

APERATURE

August 2024
Août 2024



CANADIAN ASSOCIATION OF OPTOMETRY STUDENTS
L'ASSOCIATION CANADIENNE DES ÉTUDIANT.E.S EN OPTOMÉTRIE

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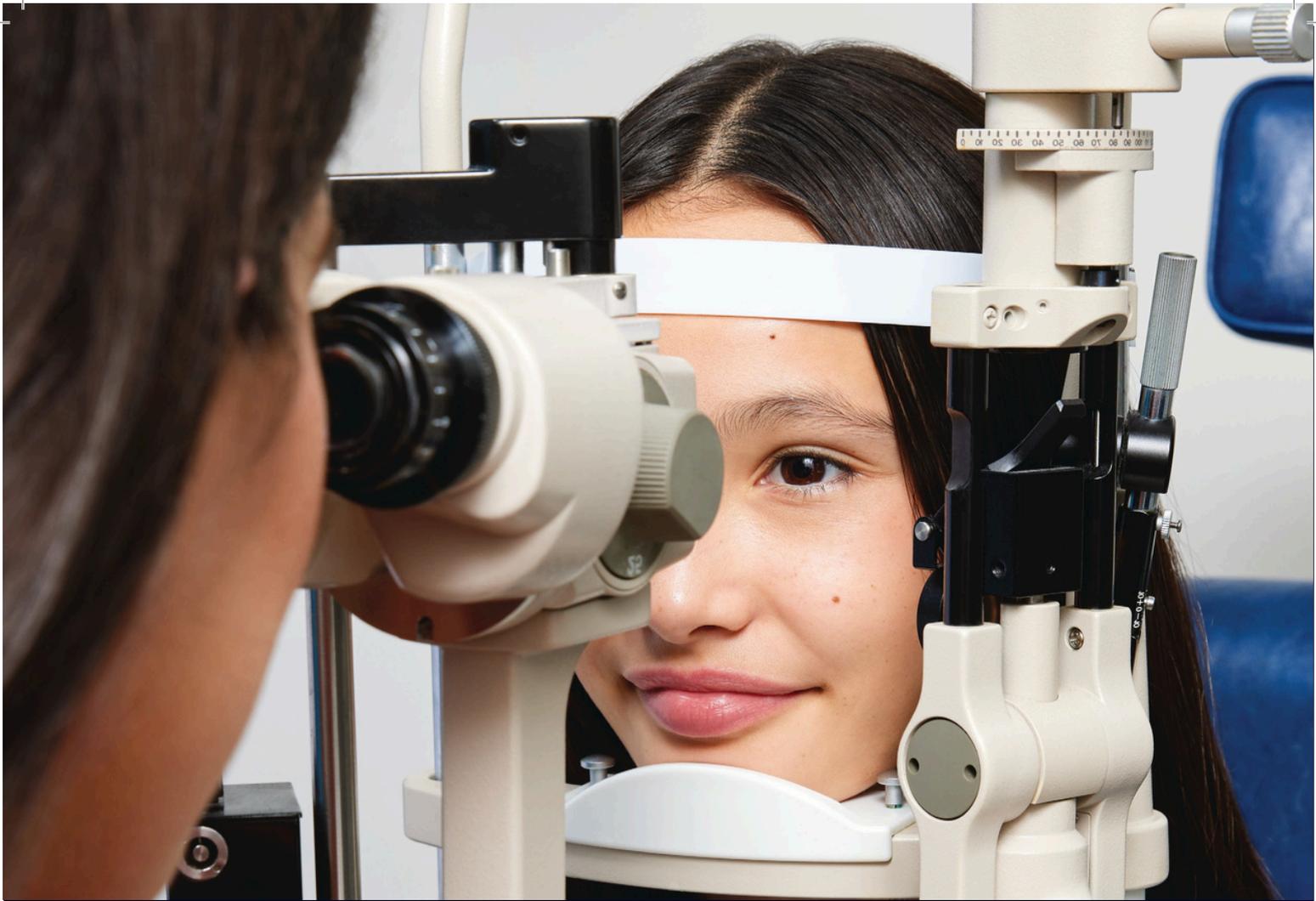
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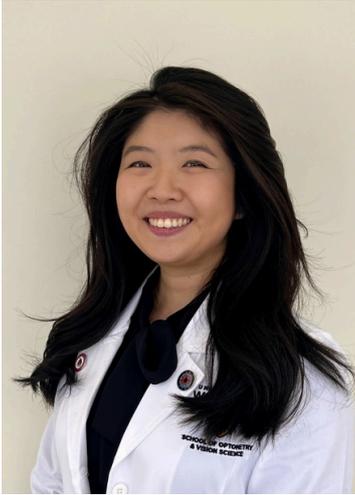
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CAOS PRESIDENT'S MESSAGE

MESSAGE DU PRÉSIDENT

WRITTEN BY : Sharon Ling
RÉGIGÉ PAR: Sharon Ling

Dear CAOS Members,

It's astonishing how quickly time can pass. Here we are, three years since our class embarked on the brilliant journey that is optometry school. First year was a whirlwind of online exploration—sitting in front of our screens, doing virtual labs at home, and grappling with a new way of learning. Then in second year, we straddled the line between online and in-person studies, trying to adapt to a new rhythm. By third year, we finally returned to the classroom full-time, faced with the exhilarating and nerve-racking experience of seeing patients for the first time. Looking back, each year has tested us in unique ways, and while it hasn't always been easy, every challenge has brought its own bundle of joy, educational moments, and cherished memories.

One of the most rewarding aspects of optometry school—beyond the academic and clinical training—has been being able to witness the incredible accomplishments of my peers, many of whom I am fortunate to call friends. Their diverse talents and perspectives have been a constant source of inspiration and our time together has not only been instrumental in professional development but personal growth as well. During our time here, our classmates become our study partners, confidants, and support systems. Side by side we take on a curriculum that is meant to be demanding and help each other navigate the emotional highs and lows that come with pursuing such a rigorous endeavor. The bonds we've formed are irreplaceable, and we've learned as much from each other as we have from our courses, collecting lessons that will stay with us long after graduation.

As we prepare to step into the next phases of our careers, it is important to look back on our time and celebrate our achievements. Aperture, our annual magazine, does exactly this by providing a platform to showcase the remarkable stories, advances, and insights from the optometric community. This publication highlights the triumphs of our peers and inspires us

to continue pushing the boundaries of our knowledge and skills. It is a work we as an association are extremely proud of and a resounding amount of credit needs to be given to our Communications Team for bringing it to life year after year.

The 2023-2024 term has been a particularly exciting and fruitful time for our association. Our teams worked diligently to provide resources, advocate for student interests, and educate the public on current topics. None of this would have been possible without the remarkable contributions of each team.

To start, our Finance Team has been the backbone of our operations, expertly managing all finances and sponsorships that allow us to continue offering membership perks and maintaining strong relationships with our partners, both old and new. Their hard work enabled CAOS to reach its aspirations and continue serving students.

Next, the Special Events Team organized a collection of events that allowed students to mark major milestones and forge lasting connections. We visited and connected with optometry students at L'École d'optométrie de l'Université de Montréal (ÉOUM) in the winter, hosted our annual Backpack Ceremony for first year students, and much more. The Education Team also made significant strides, producing educational content that extended our reach out towards the public. Their video on the benefits of routine eye exams was released, so be sure to check out “The Importance of Eye Exams at All ages” on Youtube!

Our External Team served as outreach ambassadors, fostering connections with other CAOS chapters and facilitating a pre-optometry program that gave valuable support to aspiring students. Simultaneously, the Mentorship Team nurtured connections between current optometry students with eye care professionals across the country. Students were able to meet with and visit optometry clinics across the country both in person and virtually to learn about topics such as practice management, continuing education, and optometric specialties.

The Professional Development Team delivered an exceptional lecture series covering an array of subjects that bridged the gap between the classroom and real-world practice, a space that can at times feel quite vast. Their efforts were aimed at preparing students for challenges that lie ahead in our careers. Our Political Team also played a key role in narrowing this gap by organizing an Associations Panel which featured leaders representing 10 provincial associations across Canada who are working to better our profession for the next generation. And of course, our Communications team kept our association informed and connected through their management of our social media content. They also managed our website which features job offerings, educational posts, and association updates. All in

all, the initiatives put together by our team provided students with the tools and chances to make connections that encouraged learning but also helped them enjoy the journey along the way.

With that, I would like to thank each and every member of the CAOS executive team for their unwavering commitment and multitude of contributions this year. It has truly been an honour working alongside you and I can't wait to see what the coming years hold for CAOS as an association. I would also like to extend my deepest gratitude to our sponsors, professors, doctors, industry leaders, and student members. Your longstanding support is vital to the ongoing success of CAOS and enables us to continue providing meaningful programs and services to current and future eye care providers.

To anyone thinking about getting involved in a student group, association, or community, I highly encourage you to take the leap and (in the words of Nike) just do it. Serving in this role and working with this stellar group has been far more fulfilling than I ever envisioned. Together, we've navigated challenges and celebrated successes, and carried on a mission that started back in 1990. Progress within the profession depends on us putting our best foot forward and advocating for the changes we want to see. So if you are looking for a sign to get started—this is it. Jump and join the conversation because change often begins with a single voice. By sharing yours, you can help pave the way for a brighter future.

Warm regards,

Sharon Ling
CAOS President 2023-2024

CAO PRESIDENT'S MESSAGE *PRÉSIDENT DE L'ACO*

*Insightful Exchanges: Shaping tomorrow's
optometric landscape*



WRITTEN BY : Dr. Martin Spiro,
President, Canadian Association of Optometrists (CAO)

RÉGIGÉ PAR: Dr. Martin Spiro,
Président, Association Canadienne Des Optométristes (ACO)

When I began my term as CAO President this past July, one of the things I most looked forward to was the opportunity to connect with colleagues and students from across the country. Less than a year into my term, these meetings and events have already been very engaging and educational. My time on the CAO Council has given me a good understanding of the issues and interests of my peers and the meetings with students have given me valuable insights into the questions, concerns, and experiences of students who will make up the next generation of optometrists. Optometry students' passion for the profession and their eagerness to make a difference in the lives of their future patients is both motivating and inspiring.

