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Impact of COVID-19 on pediatric ophthalmology in the epicentre of the Canadian outbreak

COVID-19 was declared a pandemic on March 11, 2020.¹ This impacted health care, including ophthalmology. Although studies have documented reductions in urgent ophthalmic referrals during the first pandemic wave, few have examined its effects on pediatric ophthalmology.^{2,3} We sought to characterize the impact of the first COVID-19 wave on pediatric emergency ophthalmic consultations and surgeries performed at a pediatric tertiary care hospital in Montreal, Quebec, the province with the highest number of cases during the first wave.¹

This study was approved by the McGill University Health Centre Institutional Review Board and adhered to the Declaration of Helsinki. A retrospective analysis of emergent pediatric ophthalmology consultations and surgeries at the Montreal Children's Hospital between March 13 and May 31, 2020, was compared with an analysis of identical periods in 2018 and 2019. Emergency department patient records were obtained from the Système Informatique d'Urgence (SIURGE) database (Logibec Groupe Informatique Inc, Montreal, Canada). Data extracted included patient age, sex, referral reason, diagnosis, investigations, and management. Surgical data retrieved from Opera (GE Healthcare, Chicago) included pre- and postoperative diagnosis, surgery type, and date of surgery and whether elective or urgent. The student t

test was used for comparison of means and the χ^2 test for categorical data analysis. A z test compared proportions. *p* values < 0.05 were considered statistically significant.

There were 330 patients referred to ophthalmology between March 13 and May 31 across 3 years, with 133 (40.3%) presenting during 2018, 138 (41.8%) during 2019, and 59 (17.9%) during 2020. In 2020, there was a 60% reduction in average number of daily urgent ophthalmic consultations (1.70 vs 0.74, *p* < 0.0001) compared with 2018 and 2019. The main reason for consultation was ocular trauma, particularly corneal abrasion (Fig. 1). More males presented with trauma than females (*p* < 0.0001). In 2020, the number of patients with trauma decreased, declining 53% from 2018 and 60% from 2019 (Fig. 1). However, the proportion of patients with ocular trauma in 2020 did not differ (*p* = 1.0). During the pandemic, there were fewer infectious conjunctivitis cases, declining 85% from 2018 and 71% from 2019 (Fig. 1). The proportion of patients with infectious conjunctivitis decreased in 2020 (*p* = 0.001) compared with 2018; however, a decrease also was noted between 2018 and 2019 (*p* = 0.028).

In 2020, days from symptom onset to emergency presentation did not differ from 2018 (5.9 vs 33.3, *p* = 0.16) or 2019 (5.9 vs 9.6, *p* = 0.4). Also, days from emergency consultation to ophthalmology visit in 2020 did not differ from 2018 and 2019 (1.74 vs 1.52, *p* = 0.814). There was an 80% reduction in average number of daily ophthalmic surgeries, elective and emergent, during 2020 (1.20 vs 0.24,

Diagnoses of Patients Referred to Pediatric Ophthalmology by Year

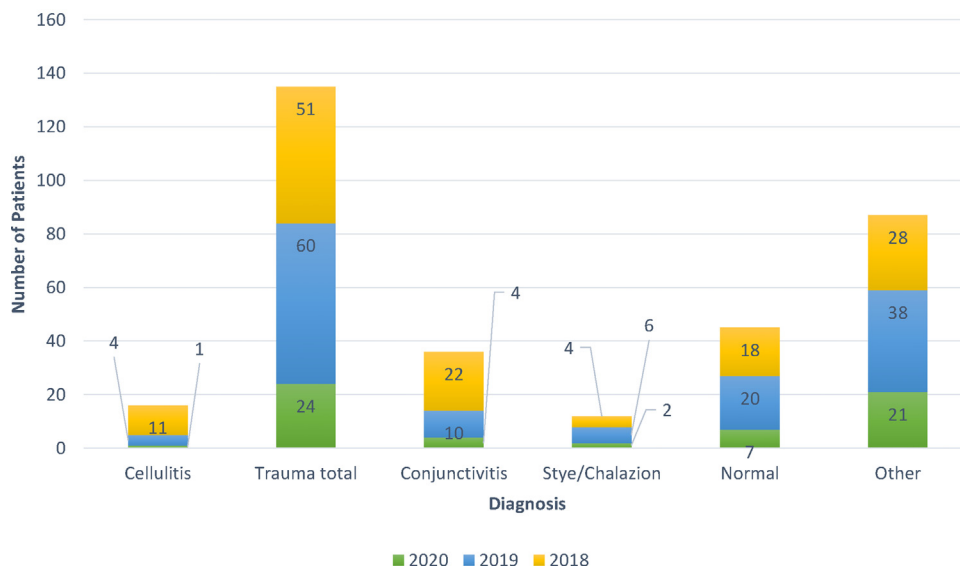


Fig. 1—Diagnoses of patients referred to pediatric ophthalmology by year. “Other” category diagnoses include strabismus, ametropia, sixth nerve palsy, orbital mass, dacryocystitis, nasolacrimal duct obstruction, congenital dacryocoele, keratoconjunctivitis sicca, scleritis, episcleritis, periorcular herpes simplex virus, ophthalmia neonatorum, uveitis, retinal detachment, retinal tear, and optic neuritis. Note that the incidental chalazion finding in the patient with traumatic subconjunctival hemorrhage is listed under 2 categories (trauma and chalazion) in 2018.

Table 1—Preoperative diagnoses of patients requiring urgent surgery by year

Preoperative diagnosis	2018	2019	2020
Foreign body	1	0	3
Eyelid laceration	0	1	1
Steven–Johnson syndrome	1	0	0
Globe rupture	0	0	1
Loose suture	0	0	1
Dacryocoele	1	0	0
Total number of urgent surgeries	3	1	6
Total number of surgeries (urgent and elective)	94	98	19

$p < 0.0001$) compared with 2018 and 2019. In 2020, there was an increased proportion of urgent surgeries compared with prior periods ($p = 0.013$). The most common indication was foreign-body removal (Table 1).

Our study shows that the first pandemic wave resulted in reductions in urgent ophthalmic consultations and surgeries. This corresponds with decreases in pediatric emergency department visits in Quebec⁴ and mirrors results found at a Canadian adult tertiary ophthalmology centre.⁵ Potential reasons include fear of acquiring COVID-19 and stay-at-home orders.^{2,6} Additionally, there were fewer ocular traumas in 2020 than in 2018 and 2019, possibly due to cancellation of sports activities. A similar trend was observed in Italy.⁷ Further, we observed fewer conjunctivitis cases during 2020 compared with previous periods, as reported in studies including adults, likely due to social distancing and hand hygiene.^{3,6} Reassuringly, patients sought and received ophthalmic care in a timely manner despite such delays being noted in other specialties.⁸ Future studies could evaluate the pandemic's impact on pediatric ophthalmology follow-up care.

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Footnotes and Disclosure

Daniela Toffoli is a member of the Sunshine Foundation Medical Advisory Board and is involved in a study for patients with spinomuscular atrophy (Sunfish Clinical Trial, Roche Pharmaceuticals). All other authors have no conflicts of interest to report.