

## Trends in teleconsultations for uveitis during the COVID-19 lockdown

Padmamalini Mahendradas, Swaminathan Sethu<sup>1</sup>, Chaitra Jayadev<sup>2</sup>, Aaditi Anilkumar, Ankush Kawali, Srinivasan Sanjay, Sai Bhakti Mishra, Rohit Shetty<sup>3</sup>, Bhujang K Shetty<sup>4</sup>

**Purpose:** To study the use of teleophthalmology as a tool to manage patients with uveitis and to describe the experience of teleconsultation for uveitis at a tertiary eye care hospital in India during the two waves of the COVID-19 pandemic. **Methods:** A prospective observational case series of uveitis patients seeking teleconsultations during the first (March 25–May 2020) and second lockdown (April 27 to June 21, 2021) in a tertiary eye care center were analyzed. **Results:** There were 79 teleconsultations in the first and 89 teleconsultations in the second lockdown. A majority of the patients presented in the age group of 41–60 years in both the lockdowns. There were both new or primary consultations and follow-up patients (6% vs. 94%) in the first lockdown, and similarly in the second lockdown (8% new vs. 92% follow-up). The majority of patients resided in Bengaluru city (78% in the first and 76% in the second lockdown). After evaluation through video consultation, only 15% required a hospital referral in the first lockdown, whereas in the second lockdown, 21.3% were referred to the hospital. During the second lockdown, 20% presented with COVID-19 infection-related ailments. **Conclusion:** Based on our preliminary experience using a customized smartphone-based application for teleconsultation, we found it to be an alternative option to provide continuation of ophthalmic care to uveitis patients. Given the current COVID-19 situation, it can help avoid physical visits of uveitis patients to the hospital.

**Key words:** COVID-19 pandemic, India, lockdown, teleconsultation, telemedicine, teleophthalmology, uveitis, video consultation

The coronavirus disease 2019 (COVID-19) outbreak, which originated in Wuhan, China, has now spread to many countries across the globe, infecting individuals of all age groups.<sup>[1]</sup>

By April 2020, over 2,804,796 COVID-19 cases and 193,710 deaths had been reported.<sup>[2]</sup> This prompted a nationwide lockdown in several countries around the globe, with several restrictions, including traveling. As a consequence, access to healthcare was limited despite growing health concerns. This was a major consternation for patients with chronic illnesses requiring periodic monitoring of the disease and for physicians wanting to modify treatment regimens in the wake of COVID-19, especially for those with an altered immune status. Though some of these conditions can be monitored through a video consultation, telemedicine platforms are more formal, allow for better documentation, are customizable for requirements, and provide options to upload documents. Given the safety and convenience of teleconsultations during the pandemic, there was better acceptance from both patients and the medical community. Although these options have been available for the past several years, they had been underutilized. The apex bodies also promptly laid down

guidelines to facilitate teleconsultation in a streamlined fashion and to give it a legal sanctity.

Current evidence suggests that the elderly population, immunocompromised individuals, and patients with pre-existing comorbidities are more likely to develop COVID-19. One such patient cohort includes those suffering from ocular inflammation or uveitis. Guidelines for their management during the pandemic have been established.<sup>[3,4]</sup> Additionally, there are reports of ophthalmic manifestation of COVID-19 itself, which may need remote diagnosis and monitoring if the patient is still infective.<sup>[5]</sup> Due to the rising number of cases, patients are also apprehensive to visit any healthcare facility due to the risk of acquiring the disease. Thus, teleconsultation is a viable option during this pandemic as it allows access to medical advice without the risk of contracting the virus.<sup>[6,7]</sup> A literature search for its application in uveitis revealed a single report of a case of syphilitic uveitis managed onboard a naval aircraft carrier at sea.<sup>[8]</sup> We share our experience of teleconsultations for patients with uveitis during the COVID-19 lockdown and speculate on the trend between the two waves.