Something both my leadership roles and time in practice have taught me is that learning is truly a two-way street. One of the most gratifying aspects of liaising with students has been the exchange of ideas. As experienced optometrists, we bring years of clinical expertise and insights gained from navigating various practice and regulatory challenges and advancements in the field. Optometry students, with their fresh perspectives and innate familiarity with evolving technologies, bring a unique contribution to the table. Their fluency in digital tools and comfort with emerging technologies enrich our practices. I find that today's students possess a keen understanding of shifts in clinical practices and cultural nuances, bringing valuable insights that help us stay attuned to the diverse needs of our patients. Through this collaborative exchange, everyone benefits from varied perspectives, ultimately elevating the practice of optometry and enhancing the quality of care we provide to our patients.

When I meet with students, I see future clinicians poised to expand patient-centered care with a nuanced understanding that extends beyond clinical expertise. Today's optometry students recognize the importance of cultural competence, understanding that providing effective care requires sensitivity to the diverse backgrounds and experiences of their patients. They show a deep commitment to inclusivity, striving to make practices truly accessible to all individuals. By integrating these values into the way they approach practice, optometry students are not only shaping the future of eye care but also contributing to a more compassionate and equitable patient experience.

Something that's always impressed me about my colleagues is their passion and commitment to their work and the outsized impact we're able to have as a result. Our numbers may be small in comparison to other health professions, but our collective voice and reach is great. I've seen this time and again both provincially, in successful scope expansion and remuneration negotiations, and federally in our role in realizing national vision policy and support for research in Bill C-284 An Act to establish a national strategy for eye care that is currently moving through the legislative process.

We've also made great strides in raising optometry's profile as with our current insurance industry modernization initiative. We began by educating insurance industry representatives, brokers, and employers on the need to include current diagnostic and monitoring tests/practice in vision care benefits, and now large insurers are reaching out to us for input and recommendations on changes that would make benefits more comprehensive and effective.

As a profession we're able to leverage our strengths through is through collectivism, cooperation, and sharing ideas and perspectives. The CAO Council has a representative from each of the ten provinces, allowing us to share ideas and challenges and determine areas where we can support and learn from each other. But several years ago, we realized we were missing a crucial perspective – that of students! To close this gap and to strengthen our understanding of and connection with optometry students, we created the student representative position on the Council.

We are currently accepting applications for the new student rep for CAO Council. This role has the rep attending Council meetings and the AGM, serving as a representative voice for all optometry students for a one-year term. If you know a student you think would be a good fit or are interested in applying yourself, you can talk to your CAOS chapter. The application deadline is Friday, May 17, 2024.

If you're interested in getting involved in the work of the association but not necessarily in the student rep position, there are plenty of ways to use your voice and ideas. Advocacy training is a great place to start. It doesn't involve a huge time commitment and the training is an online session. From there you may choose to meet with your MP, write to elected officials, submit a letter to the editor of your local paper, or circulate a petition on your social media channels. Being able to advocate clearly and confidently is a valuable skill, enhancing your clinical and practical knowledge.

I also encourage you to join CAO as a Student Member if you haven't already. Membership is free for students, and it connects you with CAO communications through our weekly newsletter, Contact where we provide updates on the work CAO is doing and share news and resources. Student members also get access to special rates and offers on banking programs and home and auto insurance policies, have access to the CAO job board to assist with the search for jobs and internships, and deeply discounted rates for CAO Congress registration. The next CAO Biennial Congress will be held in Halifax in July 2025 and we'd love to see lots of students in attendance!

Recognizing how complimentary and aligned the objectives of CAOS are with CAO's mission, vision, and values, the Council has placed more emphasis on strengthening the ties between the two organizations. The CAO believes in supporting future practitioners and we recognize and celebrate the achievements and contributions of students in several ways. We committed to working more closely with students, in cooperation with optometry schools and student associations as part of our new strategic plan, launched last year. We have in-person events for students at the two Canadian schools and now visit schools in the U.S including NECO, SUNY, ICO, and PUCO as there are significant numbers of Canadian students studying there.

CAO sponsors the White Coat ceremonies at UM and UW. More recently, CAO made the decision to fund an annual CAO Leadership Award, recognizing an exemplary 4th-year student. We are proud of these initiatives but recognize that we may have blind spots. I hope you will take this as an invitation to identify areas where association support would be helpful and occasions where student voices should be heard.

Understanding student's needs and priorities facilitates the development of meaningful offerings and resources as you transition into practice. We welcome students' ideas and feedback, so please reach out at any time to: info@opto.ca.

I am constantly impressed by the enthusiasm, creativity, and dedication of optometry students, and I am grateful for both the chance to support and encourage you and to learn from your ideas and experiences. Witnessing the dedication and passion of optometry students fills me with excitement and optimism about the future of our profession. The knowledge, values, and innovative spirit they bring to the field will ensure the continued advancement of eye care in Canada. Their enthusiasm and willingness to embrace change instill confidence in me that the profession of optometry will continue to thrive and evolve.

To know more about the Canadian Association of Optometrists, please visit our website:
<https://opto.ca/>

Dr. Martin Spiro,
President, Canadian Association of Optometrists (CAO)

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approach to patient care. Being a co-owner at IRIS means having many opportunities and an excellent support system, and it is a truly unique and rewarding experience beyond a career, as one of our young partners, Dr. Ryan Bowser, optometrist, can attest.

"There are three dynamics to a mutually beneficial symbiotic partnership—time, money and knowledge. I rely on IRIS for knowledge quite a bit. If I have an HR question, help is only a phone call away.

If I have a marketing, finance, property management, products or any other question or concern, there are real people on my side ready to help. Not only are there great resources, but it's a 2-way street where I find the team genuinely wants to pick my brain from a clinical perspective, and these ideas often get integrated into new IRIS initiatives. It's cool to be



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As an eye care professional, helping your patients to experience better vision is at the core of who you are. With the industry continuing to evolve at an unprecedented rate, and as the demands on your time increase, imagine having a team with all the tools and expertise behind you that will help keep your practice moving forward while allowing you to maintain a high standard of patient care.

Eric Babin

PRESIDENT

part of a national project, and the scope of impact would be difficult to replicate in a local private practice setting.

There are so many potential roles within IRIS that there is something for everyone. You can help patients locally in a clinic or even get much more involved in the company nationally. My advice to anyone interested is to reach out to their local regional optometric coordinator and start the conversation, as you never know where your journey will lead.”



**Join us
Today!**



OAO PRESIDENT'S MESSAGE

PRÉSIDENT DE L'OAO

**WRITTEN BY : Dr. Josephine Pepe,
President, Board of Directors for the Ontario Association of
Optometrists (OAO)**

**RÉGIGÉ PAR: Dr. Josephine Pepe,
Président, Conseil d'administration de l'OAO**

Dear Students,

I hope this message finds you well as you embark on another academic and clinical year filled with exploration, growth, and the pursuit of excellence. I am delighted to extend a warm welcome to both new and returning students. Your passion for optometry and commitment to advancing eye care make you an integral part of our vibrant and dynamic community.

My name is Dr. Josephine Pepe and I am the President of the Ontario Association of Optometrists (OAO). I received my HBSc from the University of Waterloo in 1994 and went on to graduate in 1998 from the New England College of Optometry. I first became involved with the profession in the early 2000's when I volunteered for the College of Optometrists of Ontario on the Patient Relations Committee, the Complaints Committee and subsequently the Inquiries, Complaints and Reports Committee. Volunteering for those committees made me realize how rewarding it was to give back and to be a cheerleader for the profession. It helped give me the motivation to take the leap to open my own practice. In 2017, I decided to run for the Board of Directors of the Ontario Association of Optometrists. I served both as Governance Chair and on the Executive Committee as Vice-President before taking on the leadership role as President.

Volunteering for the profession, whether it be for a College or Association Committee is rewarding and I encourage you all to get involved in the profession. Becoming a member of your provincial association is crucial to driving the profession forward. Getting involved, attending events and networking with your colleagues helps foster a community of belonging and camaraderie. No one else knows what you deal with each and every day. It is an opportunity to learn and grow from each other, improving our relationships and the care we give to our patients.

I am thrilled to share some exciting developments that showcase the progress and positive trajectory of optometry in Ontario. First and foremost, I am pleased to announce the successful implementation of our new deal with the Ontario Health Insurance Plan (OHIP). This achievement is the result of collaborative efforts from the OAO and optometrists from all across the province. The new OHIP deal may not be perfect, but it is a first step to a new relationship with the Ontario government. We are already seeing a change in the relationship and communication between the two parties with the Ministry of Health now including us as a stakeholder for eye care related initiatives.

The implementation of this deal is a significant milestone, marking a new era in the recognition of optometrists' contributions to the healthcare system. It is a win not only for the profession but, more importantly, for the patients we serve. This accomplishment reaffirms our commitment to fostering a healthcare landscape that values and supports optometrists, empowering them to deliver the highest standard of care to Ontarians.

As we celebrate this success, it is crucial to recognize that our work is ongoing. The OAO remains steadfast in advocating for scope expansion in Ontario. Our profession has real potential to contribute even more to the health and well-being of our communities. By expanding our scope of practice, we can better address the diverse and evolving needs of our patients, positioning optometrists as integral members of the healthcare team in all communities.

You are the future leaders of our profession, and your involvement and advocacy are paramount to shaping the landscape of optometry in Ontario. I encourage each of you to stay informed, engaged, and proactive in advocating for the continued growth and recognition of optometry within our healthcare system.

On a note of great pride and accomplishment, I am thrilled to share the success of our recent Interview Day in Toronto. This event, organized by the OAO, served as a platform to connect new graduates with experienced optometrists from all modalities of practice across Ontario. The overwhelming success of this initiative resulted in the beginning of numerous partnerships that will undoubtedly contribute to the vitality and diversity of optometry practices throughout the province. We are already looking forward to making next year's event an even bigger success.

The Interview Day exemplifies the OAO's commitment to facilitating meaningful connections within the optometric community. It is a testament to our dedication to supporting new graduates as they embark on their professional journeys and ensuring that experienced practitioners have access to the talent needed to continue providing exceptional eye care services.

As you progress through your studies, I encourage you to explore the various opportunities and challenges that the optometric field presents. Our profession is continuously evolving, and your innovative ideas, fresh perspectives, and enthusiasm are essential in propelling us forward.

