



## Managing Uveitis during the COVID-19 Pandemic

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The coronavirus disease 2019 (COVID-19) pandemic has resulted in professional changes in uveitis care, some of which may have long-term impact.

### Triaging Patients with Uveitis

With office-based and surgical treatment prioritized for urgent or emergent care alone, many uveitis consultations are held by telemedicine video-conferencing or simple telephone calls. Procedures to ensure access to immunomodulatory medications without an office visit have been instituted.

Discussions on professional listservs indicate that uveitis specialists are favoring in-person visits with ophthalmic examination for new presentations of uveitis or when patients with a history of uveitis experience symptoms of recurrent inflammation. Examinations also may be needed to monitor effects of adjusting treatments. Visits are conducted with attention to local recommendations for patient care, including use of personal protective equipment.<sup>1</sup>

Given that uveitis is often chronic, a patient–ophthalmologist partnership approach is common. If the uveitis is predictable and the patient is familiar with his or her treatment plan, even an acute flare of posterior segment inflammation may be managed remotely. For patients whose uveitis is controlled with a stable drug schedule, history by conference plus standard blood tests may provide adequate review. However, intraocular pressure measurements in patients with a history of secondary ocular hypertension or glaucoma, or in those who have received depot corticosteroid are essential to avoid glaucomatous damage.

Long-term impact: Ophthalmologists and patients are realizing opportunities to use telemedicine in managing chronic and stable uveitis. This practice could persist, particularly for delivering care to remote communities. After the COVID-19 pandemic, a randomized clinical trial comparing outcomes for telemedical versus office-based consultations may be appropriate.

### Approach to Uveitis Diagnosis

Making a specific diagnosis in a patient with uveitis often involves ophthalmic imaging, vision function testing, or both, plus investigations that may include blood testing, radiologic examination, and interventional ocular or systemic procedures.

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) persists on surfaces.<sup>2</sup> Although ophthalmic equipment is decontaminated between patients, only key imaging and function tests that inform a specific diagnosis are appropriate.

Uveitis specialists long have recommended a tailored selection of investigations based on the uveitis phenotype and a detailed history, rather than a standard battery of tests for every patient.<sup>3</sup> Only tests for syphilis, and depending on local prevalence, tuberculosis, are performed on all individuals who present with uveitis. Aerosol-generating procedures that pose a high risk of SARS-CoV-2 infection are scrutinized carefully.<sup>4</sup> For example, bronchoscopy likely is unnecessary if the presentation is otherwise consistent with ocular sarcoidosis. Even lower risk procedures, such as neuroimaging and lumbar puncture when multiple sclerosis is suspected, are planned in collaboration with internist colleagues. Vitrectomy is deferred if possible, but may be essential for diagnosing certain conditions, such as vitreoretinal lymphoma or infectious retinitis. The operation can be performed under local anesthesia or monitored anesthesia care, rather than general anesthesia. If available for use in asymptomatic individuals, SARS-CoV-2 testing helps with making decisions around timing.

Long-term impact: Rational selection of ophthalmic tests and systemic investigations is necessary economically as well as medically. The present situation highlights the value of “old-fashioned” clinical skills in history taking and examination when diagnosing uveitis. Moving forward, this is a consideration for ophthalmic education programs targeted at all levels from resident through qualified ophthalmologist.

### Approach to Uveitis Treatment

Treatment of infectious uveitis continues to involve systemic antimicrobial and anti-inflammatory drugs, sometimes supplemented with intravitreally injected preparations. The World Health Organization issued a warning that individuals with tuberculosis and COVID-19 may have worse outcomes, particularly if the antitubercular therapy is interrupted.<sup>5</sup> During acute infection, SARS-CoV-2 has been detected in the blood,<sup>6</sup> and intraocular tissues express angiotensin converting enzyme 2, which is a receptor for the virus,<sup>7</sup> raising the possibility of intraocular infection. However, to date no reports have been published of COVID-19-associated uveitis, although subtle retinal microvascular pathology and small lesions in the ganglion cell and inner plexiform layers are described.<sup>8</sup>