Departments of Uveitis and Ocular Immunology, <sup>2</sup>Vitreous Retina, <sup>3</sup>Cornea and Refractive Surgery and <sup>4</sup>Cataract and Refractive Lens Surgery, Narayana Nethralaya, Bengaluru, Karnataka, <sup>1</sup>GROW Research Laboratory, Narayana Nethralaya Foundation, Bengaluru, Karnataka, India

**Correspondence to:** Dr. Padmamalini Mahendradas, Head, Uveitis and Ocular Immunology, Narayana Nethralaya, 121/c Chord Road, 1<sup>st</sup> R Block, Rajaji Nagar, Bengaluru - 560 010, Karnataka, India. E-mail: m.padmamalini@gmail.com

Received: 30-Jun-2021

Revision: 10-Oct-2021

Accepted: 09-Dec-2021

Published: 25-Feb-2022

## Access this article online

Website:

www.ijo.in

DOI:

10.4103/ijo.IJO\_1759\_21

## Quick Response Code:



This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** WKHLRPMedknow\_reprints@wolterskluwer.com

**Cite this article as:** Mahendradas P, Sethu S, Jayadev C, Anilkumar A, Kawali A, Sanjay S, *et al.* Trends in teleconsultations for uveitis during the COVID-19 lockdown. Indian J Ophthalmol 2022;70:1007-12.

## Methods

This is a prospective study of uveitis patients seeking medical advice for their ocular complaints by using an online and real-time smartphone application (app) during April and May 2020, the first wave, and from April 27 to June 21, 2021, the second wave. The study was conducted at a tertiary referral eye care center and was approved by the ethics committee and adhered to the Declaration of Helsinki. The app, which was partially customized for the institute, needed to be installed by the physician and the patient, and was available without any charge for both Apple and Android platforms. The new teleophthalmology services information was made available on the hospital's website and social media pages. The salient features of the app are the number of patients can be scheduled with date and time, an option for the patient to upload any previous treatment details and investigations, and a face-to-face eye photographs, video and audio communication feature. A short summary of the patient's history, examination details, and treatment advice can be entered after the consultation in real time, which the patients can access and use as a prescription to procure medications. A backend team takes care of logistics such as app support, rescheduling online consultations, scheduling hospital visits, payment-related issues, and connectivity issues. The cost for teleconsultation was the same as for a hospital visit, and the patients had the option of visiting the doctor for an in-person consultation at no extra charge within 1 week's time.

Patients were enquired about their ocular complaints in detail. For new patients, details of the present illness and associated systemic complaints or diseases were elicited. The vision was grossly assessed by asking patients to read letters or numbers by closing each eye separately on an object 5–6 m away such as a wall clock or a calendar. External ocular examination was done by asking patients to come closer to the camera and move their eyes as per the examiner's instruction. They were asked to face the door or window for examination in natural light, or the patients were instructed to use a pen torch. If the details were not clear, they were asked to take pictures using the higher resolution back camera in good light conditions after the teleconsultation and to upload the photos onto the app. For follow-up patients, a copy of the previous electronic medical record (EMR) was emailed to the doctor by the backend team. A presumed diagnosis of recurrence or remission of the

disease was made and accordingly the patient's medications were adjusted or restarted. New patients with acute uveitic complaints (pain, redness, photophobia, blurring of vision) were triaged, and most of the patients were encouraged to come to the hospital for further evaluation and management.

Data regarding patients' demographics, symptomatology, ocular findings, details of documents uploaded, provisional diagnosis made, investigations or treatment advised, and follow-up details were collected from the app. External eye examination photographs were taken as screenshots in selected cases after taking informed consent. Dilated fundus photography was not taken in this study as the technology was not available with us during the lockdown period. We were not able to classify the new uveitis cases based on the teleconsultation. These unclassified new patients were referred to the base eye hospital and then anatomical classification was made. For follow-up cases, anatomical classification details were based on our EMR records cases with incomplete documentation were excluded. No video recording was done during any of the teleconsultations. The app had an inbuilt consent and a non-liability clause. Patients less than 18 years the caregiver gave the consent. Patients' consent was taken to use any data uploaded by them for the study where applicable.

The data collection and statistical analysis were done using Microsoft Excel 2019 version.

