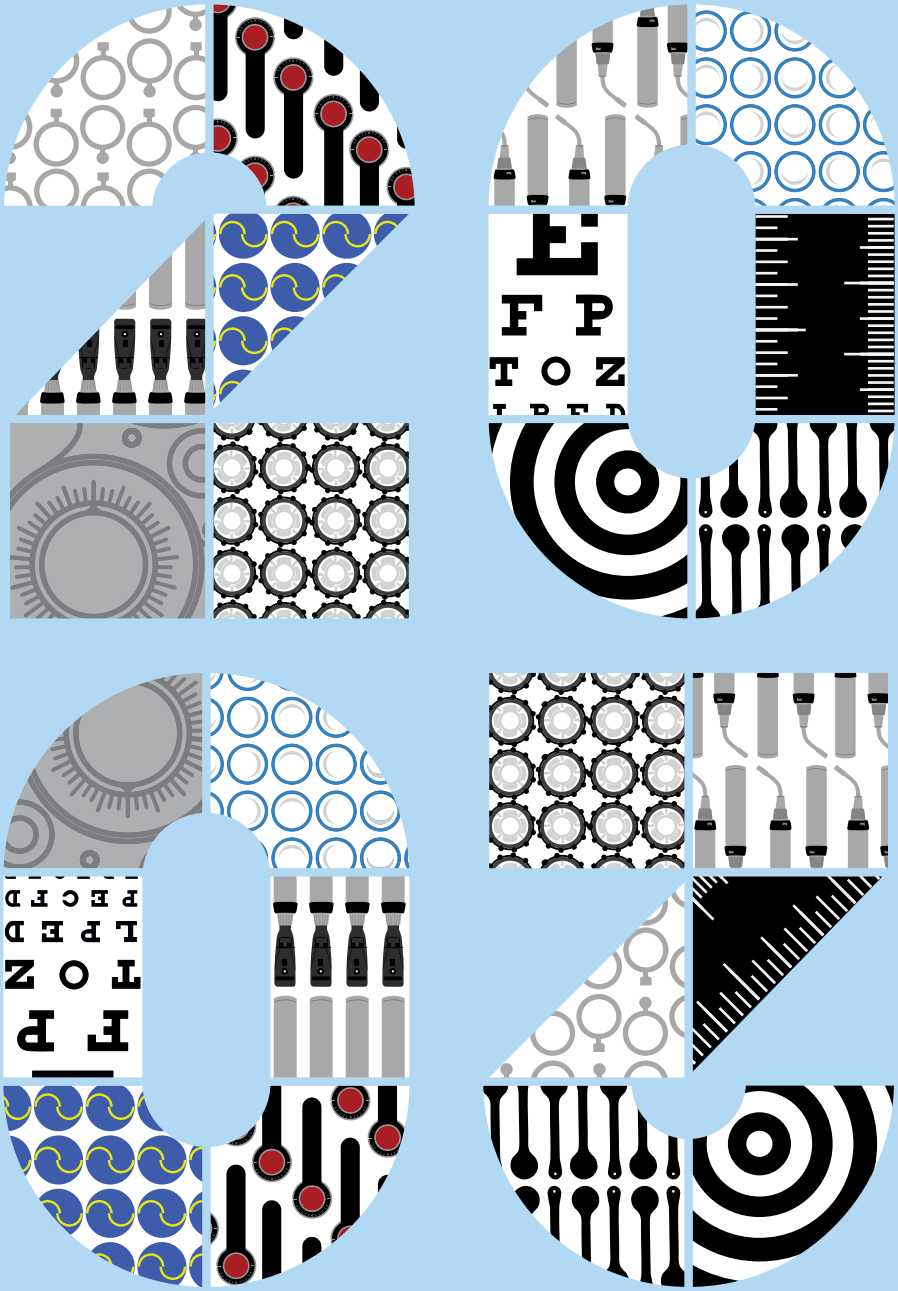
APERTURE

MARCH 2020

ISSUE 4

CELEBRATING



CELEBRATING

CANADIAN ASSOCIATION OF OPTOMETRY STUDENTS
ASSOCIATION CANADIENNE DES ÉTUDIANTS EN OPTOMÉTRIE

CONTENTS

EDITOR'S NOTE

It is our honour to present to you our fourth issue of *Aperture*, released on the very special year of 2020! This is the culmination of months of hard work from our CAOS executive team, and would not be possible without the continued support of our members, generous sponsors (Eye Recommend, COETF, I-Med, Good-Lite, Heine), talented contributors, and of course – you the reader. *Aperture* is a platform that weaves together the student voice, inspiration from optometry leaders, and education with a bit of fun thrown into the mix.

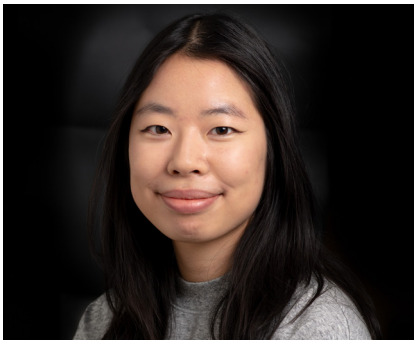
There's a lot to look forward to in this issue. We're featuring special messages from esteemed optometric leaders, including the CAO President Dr. Michael Nelson, the OAO President Dr. Joshua Smith, and Waterloo's very own Director of the School of Optometry & Vision Science Dr. Stanley Woo. Moreover, we are excited to share wonderfully insightful articles written by members of our student community. These articles showcase unique perspectives of our students on school, life, and the world of optometry. Our photo contest celebrated 2020 with the themes of "Looking Back" and seeing "Beyond 20/20". These photos are accompanied by a short write-up that delve deeper into the themes and their connection with the pictures. We are also featuring two case reports written by 4th year optometry students, selected with the help of our clinical professor, Dr. Sarah MacIver. We've also included fun activities with a chance to win some goodies, thanks to our sponsor Good-Lite! We sincerely hope you enjoy this year's issue of *Aperture*.

So far, this year has been fraught with rapid change and uncertainty. Please, take care of yourselves and look out for your loved ones and neighbours. Though much of the world is tentatively on pause, here's to looking forward to good news and brighter days.

If you have any feedback, comments, suggestions, or questions, feel free to reach out to us at info@caostudents.ca. We'd love to hear from you.

Finally, we'd like to leave you with this quote from Rupi Kaur, a brilliant Waterloo alumnus – *"And here you are living despite it all."* **Keep going.**

Cindy Nguyen
Communications Director



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Communications Director Elect

Lala Dewi
Communications Director Elect

Jessica Wong
Communications Director Elect

CAOS 19/20 EXECUTIVE TEAM

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Lala Dewi	Communications Director
Jessica Wong	Communications Director

Check out CAOS's newest video

OPENING YOUR EYES TO

DILATION

CAOS ACÉO

PRESIDENT'S MESSAGE

Dear CAOS members and readers,

Welcome to the fourth edition of CAOS' Aperture magazine! This magazine, for students and by students, allows us to showcase the various skills and talents of our colleagues, all with the overarching theme this year of celebrating 2020. We are excited to share with you how CAOS has been expanding and growing as an important presence among students, optometrists, and the profession. All our programs, events, and initiatives strive to build up our students, educate the public, and improve the relationships between students and their colleagues, all to best equip the next generation of optometrists.

The 2019-2020 school year has been an amazing time of growth and development for our organization. Our regular projects – Interview Day, summer internships, professional development lecture series, fundraising charity events, mentorship visits, iCare EyeCare booths – were all great successes this year, seeing much student involvement and enthusiasm. We also implemented some new projects in light of current and anticipated changes in our profession and in CAOS.

In spring 2019, we had the privilege of representing UW's CAOS chapter at the biennial CAO Congress in Victoria, BC. There, we shared CAOS' passion and goals of building up the next generation of optometrists and gave information to doctors' on opportunities to support and mentor students in their endeavours. During the school year, we started an initiative to connect pre-optometry students with current optometry students, allowing CAOS to be a part of an optometry student's journey even before it officially begins. With over 20 optometry schools in North America, this pairing program allows CAOS to support all Canadian students regardless of the optometry school they may one day attend. With great support from various industry groups and our schools, we have been able to grow other CAOS chapters in North America through sharing of resources and networks. And similar to previous years, we conducted the annual CAOS SEE (Student Experience and Expectation) Survey to better understand students' perspectives on various optometry topics like scope of practice expansion and advocacy for the profession.

A copy of the report can be found under the Publications tab on our website: www.caostudents.ca.

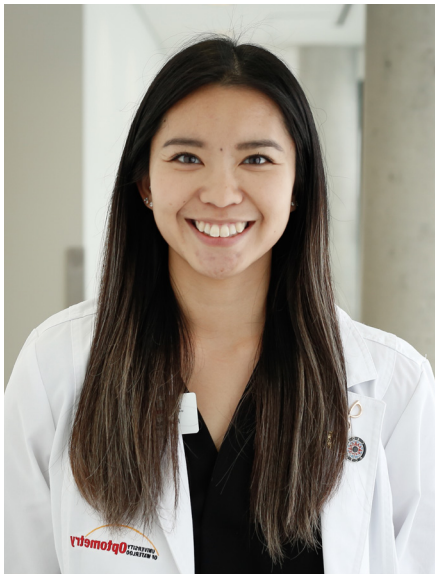
Our greatest accomplishment this year is our increased online presence, especially on social media. In this day and age, we recognize the advantage of having a dominant digital footprint, so we expanded our communications team to allow for growth in this area. We strive to give relevant and educational content to both our students and the public on Facebook, Instagram, YouTube, and our website. These efforts allow us to lay a solid foundation for incoming CAOS executive teams to enhance CAOS' online content in the years to come.

Over the course of this year, I have challenged and encouraged the CAOS executive team to acknowledge the ongoing changes in our profession and to adopt a similar approach with their events, programs, and initiatives. I would like to thank my president elect, Cedrick Mah, and the rest of the team for embracing this and putting their best into CAOS 2019-2020. I also would like to acknowledge Cindy Nguyen, Christine Chow, Lala Dewi and Jessica Wong for their dedication and efforts in producing this beautiful magazine which features our fellow optometry students. And of course, I would like to thank all our sponsors, doctors, professors, industry leaders and student members who have supported CAOS in achieving our goals; you allow us to thrive and offer more each year.

On behalf of the UW CAOS executive team, I hope you enjoy reading through this year's Aperture. To my fellow colleagues, I encourage each of you to continue supporting your associations beyond school. May you continue to strive for growth alongside the rapid growth of our profession, and despite the obstacles and challenges, may your path to becoming great Doctors of Optometry be as clear as 20/20.

If you would like to engage further, please do not hesitate to contact me at president@caostudents.ca.

Sincerely,
Raphaela So



THE VALUE OF MEMBERSHIP

Association membership is likely not a novel concept to you as you are members of the Canadian Association of Optometric Students (CAOS), but what many of you may not know, is that you can also be a student member of the Canadian Association of Optometrists (CAO), a membership which I'd encourage you to join.

CAO is a professional, member-benefit Association. If school offers you a robust clinical education, CAO offers you practice management resources, continuing education and representation, support you will need when you move to professional practice.