In closing, I extend my sincere congratulations to all of you for choosing the noble path of optometry. The future is bright, and I am confident that each of you will contribute to the continued success and growth of our profession. Should you have any questions, ideas, or concerns, please do not hesitate to reach out to the OAO. We are here to support you on your journey and to champion the advancement of optometry in Ontario.

This is why we believe that no matter where you choose to ultimately practice, it is critical that you join your provincial/state association. No one else will advocate for the profession on your behalf.

Wishing you a fulfilling and successful remainder of your academic year.

Warm regards,



Dr. Josephine Pepe

President, Board of Directors for the Ontario
Association of Optometrists

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AÉOUM MESSAGE

MESSAGE DE L'AÉOUM

Expanding Horizons: Embracing the integration of lasers in Optometry

Explorer de nouveaux horizons : À la découverte des lasers en optométrie

WRITTEN BY: CAOS - Montreal

RÉGIGÉ PAR: ACÉO - Montréal

The world of optometry is undergoing a remarkable transformation, with advanced procedures poised to reshape the scope of our practice. As students, it's important for us to grasp the significance of this shift and actively engage with the opportunities it presents.

Traditionally, optometry has focused on vision correction and first-line eye care. However, due to shifting healthcare paradigms, this landscape is evolving rapidly. In the United Kingdom, New Zealand and numerous jurisdictions in the United States, optometrists have been granted the ability to perform a wide range of minor procedures once reserved for ophthalmologists, such as laser peripheral iridotomy, selective laser trabeculoplasty (SLT), and YAG laser capsulotomies. This expanded scope of practice is on its way to extend to Canada, with considerable efforts underway, particularly in Alberta and parts of the Maritimes.

The potential integration of these advanced procedures holds promise for enhancing patient care and expanding the role of optometrists. Techniques like SLT and IPL offer effective avenues for glaucoma management, while laser capsulotomies address a common complication of cataract surgery. By allowing optometrists the ability to perform additional procedures within their expertise, the government can ensure that citizens receive safe,

Le monde de l'optométrie est en train de connaître une transformation remarquable, avec des procédures avancées prêtes à remodeler le champ de notre pratique. En tant qu'étudiants, il est important pour nous de saisir l'importance de ce changement et de nous engager activement avec les opportunités qu'il présente.

Traditionnellement, l'optométrie s'est concentrée sur la correction de la vision et les soins oculaires de première ligne. Cependant, en raison des paradigmes de soins de santé changeants, ce champ évolue rapidement. Au Royaume-Uni, en Nouvelle-Zélande et dans de nombreuses juridictions aux États-Unis, les optométristes se sont vu accorder la possibilité d'effectuer toute une gamme de procédures mineures autrefois réservées aux ophtalmologistes, telles que l'iridotomie périphérique au laser, la trabéculoplastie sélective au laser (SLT) et les capsulotomies au laser YAG. Cette extension de la portée de la pratique est sur le point de s'étendre au Canada, avec des efforts considérables en cours, notamment en Alberta et dans certaines parties des Maritimes.

L'intégration potentielle de ces procédures avancées promet d'améliorer les soins aux patients et d'élargir le rôle des optométristes. Des techniques telles que la SLT et l'IPL offrent des voies efficaces pour la prise en charge du glaucome, tandis que les capsulotomies au laser traitent une complication courante de la

timely and comprehensive eye care services. This would be especially beneficial for patients in remote or underserved areas, who often face challenges in accessing specialized healthcare. Empowering optometrists to practice to the full extent of their education and training would be a significant step forward in addressing these healthcare disparities.

As optometry evolves, we must adapt our approach to education and training. Many schools are beginning to incorporate these advanced procedure trainings into their curricula. Schools in Canada and the States are pioneering this movement, offering theory-based courses as well as lab sessions so that students can gain hands-on experience with these procedures. However, for those institutions that have not yet integrated these courses, post-graduate certification programs offer an alternative pathway for optometrists to acquire the necessary skills. By pursuing certification, we position ourselves as competent providers of advanced eye-care services. Regardless of whether these procedures are part of your curricula, as a student, it's worthwhile to broaden your perspective beyond the classroom, and learn about these emerging trends in optometry. Despite the initial sense of complexity that surrounds laser techniques, they often prove to be much more approachable than expected. With a bit of exploration and hands-on experience, the often-cloudy uncertainty surrounding these procedures often fades; surprisingly these procedures tend to be much more easy, simple, and practical to apply in clinic than initially anticipated. By staying informed, we can cultivate excitement for the innovations shaping our field and advocate for enhanced educational opportunities to engage with these new clinical avenues.

There are opportunities for growth that lie ahead. While these techniques are not yet standard practice, their potential inclusion underscores the evolving role of optometry in patient care. I encourage students to seek out these educational opportunities and support initiatives aimed at expanding our role. As aspiring optometrists, our commitment to understanding and advocating for these advancements will be essential in shaping the future landscape of our profession.

chirurgie de la cataracte. En permettant aux optométristes la capacité d'effectuer des procédures supplémentaires dans leur domaine d'expertise, le gouvernement peut garantir que les citoyens reçoivent des services de soins oculaires complets, sûrs et opportuns. Cela serait particulièrement bénéfique pour les patients des zones éloignées ou mal desservies, qui rencontrent souvent des difficultés d'accès aux soins de santé spécialisés. Donner aux optométristes les moyens de pratiquer selon l'étendue totale de leur éducation et de leur formation serait un pas significatif dans la résolution de ces disparités en matière de soins de santé.

À mesure que l'optométrie évolue, nous devons adapter notre approche à l'éducation et à la formation. De nombreuses écoles commencent à intégrer ces formations aux procédures avancées dans leurs programmes. Les écoles au Canada et aux États-Unis sont à l'avant-garde de ce mouvement, proposant des cours théoriques ainsi que des séances de laboratoire afin que les étudiants puissent acquérir une expérience pratique de ces procédures. Cependant, pour les institutions qui n'ont pas encore intégré ces cours, des programmes de certification post-universitaire offrent une voie alternative aux optométristes pour acquérir les compétences nécessaires. En poursuivant la certification, nous nous positionnons en tant que prestataires compétents de services de soins oculaires avancés. Que ces procédures fassent ou non partie de vos programmes, en tant qu'étudiant, il est utile d'élargir votre perspective au-delà de la salle de classe et d'apprendre sur ces tendances émergentes en optométrie. Malgré le sentiment initial de complexité qui entoure les techniques au laser, elles se révèlent souvent beaucoup plus abordables qu'initialement prévu. Avec un peu d'exploration et d'expérience pratique, l'incertitude qui entoure ces procédures s'estompe souvent ; étonnamment, ces procédures ont tendance à être beaucoup plus faciles, simples et pratiques à appliquer en clinique que prévu initialement. En restant informés, nous pouvons cultiver l'enthousiasme pour les innovations qui façonnent notre domaine et plaider en faveur de opportunités éducatives pour s'engager dans ces nouvelles voies cliniques.



Des opportunités de croissance se profilent à l'horizon. Bien que ces techniques ne soient pas encore une pratique standard, leur inclusion potentielle souligne le rôle évolutif de l'optométrie dans les soins aux patients. J'encourage les étudiants à rechercher ces opportunités éducatives et à soutenir les initiatives visant à élargir notre rôle. En tant qu'optométristes en devenir, notre engagement à comprendre et à plaider en faveur de ces avancées sera essentiel pour façonner le paysage futur de notre profession.

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MOUNTAINS BEYOND OCEANS: A REFLECTION PIECE

By/Par Adrianna Warren
1st Year Optometry Student

Is there any greater natural boundary than an ocean? Perhaps a mountain range? Canada's natural boundaries are stunning features that can inspire and challenge us. What about the smaller barriers, like waterways, weather, road access, or simply the burden of distance? What does access to eye care look like for folks who live on the other side of these barriers? How do our experiences with these boundaries shape our lifestyles and worldviews? These are some of the questions that inspired me throughout the completion of a Master's in Vision Science. I share this article as a tip-of-the-iceberg reflection on an educational adventure that brought me from coast to coast to coast – from the Atlantic Ocean to the Pacific Ocean and up to a channel of the Arctic Ocean.

I am from the island of Newfoundland, so the ocean is the boundary that I know best. A boundary so big that it was once believed that Newfoundland marked one of the edges of the world (there is actually a flat earth museum in Newfoundland – Google it). It is impossible to enjoy the relative isolation of where you live without acknowledging the challenges that come along with it, including existing challenges in access to eye care. I decided to explore this further through a research project looking at eye care access for communities without road access in Labrador. While rooted in the soils of the East, I was lucky to find an opportunity to up-root myself and take this work a step further.

And so, I crossed the ocean. I headed to Ontario to start my master's at the School of Optometry. More specifically, my thesis was focused on studying access to eye care by means of outreach optometry, where optometrists travel to provide eye care in rural areas outside of their primary clinic locations. Through my mixed-methods research project, I chatted with optometrists from across the country to celebrate the impressive outreach efforts that our profession does, and to characterize the challenges that come with it.

My favourite interviews captured stories of connections between the optometrists and the communities they visit, or stories of successful patient outcomes from being in a rural community at the right time to see a patient with urgent eye care needs. Sharing these stories has invited continued conversation around optometry outreach, which has potential to lead to improved services and improved access as a result. Professionally, optometry is seeing beyond the boundaries.

In completing this work, I was lucky to have had exciting travel opportunities. Next, I crossed the mountains for my first time out west. When I landed in Vancouver, I couldn't help but laugh at the size of the trees that looked like giant versions of the boreal forest I know from home. The waves of the Pacific Ocean felt familiar but seemed so much less aggressive than the waves of the Atlantic. Some time after that, I crossed the distance of the mainland and landed in Churchill, Manitoba. My first time in Manitoba. My first time on a 6-seater charter flight. I got to witness the "three B's" of the polar bear capital of the world: bears, (aurora) borealis, and belugas. I got a taste of the Arctic Ocean in the Hudson's Bay. The tundra of Churchill feels just like the windswept pine trees on the rugged coasts of Newfoundland, where we also share many of the same wildflowers and wild berries. Through work and play, this great adventure helped me realize that life and landscape beyond my island bubble is not so different. Everything connects back to home, and anywhere can feel like home. I've found myself seeing beyond these boundaries in a personal sense, too.