## Results

A total of 79 teleconsultations in the first lockdown and 89 in the second lockdown of patients with uveitis were done in this study. The age range was 6 months to 86 years, with a median age of 41 years in the first lockdown and 9 years to 79 years with a median age of 40 years in the second lockdown. The caregivers consulted with the doctor if the patient was less than 18 years old. Approximately 48.1% (n = 38) were males and 51.9% (n = 41) were females in the first lockdown, and 55.05% (n = 49) were males and 44.94 (n = 40) were females in the second lockdown. There were 5 new patients (6.3%) and the rest were (74, 93.7%) were follow-up cases in the first lockdown, whereas in the second lockdown, there were 7 new patients (7.9%) and the rest were follow-up cases (82, 92.1%). More than one teleconsultation was done during both periods (3, 4.1% in the first lockdown and 9, 10.1% in

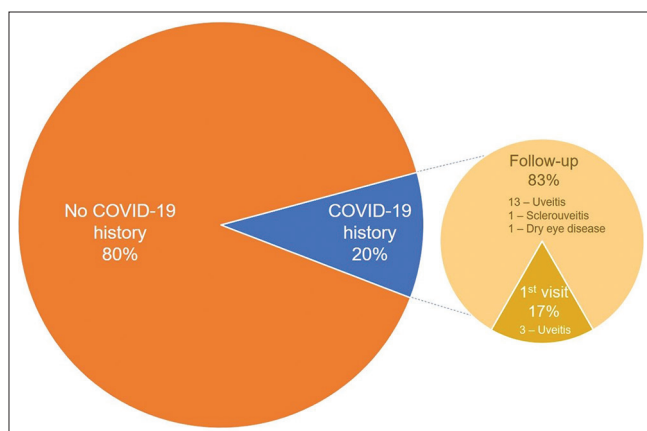


Figure 1: History of COVID-19 infection

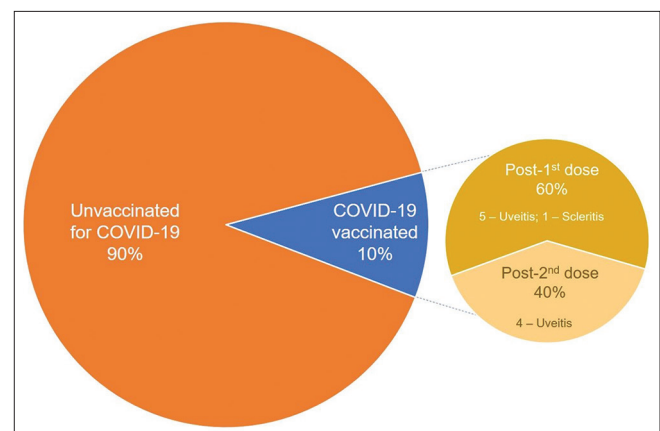


Figure 2: History of COVID-19 vaccination

the second). Nine cases (10.1%) took teleconsultations during both the lockdowns. A majority of consultations were for those residing in Bengaluru city during both periods (62, 78.5% in the first and 68, 76.4% in the second) with the rest being from other places in Karnataka (14, 17.7% in the first and 18, 20.2% in the second). There were consultations from other states as well (first: 3, 3.8%; second: 3, 3.4%) [Table 1]. For all, except one patient who needed a rheumatologist’s co-consultation, the above mentioned app was used. For this patient, a group video call was made along with the rheumatologist. Patients in whom a conclusive diagnosis could not be made on teleconsultation (12, 15.2% in the first lockdown) and (19, 21.3% in the second lockdown) were referred to the primary eye hospital for detailed examination and further management. Therefore, 4 out of 5 new and 8 established patients were seen in person in the first lockdown and 7 new cases and 12 established cases were seen in person during the second lockdown. In the second wave, among the hospital referral cases, 3 (3.4%) were diagnosed to have necrotizing retinitis. For the rest of the patients, a follow-up prescription was given after a detailed evaluation. Immediately after the televisit, 15.4% percentage of patients visited the hospital; 84.5% followed up within 4 months of the televisit.

Clinical diagnosis of uveitis was made after eye examination in the base eye hospital/or based on EMR diagnosis. The total number of uveitis cases in the first lockdown was 66 (83.5%) and 73 cases (82%) in the second lockdown. Anatomical diagnosis of uveitis in the first lockdown was anterior uveitis 24 (36.3%), intermediate uveitis 2 (3.03%), posterior uveitis 20 (30.3%), and panuveitis 20 (30.03%); in the second lockdown, it was anterior uveitis 23 (31.5%), intermediate uveitis 3 (4.10%), posterior uveitis 26 (35.61%), and panuveitis 21 (28.76%) [Table 2].