The work of an Association is about building its members' public voice; of advancing the interests of the profession and providing opportunities for professional growth through continuing education and information sharing. Associations provide the hub around which members can work collaboratively to achieve common goals. The CAO has been doing this since its incorporation in 1948. That is a long time to hone its skills and abilities to work on its members' behalf.

As a practicing optometrist, my membership in CAO comes with being a member of my provincial association. But as a student, you have to make a conscious decision to join CAO directly; it isn't included in your CAOS membership. The good news is that it's really easy and there's no membership fee for students; you just sign up on the CAO's website.

Student membership includes some nice tangibles, including access to the CAO's

resource library, job board and classifieds, the Canadian Journal of Optometry, membership news and even business cards. But membership in an Association is about so much more than that.

For example, CAO expends a great deal of time, energy and resources to support its public policy and advocacy agenda. This work includes meeting with federal government decision makers – both political and bureaucratic – to confirm the role of the optometrist as "the" primary eye care in the health care delivery system, and to advocate for the treatment of vision policy as a public health imperative. CAO supports both its advocacy and communications objectives through research that is reflected in best practices, guidelines, position statements and reports.

CAO also uses its influence to advocate collaboratively with other Associations with similar objectives, best exemplified by its ongoing work with the Organizations for Health Action (HEAL), which had a substantive success in its efforts to stop a 2017 Department of Finance objective to tax employee health benefits. Advocacy also goes beyond representation to Government. CAO's more recent advocacy work has been targeted at modernizing the insurance industry to reflect expanded and improved insurance coverage.

By virtue of providing a unified voice, the Association lends credibility to the collective interests of its members, something individuals can't do as effectively. The old adage "there is strength in numbers" is absolutely true. Even Greta Thunberg's influence isn't hers alone; rather, it comes from the support of millions of young (and old) who care about climate change.

Belonging to something builds a tangible sense of community, but it also requires engagement. It is easy to "like" or "follow" or "retweet", but does that take any real effort? Belonging to an Association requires a more substantive commitment to your profession

"Belonging to something builds a tangible sense of community..."

and offers you a real opportunity to shape that future, by becoming involved in its activities. This doesn't have to mean a seat on the Board, although CAO did create a student representative position on its Board in 2017 in order to encourage student engagement. It can be participating in surveys, attending CE events, reading newsletters and responding to calls for action included in them, meeting with decision-makers or sitting on Task Forces or Ad Hoc Committees. If you haven't already joined CAO, I'd ask you to consider doing so. It is a great first step to become engaged in your profession and hopefully will stoke a desire to become a leader and advocate for optometry.

Dr. Michael Nelson, President,
Canadian Association of Optometrists (CAO)

Dr. Michael Nelson received his Optometry degree in Waterloo, ON and completed a family practice & low vision residency at the University of Alabama in Birmingham. He served as the continuing education chair for the Manitoba Association of Optometrists (MAO), and was the president of the MAO from 2000-2003. Recently he was the co-chair for the Canadian Association of Optometrists Congress hosted in Winnipeg in 2011. His interests lie in low vision, contact lenses and management of ocular diseases. He loves to keep up-to-date on the latest in ocular research, diagnostic equipment and lens technology. Dr. Nelson is also the clinical director of Eye Canada, a center dedicated to eye research and helping individuals with vision impairments.

CANADIAN ASSOCIATION OF OPTOMETRISTS
ASSOCIATION CANADIENNE DES OPTOMÉTRISTES

LOOKING AT PROFESSIONAL ENGAGEMENT WITH 2020 VISION

Earlier this year, leaders in the optometric profession gathered in Montreal for the annual Canadian Optometric Leaders' Forum (OLF), where we participated in discussion forums on government engagement and the future of health care professional associations. Leaders met on the current state of Canadian Board examinations, the future of national optometric public education campaigns, and shared knowledge on scope of practice enhancement efforts and nation-wide engagement campaigns with private insurers. Over just a few days, not a single major topic in optometry was missed. Attending my sixth OLF, I reflected back on my years of involvement in my provincial and national association since finishing optometry school in 2013 and all the opportunities they have brought for me to be right in the centre of the action. I looked around at all the other optometrists participating in the weekend and although some were under 40 like me, most were in the latter years of their careers. It made me wonder: why is my generation not better reflected in the community of optometric leaders?

Perhaps one of the most fascinating sessions of the conference was a presentation from David Coletto, a one-time colleague of mine in graduate school and now co-founder and CEO of Abacus Data, a polling and data analytics

firm. His talk focused on how different generations use and perceive data, and how this affects their opinions on professions like optometry. He debunked some of the old tropes about how some generations are viewed as "lazy", and the themes that have given rise to the phrase "OK Boomer". One description that resonated with me, as a so-called elder millennial, was that millennials want to "make a difference". But how do we, as health care providers, see ourselves making that impact? Surely, all optometrists make a difference in the lives of our patients, but I believe this desire extends into our communities, and into our profession as a whole. Having an impact on the future of our profession can seem daunting as an individual, and some of my friends and colleagues have expressed doubts about making changes on such a large scale. It can also seem difficult to even know where to begin when considering your place in both the local community where you will settle, and your professional community at large.

There is no better place to start than with your professional associations. Are you ready for the laws in your province of practice to match what you've been educated to do in school? Do you want a close network of colleagues to help you get started in practice? Every provincial optometric association is governed by optometrists, for optometrists. We are the unified voice of the profession to other health care groups, to government, and to the public. As a member of the Ottawa Society, the Ontario Association, and the Canadian Association of Optometrists, I have had opportunities to meet leaders in industry, government ministers, and members of the

"...millennials want to "make a difference". But how do we, as health care providers, see ourselves making that impact?"

public from around the world to talk about the importance of optometric care. I have given public lectures at indigenous health centres, to community groups, and to local physicians. Most of all, I have the support and friendship of countless colleagues around the world.

In the year 2020, make a commitment to be involved and engaged in your community and in your profession. You are never "too inexperienced" or "too new" to make your voice heard, and to challenge the status quo. There are hundreds who are willing to talk the talk, but only a few who will choose to take on the challenge to join, to lead, and to make a difference.

Dr. Joshua Smith, President,
Ontario Association of Optometrists (OAO)

Dr. Joshua Smith practices primarily in Alexandria, Ontario and is the current President of the Ontario Association of Optometrists. You can learn more membership in the Ontario Association of Optometrists at optom.on.ca or by contacting Bethany Carey, Director of Member Services, at bcarey@optom.on.ca. For more information about the Canadian Association of Optometrists, go to opto.ca. To read about the World Council of Optometry, visit worldcouncilofoptometry.info to find out more.

ONTARIO ASSOCIATION OF OPTOMETRISTS

CANADIAN OPTOMETRY GROUP [COG]

The Canadian Optometry Group (COG), started in November 2012, is a free email-based and commercially-independent forum restricted to Canadian optometrists, optometric educators (ie. professors in a school of optometry) and 2-4th year students at UWSO and École d'optométrie, Université de Montréal.

This simple to use, yet powerful resource allows optometric colleagues across Canada to communicate anything relevant to optometric practice. This forum is commercial-free, and has no financial ties to industry. There are over 1000 COG members - coast to coast in all Canadian provinces.

Topics include but are not limited to clinical and practice management questions/discussions, eyecare news stories and clinical studies. It is an excellent method to stay current in the evolving profession of optometry. Information sent to and from COG is exchanged in real-time using email.

If you are interested in becoming a member, please contact your class president with your name and email address which you wish to use to receive and send emails to COG.

Peter Rozanec, OD
Toronto, ON

SEEING BEYOND 2020

time to tackle the BIG challenges in eye and vision care

Optometrists around the world have been waiting in anticipation of 2020, and the focus on vision is timely.

The World Health Organization (WHO) released its first ever "World Report on Vision" in October 2019, which highlighted that "… at least 2.2 billion people around the world have a vision impairment, of whom at least 1 billion have a vision impairment that could have been prevented or is yet to be addressed."[1]

A plenary session at the joint meeting of the World Council of Optometry and the American Academy of Optometry issued a call to action for practitioners, educators, researchers, policy makers, industry leaders, and government officials to tackle the problem in earnest.[2]

The WHO report identified 3 major challenges[3]:

1. Eye care needs will rise sharply due to changes in demographics and lifestyle
2. Data are often lacking and health information systems weak, thus hampering planning
3. Eye care is frequently poorly integrated into health systems, for example, in national health strategic plans and health information systems; and the eye care workforce is poorly coordinated

The integrated people-centred eye care (IPEC) approach with a health system perspective included 4 recommended strategies[3]:

1. Engaging and empowering people and communities
2. Re-orienting the model of care based on a strong primary care
3. Coordinating services within and across sectors
4. Creating an enabling environment, specifically the inclusion of eye care in national strategic health plans, the integration of relevant eye care relevant

data within health information systems, and the planning of the eye care workforce according to population needs

One might presume that the WHO prioritized global challenges in eye and vision health in the developing world. Although optometry in North America is arguably the most advanced and well developed in the world, there remains much work to be done to deliver accessible, coordinate, high quality care. We face the same challenges and could benefit from a coordinated strategy across stakeholders including professional associations, colleges (regulators), and schools.

In 2016, the US National Academies of Sciences, Engineering, and Medicine and published "*Making eye health a population health imperative: Vision for tomorrow*."[4] Recommendations were similar to the WHO and followed major themes[5]:

- Facilitate public awareness through timely access to accurate and locally relevant information
- Generate evidence to guide policy decisions and evidence-based actions
- Expand access to appropriate clinical care
- Enhance public health capacities to support vision-related activities
- Promote community actions that encourage eye- and vision-health environments

The Canadian Association of Optometrists (CAO) has been leading efforts to promote a national framework for action to promote eye health and prevent vision loss[6], and according to a 2017 Nanos survey "over half of Canadians say the federal government should have a major role in creating a national eye health strategy."[7] People fear vision loss. However, the prevalence continues to increase with the aging population. The economic consequence of vision loss to Canadians is estimated to be over $30 billion by 2032.[6]

In 2018, the CAO published a report entitled

Meeting the Eye Health and Vision Care Needs of Canadians: A Workforce Analysis.[8] Most recently, Dr. Michael Nelson submitted a pre-budget report in August 2019 to the federal government entitled "Seeing Beyond 2020: Empowering the Population through the Early Detection and Treatment of Vision Care Issues" highlighting the evidence to further support urgent action.[9]

The CAO present strategies to meet the growing eye health and vision care needs of Canadians. A few are excerpted here[8]:

- Enhance the use of ODs for primary care
- Use ophthalmologists as much as possible for their unique expertise and competences in secondary and tertiary care
- Align and enhance competencies, scope of practice an education of each of the eye health and vision care providers groups with emerging technologies, pharmaceuticals, and procedures
- Enhance interdisciplinary eye health and vision care services and appropriate use of providers
- Promote timely access to services, especially in remote and underserved areas
- Launch a vision health public awareness campaign targeting the general public, as well as underserved and at-risk populations including Indigenous people, children and seniors.
- Enhance data collection to provide pan-Canadian workforce data and address other data limitations…. to support eye health and vision care HHR planning

The University of Waterloo School of Optometry & Vision Science is well-positioned to support the many calls to action to address eye and vision health. Moreover, the University of Waterloo is embarking upon a strategy to leverage the various areas of excellence in health research to address big data, AI, population health, health systems, and much more. As a School, we are guided by our strategic plan,[10] and we're embarking upon a bold initiative Seeing Beyond 2020 to create

"…there remains much work to be done to deliver accessible, coordinate, high quality care."

the Waterloo Eye Institute (WEI).[11]

The WEI is a once-in-a-generation project that will include:

- An ambulatory surgical centre
- Clinic modernization
- Diagnostic imaging and reading centre
- Enhanced research capability in biomedical science, next-generation imagining tech including AI

We're rolling up our sleeves and getting down to work with stakeholders across Canada to help identify the key questions affecting eye health, and developing the evidence to help support care coordination, data and health information systems, policy decisions, and enhanced health promotion and education.

