In this issue, Schlenker and colleagues examined how the first wave of the COVID-19 pandemic affected the volume and nature of ophthalmology referrals at a single tertiary-level centre in Vancouver, British Columbia. In keeping with similar studies from other countries, they observed a dramatic decline in the volume of new referrals received during the pandemic.

A logical question arising from these findings is to what extent they reflect changes in health care demand versus supply. In other words, did patients delay seeking care or were health care services more difficult to access during the pandemic? Though not able to address this question directly, a couple of findings from the present study may provide some insight. First, the decline in referrals was similar for urgent and non-urgent conditions. Second, patient age was not associated with the magnitude of decline in referrals. One would expect that if lower patient demand was the cause of the drop in referrals, it would be greatest for patients with non-urgent conditions and those who were older. The reason being that the perceived risks from contracting COVID would be more likely to outweigh the perceived benefit of an ophthalmology assessment for members of these groups.

If, indeed, supply-side factors played a significant role, one would wonder whether experience gained during the pandemic can help us to improve the accessibility of eye health services in future? An avenue offering considerable promise is the scale up of Teleophthalmology, which could be expected to address geographic barriers, and potentially improve the efficiency of care delivery for chronic conditions, which currently have a high visit burden. Another possibility is to streamline referral pathways for urgent conditions. For example, during the pandemic, in an effort to unburden emergency departments at our institution, we developed protocols for direct referrals of certain ophthalmic presentations from emergency department triage desks to the ophthalmology service without the need for assessment by an emergency physician. Similarly, a tertiary center in Scotland developed a teleophthalmology-facilitated system to allow optometrist to directly transfer patients with suspected retinal detachments to the care of retinal surgeons without intervening assessment by an ophthalmologist. Such strategies warrant formal assessment of their effectiveness for improving accessibility, as well as their impact on quality and cost of care.

Gareth D. Mercer, PGY-4

**References**


Resident Perspective: Identifying gaps in patient access to diabetic screening eye examinations in Ontario

In 2018, approximately 3.5 million Canadians had diabetes and this prevalence is only expected to increase.1 Diabetic retinopathy (DR) is the leading cause of blindness in the working age population.2 However, DR in its early and late stages is treatable. Anti-vascular endothelial growth factor (anti-VEGF) injections, intraocular steroid injections, laser treatments, and surgical options are available for different stages of DR. The onset and prevention of sight-threatening DR involves tight glycemic control3 and since early stages of DR are asymptomatic, regular DR screening is essential for early detection of treatable disease. Alas, DR screening rates among people with diabetes remain suboptimal. For example, in Ontario, screening rates have remained below 60% since 2006.4

In this issue, Ballios and colleagues report on their cross sectional study to investigate the relationship between DR screening rates in Ontario with demographic and geographic factors.5 Data was obtained using Ontario Health Insurance Plan (OHIP) records, Ontario Diabetes Database, and Canadian census data. Between 2011 and 2013, Ballios et al. identified 1 146 000 people over 19 years of age with diabetes in Ontario, 35.4% of which (405 967) had not received DR screening. People in the highest income quintile had slightly lower rates of unscreened individuals compared to those in the lowest income quintile (34.4% vs. 36.9%) and more patients with immigrant status were unscreened compared to nonimmigrants (44.5% vs. 34.6%).

74.1% of all unscreened patients in the study lived in large cities, particularly within the Greater Toronto Area. Large areas of the Toronto Central Local Health Integration Network (LHIN) correlated for low examination rates and low income.

Interestingly, despite urban areas having the greatest concentration of ophthalmologists and optometrists compared to rural areas,6 Ballios and colleagues found DR screening rates are still lowest in the large cities. There must exist additional barriers to screening that are more complex than simply the availability of eye care providers. Indeed, previous literature has identified some of these barriers, including lack of awareness of the need for DR screening, transportation and time constraints, and the influence of socioeconomic status.7 After OHIP-funded eye examinations were delisted for Ontarians 40-65 years old, there was a decrease in routine eye examinations for healthy adults. While eye examinations by optometrists for patients with diabetes are still insured, there may be confusion regarding what is covered. One study showed decreased use of eye care providers among those with lower socioeconomic status after this change.8 Eye examinations by ophthalmologists were unaffected by delisting.

