O.
Brent Gaskin, M.B.Ch.B., F.R.A.N.Z.C.O.
JJ Khong, M.B.B.S., F.R.A.N.Z.C.O.
Zelda Pick, F.R.A.N.Z.C.O., P.G.Dip.Ophth.B.S., M.B.Ch.B.
Khami Satchi, M.B.B.Chir., M.A., M.R.C.P., F.R.A.N.Z.C.O., F.R.C.Ophth.
Charles Su, M.B.B.S., M.S., F.R.A.N.Z.C.O., F.R.A.C.S.
Alan McNab, M.B.B.S., D.Med.Sc., F.R.A.N.Z.C.O., F.R.C.Ophth.

Correspondence: Micheal O’Rourke, F.R.C.S.I. Ophth., F.E.B.O., Ph.D., Orbital, Plastic and Lacrimal Clinic (OPAL), Royal Victorian Eye and Ear Hospital, 32 Gisborne Street, East Melbourne, Victoria 3002, Australia (maourk@tcd.ie)

The authors have no financial or conflicts of interest to disclose.

REFERENCES

1. Rothe C, Schunk M, Sothmann P, et al. Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. N Engl J Med 2020;382:970–971.

2. Xi 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;92:589–594.

3. Li JO, Lam DSC, Chen Y, et al. Novel coronavirus disease 2019 (COVID-19): the importance of recognising possible early ocular manifestation and using protective eyewear. Br J Ophthalmod 2020;104:297–298.

4. Olivia Li JP, Shantha J, Wong TY, et al. Preparedness among ophthalmologists: during and beyond the COVID-19 pandemic. Ophthalmology 2020;127:569–572.

5. Mak ST, Yuen HK. Oculoplastic surgery practice during the COVID-19 novel coronavirus pandemic: experience sharing from Hong Kong. Orbit 2020;1:1–3.

6. Victoria State Government A. Health services and general practice - coronavirus disease (COVID-19). 2020. Available at: https://www.dhhs.vic.gov.au/health-services-and-general-practitioners-corona-virus-disease-covid-19. Accessed April 26, 2020.

7. RANZCO. RANZCO COVID-19 Triage Guidelines. 2020. Available at: https://ranzco.edu/home/covid-19-information/. Accessed April 26, 2020.

8. Ophthalmology AAo. List of urgent and emergent ophthalmic procedures. 2020. Available at: https://www.aao.org/headline/list-of-urgent-emergent-ophthalmic-procedures. Accessed April 26, 2020.

9. Lee I, Kovarik C, Tejasvi T, et al. Telehealth: helping your patients and practice survive and thrive during the COVID-19 crisis with rapid quality implementation. J Am Acad Dermatol 2020;82:1213–1214.
10. Health AGD'o. Coronavirus (COVID-19) information on the use of surgical masks. 2020. Available at: https://www.health.gov.au/resources/publications/coronavirus-covid-19-information-on-the-use-of-surgical-masks. Accessed April 26, 2020.

11. Morley AM, Jazayeri F, Ali S, et al. Factors prompting sneezing in intravenously sedated patients receiving local anesthetic injections to the eyelids. Ophthalmology 2010;117:1032–1036.

12. Hakim KY, Alsaied MA. Comparative study between the efficacy of fentanyl, antihistamines, and dexmedetomidine in suppressing photic sneeze reflex during peribulbar block. Anesth Essays Res 2019;13:40–43.

13. Tao J, Nunery W, Kresovsksy S, et al. Efficacy of fentanyl or alfentanil in suppressing reflex sneezing after propofol sedation and peribulbar injection. Ophthalmic Plast Reconstr Surg 2008;24:465–467.

14. England PH. Guidance on shielding and protecting people who are clinically extremely vulnerable from COVID-19. 2020. Available at: COVID-19: guidance on shielding and protecting people defined on medical grounds as extremely vulnerable. Accessed April 26, 2020.

15. Rheumatology BCo. Important advice to keep you safe from coronavirus. 2020. Available at: https://www.rheumatology.org.au/Portals/0/Documents/At_risk_patient_letter_210320.pdf?v=er-2020-03-22-171419-000. Accessed April 26, 2020.

16. Little P. Non-steroidal anti-inflammatory drugs and covid-19. BMJ 2020;368:m1185.

17. Russell B, Moss C, Rigg A, et al. COVID-19 and treatment with NSAIDs and corticosteroids: should we be limiting their use in the clinical setting? Ecancermedicalscience 2020;14:1023.

18. Sahu KK, Mishra AK, Lal A. COVID-19: update on epidemiology, disease spread and management. Monaldi Arch Chest Dis 2020;90:197–205.

19. The Lancet. COVID-19: protecting health-care workers. Lancet. 2020;395:922–923.

20. The Treasury AG. Supporting Individuals and Households. 2020. Available at: https://treasury.gov.au/coronavirus/households. Accessed April 26, 2020.

21. Herrera V, Finkler N, Vincent J. Innovation and transformation in the response to COVID-19: seven areas where clinicians need to lead. NEJM Catalyst 2020;1:1-13.