We strive to be a national resource that helps to address eye and vision care needs. It's an exciting time to join the profession of optometry, and regardless of your alma mater we are eager to engage your time, talents, and energy to help solve the major challenges to improve care for all. Help be the change we wish to see in the world.

See appendix for references.

Stanley Woo, OD, MS, MBA, FAAO

Dr. Woo is the Director of the University of Waterloo School of Optometry & Vision Science. Previously, he served as Dean of the Southern California College of Optometry at Marshall B. Ketchum University supporting a transformation into an interprofessional health sciences university.

He received his Doctorate of Optometry from the University of California at Berkeley. At the University of Houston College of Optometry, he completed a Master's in Vision Science and a residency in Low Vision Rehabilitation. At Rice University Jones Graduate School of Business he completed an MBA with a concentration in medical and health care management. You can learn more about Dr. Woo here.

WHAT DOES YOUR EQUIPMENT CASE SAY ABOUT YOU?

Optometry school is marked by an influx of equipment, and among other things, the oversized lunch boxes we use forever after to carry them. Old habits die hard; you can tell a lot about someone from the way they organize their gear. So let the psychics move aside. We'll read you better than 6/3.

entropic phenomenon

You're an agent of chaos (no, not us; we're talking about the other kind). Maybe you've just always been this way. Or maybe you tried your best to seem like you were one of the others, only for your illusion to fall to pieces every time—at which point you realized it was all a pointless charade. Does that make you lazy, or just complacent? You know what they say about entropy, after all: it's the second law of thermodynamics, so why bother fighting the inevitable? As a famous movie once said, the plan that never fails is no plan at all. It did win four Oscars, so maybe they (and by extension, you) were onto something.

Moral alignment: Chaotics
Myers-Briggs: ENFP, ISTP, ESTP, ESFP, ESTJ, ENTP
Astrological signs: Leo, Scorpio, Gemini, Aries

divider & conquer

You claim you have some rules, but really, they read more like guidelines. You still crave some semblance of organization, but if and only if it means there's still room for change. If that makes you wishy-washy, so be it. You're a visionary in your own right, but in a big picture sort of way, concerned less with the small details than you are with where they lead. A whole is more than the sum of its parts. Those slats don't need glue; they're held in place by virtue of sheer willpower. Just remember one thing: life ain't a bento box. Screw your courage to the sticking place.

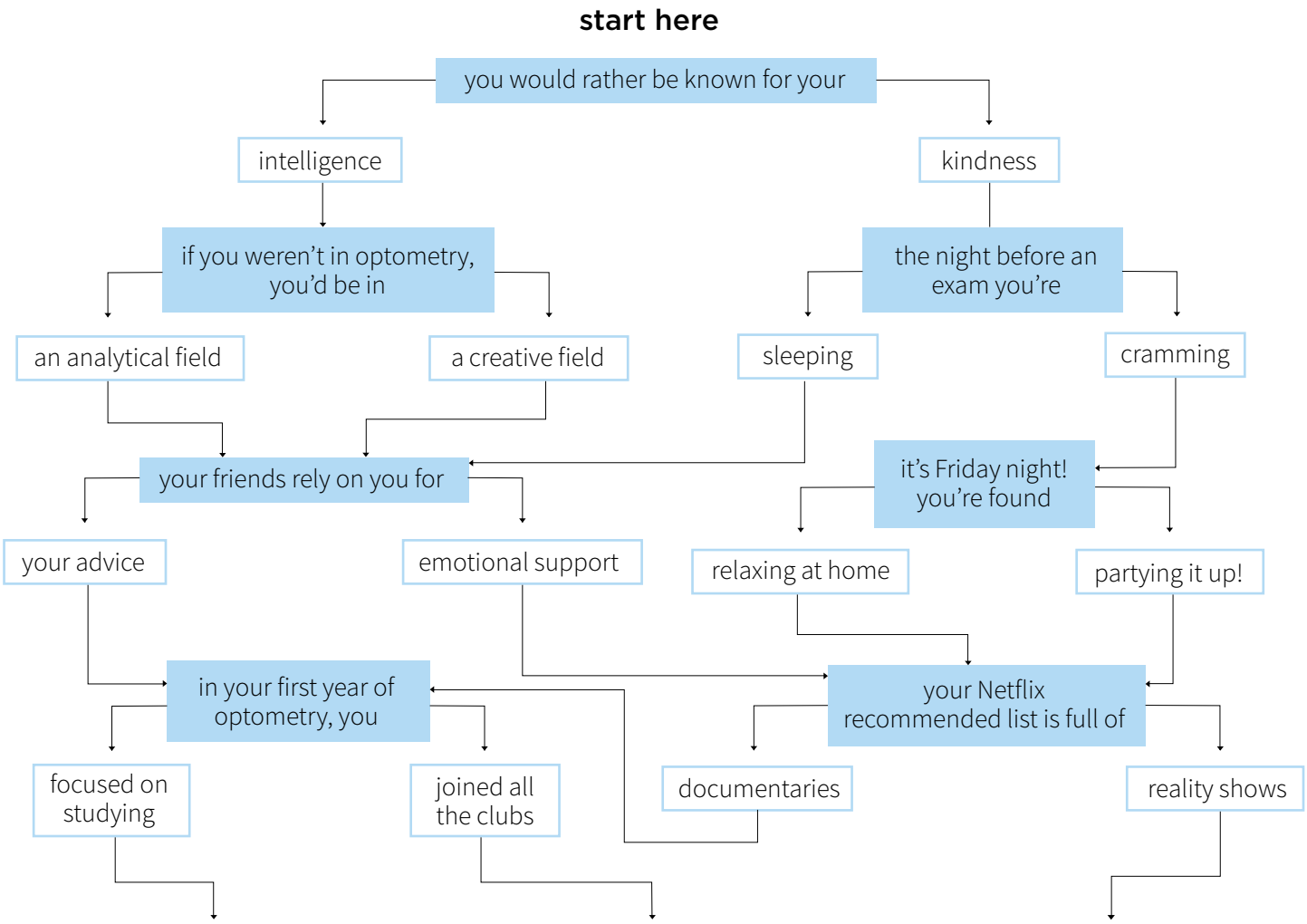
Moral alignment: Neutrals
Myers-Briggs: ENTJ, ISFP, INTP, ENFJ, ISTJ
Astrological signs: Capricorn, Taurus, Sagittarius, Cancer

foam is where the heart is

They say the devil's in the details. It's undeniable that you're nitpickier than most, but the by-and-large of it is that you have good intentions (never mind that they've only had one thing to say about those). On the inside, you're a softie. You can't stand emptiness, so you do your best to fill the spaces in between, content only once you know that each piece belongs to its specific part of the puzzle. You're a perfectionist; all perfection has its price. To be honest, being called a stick in the mud on the odd occasion was a far lower one than you were expecting to pay.

Moral alignment: Lawfuls
Myers-Briggs: INFP, INTJ, ESFJ, ISFJ, INFJ
Astrological signs: Virgo, Pisces, Libra, Aquarius

WHAT EQUIPMENT ARE YOU?



retinoscopy rack

You're a problem solver. You are analytical, curious, and strong-willed. You pride yourself on your problem-solving abilities and enjoy being challenged.

reading card

You are reliable, organized and practical. Others appreciate your hard-work and drive to help others. You make a dependable and trustworthy friend.

colour vision test

You are lively, passionate and charismatic. You know when to have fun and let loose, but you can totally buckle down to get work done when it comes down to it.

Pssst...you have the chance to win the equipment above and more! Make sure you're following us on Instagram @caostudents to learn how you can win!

GENDERED CARE

By Anonymous

a clinical experience reflection

The eye exam started normally at first; the patient was just in for an annual check up with no visual concerns. He greeted me warmly, we shook hands and started with some small talk; the exam proceeded as normal, and the patient continued to made a couple jokes here and there - yet I couldn't help but feel an air of unease. As the exam proceeded, the patient kept looking in my direction for reassurance, and I could tell something was off. The thing was, we weren't the only two people in the room that day… in fact - I wasn't even the one doing the eye exam! I was only first year student, male, shadowing a female fourth year student that day, and was reminded of the gendered imbalances that continue to exist in society permeating within our professional sphere. Although she was asking all the questions and was doing all the testing, the patient would look to me for a conformational nod or smile, rendering her invisible.

Everything else about the examination proceeded as normal, yet it reinforced the presence of strong forces within society that dictate how we view others based on gender; in this instance, it can even govern how patients acknowledge our clinical decisions. Unfortunately, this theme is a stark reminder of the historical patriarchal mindset that some individuals hold, that artificially create a perceived amount of incompetence based on gender. That day, I made no indication that I had any skill nor clinical mastery in optometry, deferring to the female student – in fact, I made it a point to mention that I was only in first year and barely understood the anatomy of the eye. Yet in that room, my gender held more power then her many years of education. On several occasions, I had to defer questions to the female student who answered eloquently with a depth of knowledge, yet a slight glance in my direction indicated that the patient thought otherwise.

Presently we still can not ignore the fact that we exist in a social hierarchy, that favours some individuals over others based on an artificial classification system, which deems some people more superior than others. By considering the social systems which govern our behaviour

and perception of people around us, the onus is on us as a community to continue to reinforce quality of care that is not gendered. In other words, we should all exist as prudent practitioners whether male or female, and it is our responsibility to ensure the public understands that. Not only does this mindset disparage female practitioners in optometry, and other health professions alike, it leads to overarching questions about how these social factors impact delivery of health services. If patients do not regard the professional opinion of their doctor because of their gender, how can we be confident that they will comply with delivery of care? For example, if a patient was to come in one day with a red eye, something that is all too common, their perception of the practitioner may affect their compliance to any prescribed medication. It is in the patients' best interest to validate the rigorous education that all optometrists must go through and respect our opinions in providing a standard of care, but that can not be done if our advice exists on deaf ears.

We still live in a society where our physical appearances place us into separate marginalized groups, that are based not only gender, but also race, sexuality and physical ability. The way these social factors intersect create preconceived ideas and influence how other treat us. In this situation, as a male, my opinions and thoughts were regarded as more important than the female student, but these problems are paralleled in a broader context as well. There are countless other ways that social factors impact healthcare, not just limited to optometry. In all honesty, it is a complex issue layered with years upon years of social imbalances that we believe are now normal. So where should we start?