As students and future optometrists, we have the incredible opportunity to experience the range that Canada has to offer, while making significant impacts on access to eye care. Therefore, I encourage other optometry students to consider rural clerkships, consider practicing in a rural location, or just to adventure somewhere in the country that you've never been. Cross the ocean, pass the mountain, go the distance.

VISION BEYOND BORDERS: A JOURNEY OF COMPASSION AND CONNECTION

By/Par Hellen Xu

4th Year Optometry Student

In the heart of Africa lies Malawi, a country known for its stunning landscapes and warm-hearted people. But behind the natural beauty lies a harsh reality – many Malawians lack access to basic healthcare, including eye care. As an optometry student, I had the privilege of participating in a mission trip to Malawi with Volunteer Optometric Services to Humanity (VOSH) in the Summer of 2022 to provide eye exams and glasses to underprivileged communities that lacked access to basic healthcare services. Little did I know, this experience would not only test my clinical skills but also teach me valuable lessons about transcending cultural and language boundaries in the pursuit of compassionate care.

The journey began with excitement and anticipation as our team of students and optometrists boarded the plane bound for Lilongwe, Malawi's capital city. Upon arrival, we were greeted by the vibrant sights and sounds of Africa, but also by the stark contrast between privilege and poverty. It was a humbling reminder of the disparities that exist in our world and the importance of our mission. Our first stop was a rural village nestled in the countryside, where we set up our makeshift clinic at a local school. As we began conducting eye exams, it became clear that we would face challenges beyond the usual refractive errors and vision impairments. Many of the patients spoke Chichewa, the local language, which none of us were fluent in. Despite this, we were determined to find a way to communicate effectively. With the help of local translators who spoke broken English, we learned basic phrases and gestures to convey our intentions and instructions. It was humbling to see how something as simple as a smile or a nod could form a connection and bridge the gap between us and our patients.

Despite these challenges, the impact we were able to make was immeasurable. We provided eye exams to hundreds of people, many of whom had never received proper eye care before. I will never forget the look of joy and gratitude on the faces of those who received a simple pair of readers for the first time and could see the world within an arm's length clearly again. One particular encounter stands out in my memory – a young girl who had been struggling with poor vision for years. Through a translator, she shared her struggles with us, explaining how her poor eyesight had hindered her ability to learn in school. After conducting a thorough exam, we presented trial lenses in the prescription we found in front of her. Her face immediately lit up with joy and amazement as she expressed her gratitude for the opportunity to receive an eye exam and a pair of glasses that would transform her life. In moments like these, it became clear that

our mission went beyond providing eye care. It was about looking beyond boundaries – cultural, linguistic, and geographical to restore hope, dignity, and opportunity to those who had been marginalized by poverty and lack of access to healthcare.

My experience in Malawi taught me that true compassion knows no bounds. Despite the challenges and obstacles we faced, the gratitude and resilience of the Malawian people were overwhelming and rewarding. Patients traveled for miles on foot to reach our clinic, with smiles and expressions of thanks that spoke volumes. By transcending cultural and language barriers, we were able to provide much-needed care to a community that had limited resources. This experience reaffirmed my belief in the power of our profession to change lives, instilling a renewed commitment to continue my work back home. Regardless of our origins or the obstacles we encounter, we all share a common humanity and a responsibility to look beyond boundaries to create a positive impact on those we serve.

UNTITLED

By/Par Jeremiah Hyslop
2nd Year Optometry Student

From my apartment, I can see for many miles. The sunsets are incredible and the autumn colours are even more impressive. Outdoor skating rinks are abundant and opportunities to play organized sports are plenty. Concert announcements are frequent and the restaurant scene is diverse. When my windows are open, the sounds of Blue Jays and Northern Cardinals brings an exotic magic into the room.

More importantly, I am on the path to my future career and have befriended strangers from across this great nation. These are some of my favourite parts of living in the Kitchener-Waterloo area and studying optometry. Despite these tremendous gifts, it took me a long time to feel like home. I'm from the subjectively small city of West Kelowna in BC's southern interior. Having lived there for 20 years, I started to take everyday gifts for granted.

From the house that built me, I could see mountains out of any given window. The sunsets weren't anything special, but the hikes to the tops of mountains more than made up for it. Autumn was far from colourful, but the comparatively mild winters were a relief. There was 1 outdoor rink within an hour's drive, but there were more than 100 lakes within the same distance. Organized sports were average, but outdoor sports were spectacular. Walks in nature beat any concert, and the owner of my favourite restaurant back home welcomed me by name. Although we don't have Blue Jays nor Northern Cardinals, the plethora of other wildlife was enough to attract folks from all over. I couldn't progress to my career goals back home, it is true. However, I did have a supportive family and two Shih Tzus who were my biggest fans to greet me with unconditional love every time I walked through the front door. To many, that region of the province is a tourist destination. To me, it is, and always will be, home. Suffice to say, I was homesick every day for the first year after relocating to Ontario. It's amazing how easy it is to focus on the old, comfortable, and familiar past. I learned how easy it is to miss out on new opportunities while being sad that former opportunities were no longer available.

Eventually, I began to appreciate the much different lifestyle that southern Ontario offered and began to truly realize my purpose in life as a future optometrist. I am now beginning to truly enjoy life out here, and even my schoolwork despite the constantly growing mountain of homework. Practicing clinical techniques is far more fascinating than most of my favourite pastimes. Although my Waterloo chapter is a necessary step in reaching my goals, it has finally become a fun step!

Home will always be home for me. Despite the problems and disadvantages that exist there, a recognizable lens of bias will always make the grass look greener. I know that I will be returning to BC after graduation. That will be the beginning of my next chapter where I can give back to my home community and the reserves where my Indigenous relatives live. Until then, I look forward to making the most of the opportunities that exist in Waterloo!

To anyone who, like me, is considering a career in optometry but is hesitant because of the distance from family and familiarity, I ask you to give that dream a chance. Sure, the journey will have uncomfortable parts. However, I have been told the end-goal will be worth it, and I know for a fact that the journey will create life-long happy memories. Best of luck to all my fellow future optometrists!

LOOKING BEYOND THE DESTINATION

By/Par Wincy Chung
4th Year Optometry Student

The annual volunteer optometric mission trip in the summer between second and third-year was renowned amongst students to be an incredible opportunity and experience; it was one of the driving factors behind my decision to participate. Yet, as the departure for the summer mission drew near, a cloud of doubt and insecurities began to shadow my excitement. The rigor of second year in the optometry program had lived up to its notoriety; mastery felt all the more unattainable with every introduction to a new technique and disease. By the time we arrived in the Philippines, I felt like an imposter amongst my eager colleagues, and it was only a matter of time before I would be exposed as a fraud.

My perspective began to dramatically shift following an encounter with a particular patient. Tasked with performing retinoscopy on a toddler with torsional nystagmus and a restriction on right gaze, I faced what felt like an insurmountable challenge as an optometry student that had just finished second year. Retinoscopy was a technique I was struggling with since the beginning and here I was, in a tent, outside, in 30-degree Celsius, about to perform the technique on not only a toddler, a first for me, but one with torsional nystagmus. It was daunting to say the least and I was filled with doubt as I trial-framed my retinoscopy results. To my surprise, upon putting on the trial-frame, their pursuits were smooth and accurate on right gaze. I rushed over to show the supervising doctor. I felt a strong pat on my back as he grinned from ear to ear, pointed at me, and said, “You changed this kid’s life.” I was taken aback, for this “kid” had also changed mine. Despite all my doubts over my knowledge and skills, I had managed to make an impact on a person’s life with a technique I felt so weak in. The recognition and praise from a mentor like my supervisor that I had very quickly grown to admire and respect, allowed me to build more self-confidence and reinvigorated my passion and drive for optometry. It was a small feat that meant everything at the time.

Returning home, my initial reflection remained unchanged: there was still much to learn. Despite drawing the same conclusion prior to my trip to the Philippines, my mindset could not be any more different. No longer confined by self-imposed boundaries, I saw that being a great optometrist is not about reaching a destination but embarking on an endless journey of learning and self-improvement. Greatness, I realized, knows no bounds.

As I navigate through my fourth-year rotations, the specter of inadequacy occasionally resurfaces. I use this memory in the Philippines as a beacon, reminding me of my capabilities and reinforcing my resolve to push beyond my comfort zone. This commitment to personal and professional growth fuels my enthusiasm for what lies ahead. I will forever be grateful for that patient and supervisor whose influences have indelibly shaped my path as I continually work towards becoming a better optometrist than the day last.

“LIMITLESS” ILLIMITÉ

By/Par Cara Aitchison

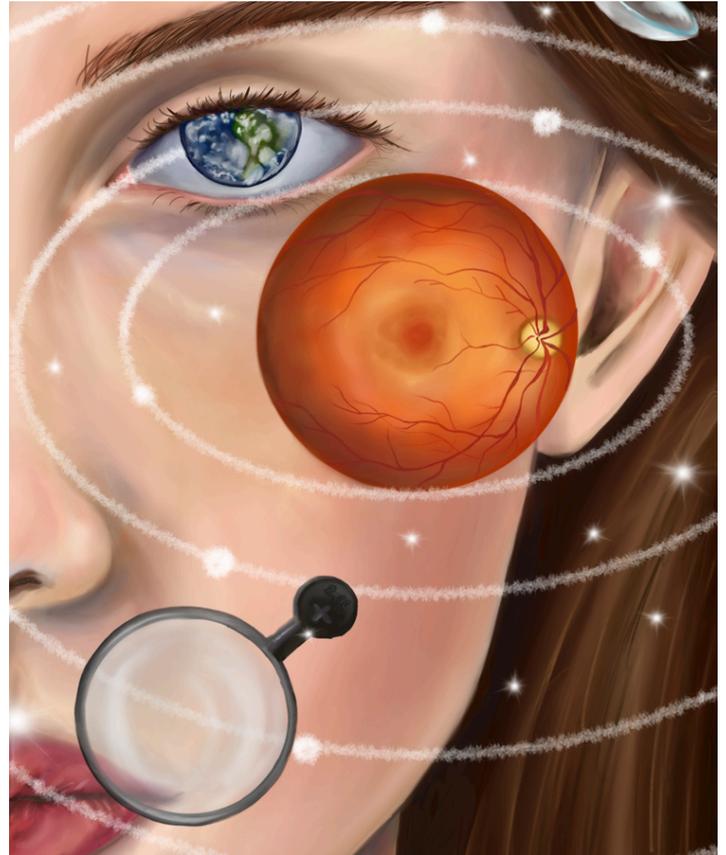
2nd Year Optometry Student / Étudiante de 2 année en optométrie

It is hard to be a good optometrist. It requires constant learning, adapting, caring, and trying. It is especially hard to be good when there are boundaries in the way. When a patient does not adhere to our treatment, we often blame the individual. Yet, the most pressing boundaries faced in optometry are often those that we don't see unless we look for them: the greater systemic issues affecting all of healthcare.