Clinical activity was confirmed subsequently by in-person examination.

Among the follow-ups, two patients (one serpiginous-like choroiditis and one viral retinitis) had worsened during the first lockdown. Four patients (panuveitis due to Vogt-Koyanagi-Harada disease, serpiginous-like choroiditis, one CMV retinitis, and one vaccine-triggered anterior uveitis) had worsened during the second lockdown. Thirty-six cases resolved after treatment following teleconsultation in the first lockdown and 15 cases in the second lockdown .

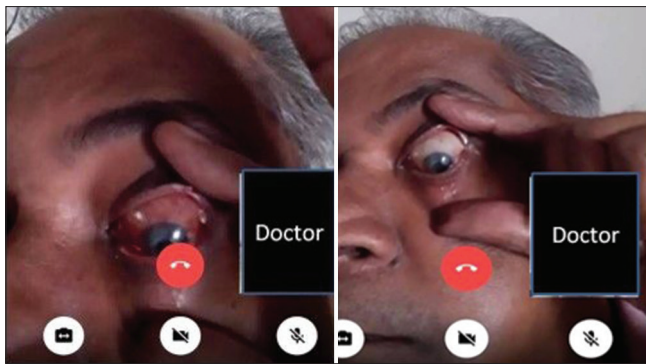
Previously diagnosed uveitis patients for teleconsultation were 66 (83.5%) and 73 (82%) in the first and second wave, respectively. Based on their history, symptoms, old records, and examination findings, disease activity was present in 34 (43%) and 50 (56.2%) patients in the first and the second lockdown, respectively. A history of COVID-19 was present in 18 (20.2%) cases in the second wave and for none in the first wave. History of breakthrough infection with COVID-19 and uveitis was present in one case (1.1%) in the second wave [Table 1]. In the second lockdown, 20% of the cases presented with COVID-19 infection [Fig. 1], and 83% of these patients had a past uveitis history. Ten percent of the cases with active uveitis presented following COVID-19 vaccination; among them, 60% presented following the first dose and 40% presented after the second dose [Fig. 2]. Clinical photographs of teleconsultation patients and their case summary are enclosed as Figs 3-5.

**Table 1: Differences between the first wave and second wave lockdown**

	1 <sup>st</sup> Lockdown n (%)	2 <sup>nd</sup> Lockdown n (%)
Period	(March 25– May 2020)	April 27 to June 21, 2021
Total No. of consultation	79	89
Type of consultation available		
Audio calls only	1 (1.2)	1.0
Audio and video calls	78 (98.7)	88
No. of consultants	1	1
Age (years)		
≤ 18	10 (12.7)	10 (11.2)
19-40	28 (35.4)	31 (34.8)
41-60	30 (38)	35 (39.3)
>61	11 (13.9)	13 (14.6)
Sex		
Male	38 (48.1)	49 (55.05)
Female	41 (51.9)	40 (44.94)
Region		
Within the city	62 (78.5)	68 (76.4)
Other town/city	14 (17.7)	18 (20.2)
Other state	3 (3.8)	3 (3.4)
Consultation history		
First-time presentation	5 (6.3)	7 (7.9)
Follow-up	74 (93.7)	82 (92.1)
>1 consult	3 (4.1)	8 (9)
1 <sup>st</sup> & 2 <sup>nd</sup> lockdown	NA	9 (10.1)
Disease - Active	34 (43)	50 (56.2)
Eye involvement		
Bilateral	40 (50.6)	49 (55.1)
Unilateral	39 (49.4)	40 (44.9)
Hospital Referral		
For additional investigation	12 (15.2)	19 (21.3)
For emergency	0	3 (3.4)
COVID-19 history		
Active or immediate past	0	18 (20.2)
COVID-19 vaccination history		
Yes	NA	10 (11.2)
COVID-19 + Vaccine	NA	1 (1.1)