It is a complex issue that requires many different parts to work together in order to re-establish an entire system, but that does not mean we shouldn't try. As a male, my privileges due to my identified gender provide me with an advantage that women do not have; the least I can do is use it. The most important thing we should do is recognize that these imbalances still exist today, and how we unintentionally may contribute to them. Though this instance may have been innocent on behalf of the patient, other interactions may not be as so. If you are in practice and come across a patient who may have derogatory comments and outright archaic thoughts, do not just defer it as 'a different time'. Ignoring the problem allows it to manifest, and grow, and demanding respect for our peers should not be a request but an expectation. Just consider, if those comments or actions made you uncomfortable, how would your female counterparts feel? Respectfully indicating that inappropriate language or actions that disparage others will not be tolerated is just the first step to initiating that change.

These setbacks are all too common within a systematic social hierarchy and are difficult to navigate alone. Therefore, continuing to educate patients should not be limited to just the eyes; if we choose to practice in different communities of socioeconomic status, to be engaged with the community, and truly want to make a difference, we must look outside the boundaries of our exam rooms and clinics. We cannot be ignorant to the role that social factors play in healthcare. We must exist as professionals in an ever-changing climate of marginalized groups that deserve respect, so I believe the responsibility is on us to have those conversations, combat those stereotypes and provide a standard of care to all patients that will willingly receive it.

BEDTIME STORIES FOR AN OPTOMETRIST

By Sophia Capo, *3rd year optometry student*

As a future optometrist
With many thoughts so deep,
here's what I think of
when I can't get to sleep.

It's that pound in my chest
when the name turns to grey;
the signal to tell me
to get the patient right away.

Clinic is different from class
it's not about what, but who.
And always using my judgement
to see what tests to pursue.

I only had three patients
But, oh what a long day!
I analyze and wonder,
could I have done things another way?

The stress of 1.5 hours
it's all that I've got
for refraction, BV,
and to check that dot and blot.

Were the mires too thick
while I was taking IOP?
Did I measure cup to disc ratio
while I was seeing in 3D?

A different room each week
and that means a new slit lamp.
Where's the brightness, the on/off
how do I loosen the clamp?

Patients don't like to be dilated
they say the drops cause them grief.
But I tell them it's necessary
and that the side effects are brief.

Refraction is pretty easy
you ask the patient one or two.
But "can I see one again?"
is what patients often do.

It has been quite a challenge
to make time, to adjust.
There's just so much to do
and many things to discuss.

I seldom have the time
to simply take a short break,
so I don't get more exo
and my brain doesn't ache.

I am trying to speak more clearly
about the diseases I describe.
And I work to change the refraction
into something to prescribe.

I need to think of the person
not as one but a whole.
It's patient-centred care,
this is the common goal.

I present cases to supervisors
by being simple and concise.
With integrity and efficiency,
we always check things twice.

Board exams are the buzz
American or Canadian, which do I write?
One final year of studying hard,
early mornings and late nights.

But I'm trying to enjoy every moment
only in third year one time,
to spend it nervous and flustered,
would certainly be a crime.

So before I can fall asleep
I try to think of happy thoughts,
of the things that keep me going
and it was easy, I found lots.

Intramurals and skit night
are my highlights of year three.
Corneal cup and spending time with friends
are things that mean so much to me.

Clinic was definitely tough at first
but I see how much I've grown.
From learning ocular structures,
to doing an eye exam on my own.

I am happy about my future
I can buy in or start brand new.
Do residency to get more training
so many options I could pursue.

One last year with my whole class
Four-month blocks are what is next.
But relationships will not be lost
we're never further than a text.

New surroundings and experiences
and different conferences to explore.
All will help augment my learning,
and my desire to always know more
.
So I take a deep breath
even though third year is whirled,
'cause even for a second
I wouldn't change it for the world.

THINGS I WISH I KNEW DURING OPTOMETRY SCHOOL

By Diana Nguyen, *4th year optometry student*

Being in optometry school for the last 4 years has taught me many things. Now, there are some things that school didn't teach me. Here's my declassified guide to surviving optometry school, and things I wish I knew.

first year

Congratulations! You got in. You will feel like you are on top of the world because that hard work paid off. You should be proud of yourself but stay grounded. ***Sustain that eagerness to learn, this baseline knowledge is important for the next 3 years.*** It may not seem significant to know the cranial nerves, but it ties in later. Make sure to study diligently because everything is related to the eye. White coat ceremony will feel so rewarding because you have finally come this far. Midterm season is rough, but your classmates are going through the same thing. Together, you will build a great support system with your optometry family. Remember, there's going to be a time when they will not be in 401 or 1129 with you anymore so enjoy these moments.

second year

The summer off was relaxing and much needed, but now its time to get back into study mode. After all, you heard second year was the toughest. The long lecture days and practicing on your classmates in the pre-clinic will seem never-ending. There will be days where you feel like giving up, and it may seem impossible to find the ora serrata at 9 pm, or get through that last lecture, but stay resilient. You can do it. ***Remember to time manage well and make time for yourself.*** I recall the dense knowledge in second year, but I also remember the memories I made with my friends. Whether it was going to the gym in between study sessions, quizzing each other on the different classes of glaucoma drops, or deciding where to grab dinner before coming back to WLRC. It's important to take breaks for yourself during this time.

third year

Fast forward and you have completed more than half of the program. There aren't that much classes and the content isn't necessarily dense, but what's with all these quizzes? And there was always that one person who emailed the professor to re-open the quiz because they forgot to do it (hopefully that wasn't you). The most rewarding aspect about this year is that you are going to see patients. You probably are nervous, or you might not feel prepared, but you don't need to be perfect. This is the time to keep practicing to refine your skills. ***Your clinical skills will improve, it will get better so believe in yourself.*** Clinic days will make you go to bed at 8 pm on a Tuesday, the 2-hour exams are dragging, but it'll shorten to 1.5 hours and even to an hour. You'll see 1 patient and then it'll rise to 4 patients. These little milestones are meaningful so be proud of yourself.

fourth year

It's the final stretch! It's time to work as a student doctor and rotate through your clerkship sites. There will be a steep learning curve during the first few weeks and everyone goes through this so don't feel discouraged. I also learned that patients just want to be heard. Dr. Hrynchak was right when she said, "listen to their chief complaint". You have all the tools and knowledge so be confident in your diagnosis. It's important to come up with your treatment and management, because you are on your own soon. ***Take and make opportunities to learn about cases and do not be afraid to make mistakes.*** Continue to ask your supervisor questions, they are not going to double check your findings or guide your management for much longer.

I hope this gives you insight about the different stages of optometry school. Throughout class, labs and clinic, you will always be learning and expanding your knowledge. Don't let graduation day be the end of it. A great clinician will always be a life-long learner.

UNDERSTANDING THE ROLE OF RHEOLOGY IN DETERMINING EFFICACY OF EYE DROPS

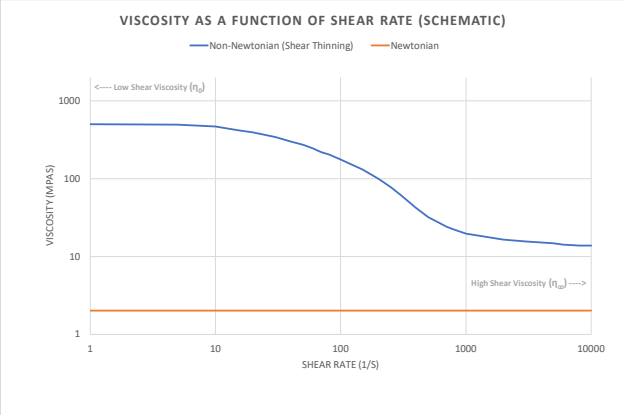


Fig. 1 - Graphical Representation of Newtonian and Non-Newtonian Fluids*

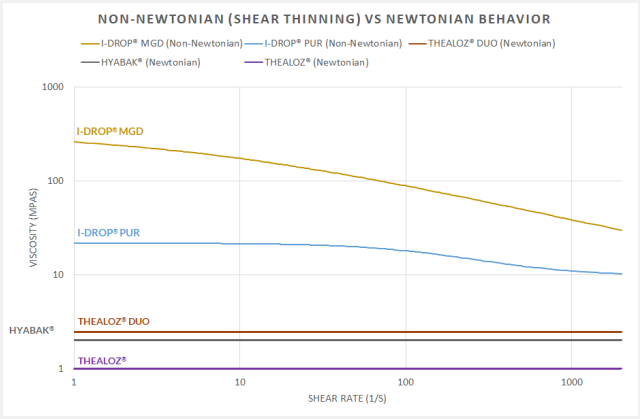


Fig. 2 - Actual Measurements of Commercially Available Artificial Tears*

The most effective and longest-lasting artificial tears exhibit Non-Newtonian behaviour as illustrated above in Figure 1. Non-Newtonian behaviour depends heavily on the composition but also on the chain length of the biopolymer in the solution that is delivered to the surface of the cornea. Practically, this means that tears with the same concentration (i.e. 0.15%) of a biopolymer, such as hyaluronan, can result in products of greatly varying efficacy.

There is ample scientific literature that proves that artificial tears exhibiting a high η_0 and low η_∞ of Non-Newtonian fluids, will provide the longest lasting, most comfortable and most effective relief for patients suffering from the symptoms of dry eye disease (DED). This is because products that exhibit Newtonian behaviours require more frequent applications, cause blurring at increased concentrations and cause discomfort for the patients. They will also be eliminated quickly from the corneal surface by the blinking action of the eye lids.

It is clear from these rheological profiles of the five (5) commercial products presented in this graph that both I-DROP® MGD and I-DROP® PUR exhibit Non-Newtonian behaviours which will translate to more comfort, fewer applications and more effective relief from symptoms of DED than Thealoz®, Thelaoz® DUO and Hyabak® which exhibit Newtonian behaviours.

*Data on file at I-MED Pharma

I-DROP® MGD

I-DROP® MGD is a premium, preservative-free, artificial tear that helps relieve symptoms associated with evaporative dry eye. It is the most advanced eye drop for hydrating and lubricating the cornea.

The formulation contains superior osmoprotectants that stabilize and enhance the lipid layer, while reducing evaporation of the tear film.

This unique formulation offers the patient unparalleled ocular hydration and comfort. It is a long-lasting artificial tear that re-coats the surface of the eye with every blink, resulting in a lower therapy cost to the patient with fewer daily applications.

I-DROP® MGD is available in a sterile, multi-dose bottle with a sophisticated one-way valve and air-return system that delivers one sterile-dosed drop at a time.

DRIVING WITH A CONTACT LENS MICROSCOPE

By Kujaany Kana, *4th year optometry student*

an ethical dilemma

case report

A 24 year old Caucasian male presented to his low vision appointment, with the goal of improving his best corrected visual acuity (BCVA) to meet Ontario driving standards of 20/50 binocularly (OU). His ocular history was significant for ocular albinism and associated nystagmus, resulting in BCVAs of 20/100 in the right eye and 20/150 in the left eye. His medical history was significant for anxiety and depression.

Past records revealed the onset of his anxiety and depression stemmed from his inability to complete the marine engineering program due to visual demands. To help cope with depression and become more independent, both the patient and father were very persistent in finding any low vision device that could improve BCVA to driving standards. Previous records had documented conversations with another clinician, explaining how the idea of a 'contact lens (CLs) telescope' would be an option that may allow him to meet driving standards. The theory behind the CLs telescope is that a high minus CLs coupled with a high plus spectacle lens will act as a telescope to provide about two times the magnification[1]. Both the patient and father travelled two hours for this appointment, ecstatic to try out the CLs telescope.