Considerable discussion has taken place regarding the possibility that COVID-19 may be more common, more severe, or both in persons who are pharmacologically immunosuppressed, including patients who are taking immunomodulatory drugs for noninfectious uveitis. Based on experience across multiple fields, including rheumatology, dermatology, and gastroenterology, immunomodulatory treatment does not seem to be a major risk factor for severe COVID-19, and the general recommendation is that such treatment should not be ceased in the absence of SARS-CoV-2 exposure, or suspected or confirmed infection.<sup>9–11</sup>

Although immunomodulatory drugs are continued in patients with noninfectious uveitis, standard measures to limit the spread of COVID-19—hand hygiene, distancing, and self-isolation—and influenza vaccination are recommended. Patients have blood monitored for drug toxicity. Inflammatory cystoid macular edema and choroidal neovascularization are reviewed regularly, although a decision for retreatment may be based on clinical findings alone.

One special situation is the patient with noninfectious uveitis who is infected with SARS-CoV-2, whether asymptomatic or suffering from COVID-19. The uveitis specialist works closely with the other treating physicians, and immunomodulatory treatment is withheld or tapered temporarily. In-person assessments are undertaken with personal protective equipment. Locally delivered corticosteroid is an option to avoid systemic drug activity: corticosteroid eye drops are highly effective for anterior uveitis, and periocular and intraocular corticosteroids, as well as corticosteroid implants are considered for patients with posterior segment intraocular inflammation. An electronically actioned effort led by Singapore National Healthcare Group Eye Institute, Chandigarh Postgraduate Institute of Medical Education and Research, and Moorfields Eye Hospital has produced an expert opinion statement to guide immunomodulatory therapy in patients with noninfectious uveitis (Agrawal R, manuscript under review, 2020). To inform on the issue of immunomodulatory treatment in patients with inflammatory diseases as a group, new registries have been launched (e.g., COVID-19 Global Rheumatology Alliance).<sup>12</sup>

Long-term impact: Experience gained during the COVID-19 pandemic on the use of immunomodulatory drugs in noninfectious uveitis will inform future treatment approaches. Patients taking these drugs have become more aware of the principles of infection control and the importance of vaccination, which will reduce their risk of infection overall.

## Co-management of Patients with Uveitis

Uveitis specialists often co-manage noninfectious or infectious uveitis with internists. The ophthalmologist monitors drug effectiveness, while the internist monitors drug safety. During the COVID-19 pandemic, 3-way consultations via video conference and smartphone maintain communications among the ophthalmologist, internist, and patient.

Long-term impact: Historically, coordination of co-management often has been quite challenging, because medical practices are rarely colocated. Most consultations will move back to the office setting in the long-term. Nonetheless, multidisciplinary telemedicine is likely to strengthen collegial relationships and provide a process to facilitate co-management in the future.

## Sharing of Information around Uveitis

In the wake of the COVID-19 pandemic, several global organizations—the International Ocular Inflammation Society, International Uveitis Study Group, and Foster Ocular Inflammation Society—produced a public document providing “evolving consensus experience with uveitis in the time of COVID-19” with input from their memberships and review by executive committee members.<sup>13</sup> The American Uveitis Society has opened its listserv temporarily to nonmembers to ensure that information regarding the management of uveitis during the pandemic is readily available. Uveitis specialists have contributed ophthalmology questions to the COVID-19 Global Rheumatology Alliance registry.

Long-term impact: Clinical alliances forged during the COVID-19 pandemic are likely to persist, which will strengthen the uveitis community.

## Acknowledgements

The authors thank Ms. Janet Matthews for administrative support in preparing this article.

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## Footnotes and Financial Disclosures

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Financial Disclosure(s): The author(s) have made the following disclosure(s): T.Y.Y.L.: Financial support – Allergan, Bayer Healthcare, Boehringer Ingelheim, Chengdu Kanghong Biotech, Novartis, Oculis, Roche, Santen

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