Pediatric Ophthalmology in the Era of COVID-19: Management of Emergent Non-Emergent Patients

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ABSTRACT

Coronavirus disease 2019 (COVID-19) is an ongoing pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). When patients come to an ophthalmologist's office for ocular examination, these patients have direct contact with examination equipment. Recent reports suggested that ocular surfaces may be a potential mode of SARS-CoV-2 transmission and that ophthalmologists are highly prone to getting infected.

Pediatric patients and managing their ophthalmologic conditions have its unique challenges. The purpose of this review is to provide useful guidelines, targeted at pediatric ophthalmology professionals, to minimize COVID-19 infection of both health-care workers and patients.

Keywords: COVİD-19, Pediatric Ophthalmology, Strabismus, Cataract, Retinoblastoma.

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an ongoing pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[1] The virus spreads mainly during close contact and by small droplets produced when an infected patient coughs, sneezes or talks. Ocular surfaces may be a potential mode for transmission, and ophthalmologists are highly prone to getting infected. Several infection control measures have been universally recommended.[2]

The COVID-19 pandemic has disrupted pediatric eye care across the globe. Pediatric ophthalmology faces unique challenges since most of our patients, due to age or developmental disability, are not able to comply with stipulations for mask wearing and reliable social distancing. In addition, our exams often require close proximity and hands on treatment by staff and doctors. Crying, often asymptomatic children may be infectious and aerosolizing virus particles over a great distance. Our entire exams are performed less than six feet away from our patients, substantially less than the recommendation for social distancing. Impaired access impedes our ability to distinguish benign situations from vision and life-threatening emergencies. Decisions regarding diagnostic testing and therapeutic interventions have to weigh urgency versus COVID-19 exposure risk.

Safety precautions to be taken

Staff should use appropriate personnel protective equipment (PPE), including N95 mask, face or eye shield, and gloves. All instruments including slit lamps, accompanying breath shields and tonometry tip, keyboards, desks, door handles and chairs must be disinfected after examination of each patient. Visits should be limited to the child and 1 parent, require the parent, and if possible the child, to wear a mask. Fewer patients than usual should be scheduled to reduce crowding and make sure patients observe social distancing.

The Royal College of Ophthalmologists (RCOphth) has produced guidance for ophthalmologists and pediatric ophthalmologists as a pragmatic approach to maintain ophthalmic care for those patients who need it while safely deferring care for those patients who can wait.[3] Children with conditions or features listed in the "high risk" column of the Moorfields Pediatric Ophthalmology

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Risk Stratification document require urgent face-to-face assessment. The risk in those in the "medium risk" and "low risk" column should be assessed individually by clinicians and deferred or booked for telephone or teleconsultation.[4]

In conditions with low/no risk of sight loss or permanent harm such as viral/bacterial conjunctivitis, allergic conjunctivitis, blepharitis, chalazion, congenital nasolacrimal duct obstruction, tele-consultation and giving advice on self-treatment is recommended.[5]

Blepharitis/chalazia with ocular surface inflammation can be managed remotely with lid hygiene and warm compresses, over-the-counter lubricants. Allergic keratoconjunctivitis including vernal/atopic keratoconjunctivitis, as the hallmark is itching, can usually be diagnosed remotely. Most patients will only require non-specialized treatment. Topical mast cell stabilizers / antihistamines are available over the counter. Guided by tele-consultation, ophthalmologists could issue prescriptions for short courses of topical steroids.[5,6]

Amblyopia follow-up can be performed at home by guardians: visual acuity for near and distance can be measured using web-based applications. Until relaxation of social distancing and resumption of community screening, the urgency to treat suspected amblyopia is a matter of clinical judgment. It would be considered justifiable to delay treatment of amblyopia until after the pandemic has passed and social distancing directives have been lifted. Changing amblyopia treatment from atropine to patching is recommended if follow-up visit needs to be postponed.[4,5]

Infantile esotropia and acute onset squint with risk of losing binocularity can be assessed by tele-consultation but conservative management recommended at this time.[6]

Patients who needs face to face and urgent care[6,7]

- Red painful eye, painful eye movements
- Significant change in vision
- Serious ocular trauma including serious chemical injuries, lid lacerations, penetrating eye injuries, blunt trauma with hyphema
- Acute onset squint, double vision, nystagmus, limitation of eye movements
- Cataract in infants under the age of 8 months
- Suspected glaucoma
- Pre-septal and orbital infections and inflammations
- Signs of neurological emergency: papillary edema
- Leukocoria/absence of red reflex

Follow-up visits that should not be deferred[4,6]

- Cataract in infants
- Suspected glaucoma
- Pre-septal and orbital infections and inflammations
- Post-operative appointments after lensectomy, until the age of 12 months.
- After the age of 12 months, appointments could be delayed by 2 months.
- Post-operative appointments within 2 months after glaucoma surgery
- Children on medication (drops or systemic) or being actively monitored for glaucoma, uveitis

All deferrable and non-urgent surgery and examinations under anesthesia (EUAs) should be postponed.

Emergent Surgical Indications[3-7]

- High IOP which cannot be managed medically
- Cataract in children under 8 months of age or where there is a risk of causing irreversible, severe amblyopia
- Acute emergencies (e.g. penetrating injury, intraocular foreign body, lacerations, orbital abscess)
- Retinoblastoma (Newly diagnosed patients and those in active treatment continue to be seen as usual. For patients who have been treated with no active disease for >3months, most would delay follow up at least 4 weeks.)[8]
- EUA's where it is critical to manage a potentially sight or life threatening disease
- Treatment for retinopathy of prematurity (ROP)

CONCLUSION

It is necessary to re-organize ophthalmologist's routine appointments in order to control viral spread and try to maximize patient and health-care provider's safety. Current evidence suggests deferring all the elective activity and providing assistance for only acute and chronic sight or life-threatening conditions. Further, clinical and surgical activity should be reorganized into different levels of dedicated precautions based on risk assessment and severity conditions.

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