Upon explaining that even if vision improves to driving standards, Ontario regulations would not allow the use of a telescope, it became an ethical

dilemma when both patient and father disagreed. Despite our understanding of the theory behind the CLs telescope, they both viewed the model to be a mere combination of two different corrective lens options. Having the patient take the Ministry of Transportation (MOT) vision test with a bioptic telescope is much different than testing with what may appear as spectacle correction, when it is truly an in-built telescope.

ethical dilemma

In Optometry, we have different scopes of practice and regulations, depending on the province or state. In Ontario, the MOT outlines that with or without corrective lenses, the BCVA must be at least 20/50 OU. The definition of corrective lenses includes CLs and spectacles, but excludes what are termed 'extraordinary optical devices' such as prisms, telescopic lenses and any devices that modify the horizontal visual field[2]. While using extraordinary optical devices are not allowed in Ontario, other provinces/territories such as Manitoba[3] , Nunavut[4] and even some states[5] allow the use of bioptic telescopes to meet driving standards. The evidence regarding safety in patients using the bioptic telescopes is however controversial. Some studies have revealed that the rate of accidents do not increase with the use of the bioptics[6] and that driving was unaffected[7,8] , while others reveal otherwise[9] .

As stated in the Canadian Association of Optometry's Code of Ethics, one of the main duties we have as Optometrists is to maintain dignity, honor and the integrity of the profession[10] . It was important to realize that if it were not for the in-built CLs telescope, vision would not have met Ontario driving standards. After consulting with other faculty members, it was agreed that though the CLs telescope is the combination of two separate corrective lens options, it is in theory acting as a telescope.

management

Though it was already decided that the CLs telescope would not be allowed to meeting driving standards, one of our core values in Optometry, regardless of province or state was to show empathy and compassion[11]. We realized that sitting in our chair was a young adult struggling with depression, who travelled two hours in the hopes of the trying the CLs telescope. Though the telescope would not be allowed for driving, we understood that it may improve his vision and overall quality of life. The BCVA with the CLs telescope improved up to 20/70 OU.

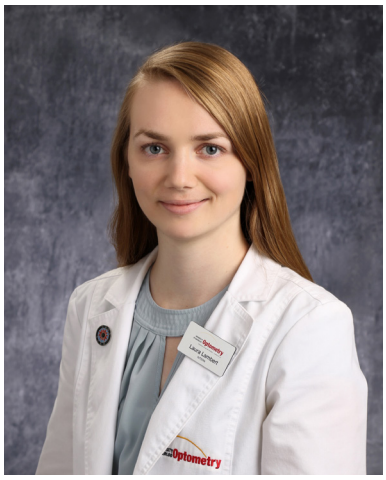
Allowing the patient to try the CLs telescope taught our patient that he could not meet Ontario driving standards. Though the telescope gave the patient a better BCVA, the patient was upset and did not want to proceed any further. In an empathetic tone, we had re-educated that even if he had met 20/50 OU, it would not be acceptable for driving. The main reason was because it would have been considered a telescope in theory and second, it would have been considered as an aid the modifies the horizontal visual field.

Fast-forward a few months, he is currently pursing another engineering degree in a college where he meets the visual demands. From this case, it was important to realize that certain patient demands and previous encounters with other clinicians can create an ethical dilemma. It was essential to understand that as Optometrists, we have certain regulations and values to abide by. Having a holistic view of the patient helped assure that patient needs were met without breaking any obligations we had to our profession.

See appendix for references.

CASE STUDY

By Laura Lambert, *4th year optometry student*



As is traditional, the most striking patient of my clinical experience arrived on a Friday afternoon. An optometrist had called our clinic earlier that day to refer NM due to ocular pressure of 50 mmHg in her right eye.

In the waiting room, I greeted a pleasant woman in her 70s, whose heritage I later learned was half Japanese and half Hawaiian. During case history, my heart sank into my stomach. Her right eye had been red for 3 weeks. She'd gone to the emergency room with vomiting, abdominal pain and a red eye. She was given an eye drop, which she didn't know the name of and later threw away. She used it once, and upon instillation her eye began to hurt very intensely (rated as 11/10) and her vision became foggy OD. The pain lasted 36 hours, during which time she saw her GP and was started on ciprofloxacin antibiotic drops. A week later the pain had subsided to 4/10, although the eye was still red and her vision remained poor. Her GP then referred her to a local optometrist, who continued her on ciprofloxacin for another week, followed by pred acetate and artificial tears for a week. Neither her vision nor ocular redness had improved. The optometrist measured her eye pressure, discovering it to be 50 mmHg OD. He then urgently sent her to our clinic, and wrote in their referral that they believed she was a steroid responder.

My working diagnosis was spinning in my head: untreated acute angle closure. I wondered whether the drop given at the ER was a dilation drop, or perhaps a vasoconstrictor causing slight dilation. My stomach churning, I measured her acuity and found hand motion vision OD. The right pupil was fixed and mid-dilated, with an obvious reverse RAPD. Confrontation visual fields showed vision loss in all quadrants OD. Anterior segment examination OD showed 2+ ciliary injection, severe corneal microcystic edema and haze, a shallow anterior chamber with closed Van Herick angles, and 2+ nuclear sclerosis. Her left eye was quiet, with a shallow anterior chamber and very narrow Van Herick angles (1:⅛).

As I placed my Goldmann probe onto her eye, I noticed that the mires were farther apart than I'd ever seen before. As I cranked the Goldmann wheel, the mires slowly came together giving an IOP of 70 mmHg OD, 20 mmHg OS. At this point, my supervisor got acetazolamide out of the drug storage cabinet. After asking NM about liver or kidney disease, she was given 500 mg of acetazolamide po. I instilled all the drops we had: 1% pilocarpine, Combigan, Simbrinza and Lumigan with 5 minutes between each drop, even though pilocarpine isn't effective at IOPs over 40 mmHg and Lumigan takes weeks to lower IOP. I performed corneal compressions with a 4 mirror gonioscopy lens, and the angles did not appear to open with compression, although the view was foggy. The IOP had reduced to 55 mmHg. During all of this, NM was feeling quite overwhelmed by her diagnosis and its apparent seriousness. After another round of drops and compressions the IOP reached 44 mmHg, and NM was sent home with prescriptions for acetazolamide extended release 500 mg po bid, Lumigan OU qhs, Combigan OD bid, and pilocarpine 1% OD tid, along with the phone numbers of my supervisor and an ophthalmologist he works closely with.

On Monday, her IOPs were 14 OD and 17 OS. She was referred for an LPI, but this wasn't performed because her anterior chamber was too shallow, risking damage to her corneal endothelium.

Later that week, NM had cataract surgery OD along with a form of minimally invasive glaucoma surgery: canaloplasty 360° and goniotomy 180° using the OMNI system. In canaloplasty, a microcatheter is used to inject viscoelastic into the trabecular meshwork, stretching it to enhance drainage. In goniotomy, the microcatheter is inserted through the trabecular meshwork and then torn through the trabecular meshwork wall into the anterior chamber, opening up the drainage pathway.

After surgical healing, vision corrected to 20/60 OD with a highly constricted visual field. IOPs were 10 mmHg OD 12 mmHg OS while still taking 500 mg acetazolamide, Lumigan OU qhs and Combigan OD bid. Cataract surgery has been scheduled shortly for her left eye to prevent future angle closure. For me, the take home messages are these: always take pressures on a red eye. Be sure to know the emergency conditions, and keep in mind that if you don't know the diagnosis, your treatment is unlikely to help. It also highlights the importance of educating our fellow health care workers about the importance of the services we can provide. Although NM promptly sought care, mismanagement of her condition led to considerable vision loss and significant stress for her and her family.

LOOKING BACK

By Mark Zasowski, *2nd year optometry student*

This year marks the 75th anniversary of the liberation of Auschwitz concentration camp. The following photo ominously displays a picture of some of the glasses that now remain from the former inmates, as viewed clearly through a pair of modern lenses. There's an obvious contrast in styles, shapes and materials when the old are compared to the new, yet many similarities remain. The craft of optometrists and other eye care professionals is one example of the many things that unites us with the humanity of those who have come before us. Furthermore, it is one of the things that allows us to look back on and reflect on our history in continuing to move forward, learning from the mistakes of our past.

BEYOND 20/20

By Victoria Hoy, *3rd year optometry student*

"1 or 2?", possibly the first thing that comes to mind when you hear the word, optometrist. But why? What else do optometrists do besides prescribe glasses and contacts? As primary eye care providers, optometrists work on the front line of improving vision, as well as behind the surface in examining the health of the eye and even some systemic conditions in the body.

The retina at the back of the eye is the only place to observe the vascular system live, without having to go under the skin. It gives many clues to what is going on in the rest of the body and can allow for early detection or monitoring of conditions such as diabetes and hypertension. Comprehensive eye examinations have evolved immensely over the years with new technologies, expanding the possibility of health care which can be co-managed interprofessionally if necessary.

Good vision and eye health are absolutely invaluable to our lives and can help us cherish the moment vividly. It is our primary means of experiencing the world and should be preserved to the best of our abilities, with the help of an optometrist.

Optometry is, beyond 20/20.


INSTRUMENTS
PRESCRIPTION
FRAME
INFO
MODEL
COLOR
HEALTH

The Canadian Optometric Education Trust Fund (COETF) was created in 1976 to financially support optometric research, education, and human resources development in Canada. The COETF relies on donations from Canadian optometrists to fund research that advances vision and eye care in Canada.

These donations allow COETF to offer an annual awards program that has supported research projects, faculty development, and specialized education programs carried out by graduate students. COETF has also supported investigative projects conducted by undergraduates and faculty at Canada's schools of optometry, as well as projects undertaken by independent practitioners or members of the public.

Each year the COETF receives around thirty requests to fund research projects. COETF is able to fund approximately one third of the submissions to a total of $30,000. Do you have a project that could benefit from funding? We want to help! Criteria for approval include the following:

1. Research Approach
2. Originality of the Proposal
3. Applicant(s) experience and qualifications, and ability to complete and apply the project
4. Environment for the Research
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6. Anticipated Benefits of this Program / Project

Submit your project for consideration. The deadline for applications each year is in early February. For additional information about the application process or a copy of the application form, contact coetf@outlook.com or visit our website at coetf.ca.