Poor DR screening rates in Ontario need to be improved. Ophthalmologists often seen a higher degree of DR pathology, and for patients without DR or at low risk of DR, recommend regular screening with optometry instead. It should be made clear to patients with diabetes that DR screening with optometrists are also OHIP-covered, an especially important consideration for patients of lower socioeconomic status. Working together with optometry as well as primary care physicians, endocrinologists, and diabetic nurse educators is paramount to ensure continuity of care and reducing the number of patients who remain unscreened or lost to follow-up. Tele-ophthalmology for DR screening is also emerging as a promising modality for bridging DR screening rate gaps, providing more equitable access to screening for underserviced areas or where transportation and time concerns may be an issue.

Diabetes and its complications are and will continue to be a growing epidemic. This study by Ballios and colleagues effectively identifies disparities in DR screening rates in Ontario, which emphasizes the importance of resource allocation measures and technological solutions to address such disparities.

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Article being referenced: https://www.canadianjournalofophthalmology.ca/article/S0008-4182(20)30786-9/fulltext
Resident Perspective: Rhegmatogenous retinal detachment related to trauma in a pediatric population

Pediatric ocular trauma is a pervasive and serious issue, affecting about a quarter of a million children every year. Furthermore, pediatric ocular traumas are associated with up to 50% of all pediatric retinal detachments. Therefore, understanding complications and outcomes of pediatric ocular traumas is imperative to moving toward improved patient outcomes. In this study, Sindal et al. set out to describe the clinical profile, morphological characteristics, treatment modalities, surgical outcomes, and complications of retinal detachments following trauma in the pediatric population.

This study is a retrospective chart review study in which data from medical records of 32 eyes of 32 patients were analyzed, looking specifically at the type of trauma, ocular status at presentation, and details of retinal detachment. The majority of cases with traumatic retinal detachment were found to have associated open globe injuries. These cases were found to require more invasive surgical repair in the form of pars plana vitrectomy and generally had poorer post-operative outcomes, with a higher rate of recurrent retinal detachment being seen in the open globe injury group. Closed globe injuries, by contrast, were found to present later and more often underwent scleral buckling for retinal detachment repair. These cases were found to have significantly higher rates of final reattachment and greater final best corrected visual acuity as compared to the open globe injury group.

Given that about 50% of the cases included in this study did not have a retinal attachment at the time of initial presentation and developed a retinal detachment during the course of follow-up, this study highlights the importance of follow-up and regular full ophthalmic screening examinations in children with old trauma. This is particularly important in cases of monocular injury, where there is the potential that the child may not notice a visual defect until the uninjured eye is occluded during ophthalmic examination.

There are, however, a few limitations of the current study that should be taken into consideration. Firstly, the retrospective nature of the study and relatively small sample size have inherent limits. In this type of study design, the study authors cannot control exposure or outcome assessment, and instead rely on others for accurate recordkeeping in the form of medical records. Prospective studies of larger sample size would allow for greater generalizability of data and decreased number of potentially confounding variables and/or bias. Second, all patients included in this study were seen at a tertiary care center, where presenting cases tend to be more complex in nature. As a result, this may also lead to inherent bias and decreased generalizability of the study data.

In summary, Sindal and colleagues have done an excellent job of describing the clinical profiles and post-operative outcomes of pediatric patients with rhegmatogenous retinal detachment following ocular trauma. This study highlights the importance of regular follow-up and
screening of pediatric patients with a history of ocular trauma, as well as the need for greater research to help us better understand these traumatic complications and move toward improved patient outcomes.