One patient simply cannot afford treatment because of wealth inequality and increasing financial barriers to care. Another patient has a deep mistrust of clinicians, stemming from the long and continuing history of racism in healthcare. Language barriers exist for many patients, while other patients have never had a practitioner be mindful of their beliefs and values during treatment. Regardless of the boundaries a patient might experience, we can help bridge these gaps in eye care. If we acknowledge and look for the boundaries affecting our patients, we

can start looking beyond boundaries too, and work towards fundamentally changing the systems that perpetuate barriers to ocular health and vision care.

My piece was inspired by the limitless potential and wealth of unique human experience that exists in each person. The solar system integrated with a person's eye represents changing our perspectives, finding the space to learn and grow from our patients, and working toward a future of optometry without boundaries.



SEEING BEYOND THE EYES

VOIR AU-DELÀ DES YEUX

By/Par Jordyn Matthews

1st Year Optometry Student / Étudiante de 1 année en optométrie



Imagine you are waiting for a checkup, feeling stressed about the missed calls from your mom and hoping the bank approves your mortgage renewal. Next to you, a dad is worried about his daughter who hasn't quite mastered double-digit addition. He hopes her solution is a new pair of glasses.

The scene seems very ordinary; a patient is immersed in the shared silence of a waiting room. However, in this routine event, there is an abundance of novelty in each person's perspective. The artwork asks us to intentionally look at our patients beyond a clinical gaze.

Sonder, the realization that every individual around us leads lives as intricate as our own, is a guiding force behind this piece. It prompts us to side towards empathy and to be mindful of the diverse feelings and the stories of each patient. Our approach should be considerate while also professionally adapting

to patients' circumstances. This realization reminds us to make optometry about caring for both the eyes and those behind the eyes.

“CLINIC IS MORE COMPLICATED THAN I THOUGHT...”

By/Par Sandra Nguyen

2nd Year Optometry Student / Étudiante de 2 année en optométrie



Our patient cases don't match what we learned in class.

It's tough, learning to become optometrists. There are so many diseases and conditions. We've learned the basics of eye anatomy. We've split the eye into its anterior and posterior segments. We've drawn charts and diagrams to make sense of it all, grouping various signs and symptoms and risk factors together to form a bigger picture. On top of it all, we've put all of these conditions into categories so that we can find the best branch of treatments for our future patients.

The thing is, while we're trying to build up our knowledge of ocular health, we're constantly dividing what we know into segments. We're constantly marking out boundaries to know what separates one disease from another, but patients don't come with clear markings that we can simply match. They come

with colourful and complex backgrounds and the problems that they are living with are nestled inside. With these complex interactions, the boundaries that we have marked out are blurred.

Or are they?

I believe that the boundaries we have drawn are an important framework for diagnosing and treating diseases, but it's just that: a framework. To be able to truly treat our patients well, we have to look beyond the boundaries we drew and add “colour” to it. Add in the patient's perspective, their needs, their reactions, and their hopes from their treatment. The best thing for one patient may not be the best for another, and that is okay.

We want to help our patients in a way that fits their life, not just treating the diseases. The task seems daunting, but it's an art. We will master it through practice and experience, and together, we'll give colour back to our patients' lives.

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Dr. Maureen Oyaide-Ofenor's Blueprint For Independent Eyecare Excellence

In the world of eyecare, where the personal touch can get lost in the hustle and bustle, OSI Group Member Dr. Maureen Oyaide-Ofenor stands out as a beacon of inspiration. Her journey to founding an independent clinic in Walkerton, Ontario, is a showcase of personal tenacity and commitment to community.

Dr. Oyaide-Ofenor's professional odyssey began at the University of Benin, Nigeria, where she earned her Doctor of Optometry (OD). She next honed her skills in a military hospital in Lagos and in private practice before embarking on further education in Canada. At the University of Waterloo, she pursued a Masters in Vision Science, complemented by an externship in Calgary under Dr. Ian Campbell Associates.

From early on, the allure of career independence compelled her, "I knew I wanted my own practice. Back in Nigeria, that's what was popular...I wanted to choose who would work for me or with me." Shortly after the birth of her child, Dr. Oyaide-Ofenor acquired an existing clinic and transformed it into Vine Eye Care. Indeed, the move, as exciting as it was, wasn't without challenges. The absence of an optician had Dr. Oyaide-Ofenor fulfilling multiple roles. As she puts it, "My family had to understand I would likely miss dinner."

Vine Eye Care Clinic

The situation was compounded by the clinic's rural location, making recruitment difficult. Over time, though, these challenges were overcome by strategic planning and digital strides. Most notably, Dr. Oyaide-Ofenor benefitted from an online matching program for recruiting licensed opticians.

In fact, being in a rural setting lent itself to a fruitful collaboration. She expresses how the bond she developed with a newly relocated ophthalmologist may not have been possible in a different setting: "[Here], we can actually get to know each other. We're not lost like we'd be in the city."

Having planted her roots, Dr. Oyaide-Ofenor next decided to expand her offerings as an accredited vision therapist. The move allowed her to market a new specialization to local professionals, further establishing her reputation in the area. Embracing a collaborative approach to treatment, she connected with a broad network of healthcare providers ranging from massage therapists to neurologists. In addition, the specialization allowed her to expand services from children to adults suffering from traumatic brain injuries.

Thanks to Dr. Oyaide-Ofenor's adaptability and innovation, we see how independent optometry offers a path rich with possibilities for professional growth. "Don't be nervous," she advises new graduates, "it's going to be intimidating and scary, but it pays off in the end. And, of course, joining OSI allows you to reach out to mentors like me, here to help as you transition into your new career."



Ocular Hypertension in a Patient with Patent Peripheral Iridotomy

Uzuana Kodi

University of Waterloo Optometry, Class of 2024

Abstract:

Ocular hypertension (OHTN) is defined as abnormally high intraocular pressure (IOP) without evidence of glaucoma-related optic nerve damage or visual field loss. Here, we present a case of a 51-year-old Hispanic male with a history of recurrent corneal erosion and laser peripheral iridotomy who was diagnosed with OHTN. Intraocular pressure was 30mmHg in the right eye and 26mmHg in the left eye, gonioscopy assessment posed a challenge due to anxiety stemming from a previous experience of recurrent corneal erosion (RCE) flare-ups following the procedure, along with an increase in intraocular pressure after pupil dilation. An initial diagnosis of suspected narrow angles was made but subsequent examination confirmed a diagnosis of ocular hypertension, and this was managed using topical ocular hypotensive medication to reduce IOP and minimize the risk of glaucoma progression. This proves patent laser iridotomy does not always indicate lower IOPs and isn't always a ticket for dilation. It is critical for practitioners to monitor IOPs in patients with a history of narrow angle.

KEYWORDS: Ocular hypertension, Laser peripheral Iridotomy, recurrent cornea erosion

Introduction

Ocular hypertension is a condition characterized by elevated intraocular pressure without evidence of optic nerve damage or visual field loss. It is a significant risk factor for the development of primary open-angle glaucoma (POAG) and can lead to irreversible vision loss if left untreated.

Prompt diagnosis and appropriate management are essential to prevent glaucoma-related complications. According to studies, 58.1% of patients with acute primary angle-closure (PAC) who underwent laser iridotomy continued to experience elevated intraocular pressure (IOP), and 32.7% eventually needed trabeculectomy. This case report discusses the challenges in diagnosing a patient with elevated IOP despite patent PI with a history of RCE and highlights the importance of considering the risk-to-benefit ratio when selecting diagnostic tests and managing ocular hypertension.

Case Report

A 51-year-old Hispanic male with a past medical history of recurrent corneal erosion presented at the clinic for a comprehensive eye examination. The patient was first seen at the clinic five years ago with an initial intraocular pressure (IOP) of 24mmHg in the right eye and 23mmHg in the left eye. Gonioscopy revealed moderately narrow angles in both eyes and the patient subsequently underwent prophylactic YAG laser peripheral iridotomy (LPI) in both eyes. Follow-up examinations showed persistently elevated IOP of approximately 22mmHg and 23mmHg pre-dilation and a significant IOP spike of 32mmHg in both eyes post-dilation.

A glaucoma work-up was completed at the last eye exam three years post LPI, with angles open to ciliary body 360 on gonioscopy, visual fields 24-2, optic nerve, and macular OCT which revealed no glaucomatous damage. However, the gonioscopy procedure triggered recurrent cornea erosion episodes which were managed with hypertonic ophthalmic solution (Muro 128 ointment).

On presentation, the patient complained of a non-resolving lump on his right lower lid. Notably, no history of eye pain or headache was reported. Uncorrected visual acuity was measured at 20/20 in the right eye and 20/15 in the left eye. His general health history was significant for hypertension (HBP) and benign prostatic hyperplasia managed with water Hydrochlorothiazide, Telmisartan, and Tamsulosin. Ocular history was significant only for primary angle closure suspect OU with LPI bilaterally.

Pupils were equal, round, and reactive to light without a relative afferent pupillary defect, and there were no limitations in extraocular eye muscle movements in any direction. Chalazion was observed on the right lower lid on slit lamp examination. Additionally, anterior segment examination revealed narrow angles with the iris appearing bowed on Van Hericks, patent peripheral iridotomies, and a clear lens OU. However, gonioscopy was attempted but not successfully attained due to severe anxiety. Intraocular pressure (IOP) measured with Goldmann tonometry was 30mmHg in the right eye and 26mmHg in the left eye, this was rechecked at the end of the exam and confirmed to be the same.