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CANADIAN OPTOMETRIC EDUCATION TRUST FUND

FONDS DE FIDUCIE DES OPTOMÉTRISTES CANADIENS POUR L'ÉDUCATION

DIAGNOSIS AND MANAGEMENT OF ADULT-ONSET COMITANT NON-ACCOMMODATIVE ESOTROPIA

By Laura Lambert
University of Waterloo School of Optometry, Class of 2020

abstract
Report of a 21-year-old white female who had gradual onset esotropia without a longstanding history of esophoria. Her strabismus was comitant, non-accommodative and intermittent with diplopia only at distance. The final differential diagnosis made was acute acquired comitant esotropia vs. decompensated esophoria. Neurological consultation would be worth considering in this case due to the changing deviation angle. Although previously managed with base out prism, she was referred for bilateral medial rectus recession, with a high likelihood of a good outcome due to her fusional ability.

key words
late-onset esotropia, decompensated esophoria, acute acquired comitant esotropia, strabismus surgery

introduction
In adult patients presenting with esotropia and diplopia, a careful diagnostic approach is required. This paper reports a case of gradual onset adult esotropia without history of longstanding esophoria, and discusses the diagnostic and management strategies used. This case has unique considerations, including diagnostic uncertainly between decompensating esophoria and a rare more condition: acute acquired comitant esotropia. It demonstrates that small angle binocular diplopia can be undetected by cover test, which leads to the question of how to use our discretion regarding the Ministry of Transportation of Ontario (MTO) visual reporting requirements. Overall, this case of an adult-onset esotropia brings up debates as to its correct diagnosis, the appropriate management, whether there is need for neurological examination, and how best to interpret MTO requirements.

case

A 21 year old Caucasian female (initials EB) presented for a full eye exam in the Primary Care Optometry clinic of the University of Waterloo. Her chief complaint was slight horizontal diplopia with distance viewing. Onset was gradual, starting 2 months prior. The distance between the images increased with fatigue. Her habitual spectacle prescription was OD -5.50/-0.50 X012 6Δ BO; OS -5.25/-0.75 X012 6Δ BO, giving 12Δ base out total. She reported blurred distance vision and neither flashes nor floaters. She had a longstanding history of headaches, which occurred couple times per week in the evening.

ocular history

EB's mother reported that EB was had an eye turn from birth which resolved by 4 months. The direction and frequency of the eye turn is unknown. EB has never had ocular surgery. She started wearing glasses for myopia at age 10. At an eye exam in 2011 (age 13), EB was recorded as orthophoric at distance and near. In 2013 (age 15), EB was prescribed base out prism in her glasses, although the power is unknown. In 2014 (age 16), EB was 20 esophoric at distance and near, with no eye strain, headaches or diplopia with her glasses. She was prescribed 2 BO total at that appointment. In the summer of 2016, EB broke her glasses and began to wear contact lenses full-time. In December 2016 (age 18), EB began to go "cross eyed" causing constant diplopia at distance. She was referred to the University of Waterloo binocular vision clinic, and was assessed in February 2017. She was found to have a 30Δ constant left esotropia at distance and a 30Δ intermittent left esotropia at near, with an associated phoria of 12Δ BO at distance and near. She was prescribed 12Δ BO. At a follow up in March 2017, she started the Computerized Home Vision Therapy Systems program. She was then lost to follow-up.

medical history

EB has depression which is treated with Zoloft (sertraline). She is allergic to amoxicillin and penicillin. She smokes socially.

family history

EB's mother wore bifocals due to an eye turn as a child.

social history

EB is a law clerk student. She lives at home in Waterloo and drives to London a few times a week for school. She is taking an extended time for her program due to depressive episodes. Her main hobby is being outdoors.

exam findings

At EB's assessment in August 2019, she had distance visual acuities of OD $6/6^{-}$, OS $6/6^{-3}$, and OU 6/6 with her habitual glasses. Near aided visual acuities were OD 0.4M, OS 0.4M, OU 0.5M at 40 cm. Pupils were equal, round and reactive to light with no relative afferent pupillary defect. Confrontation fields were full to finger count. Subjective refraction was OD -5.75/-0.75 X012 6/6, OS -5.75/-1.00 X015 6/6. Red/green balance was OD -6.00/-0.75 X012, OS -5.50/-1.00 X015. Subjective refraction after instillation of 1% tropicamide was OD -5.75/-0.75 X012, OS -5.50/-1.00 X015. Amplitudes of accommodation were 5D OD and 2D OS by push-up.

While wearing her habitual glasses (with 12Δ BO total), cover test showed EB to be non-strabismic with 20Δ esophoria at distance and near. With her correction in a trial frame and no prism, cover test showed a 35Δ constant left esotropia at distance, and non-strab at near with a 35Δ esophoria. Comitancy testing at distance showed 35Δ esotropia in right and left gaze. Broad H showed no ocular restrictions. Movements were full, smooth and accurate. Near point of convergence was 3, 4, and 4 cm.

Ocular health was unremarkable on anterior segment and dilated fundus examination, with no disc edema being a pertinent negative.

differential diagnosis

Subjective refraction post tropicamide 1% instillation did not the decrease the amount of myopia, so a component of excessive accommodative convergence to the esotropia was ruled out. The low accommodative amplitude values are therefore a result of accommodative insufficiency, rather than excessive accommodation at distance. EB therefore has comitant, non-accommodative, intermittent esotropia with equal esodeviation at distance and near, but which manifests at only distance. The most relevant differentials for this presentation are decompensated monofixational phoria, acute acquired comitant esotropia, and decompensating esophoria[1]. These differentials will be discussed below.

Monofixational phorias can decompensate into a larger tropias. A monofixational phoria occurs when a large phoria is mostly compensated, but the eyes are not fully aligned, leaving a smaller tropia and a suppression scotoma near the fovea to prevent diplopia[2]. This causes stereopsis to be less than 60 seconds of arc due to non-foveal fusion[2]. EB was found to have stereopsis of 40 seconds of arc at a later appointment, which indicates that she fuses foveally with no foveal suppression scotoma, ruling out a decompensated monofixational phoria.

Longstanding esophorias can decompensate at any age, resulting in esotropia and diplopia. Decompensation is benign and can occur spontaneously, from illness or after prolonged dissociation from occlusion[3]. Onset is gradual, with progressive intermittent diplopia that can suddenly become constant[4]. EB matches the gradual onset of diplopia, which began intermittently in 2015 and progressed to constant at distance in 2016. EB also has a history of ocular misalignment as an infant, which may have been an infantile esotropia that resolved but left a significant esophoria. However, looking back upon her ocular record history, EB was recorded as orthophoric in 2011, which indicates she does not have a longstanding esophoria. The third differential of acute acquired comitant esotropia therefore becomes important.

Acute acquired comitant esotropia is a rare condition that is heterogeneous in its characteristics. It presents in late childhood (age 4 and above) or adulthood[5], and has been classified into three main categories[6-8]. The first (Type I, Swan type) occurs after occlusion of one eye[6-8]. There is no known history of prolonged occlusion in EB. Type II (Franceschetti type) is an acute onset esotropia that can start as intermittent but rapidly becomes constant[6-8]. The underlying cause is unknown, although emotional trauma could be a precipitating factor. EB's esotropia did start as intermittent, although its progression to constant at distance occurred gradually over one year. Type III (Bielschowsky type) is associated with myopia[6-8]. These patients can have esotropia at distance but maintain fusion at near, or can be esotropic at both distance and near. They often present with a small angle strabismus (<10Δ) that increases over time[6]. EB most closely matches this form of acute acquired esotropia, as she is myopic, maintains near fusion and her angle has increased with time. However, she lacks the key feature of acute onset[9].

treatment

EB was offered an increase in prismatic correction, vision therapy, or surgery to manage her strabismus. She was informed that an increase in prism correction would make her glasses thicker, and she already dislikes her thick glasses. She was not interested in vision therapy, as she had tried the Computerized Home Vision Therapy

System without noticing any improvement. She opted for strabismus repair surgery, and was referred. She was educated that surgery may not result in perfect alignment, and that prismatic correction, vision therapy, or repeat surgery may be required.

EB had a consultation for strabismus surgery in November 2019, and agreed to undergo bilateral medial rectus recession. She declined adjustable sutures as she was apprehensive about being awake for any part of the procedure.

A final glasses prescription of OD -5.75/-0.75 X012 6.50 BO, OS -5.50/-1.00 X015 6.50 BO was given. It was recommended that she withhold from updating her glasses until after surgery, as the prismatic correction required would change post-operatively.

discussion

When examining a patient with late-onset esotropia, it is important to rule out the possibility of a pathological cause[8]. The vast majority of neuropathic and myopathic causes of strabismus are incomitant, and if an acute onset esotropia is incomitant then an abducens (CN VI) palsy must be assumed until proven otherwise[8, 10]. A mild bilateral abducens palsy may appear as comitant esotropia, but can be due to a central nervous system disorder[7]. Divergence insufficiency is also commonly associated with neurological causes[11, 12]. In this case, careful slow cover testing was required to measure the correct angle of esotropia, as the angle was highly variable due to habitual straining of divergence. An incorrectly measured esotropia could have lead to an incorrect diagnosis of divergence insufficiency in our patient, as she was more successful in maintaining her alignment at near than at distance. There is diagnostic uncertainty in this case between decompensated esophoria and acute acquired comitant esotropia. The diagnosis of decompensated esophoria is supported by the gradual onset of diplopia, which was first noted a year before becoming constant. EB's history suggests she could have had significant esophoria from childhood, as she has a possible history of a self-resolved infantile esotropia. However, the previous records that indicate that EB was orthophoric in 2011, eliminating the history of longstanding esophoria and suggesting the alternative diagnosis of acute acquired comitant esotropia. EB did not have acute onset esotropia, as her strabismus was intermittent for a year or more before becoming constant at distance. Although some forms of acute esotropia begin as intermittent, they quickly become constant8. Thus, EB does not perfectly fit the picture of either diagnosis.

need for neurological consult in acute acquired comitant esotropia

It is had been debated whether neurological consultation is required in cases of acute acquired comitant esotropia[4, 8]. It is generally considered benign, but has been associated with a variety of pathology including tumours of the posterior fossa[3, 5, 7, 8]. Malignancy is more likely with onset in childhood (age 4 to 10 years)[6]. Additional neurological signs/symptoms are an indication for further neurological testing. These include nystagmus, facial paresis, poor motor control, lack of fusional ability, headache, vertical deviation, and other cranial nerve involvement[3]. The only of these for which EB was positive is headache, which was longstanding, in the evenings only, and could be associated with fatigue and/or accommodative insufficiency.

changing angle of strabismus

As seen above, the cover test/ocular alignment history was important in the differential diagnosis of this patient, particularly her history of orthophoria in 2011. During cover testing, EB's deviation was highly variable, particularly

with near measurements. EB habitually strains to maintain ocular alignment and is able to fuse a 16Δ esophoria while wearing her glasses. Long occlusion and slow alternation was required to reveal the full angle. The variability of her angle suggests that in 2011, when EB's deviation was well-controlled, a cover test may have appeared orthophoric if it was done quickly without giving her time to fully dissociate. However, it's also possible that a neurological event led to a change in her ocular alignment[7]. Whenever a strabismus angle is changing, a neurological investigation is recommended6. In 2017, an MRI was suggested to EB's family doctor; however, the managing optometrists did not inquire further whether an MRI had been administered or what the results were. It would be prudent to ensure an MRI has been performed to rule out any neurological cause.

discussion of treatment

The treatment options for esotropia are prismatic correction, vision therapy, and strabismus surgery[1]. Base out prism is a tempting option for esotropia; however, it prevents the patient from practicing divergence. This worsens their divergence ranges, increases their symptoms, and ultimately leads to increasing prismatic correction being required[13-15]. Weight and distortion of prisms limit their use to about 12Δ, though more can sometimes be tolerated[15]. Prisms are useful temporarily or for patients who are too ill for other options[13-15].