**Discussion**

A uveitis evaluation is incomplete without a dilated fundus evaluation with indirect ophthalmoscopy and sclera indentation.<sup>[9]</sup> However, patients suffering from ocular inflammation with coexisting systemic comorbidities are at a higher risk of developing COVID-19.<sup>[10]</sup> Additionally, recent research suggests transmission of the virus through tears, putting at risk not only the ophthalmologists and staff but also other patients.<sup>[11]</sup> For those with uveitis and no evidence of COVID-19, guidelines suggest that systemic immunosuppressive therapy should be maintained.<sup>[3]</sup> However, they still need a consultation for the onset of new symptoms, change in the severity of existing ones, and to allay apprehension due to non-access to medications. The



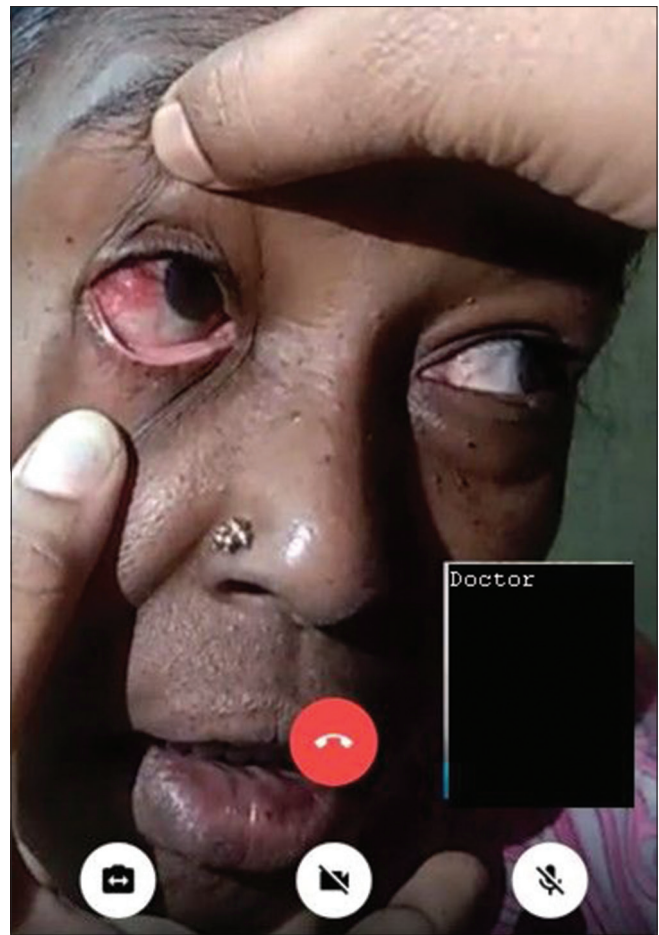
**Figure 3:** (a) A 61-year-old Asian Indian male, a known case of recurrent viral keratouveitis secondary to herpes zoster ophthalmicus, presented with pain and redness in the left eye. During teleconsultation, we noticed circumciliary congestion with dilated episcleral vessels and a corneal scar. We made a provisional clinical diagnosis of recurrent viral uveitis in the left eye. The patient was started on topical steroids and cycloplegics and an oral nonsteroidal anti-inflammatory drug. (b) Follow-up after 1 week: the patient was symptomatically better with resolved conjunctival and circumciliary congestion

**Table 2: Clinical diagnosis including new and follow up cases of uveitis**

Diagnosis	1 <sup>st</sup> Lockdown n (%)	2 <sup>nd</sup> Lockdown n (%)
<b>Broad diagnosis</b>		
Uveitis	66 (83.5)	73 (82)
Scleritis	4 (5.1)	7 (8)
Episcleritis	1 (1.3)	2 (2.2)
Sclerouveitis	3 (3.8)	1 (1.1)
Conjunctivitis	2 (2.5)	1 (1.1)
Dry eye	3 (3.8)	1 (1.1)
Ocular Cicatricial Pemphigoid	0	2 (2.2)
Carunculitis	0	1 (1.1)
Hordeolum externum	0	1 (1.1)
<b>Anatomical Diagnosis of Uveitis</b>		
Anterior uveitis	24 (36.3)	23 (31.5)
Intermediate uveitis	2 (3.03)	3 (4.10)
Posterior uveitis	20 (30.03)	26 (35.61)
Panuveitis	20 (30.03)	21 (28.76)

ongoing pandemic is a major challenge to healthcare in our country, with us veering toward telemedicine after the release of guidelines by the Ministry of Health and Family Welfare, Government of India.<sup>[12,13]</sup> Our study reports the experience of the use of teleconsultation for uveitis to ensure the continuity of care during the lockdown. During the lockdown, televisits helped patients to continue with monitored treatment and to obtain a referral letter for a hospital visit, which was otherwise difficult due to restrictions imposed by the government. We needed to refer 15.2% of our patients to the base hospital for further evaluation during the first lockdown and 21.3% during the second lockdown, with 3.4% as emergency referrals for severe symptoms.