Given the elevated intraocular pressure and shallow angles on Van Herick, dilation was deferred. Undilated posterior examination revealed no signs of glaucomatous damage or drance hemorrhage in either eye, with a cup-to-disc ratio (CD/R) of 0.30/0.30 in the right eye and 0.25/0.25 in the left eye. All other undilated examination findings were unremarkable. Based on these results, the patient was diagnosed with suspected narrow angles with differential diagnosis including ocular hypertension, primary angle closure suspect, plateau iris syndrome, and primary open-angle glaucoma (POAG); and a non-urgent referral to an ophthalmologist for further examination was made.

On follow-up with the ophthalmologist, the angles in the right eye were found to be TM (superior), TM (nasal), SS (inferior), TM (temporal), and in the left eye TM (superior), TM (nasal), SS (inferior), SS (temporal). Intraocular pressures were measured at 23mmHg in the right eye and 24mmHg in the left eye using applanation tonometry. Central cornea thickness (CCT) was recorded as OD: 555microns and OS: 541microns and dilated fundus examination showed a CD/R of 0.30 in both eyes, without signs of glaucomatous damage. Visual field 24-2 and OCT of the nerve and macula assessments were normal and Lumigan once a day at bedtime was prescribed. The angles were deemed open but not open enough for Selective Laser Trabeculoplasty (SLT) and a follow-up appointment was scheduled in 4 months for repeat glaucoma testing.



Fig 1: Fundoscopic examination revealed no glaucomatous damage in the right eye.



Fig 2: Fundoscopic examination revealed no glaucomatous damage in the left eye.

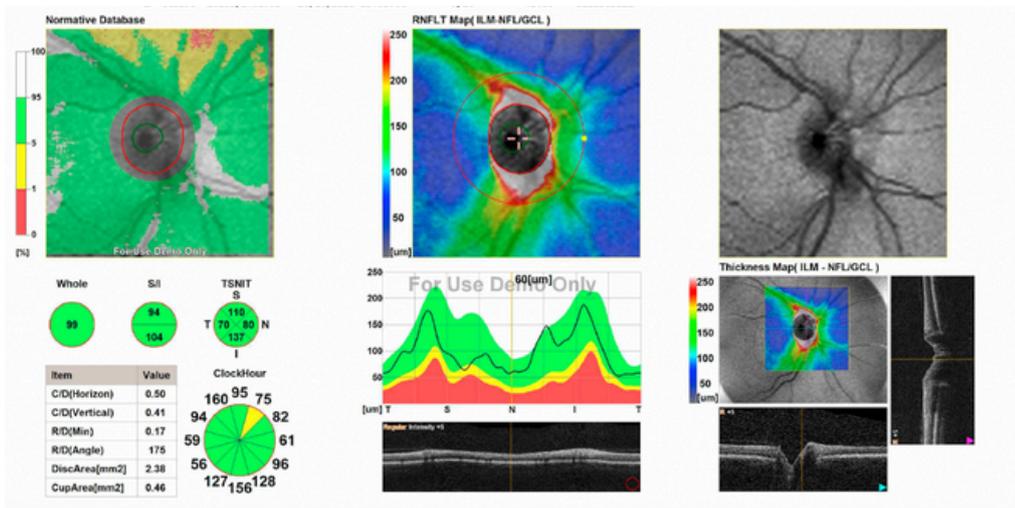


Fig 3: RNFL OCT of the right eye

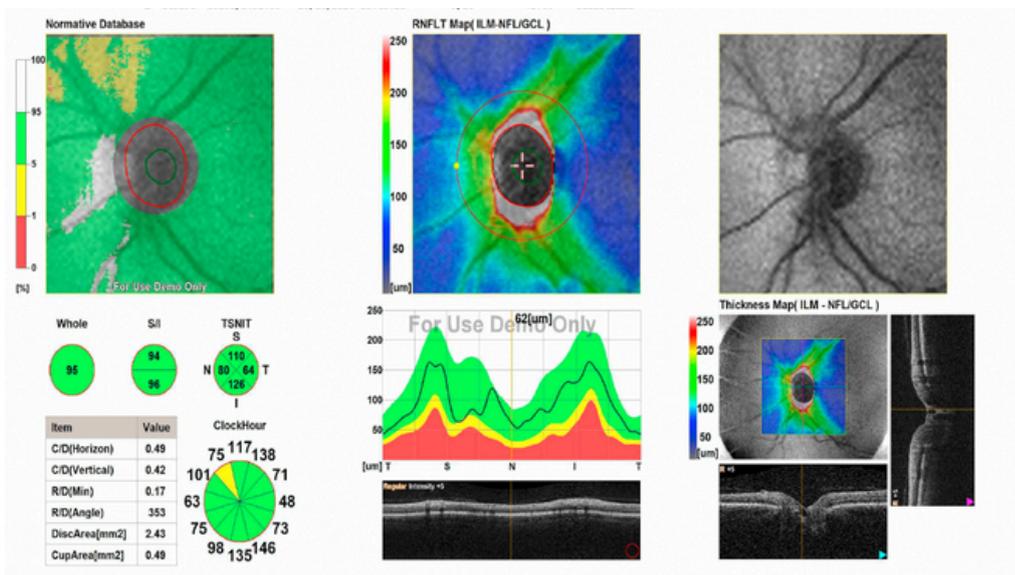
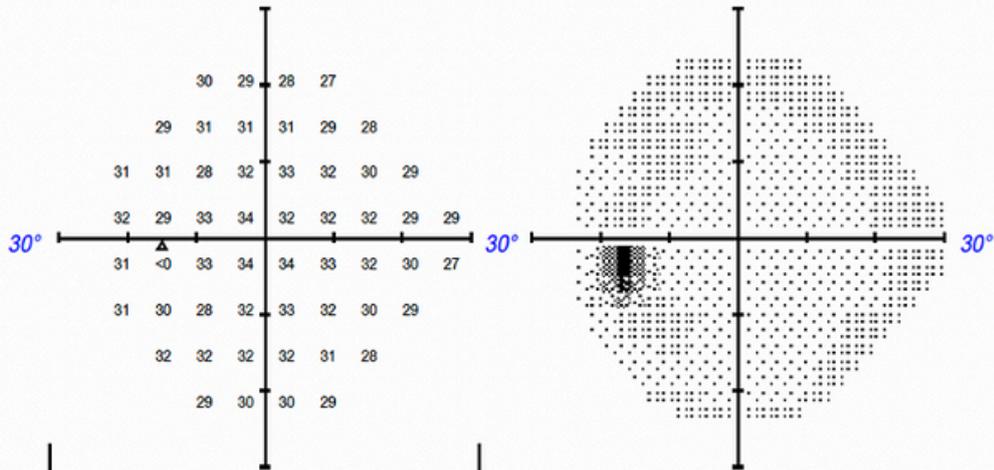


Fig 4: RNFL OCT of the left eye

Fixation Monitor: Gaze/Blind Spot
 Fixation Target: Central
 Fixation Losses: 3/14 XX
 False POS Errors: 2%
 False NEG Errors: 0%
 Test Duration: 05:08
 Fovea: Off

Stimulus: III, White
 Background: 31.5 asb
 Strategy: SITA-Standard
 Pupil Diameter:
 Visual Acuity:
 Rx: +4.50 DS -1.75 DC X 72



3	1	0	-1
1	1	1	1
2	1	-3	1
2	1	1	0
1	1	1	1
1	-1	-4	-1
1	0	0	0
-1	0	0	0

Total Deviation

1	0	-1	-2
-1	0	0	0
0	0	-4	-1
0	-1	0	-2
-1	0	0	0
-1	-3	-5	-2
0	-1	-1	-1
-2	-1	-1	-2

Pattern Deviation

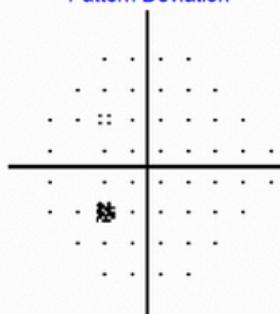
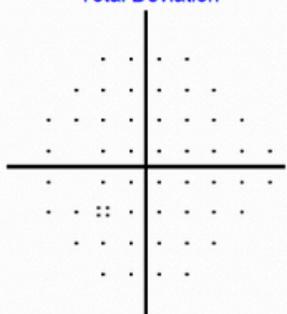
GHT: Within Normal Limits

VFI: 100%

MD: 0.20 dB

PSD: 1.19 dB

*** Low Test Reliability ***



- ::: P < 5%
- ⊠ P < 2%
- ⊞ P < 1%
- P < 0.5%



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Fig 6: VF 24-2 of the left eye

Discussion

Patients diagnosed with narrow angles are at a higher risk of developing closed-angle attacks, particularly in a mid-dilated state, as such it can be prudent to perform a prophylactic iridotomy. This was the case in our patient but despite a patent peripheral iridotomy, significant IOP spikes from ~23mmHg to as high as 32mmHg OU post-dilation were recorded. This was further complicated due to difficulty attaining gonioscopy findings caused by severe anxiety given significant history of recurrent cornea erosion flare-ups triggered by gonioscopy technique.

Although, gonioscopy remains the gold standard for angle assessment because of its ability to assess the angle 360° vs. small cross-sections on OCT which does not depict the full picture, the utilization of ultrasound biomicroscopy (UBM) or AS-OCT would have been helpful to rule out narrow -angles and plateau iris syndrome due to the patient's inability to tolerate the procedure but unfortunately, we did not have access to this. Patency is also best confirmed by direct visualization with AS-OCT/UBM as opposed to transillumination because even a non-patent iris can transilluminate. Although visualizing the anterior lens capsule through the iridotomy opening by slit-lamp examination is necessary to confirm the patency, it may be difficult for some patients with a small iridotomy opening. In addition, transillumination can be misleading regarding patency. Therefore, cross-sectional images obtained using AS-OCT might be helpful to confirm the precise condition of iridotomy in those patients.

In the absence of AS-OCT/UBM, the 3-mirror is better suited compared to the 4-mirror gonio lens in patients with epithelial basement membrane dystrophy (EBMD) and RCE. The lens is designed to completely vault the globe with the viscous solution acting as an interface to reduce the risk of abrasion.

A prophylactic laser peripheral iridotomy (LPI) creates a communication channel between the anterior chamber and the posterior chamber, which is extremely important when pupillary block is a possibility. Plateau iris syndrome is present when the angle closes and the IOP rises after dilation, despite a patent PI, and in the absence of phacomorphic glaucoma. The identification of the double hump sign on indentation gonioscopy is crucial in diagnosing plateau iris. This sign is characterized by the iris draping over the lens and anteriorly near the pupil, then falling back over the zonular area, and finally moving forward and appositional in the angle. However, detecting this predisposing anatomy can be challenging.