EB had been previously managed with base out prism and now requires an increased prism power. Her prismatic correction was increased from 12Δ BO to 13Δ BO. Although this was somewhat arbitrary, it would likely successfully manage her diplopia. While wearing her glasses with 12Δ BO, distance cover testing appeared non-strabismic, although EB did in fact have binocular diplopia. Drift and micro-saccades during fixation result in eye movements of about 0.4Δ, which can make strabismic movements of less than 1Δ difficult to distinguish[16]. This suggests that EB's binocular diplopia was less than 1Δ while wearing her glasses, so an increase in prism of 1Δ would be sufficient to eliminate the diplopia.

The second option for strabismus management is vision therapy, which aims to increase fusional reserves to allow for comfortable fusion. Esodeviations are more difficult to treat than exodeviations, with the maximum treatable esodeviation angle being about 20-30Δ [13, 17-19]. EB has an esodeviation of 35Δ, which is beyond the easily treated range.

Strabismus surgery is useful in high angle deviations[1]. Surgeons aim for within 10Δ of orthotropia horizontally, which is a small enough angle that allows for anomalous fusion[1]. Esotropia is treated with unilateral or bilateral medial rectus recession[1]. Adjustable sutures are used 45% of the time in Ontario, and they result in lower re-operation rates (4.1% vs. 7.1%)[20]. Strabismus surgery carries a very low risk of visual loss, although it has been reported anecdotally due to scleral perforation or endophthalmitis[1]. Other risks include significant hemorrhage, muscle detachment, anterior segment ischemia, inclusion of the plica semilunaris in conjunctival closure, conjunctival cysts, and corneal dellens[1,21]. The most notable risk is that of over- or under-correction.

Surgery in adult patients has good success rates. 80% of patients meet the target of <10Δ horizontal heterotropia with one surgery[22]. In a study of adults with diplopia, 67-94% had their diplopia eliminated with surgery20. In Ontario, a study found that 409/417 (98%) of diplopic patients became non-diplopic in primary gaze[20]. In acute acquired comitant esotropia, 72% of patients experience resolution of their diplopia[23]. From the patient's perspective, strabismus surgery significantly improves quality of life in 62% of patients at 2 months post-op[24].

A limitation of these outcome results is that few studies extend beyond one year.

Decompensated esophoria and acute acquired comitant esotropia both respond well to surgery due to good binocular potential[3]. The chance of successful alignment and maintenance of ocular alignment after strabismus surgery is higher for patients who have good vision in each eye, have foveal fusion, have not had previous surgery, and do not have vertical strabismus[20]. EB meets all of these criteria, giving a good likelihood for successful alignment.

EB's infantile eye-turn

A unique feature of this case is the history of potential ocular misalignment during infancy. Epicanthal folds often give the appearance of an esotropia in infants[9], and the mother's own history of an eye turn may have made her more sensitive to potential ocular misalignment in her child. Infants frequently have variable ocular angles, as their vision is not fully developed and their ocular alignment is not established. However, it is also possible that EB had an infantile esotropia that self-resolved. Resolution occurs more commonly in small, intermittent, and variable angle esotropias[25]. A resolved infantile esotropia might leave a residual esophoria, which could decompensate later in life. It is unlikely that EB had an infantile exotropia, as these are rare in healthy children and usually require surgery to realign the eyes[26-28].

onset of constant distance diplopia

EB reported that her esotropia became constant in 2016 after breaking her glasses and starting full-time contact lens wear. The glasses she broke had 2ΔBO, and it is possible that the loss of this prism precipitated the constant strabismus at distance. Another case has been reported of a 35-year-old male who switched from glasses to contact lenses and had acute onset of esotropia and diplopia, which did not resolve with returning to glasses wear. The increase in accommodative demand with contact lenses was postulated as a cause for his sudden esotropia[7].

accommodation

Although accommodative esotropia classically onsets in children, it can occur in adulthood secondary to accommodative spasm[29]. This spasm can be post-concussion, related to stress or intensive near work, or idiopathic. EB's low accommodative amplitudes suggested that she may have accommodative spasm. The 2019 accommodative findings were comparable to those of 2017, which showed 5D in each eye. Subjective refraction after instillation of 1% tropicamide did not reveal any decrease in myopia. Although cyclopentolate is the cycloplegic of choice for the examination of strabismus, tropicamide has been found to be as effective as cyclopentolate in myopes and low to moderate hyperopes[30, 31]. As no decrease in myopia was found with 1% tropicamide, it is unlikely that cyclopentolate would reveal any accommodative spasm. The low amplitudes of accommodation are therefore due to accommodative insufficiency. Interestingly, the anti-depressant taken by EB, Zoloft (sertraline), has abnormal accommodation as an infrequent adverse effect[32]. EB's accommodative insufficiency was not addressed at this appointment, and although she did not report difficulty with near work, she would likely benefit from a near add or accommodative training.

It is worth noting that EB is able to maintain ocular alignment at near without prismatic correction, despite a 35Δ esophoria. Her corrected binocular near acuity was slightly reduced compared to her near monocular acuity. This suggests that EB relaxes her accommodation in order to fuse at near.

MTO reporting

An interesting consideration in this case is whether it is required to report to the Ministry of Transportation of

Ontario. Optometrists in Ontario are required to report any patient with poorer than 6/15 best corrected visual acuity, a visual field that doesn't have 60 degrees to either side of the vertical midline and 15 degrees above and below fixation, or who experiences diplopia within 40 degrees of fixation[33]. EB's chief complaint was diplopia at distance, which included when driving. Although the issue is not clear-cut, reporting to the MTO was deemed not necessary in this case. Diplopia less than 4Δ may not be true diplopia, but rather image ghosting[11]. EB has $6/6^{-3}$ acuity and is non-strabismic with her current glasses. This indicates that she is within safe driving limits. However, EB reported that the separation of the images increases with fatigue. It would therefore be prudent to use a temporary Fresnel prism to prevent gross diplopia with fatigue.

conclusion

The full history of a patient's strabismus is important to making an appropriate diagnosis of the type and etiology of the strabismus[1, 10]. In our case, the history of orthophoria in 2011 and the increasing angle of deviation was what prevented a firm diagnosis of decompensating esophoria, and raised the differential of acute acquired comitant esotropia. Requesting previous records is thus a crucial step in the care of your strabismic patients. In late-onset strabismus, it is important to consider the possibility of a neurological cause[3]. Even comitant esotropias of sudden onset can be of neurological origin, and although this is rare, clinicians must be on the lookout for other neurological signs that indicate that further testing is urgent[3, 6]. As a closing reminder, when presented with a case of adult-onset esotropia, remember to rule out incomitancy and accommodative causes, and also consider strabismus surgery as a useful treatment/management option in patients who have foveal fusion.

See appendix for references.

TRAUMA INDUCED CORNEAL ABRASION AND IRITIS

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abstract

Corneal abrasions are common sequelae of ocular trauma. Traumatic iritis is generally a mild inflammatory reaction that can occur following trauma, although its presentation can vary from mild to severe depending on the patient and the severity of the traumatic event. This paper reports on a patient that presented after sustaining ocular trauma and was subsequently diagnosed and treated for both a typical traumatic corneal abrasion and atypical traumatic iritis. It is critical to conduct a thorough exam to diagnose and record appropriate pertinent positives and negatives for these conditions. It is also critical to be informed on the typical presentation of these conditions to accurately assess any deviations from the norm and treat appropriately.

key words

corneal abrasion, traumatic iritis, trauma

introduction

A simple corneal abrasion is a defect in the epithelial layer of the cornea that is caused by mechanical trauma to the eye.[1] Typical symptoms include pain, foreign-body sensation, photophobia, blepharospasm, and tearing.[2] The diagnosis of corneal abrasions is made clinically, and upon slit-lamp anterior segment examination, a positively-staining corneal epithelial defect and diffuse corneal edema will be observed.[2] There are three general goals for treating corneal abrasions: preventing infection, controlling pain, and healing the corneal defect.[3] Preventing infection includes prophylactically prescribing a broad-spectrum antibiotic until the epithelial defect is closed. Pain is controlled by oral analgesics, artificial tears, bandage contact lenses, topical NSAIDs, and cycloplegia. Pressure patching and prescribing topical anesthetics or steroids are no longer accepted treatments for pain control.[3] Follow-up should be scheduled in one day for abrasions larger than

4mm, abrasions sustained in CL wearers, and abrasions with vision loss. No follow-up is required for smaller, uncomplicated abrasions as they will heal in 24-48 hours.[3] Complications of corneal abrasions include infectious keratitis, traumatic iritis, and recurrent corneal erosions.[3]

Non-surgical traumatic iritis represents 0.5-4.8% of uveitis.[4] Traumatic iritis presents within 24-72 hours of trauma.[5] The diagnosis is determined by a history of trauma and presence of inflammatory cells in the anterior chamber or vitreous cavity on slit-lamp evaluation. Typical presenting symptoms include dull or aching pain, photophobia, decreased vision, and tearing.[5] There is growing belief that those with autoimmune disease or other inflammatory disorders may be predisposed to an increased risk or degree of inflammation when compared to the normal population after ocular trauma.[4] Treatment is directed at removing the cause of inflammation (typically removed before presentation), and treating the inflammation by prescribing topical anti-inflammatory medication and then titrating it appropriately for the degree of inflammation to prevent any side effects from prolonged inflammation. Topical cycloplegics aid in preventing posterior synechiae and reducing photophobia.

This paper reports on a case of a 22-year-old Caucasian female who presented reporting "scratching her right eye on a box the night before". The patient was diagnosed and subsequently treated for both a corneal abrasion and traumatic iritis.

case report

History

A 22-year-old Caucasian female presents as a walk-in appointment complaining of scratching her eye on a box the night before. The patient had not tried any management on her own. The patient reported symptoms of blurry vision, redness, watering, pain, and light sensitivity. There was no discharge from the eye upon awakening. The patient had never experienced this type of pain in her eye before.

Past ocular history was significant for a constant alternating esotropia and hyper deviation at both distance and near favouring the left eye for vision. Best corrected visual acuity (BCVA) at the previous exam six months prior was 6/7.5 OD and 6/7.5 OS and intraocular pressure (IOP) was 15mmHg OD and 16mmHg OS (non-contact tonometry at 10:46AM). The patient wore spectacles and did not wear contact lenses. Systemic medical history was significant for depression for which the patient was taking an anti-depressant of unknown name or dosage. The patient also reported seasonal allergies that were worse in the spring. Social history was unremarkable. Family health history was negative for any vascular or inflammatory disorders.

Examination

The presenting pinhole acuities were $6/15^{-1}$ OD and $6/18^{+2}$ OS. Acuities were then measured with the phoropter containing the habitual refraction which showed no improvement OD and $6/7.5^{-2}$ OS. Pupils were unable to be assessed secondary to the patient's severe photophobia. IOP measurements were declined by the patient in pre-testing due to the discomfort in her right eye. 1 gt of Alcaine (proparacaine hydrochloride 0.5%) was instilled into the right eye prior to slit-lamp assessment to improve patient comfort. Anterior segment examination of the right eye revealed a linear epithelial corneal abrasion approximately 4mm in length that stained positively with fluorescein and grade 2+ diffuse hyperemia of the bulbar conjunctiva. The eyelids, lens, and vitreous were unremarkable. Anterior chamber was not assessed and angles were grade 4. A corneal abrasion was diagnosed in the right eye. Treatment with a bandage contact lens (Biofinity +0.25DS) and Vigamox (moxifloxacin ophthalmic solution 0.5%) was prescribed for use q.i.d. OD only. A one-day follow-up appointment was booked.