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Article being referenced: https://www.canadianjournalofophthalmology.ca/article/S0008-4182(20)30786-9/fulltext

Resident Perspective: Spectral domain OCT for differentiating optic disc drusen from papilledema in children

Spectral domain optical coherence tomography (OCT), given its high resolution, has been a diagnostic imaging modality of interest for diagnosis of optic disc drusen (ODD). Previous studies have shown that OCT may help differentiate ODD from papilledema, with quantitative OCT parameters characteristic of papilledema reported as increase in retinal nerve fiber layer (RNFL) thickness and Bruch’s membrane opening (BMO). Other studies have shown qualitative OCT features of ODD to be hyperreflective subretinal mass, hyporeflective boot-shaped area, hyporeflective bands, and signal-poor region in the core. While promising, the diagnostic accuracy of these OCT features is yet to be established. In this issue, Chiu and colleagues investigate the diagnostic accuracy of OCT (quantitative parameters and qualitative features) in differentiating ODD from papilledema in a pediatric population.1

This was a retrospective cross-sectional study at a single tertiary-care pediatric hospital from 2010 to 2018. Children, who had a spectral domain OCT—good quality with signal strength of ≥8—for diagnosis of either ODD or papilledema, were enrolled. In the cases of bilateral presentation, one eye was randomly selected for inclusion into the study. Quantitative OCT parameters were measured/calculated while qualitative OCT features were assessed by a masked pediatric ophthalmologist without the knowledge of diagnoses. For quantitative parameters, receiver operating characteristics (ROC) were plotted and the area under the curve (AUC) was calculated. For qualitative features, diagnostic accuracy was determined by calculating sensitivity and specificity for each of them.

To summarize the study’s findings, there were 41 eyes with ODD and 21 eyes with papilledema. Both the quantitative and qualitative OCT parameters showed highly statistically significant differences between ODD and papilledema. The quantitative OCT parameters for papilledema—RNFL thicknesses and BMO—were all significantly greater in the papilledema group compared to the ODD group; the AUC on the ROC ranged from 0.81 to 0.90. For all quantitative parameters of ODD, there were significant differences between the ODD and papilledema groups; each parameter’s sensitivity for ODD ranged from 27% to 100% and specificity ranged from 67% to 100%. The presence of at least 1 of 3 qualitative OCT parameters (hyporeflective boot-shaped area, isolated/clustered hyperreflective bands, or signal-poor regions in the core) had a sensitivity of 90% and a specificity of 100% for ODD.

ODD can clinically mimic papilledema and may be difficult to diagnose by fundoscopy alone. While ODD usually requires no treatment, papilledema routinely requires workup with neuroimaging and lumbar puncture, as well as treatment with acetazolamide and in severe cases ventriculo-peritoneal shunt. Hence, failure to distinguish ODD from papilledema may put patients at risk of unnecessary workup and treatment that may be invasive. While B-scan ultrasonography is the gold standard for diagnosis of optic disc drusen, it may not be universally available and less accurate for buried ODD. In contrast, OCT is more routinely available than B-scan, especially in private practice setting, and offers higher resolution. Hence, the OCT parameters that help distinguish papilledema from ODD—and vice versa—may play a critical role in helping to establish correct diagnosis, if these parameters can be shown to have sufficient specificity and sensitivity. This study by Chiu and her colleagues is the first to investigate the diagnostic accuracy of the OCT parameters. By being the first group to demonstrate that the qualitative OCT parameters have high diagnostic accuracy for ODD, Chiu’s group helps

References

establish the clinical utility of OCT—especially in the setting where B-scan may not be readily available—thereby making a significant contribution to the existing literature and practice of ophthalmology. While obtaining high-quality OCT in pediatric population may be tricky especially in the uncooperative children, with continued research and further advancement in technology, OCT has the potential to become the gold standard for differentiating ODD from papilledema in children.

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Article being referenced: https://www.canadianjournalofophthalmology.ca/article/S0008-4182(20)30786-9/fulltext

Reference