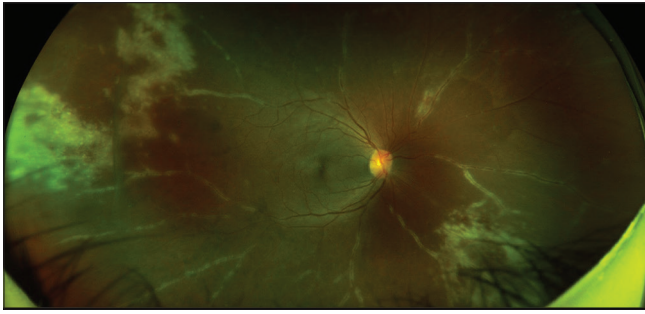
An Indian survey reported that telephonic consultation (54.9%) was the most preferred mode of



**Figure 4:** A 53-year-old female, a known case of anterior scleritis with rheumatoid arthritis, developed pain and redness in the right eye. After teleconsultation, the diagnosis of anterior nodular scleritis in the right eye was made, and the patient was advised to undergo laboratory investigations. Lab reports were uploaded on the online consultation portal. After reviewing the reports, the patient was started on oral steroids with continuation of oral methotrexate and HCQ therapy as the patient is from a town 650 km away from the eye hospital'

interaction, followed by social media platforms such as WhatsApp and video calls.<sup>[14]</sup> Lai *et al.*<sup>[15]</sup> highlighted home vision, color vision, and visual field testing specifications for neuro-ophthalmology. Kilduff *et al.*<sup>[6]</sup> referred intraocular inflammation cases for ophthalmic evaluation following teleconsultation in their study in Moorfields. Deshmukh *et al.*<sup>[16]</sup> reported their experience of teleconsultations during COVID-19 for pediatric ophthalmology and strabismus patients and their results are satisfactory. Our study suggests that teleconsultation was an alternative option for delivering uveitis follow-up care in 93.7% in the first lockdown and 92.1% in the second lockdown. With access to EMR, ease of technology, and widespread availability of smartphones and social media applications, establishing patient–doctor interaction even in times of lockdown is feasible.

Teleophthalmology has its own limitations. It cannot replace an in-person examination with a real risk of making erroneous diagnoses or missing salient clinical findings. Thus, a full disclaimer should be disclosed prior to the teleconsultation to safeguard against medicolegal implications. One such



**Figure 5:** A 38-year-old female on second-line antiretroviral therapy presented with an inability to see one-half of the vision in the right eye with suspicion of probable viral retinitis. She was referred to the base hospital for evaluation. Fundus photographs were sent to the primary teleconsultation physician and the diagnosis of CMV retinitis was confirmed. The patient was then started on anti-CMV therapy

example is of a patient who had complained of mild irritation and no visual disturbance on teleconsultation during the first lockdown. Subsequently, when she came for a consultation at the hospital, she was noted to have had reactivation of serpiginous-like choroiditis. Among the six new cases in first lockdown, only one patient with episcleritis could be managed on teleconsultation and the rest needed a detailed evaluation at the hospital. Seven new patients (7.9%) in the second wave. Nineteen (21.3%) cases were referred to hospital for eye evaluation in the second wave.