Teichmann et al reported that 35% of patients did not have a significant opening of their angle after PI and 28% of patients may still go on to develop angle closure after PI. This was attributed to other mechanisms at play in a significant number of patients, including plateau iris and lens-related iris rotation. Another literature review showed that one year after LPI, >80% of PACS had gonioscopic residual angle closure, and patients with residual angle closure after LPI tend to have greater baseline lens vault, a higher baseline IOP, and larger baseline iris volume.

Another factor to consider in IOP increase after dilation with 1% cyclopentolate, 1% tropicamide, and +/- 2.5% phenylephrine, is its association as a risk factor for primary open-angle glaucoma. A retrospective study showed post-dilation elevation of ≥ 6 mmHg in 2% of normal eyes and 24% of OAG patients. The mechanism is not known, though it appears to be related to pigment release (therefore seen in pigmentary dispersion and pseudoexfoliation, as well as OAG), although it is more commonly seen in miotic therapy.

Based on clinical findings, high on the differential diagnosis was plateau iris syndrome, primary angle closure suspect, and primary open angle glaucoma. Given the history of longstanding elevated IOP pre & post-LPI, the presence of patent LPI, the lack of pertinent clinical findings -gonioscopy, no known recent history of angle closure attack symptoms, and no glaucomatous optic disc changes, the decision to refer non-urgently to the ophthalmologist for further evaluation and management was mutually agreed on after counseling. In general, pressures of 20-30 mm Hg usually cause damage over several years, but pressures of 40-50 mm Hg can cause rapid visual loss requiring a more urgent referral.

On referral and further examination by the ophthalmologist, the angles were deemed open, IOPs of 23mmHg in the right eye and 24mmHg in the left eye recorded, CCT OD: 555microns and OS: 541microns and no glaucomatous damage on fundus examination, visual field, optic nerve head, and macular OCT, confirming a diagnosis of ocular hypertension. Selective Laser Trabeculoplasty (SLT) was ruled out as a treatment plan as the angles were not open enough and treatment with Lumigan (bimatoprost 0.01%) qhs in both eyes was initiated.

Ocular hypertension exists when a patient's intraocular pressure (IOP) is elevated above normal (i.e., >21mm Hg) on two or more occasions, but there are no additional signs of glaucomatous damage such as progressive optic nerve cupping, retinal nerve fiber layer or ganglion cell complex thinning on optical coherence tomography (OCT) or visual field defects on automated perimetry. After a finding of an elevated IOP measurement, it is good practice to measure intraocular pressure on a second occasion within a few weeks because of the possibility of measurement artifacts related to the method or clinician. Although ocular hypertension can develop at any age, the prevalence increases with age. People who are 40 years or older and of African or Hispanic heritage are at a higher risk of developing ocular hypertension.

Ocular hypertension increases a patient's chances of developing glaucoma; as evidenced by the Ocular Hypertension Treatment Study, which found a 49.3% 20-year cumulative incidence of OAG in one or both eyes of patients in the observation group after adjusting for exposure time. The relevant risk factors for conversion to primary open-angle glaucoma from ocular hypertension were baseline age, vertical and horizontal cup-disc ratio, pattern standard deviation, central corneal thickness, and intraocular pressure.

The strongest and arguably most novel of the independent predictive risk factors noted above was CCT. Simply put, the risk of developing POAG is inversely correlated with the CCT and more than double when one accounted for those individuals who progressed and had a mean baseline IOP of 22.2mm Hg and central corneal thickness (CCT) $\leq 555\mu\text{m}$ versus a mean IOP of 27.9mm Hg and CCT $\leq 555\mu\text{m}$. Based on the OHTS, 12% of people with similar baseline IOP and CCT as our patient had a 5-year risk of developing glaucoma and would benefit from treatment.

The only known modifiable glaucoma risk factor is IOP, and the level of IOP determines the speed of visual field (VF) loss. Studies have shown that the use of topical IOP-lowering medications in ocular hypertensive individuals reduced the risk of developing glaucoma. One study found that using glaucoma medications reduced the development from 9.5% in the control group to 4.4% in the intervention group. Treatment is typically with topical prostaglandins, beta-blockers, or laser therapy.

SLT is a treatment option with similar IOP-lowering efficacy as a prostaglandin but with fewer associated side effects and none of the compliance issues. It is expected to achieve a 20 to 30% reduction, particularly in patients with ocular hypertension and early glaucoma with baseline IOP greater than 25 mm Hg. Due to the findings of the SLT/MED study, among others, it is shown that SLT done 360 has greater IOP lowering efficacy and more long-term effect compared to 180. Most clinicians from the research lean towards performing a 360-degree SLT on the first visit, unless the patient has pigment dispersion syndrome/glaucoma with heavy pigment in the TM, in which case it is only done in 180 degrees of the angle. As with our patient, SLT is contraindicated for patients who have an angle that is not open enough to clearly visualize the TM 360 as the likelihood of success (as well as being less risky to the patient) depends on the visibility of trabecular meshwork without indentation leaving topical hypotensive medications as the only treatment option.

In conclusion, the presence of a patent PI should not preclude the consideration of other contributing factors to elevated IOP, it is essential to consider potential differential diagnoses, including primary angle-closure suspect, plateau iris syndrome, and ocular hypertension. Each condition has distinct features, and accurate diagnosis is vital for appropriate management. Gonioscopy is a valuable diagnostic tool for assessing the angle structure, but it can lead to corneal trauma, particularly in patients with a predisposition to corneal issues patients warranting effective communication to alleviate their concerns and alternative diagnostic approaches to avoid complications.

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A case of myopic under-correction and considerations for myopia control

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Abstract:

Purpose. Under-correction of myopia in children and adolescents may occur incidentally or through meaningful intent, however, is a risk factor for myopic progression as suggested by research. Eye care practitioners must be able to identify risk factors for myopia onset and progression and be aware of the various myopia control options available and how to initiate and monitor treatment.

Case Report. A 9-year-old South Asian male reported to the clinic for a full oculo-visual assessment with no chief complaint. Upon examination, it was discovered that the myopia was under-corrected due to accidental spectacle correction with the brother's prescription. The patient was still within normative progression for age based on refractive error, however no axial length measurements were recorded due to clinic unavailability. Treatment involved dispensing an updated single vision distance prescription and counselling the parents on how to properly fill the prescription.

Conclusions. Under-correction of myopia is a known risk factor for increased rates of myopic progression. Identification of pre-myopia and myopia in children and adolescents is crucial for determining eligibility for myopia control interventions and centile charts should be referred to when making clinical decisions.

Introduction

The increasing global incidence and prevalence of myopia have emerged as a mounting concern, as it is attributed to an increased risk of sight-threatening complications including myopic macular degeneration, retinal detachment, open angle glaucoma, and cataracts(1,2). The impact of myopia and its associated pathological outcomes follows a non-linear pattern, such that elevated levels of myopia result in a disproportionately higher occurrence of pathology(3).

This emphasizes the importance of limiting myopic progression in young-onset myopia³. Myopia stabilization is variable, with observed differences for ethnicity and number of myopic parents⁴. Genetics has long been considered a major cause of myopia, particularly in cases of juvenile-onset¹. However, the current incidence is rapidly increasing with predictions that 49.5% of the world's population will be myopic by the year 2050 compared to approximately 27% of the current population, indicating that myopia cannot solely be due to genetics alone(5). An environmental contribution to myopia suggests that intervention methods can prevent the onset or slow the rate of progression(6). Treatment strategies to reduce the rate of myopic progression are broadly grouped into 3 categories: specialized spectacles, specialized contact lenses, and pharmaceutical agents(7). Lifestyle modifications have also been suggested, such as increasing outdoor time, reducing near work, and achieving adequate sleep(1). Myopia under-correction has been found to increase the rate of myopic progression(8). Although typically unintentional, failure to adjust the spectacle prescription for a myopic child in accordance with the anticipated growth in ocular axial length and myopic progression can inadvertently result in an under-corrected state. Under-correction may arise due to inadequate parental maintenance of spectacle prescription updates, or a lack of emphasis provided by eye care practitioners on the importance of annual examinations and updating spectacle prescriptions.

The following case regards under-correction of myopia in a patient with considerations towards myopia control options. Despite annual clinic examinations and parental counselling, the patient presented wearing under-corrected myopia, necessitating a further look into the effects that this error could have on the child during critical ocular development.

Case Report

A 9-year-old South Asian male presented for a full oculo-visual assessment. The patient and parents had no concerns regarding vision or ocular health. Ocular history was remarkable for full-time wear of single vision distance spectacles for an unknown duration with good compliance of spectacles reported. Other than ethnicity, the patient's myopic risk factors were largely unknown as they were not discussed during the examination. Risk factors for myopia not discussed included parental myopia, age of onset, duration of near tasks, and duration outdoors. Medical history was unremarkable with no medications or allergies reported; general health was reported as good.

Preliminary testing revealed generally unremarkable findings, with the exception of reduced distance visual acuities monocularly in both eyes and reduced near visual acuities monocularly in both eyes. Habitual lenses measured -1.75/-1.00x174 in the right lens and -1.75/-1.00x008 in the left lens. Entering distance visual acuity was 6/9-3 in the right eye and 6/7.5-1 in the left eye. Entering near visual acuity was 0.4m/0.6M in the right eye and 0.4m/0.8M in the left eye. Non-cycloplegic autorefractometry results revealed -3.00/-0.50x163 in the right eye and -2.50/-0.75x178 in the left eye. Pupillary responses and binocular vision were normal. Non-cycloplegic refraction revealed improved best-corrected visual acuities of 6/6 in the right eye and 6/6 in the left eye. The final spectacle prescription dispensed was -2.50/-0.50x170 in the right eye and -2.25/-0.50x180 in the left eye. Axial length measurements were not available in the clinic setting. Slit lamp examination of the anterior segment and non-dilated examination of the posterior segment were unremarkable.