A Surgical Protocol to Mitigate the SARS-CoV-2 Transmission Using Multifocal Povidone-Iodine Applications in Lacrimal Surgeries During Coronavirus Disease 2019 (COVID-19) Pandemic

To the Editor:

The coronavirus disease 2019 (COVID-19) pandemic is a zoonoses caused by the SARS-CoV-2 virus and is highly infectious. Presence of the virus in the shedding from the nasopharynx and oropharynx is very high,1 and there is conflicting evidence of its presence on the ocular surface and in tears.2,3 The lacrimal surgery usually involves the surgeon coming in contact with the ocular surface, tears, and nasal tissues. Hence, the virus transmission risk for a lacrimal surgeon is very high among the ophthalmologists.4

Povidone-iodine (PVP-I) has been used in varying concentrations for surgical preparation of the skin and mucous membranes for decades. Its safety has been well established even in ophthalmology for infection prophylaxis, where it is used as eyedrops in a concentration of 1% to 5%.5,6 PVP-I is also available as 1% gargles and 0.45% throat spray. PVP-I has a broad spectrum of antibacterial and antiviral effects.7 It has been found to be very effective against coronaviruses.8,9 In vitro studies using 0.23% PVP-I has shown to inactivate SARS-CoV and MERS-CoV within 15 seconds of exposure.10 In another experiment, with 1% PVP-I, the SARS-CoV viral counts reduced from 1.17 × 106 TCID50/ml to undetectable levels within 2 minutes of exposure.8 Clinically, the use of PVP-I has demonstrated efficacy in managing common upper respiratory tract infections like the common cold and influenza.10 This has led to growing evidence proposing the use of PVP-I on the sino-nasal and oral mucosa to disrupt the SARS-CoV-2 transmission.11–13

The question to be answered is why am I proposing a specific protocol of PVP-I use in lacrimal surgeries during the COVID-19 pandemic. The lack of an absolute testing strategy, lack of vaccine, the need for operating emergency lacrimal cases during the COVID-19 pandemic combined with the high anti-coronavirus activity, low resistance, and excellent safety profile makes PVP-I a good agent for preoperative use in lacrimal surgeries. The protocol proposed in this paper has the potential to eliminate the viruses in the operating field and also reduce the viral load in aerosols and hence mitigate the SARS-CoV-2 transmission during lacrimal procedures.

Three major factors need to be considered while formulating the PVP-I lacrimal surgery protocol; the anatomical locations for PVP-I application, the concentration to be used, and safety issues. Since lacrimal surgeon is exposed to the ocular surface, tears, the lacrimal drainage system, and the nasal tissues, PVP-I should be applied to all these areas in

The proposed preoperative PVP-I protocol for lacrimal surgeries during COVID-19 pandemic

Step 1: The patient is shifted to a dedicated preoperative area.

Step 2: The patient gargles using commercially available PVP-I 1% mouthwash.

Step 3: The physician freshly prepares 0.4% PVP-I reconstituted solution. (Take 10 ml of 10% commercially available PVP-I solution, dilute it with 240 ml of normal saline, and fill it up in 1- and 2-ml syringes.)

Step 4: The patient is shifted into the lacrimal OR, and LA/GA is induced.

Step 5: The physician dons the personal protective equipment and takes COVID-19 surgical precautions.

Step 6: The nasal cavity is anesthetized and decongested with drug-soaked pledgets.

Step 7: One drop of 1% PVP-I is placed in the conjunctival cul-de-sac, and a contact time of at least 3 minutes is allowed.

Step 8: A 25- or 27-gauge straight lacrimal cannula is mounted on the 1-ml syringe filled with reconstituted 0.4% PVP-I. The nasal cavity is gently irrigated with up to 0.3–0.5 ml. Most obstructed lacrimal systems would show some degree of regurgitation by this volume. Make sure that the flow is very slow and controlled to avoid any kind of regurgitation splashes.

Step 9: The PVP-I on the ocular surface is gently wiped out.

Step 10: A 23-gauge straight lacrimal cannula is mounted on the 2-ml syringe filled with reconstituted 0.4% PVP-I. The cannula is gently inserted into the anterior-posterior part of the nasal cavity just beyond the external nares. The tip of the cannula should be visible to the physician. Taking the cannula deep or touching the nasal tissue is avoided as it may induce sneeze reflex for patients under local anesthesia. PVP-I is placed drop by drop into the nasal cavity for up to 0.5–1 ml. If the patient is under GA, this can be performed under endoscopy guidance as well, and a throat gauze around the endotracheal tube can be used to absorb the excess fluid.

Step 11: Following this, a 5-cm cellulose pledget or a neurosurgical sponge is generously soaked with the reconstituted PVP-I and gently placed in the nasal cavity for 5 minutes.

Step 12: Proceed with the planned lacrimal surgery.

COVID-19, coronavirus disease 2019; GA, general anesthesia; LA, local anesthesia; OR, operating room; PVP-I, povidone-iodine.