Murthy *et al.*<sup>[17]</sup> have listed anterior uveitis and scleritis under emergency clinic consult. We treated previously diagnosed patients presenting with recurrence of scleritis or anterior uveitis after reviewing their investigations when required via teleconsultation due to their inability to travel. Among the anterior uveitis, HLA B27-associated uveitis and recurrent herpes zoster uveitis were managed with topical steroids and cycloplegic agents in a majority of the patients. Ravindran *et al.*<sup>[18]</sup> and Pandey *et al.*<sup>[19]</sup> reported that WhatsApp was the preferred modality of communication for teleconsultation. We found that video consultation through a teleconsultation smartphone app was a useful method in treating uveitis patients in view of the ability to interact with the patient in real time, review uploaded files and reports of the particular patient, and the ability to upload the summary along with the prescription. It also offers a personal connect with patients who can be reassured by interacting with their physician and have their concerns and fears allayed. Sommer *et al.*<sup>[20]</sup> reported in their review article that with improvements in image processing and better integration of the patient's medical record, teleophthalmology will become a more accepted modality. Similarly, Kalavar *et al.*<sup>[21]</sup> reiterated that teleophthalmology allows ophthalmologists to continue caring for patients with the use of innovative technologies to manage adult and pediatric common eye diseases.

During video consultation, some challenges include poor internet connectivity and "frozen frames." While a majority of consultations were done successfully [Table 1], we noted network issues in five of them, which were resolved by reconnecting to the patients. Data security and confidentiality are other concerns. Nevertheless, the usefulness of teleconsultation during lockdown periods as in pandemics or in remote inaccessible situations is evident.<sup>[22]</sup> However,

it cannot replace slit-lamp and fundus examination in the evaluation of uveitis patients, which is a major limitation of our study. Estimation of anterior chamber cells and vitreous haze could not be assessed. This is a key step in the evaluation in most uveitis patients, and sub-symptomatic uveitis can be present and often does need treatment to prevent a "smoldering uveitis" with eventual complications. Smartphone apps do allow fundus imaging, but because an attachment is needed for the same, we did not include it as part of our study. Availability, access, and affordability of these attachments was a concern we were able to provide continuity of care and monitor their anti-inflammatory treatment. After teleconsultation, dedicated date and time slots were allotted to our teleconsultation patients to visit the uveitis consultant at our hospital for patients on immunosuppression to ensure they visit when the clinic is less busy as reported by Hung *et al.*<sup>[23]</sup>

Our initial experience of using teleconsultation for the management of uveitis during the lockdown period has been encouraging. It helps decide the need for immediate referral of patients to a hospital. Connecting with their treating physician was reassuring for patients who were unable to travel. In the second lockdown, 20% of patients with a history of COVID-19 opted for teleconsultation. Four of them were under home quarantine, and we were able to guide them regarding systemic immunosuppressive therapy.

## Conclusion

Teleophthalmology is a feasible option for monitoring uveitis patients during the COVID-19 pandemic lockdown. It can be done from the safe environs of their homes and could remain a viable option in times to come.

## Acknowledgements

We would like to acknowledge our telemedicine team members, Dr. Bindu Rudramurthy, Dr. Anand Vinekar, Mr. Dilip, Mrs. Vasantha, Mrs. Roopa Prakash, Mrs. Rajeshwari, and Mrs. Priyanka, for their help.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## References

1. World Health Organization. Timeline: WHO's COVID-19 Response. 2020. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline>. [Last accessed on 2021 Nov 01].
2. World Health Organization. Coronavirus disease 2019 (COVID-19). Situation Report – 97. Available from: <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200426-sitrep-97-covid-19.pdf>. [Last accessed on 2021 Nov 01].
3. Zierhut M, De Smet MD, Gupta V, Pavesio C, Nguyen QD, Chee SP, *et al.* Evolving consensus experience of the IUSG-IOIS-FOIS with uveitis in the time of COVID-19 infection. *Ocul Immunol Inflamm* 2020;28:709-13.
4. Gupta V, Rajendran A, Narayanan R, Chawla S, Kumar A, Palanivelu MS, *et al.* Evolving consensus on managing vitreo-retina and uvea practice in post-COVID-19 pandemic era. *Indian J Ophthalmol* 2020;68:962-73.