Differential diagnoses for increased myopia with decreased acuities included uncorrected refractive error, keratoconus, accommodative excess, lenticular changes, and pathological myopia. Given the patient's regular astigmatism with clear corneas, clear crystalline lenses, healthy posterior segments, and lack of subjective symptoms, all differential diagnoses could be excluded with the exception of uncorrected refractive error.

Counselling included educating the parents to update the patient's spectacle lenses as soon as possible for improved acuities in both eyes. An oculo-visual examination was pre-booked for the patient in one year, and the parents were educated to return to the clinic sooner if changes in the patient's vision were noted before the next booked examination. Myopia control was not discussed.

Upon completing the examination, the patient's brother presented for a full oculo-visual assessment, similarly remarking of no visual or ocular health concerns. After completion of the refractive component of the brother's examination, it was noted that the brothers had swapped spectacle prescriptions. The error in prescription dispensing was made approximately four months prior to the examination when the family filled the prescriptions at an external optical in India. The parents were comprehensively counselled following discovery of the dispensing error and advised to update the spectacle lenses as soon as possible for each child.

Thoroughly reviewing the patient's refractive history through many appointments at the clinic, it was also discovered that other external dispensing errors had been made previously: the patient had previously not updated spectacle lenses when a new prescription was required due to reduced acuities, and had previously accidentally filled an older prescription when a newer one was available. Each of these errors in dispensing resulted in periods of reduced visual acuity and myopic under-correction in both eyes during critical periods in the patient's life.

Discussion

Under-correction of early-onset myopia is not a beneficial therapeutic modality as it increases the rate at which myopia progresses, increasing the risk of various ocular pathologies and potentially quality of life⁹. The patient presented wearing under-corrected single vision distance spectacles, thus concern was raised for potential myopic progression. It is normal and expected that the axial length will elongate as children and adolescents grow, however, myopic eyes elongate at a greater rate than emmetropic and hyperopic eyes^{10,11}. Centile charts are generally used to assess risk of developing myopia, high myopia, and monitoring treatment (Figure 1)^{10,3}. Parents recognize centile charts because pediatricians and family practitioners utilize analogous charts to illustrate height and weight, however, myopic progression charts work opposite in that the goal is to be in the lower percentile group for age^{10,3}. Consulting age-appropriate databases can aid in identifying signs of excessive elongation³. Axial length measures are preferred to refractive errors, as changes in axial length are typically remarked 2-3 years prior to resultant changes in the refractive error, allowing for predictability in the progression¹¹. Clinic availability did not allow for the patient to have axial lengths measured. The studied axial length growth in European children aged between 6 and 9 years is 0.19mm/year for emmetropic children and 0.34mm/year for myopic children¹⁰. A 0.1mm change in axial length approximately corresponds to a 0.25D change in myopia¹⁰. The patient's rate of approximate axial length elongation was 0.2mm from 2021 to 2022, and 0.1mm from 2022 to 2023, thus below the expected elongation rates for myopia. However, due to the positive myopic progression risk factors and present level of myopia for age, it is not harmful to initiate a myopia control treatment plan to reduce the risk of greater levels of myopia⁶. As well, axial length measurements are unknown and may predict an upcoming spike in myopic progression, especially given the duration of under-correction¹¹. Research also suggests that myopia control

should be initiated for all children with 0.50D of myopia or more, as juvenile-onset myopia progresses the most¹². Methods of myopia control have demonstrated considerable efficacy among different modalities with the exception of low dose atropine and extended depth of focus contact lenses showing a weaker effect². Thus, choosing the modality that the patient can adhere to is the best option. Combination therapy may be considered if more aggressive treatment is deemed required by the eye care practitioner and may be initiated at the start of treatment or when progression is still noted¹³.

Peripheral defocus theory is utilized by various modalities of myopia control^{13,14}. The theory proposes that myopic eyes are more hyperopic in the peripheral retina compared to at the fovea, producing a more prolate shape than in the periphery of emmetropic eyes¹⁵. When correcting myopia with traditional single vision spectacles, the lens does not account for the prolate periphery, causing central rays to be focused on the fovea but peripheral rays to focus posterior to the retinal plane¹⁵. It is thought that this peripheral hyperopic defocus stimulates axial elongation as the eye stretches to meet the point of focus¹⁵. Myopia control methods exploiting this theory such as Hoya MiyoSmart lenses or Essilor Stellest lenses utilize mid-peripheral plus power to bring peripheral rays into focus on the retina¹⁴. Additional philosophies utilized in myopia control involve the novel contrast theory¹⁶. The underlying idea is that myopia progression is heightened in high-contrast, artificial environments such as indoors, while it may potentially be minimized in low-contrast, natural settings such as outdoors¹⁶. SightGlass Diffusion Optics Technology (DOT) utilizes this theory through the use of thousands of microscopic light-scattering elements in the mid-peripheral lens, producing a reduction in peripheral contrast that mimics a more natural contrast environment¹⁶. Given the patient's familiarity with spectacle wear, myopia control lenses are an effective and easy method to initiate treatment. There is also consideration that myopia control may begin before myopia onset if hyperopic levels for age suggest impending myopic development¹⁷. Many studies remark this level of hyperopia being less than 0.75 D at 6 years of age^{17,18}. Initiating myopia control in pre-myopes is not well defined, however we can recommend lifestyle and environmental modifications¹⁹. Discussing myopia control in pre-myopes is also a difficult concept for parents to grasp, as the patient is currently seeing well at distance, and we are predicting future onset.

Known risk factors of myopic development and progression include Asian ethnicity, parental myopia, age of onset, decreased outdoor duration, and duration of near work and close working distance¹. It has been suggested that at least 90-minutes of outdoor activity per day can help reduce the incidence of myopia, and potentially reduce the progression of myopia¹. In terms of near work, the risk of myopia development and progression is associated with reading at very close distances (closer than 30 centimeters) and for continuous periods of time (greater than 30 minutes) rather than total time spent on all near devices¹. Parental myopia also increases the predilection towards myopia¹. If one parent is myopic, the child is at a 3 times greater risk of developing myopia by age 13 and 6-7 times greater risk if both parents are myopic²⁰. Parents should also be counselled on the importance of adequate sleep, as research suggests that an inverse relationship between sleep duration and juvenile-onset myopia may exist²¹. Adequate levels of sleep differ depending on the age of the child, and the National Sleep Foundation advises the following guidelines: preschoolers (aged 3-5 years old) require 10-13 hours per night, school-age children (aged 6-13 years old) require 9-11 hours per night, and teenagers (aged 14-17 years old) require 8-10 hours per night²². Understanding the patient's risk factors helps determine the aggressiveness to which myopia treatment is prescribed, as more numerous risks may lead to greater levels of myopia reached¹.

Detecting that the patient was not only wearing under-corrected myopic spectacles, but more specifically the brother's prescription, was key to determining the best counselling strategies and treatment options for this case. Under-correction of myopia has proven to increase the risk of myopic progression⁹. Adler et al. and Chung et al. both conducted randomized control trials that investigated the effect of under-correction in

comparison to full correction on progression, demonstrating that axial length elongation and refractive error increased in under-corrected groups^{9,8}. Children are less likely to voluntarily offer subjective changes in vision unprompted, emphasizing the importance of annual oculo-visual examination for children and adolescents. The patient in the case did not report any subjective blur at distance or near, however objective visual measures suggest that vision was not appropriately corrected. Eye care practitioners need to be highlighting the importance of annual examinations to parents, as critical developments in the ocular and visual system occur when young. Annual evaluation allows practitioners to reiterate important concepts such as good compliance with spectacles or ocular sun protection outdoors. It also allows for inspection of habitual spectacles that may have been made incorrectly at an external optical. As in this case, measuring of lens powers can allow errors to be detected and resolved.

Conclusion

It is crucial to identify pre-myopic or myopic children that would benefit from myopia control interventions¹⁹. Likewise, it is essential to identify children and adolescents wearing under-correction as research indicates that this increases the rate of progression⁹. This case highlights the clinical intricacies that can lead to myopic under-correction, such as filling an incorrect person's prescription or not updating spectacle lenses when required. While deliberate or unintentional, the eye care practitioner must counsel accordingly and advocate for the child or adolescent to receive the best care possible. With so many modalities of myopia control available and research indicating that efficacy is similar amongst treatments, choosing the method of treatment that the patient will stay compliant with is the best option⁷. Given the familiarity with spectacle lenses, switching from traditional single vision lenses to myopia control lenses would have been an excellent option for the patient. However, myopia control was not suggested at the time of the appointment.

When determining if a patient is eligible for myopia control interventions, eye care practitioners should refer to centile charts to help determine if the change in refractive error is within normal age limits³. While parents may still not choose to intervene on myopic progression, practitioners should still fully educate parents as myopia control is a Canadian standard of care²³.

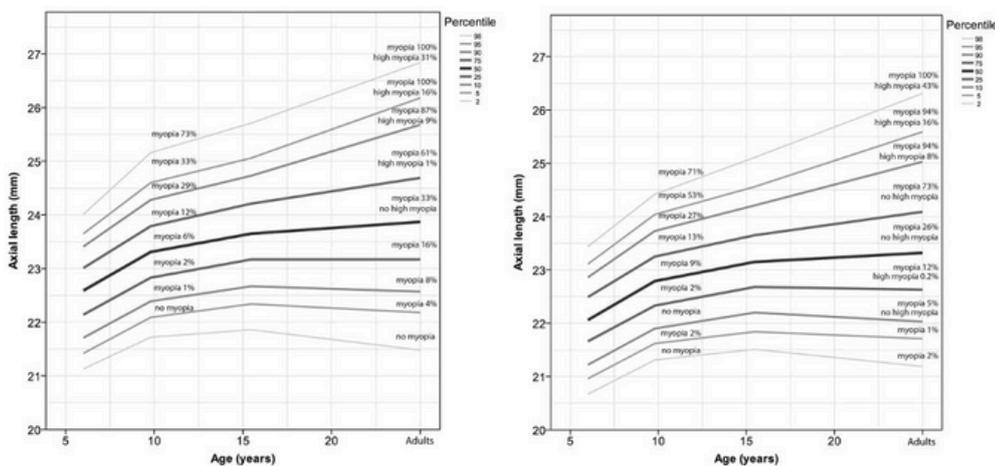


Figure 1(10): Axial length (mm) compared to age of European study subjects' growth chart. Males (left) and females (right), with risk of myopia in adulthood.

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