5. Wu P, Duan F, Luo C, Liu Q, Qu X, Liang L, *et al.* Characteristics of ocular findings of patients with coronavirus disease 2019 (COVID-19) in Hubei Province, China. *JAMA Ophthalmol* 2020;138:575-8.
6. Kilduff CL, Thomas AA, Dugdill J, Casswell EJ, Dabrowski M, Lovegrove C, *et al.* Creating the Moorfields' virtual eye casualty: Video consultations to provide emergency teleophthalmology care during and beyond the COVID-19 pandemic. *BMJ Health Care Inform* 2020;27:e100179.
7. Sharma M, Jain N, Ranganathan S, Sharma N, Honavar SG, Sharma N, *et al.* Tele-ophthalmology: Need of the hour. *Indian J Ophthalmol* 2020;68:1328-38.
8. Schallhorn CS, Richmond CJ, Schallhorn JM. Military teleconsultation services facilitate prompt recognition and treatment of a case of syphilitic uveitis aboard a United States Navy Aircraft Carrier at sea during combat operations without evacuation capability. *Telemed J E Health* 2020;26:821-6.
9. Jayadev C, Mahendradas P, Vinekar A, Kemmanu V, Gupta R, Pradhan ZS, *et al.* Tele-consultations in the wake of COVID-19 - Suggested guidelines for clinical ophthalmology. *Indian J Ophthalmol* 2020;68:1316-27.
10. Patel AB, Verma A. COVID-19 and angiotensin-converting enzyme inhibitors and angiotensin receptor blockers: What is the evidence? *JAMA* 2020;323:1769-70.
11. Xia J, Tong J, Liu M, Shen Y, Guo D. Evaluation of coronavirus in tears and conjunctival secretions of patients with SARS-CoV-2 infection. *J Med Virol* 2020;92:589-94.
12. Telemedicine Practice Guidelines by BOARD OF GOVERNORS Medical Council of India constitutes, Appendix 5 of the Indian Medical Council (Professional Conduct, Etiquette and Ethics Regulation. 2002. Available from: <https://www.mohfw.gov.in/pdf/Telemedicine>.
13. All India Ophthalmological Society. AIOS Telemedicine Practice Guidelines. 2020. Available: <https://aios.org/pdf/AIOS-Telemedicine-Practice-Guidelines.pdf>. [Last accessed on 2021 Nov 01].
14. Nair AG, Gandhi RA, Natarajan S. Effect of COVID19 related lockdown on ophthalmic practice and patient care in India: Results of a survey. *Indian J Ophthalmol* 2020;68:72530.
15. Lai KE, Ko MW, Rucker JC, Odel JG, Sun LD, Wings KM, *et al.* Tele-neuro-ophthalmology during the age of COVID-19. *J Neuroophthalmol* 2020;40:292-304.
16. Deshmukh AV, Badakere A, Sheth J, Bhate M, Kulkarni S, Kekunnaya R. Pivoting to teleconsultation for paediatric ophthalmology and strabismus: Our experience during COVID-19 times. *Indian J Ophthalmol* 2020;68:1387-91.
17. Murthy SI, Das S, Deshpande P, Kaushik S, Dave TV, Agashe P, *et al.* Differential diagnosis of acute ocular pain: Teleophthalmology during COVID-19 pandemic - A perspective. *Indian J Ophthalmol* 2020;68:1371-9.
18. Ravindran M, Segi A, Mohideen S, Allapitchai F, Rengappa R. Impact of teleophthalmology during COVID-19 lockdown in a tertiary care center in South India. *Indian J Ophthalmol* 2021;69:714-8.
19. Pandey N, Srivastava RM, Kumar G, Katiyar V, Agrawal S. Teleconsultation at a tertiary care government medical university during COVID-19 Lockdown in India - A pilot study. *Indian J Ophthalmol* 2020;68:1381-4.
20. Sommer AC, Blumenthal EZ. Telemedicine in ophthalmology in view of the emerging COVID-19 outbreak. *Graefes Arch Clin Exp Ophthalmol* 2020;258:2341-52.
21. Kalavar M, Hua HU, Sridhar J. Teleophthalmology: An essential tool in the era of the novel coronavirus 2019. *Curr Opin Ophthalmol* 2020;31:366-73.
22. Gensheimer WG, Miller KE, Stowe J, Little J, Legault GL. Military teleophthalmology in Afghanistan using mobile phone application. *JAMA Ophthalmol* 2020;138:1053-60.
23. Hung JCH, Li KKW. Implications of COVID-19 for uveitis patients: Perspectives from Hong Kong. *Eye (Lond)* 2020;34:1163-4.