The patient presented on the second day reporting similar or worsening symptoms compared to day one. She had been adherent with the Vigamox drops. The patient reported experiencing a sharp pain in her right eye upon awakening at midnight and again in the morning. Pinhole acuity worsened compared to the first day to $6/30^{-2}$ OD. Acuities measured with the habitual refraction in the phoropter showed no improvement OD and $6/7.5^{-2}$ OS. Pupils were equally round and reactive to light with a negative relative afferent pupillary defect (RAPD). The bandage contact lens was removed. IOP measurement was again declined by the patient secondary to her discomfort in the right eye. Anterior segment examination of the right cornea revealed no improvement to the linear corneal abrasion's size or depth from the first day. The anterior chamber was assessed and graded according to the SUN Working Group Grading Scheme of 2005 as grade 4+ cells and grade 2+ flare. 1 gt of Cyclogyl (cyclopentolate 1%) was instilled in the right eye in office. The diagnosis was changed to a corneal abrasion with traumatic iritis OD. Treatment included continuing 1 gt Vigamox (moxifloxacin ophthalmic solution 0.5%) q.i.d. OD only, 1 gt Pred Forte (prednisolone acetate 1% ophthalmic solution) q1hr OD only, 1 gt Cyclogyl (cyclopentolate 1% ophthalmic solution) q.i.d. OD only, lubricating ointment q.h.s., and follow-up was booked for the next day.

Follow-ups

Follow-up appointments during the inflammatory phase of the traumatic iritis were held on days four, five, seven. The table below summarizes the pertinent findings from those exams, where the examination on day five was performed by the supervising clinician and not by the author of this case report.

	Day 4	**Day 5**	**Day 7**
VA (pinhole) OD	$6/12^{+2}$	$6/9^{-2}$	—
VA (specs) OD	—	$6/12^{-1}$	—
IOP	13 (NCT at 11:58am)	13 (NCT at 1:34pm)	14 (NCT at 12:55pm)
Corneal findings	Two spots of SPK KP (non-gran) inf.	Four spots of SPK KP (non-gran) inf. Corneal irregularity	Three spots of SPK KP (non-gran) inf. Corneal irregularity
Anterior chamber reaction	Grade 1+ cells Grade 1+ flare	Grade 0.5+ cells trace flare	Grade 0.5+ cells trace flare
Treatment	1 gt Cyclogyl (1% cyclopentolate) instilled in office. Continue treatment drops as per day 2. F/u in 1 day.	Continue treatment drops as per day 2. F/u in 2 days.	Taper Pred Forte: 1 gt Pred Forte q2hr x1 day, 1 gt Pred Forte q.i.d. x7 days, 1 gt Pred Forte t.i.d. x7 days, 1 gt Pred Forte b.i.d. x7 days, 1 gt Pred Forte q.d. x7 days. D/C VIGAMOX. F/u in 2 weeks

Table 1: Pertinent findings and treatment from follow-up examinations on days four, five, and seven.

The patient presented for her two-week follow-up on day 25 reporting no symptoms remaining. The patient had tapered her anti-inflammatory drops q.i.d for seven days and b.i.d. for seven days. She reported using her ointment nightly. VA with her spectacles was $6/9^{-2}$ OD and $6/6^{-1}$ OS. IOP was not measured during the examination. Anterior segment examination revealed SPK inferiorly and some corneal edema remaining OD, the KP had resolved. Anterior chamber was deep and quiet and negative for both cells and flare. Diagnosis was a resolving corneal abrasion and traumatic iritis OD. Treatment involved continuing the nightly ointment OD only, all other topical eye drops were discontinued. Follow-up exam was booked for one month.

The final follow-up was held on day 70, approximately one month after her last exam. This examination was performed by the supervising clinician and not by the author of this case report. The patient reported her vision in the right eye had returned to normal with no other remaining symptoms. VA through her habitual specs was $6/7.5^{+1}$ OD and $6/7.5^{+2}$ OS. Anterior segment was unremarkable: all edema and SPK had resolved. Anterior chamber was deep and quiet and negative for cells and flare. At this point, the patient was released from follow-up care to monitor the traumatic corneal abrasion and iritis and was recommended to continue routine visits only.

discussion

The presentation of the patient's corneal abrasion was typical of what is reported in the literature. Corneal abrasions are most commonly follow mechanical trauma which the patient experienced in the form of a box hitting her eye.[3] Pain is a common presenting symptom as the corneal epithelium is damaged and the ciliary body is theorized to spasm in response to corneal injury. Pain can be treated with oral analgesics, artificial tears, bandage contact lenses, topical NSAIDs, and cycloplegia. In this case, the patient's pain was treated with a bandage contact lens; an oral analgesic and a topical cycloplegic should have been considered.

There is both evidence for and evidence against the consideration of prescribing topical cycloplegics in the management of corneal abrasions. A theoretical reason for their use is that ciliary body spasm might occur following the corneal abrasion and the spasm contributes to the pain.[6] A triple-blind randomized controlled trial by Meek et al. wanted to determine if a topical cycloplegic eye drop, homatropine 5% in their study, was effective in reducing pain of corneal abrasions. They used visual analog scale (VAS) pain ratings over the first 24-hours and found no statistical difference in the pain experienced by the treatment group compared to the control, although they do comment that some level of therapeutic benefit is not excluded.[6] Another therapeutic benefit of topical cycloplegics following corneal abrasions is preventing inflammatory sequelae by stabilizing the blood-aqueous barrier.[7] A topical cycloplegic was not prescribed in this case and the patient went on to develop a traumatic iritis. It would be interesting to discern if the iritis would have presented with the same severity had a topical cycloplegic been instilled into the right eye on the first day.

The sharp pains that the patient experienced at midnight and in the morning after the first day were likely re-openings of the wound based on the weak adhesions between the regenerating epithelium and underlying tissue.[8] The corneal epithelium is a self-renewing tissue with stem cell niches in the corneoscleral junction and limbus providing a life-long supply of proliferating cells for epithelial regeneration.[9] There are numerous cell signaling molecules that guide the complex healing process. Epithelial wound healing is not complete until the newly regenerated epithelium has anchored firmly to the underlying connective tissue which is a process that is established by approximately six weeks.[8] In this case,

prophylactic ointment q.h.s. was initiated on the second day to aid healing and reduce the risk of recurrent corneal erosions ensuing, a treatment method that is supported by numerous studies.[10]

The patient's corneal abrasion healed in four days, which is within the normal timeline reported in the literature of 3-5 days.[2] The patient's systemic and ocular histories were negative for known conditions that can delay healing which include diabetes, corneal denervation, dry eye, lagophthalmos, recurrent corneal erosions, and basement membrane changes or other corneal dystrophies. These conditions need to be considered if a patient does not heal within the expected 3-5 days.

The presentation of the patient's traumatic iritis was atypical of a simple traumatic iritis according to the literature. In general, traumatic iritis is a mild anterior chamber inflammation that is self-limiting in nature secondary to the stimulus to inflammation being removed at the time of the traumatic event. In these mild cases, anti-inflammatory medication can sometimes be withheld depending on the level of inflammation.[11] Traumatic iritis typically resolves on its own within 7-14 days; however topical steroids and cycloplegics are routinely initiated to prevent complications associated with prolonged inflammation.[12] The literature reports q.i.d. dosing of anti-inflammatory medication when used to treat traumatic iritis, although it is suggested that professional judgement and the individual patient's symptoms and findings may have a significant impact on the nature, extent, and course of services provided by the clinician including the prescribing and dosing of any medication.[13] In this case, anti-inflammatory medication was prescribed every hour, a dosing schedule that is too frequent given the pathophysiology of the condition and its self-limiting nature. The dosing of the steroid was also too frequent given there remained an open corneal wound whose healing could have been limited by the steroid's adverse effect of delaying corneal wound healing and increasing susceptibility to infection.[14] In this case, the steroid could have been dosed q.i.d. the second day or it could have been withheld until the epithelial defect had healed.

A diagnosis that should have been considered at the second examination is the corneal abrasion became infected causing the increased discomfort and anterior chamber reaction. This could have been a costly missed diagnosis had an infection been present as steroid treatment was initiated at the second examination and could have exacerbated the infectious process. It is crucial to accurately assess corneal defects for underlying infiltrates to determine if an infectious process is present and document this pertinent negative if infiltrates are absent.

To accurately diagnose uveitis, indirect ophthalmoscopy through dilated pupils should be undertaken to rule out intermediate or posterior uveitis as the cause of anterior segment inflammation.[13] A dilated fundus exam was not done in this case. A retrospective study performed by Engelhard et al. reported on 54 traumatic iritis patients that frequented their tertiary referral center from 1984-2014. They found that all 54 patients that were diagnosed with traumatic iritis had inflammation that was limited to the anterior chamber.[4] This paper supports that a dilated fundus exam is not required to diagnose simple traumatic iritis cases, although depending on the severity of the trauma, a dilated fundus exam is standard of care to look for other post-traumatic ocular complications such as retinal tears, retinal dialysis, and commotio retinae as a non-exhaustive list. Given the severity of the inflammation in this atypical presentation of traumatic iritis and the suspicion of a possible underlying autoimmune or inflammatory disorder, a dilated fundus exam should have been performed to rule out intermediate or posterior

segment involvement in this case.

There is systemic testing that is indicated in certain presentations of anterior segment inflammation, including: 1. Anterior uveitis (non-granulomatous) in an adult, unilateral and either moderate and severe, 2. Anterior uveitis (non-granulomatous) in an adult, recurrent, chronic, or bilateral, and either moderate or severe, 3. Anterior uveitis with granulomatous features, in an adult, 4. Anterior uveitis in a child.[15] The patient in this case does not fall into any of these categories as the patient's iritis was diagnosed as traumatic in origin, although a moderate-severe inflammation on the second day must be noted. This is more inflammation than what would be expected for a typical traumatic iritis and could suggest that the patient has an underlying autoimmune disease or other inflammatory disorder that may have pre-disposed her to the increased inflammatory response to trauma.[4] A review of systems should have been done for the patient and systemic testing could have been ordered as indicated or at least noted in the file in case of another recurrence.

conclusion

This case highlights a typical corneal abrasion that occurred secondary to trauma and an atypical presentation of traumatic iritis. In treating traumatic iritis, the severity of the inflammation dictates the treatment that is prescribed. In general, traumatic iritis is a mild inflammation that is self-limiting in nature due to the pathophysiology of the condition. In these mild cases, topical cycloplegics are prescribed to increase the comfort of the patient and to stabilize the blood-aqueous barrier and anti-inflammatory medications are withheld initially. There is growing belief that more severe presentations of traumatic iritis occur in those individuals with underlying autoimmune disease or other inflammatory disorders. In these more severe cases, topical cycloplegics and topical anti-inflammatory medications are prescribed to quell the inflammatory response and decrease the risk of vision-threatening sequelae including posterior synechiae, anterior synechiae, cataracts, intraocular hypertension and glaucoma, and cystoid macular edema. The dosing standard of the anti-inflammatory medication quoted around the literature is q.i.d. but practitioner judgement will determine the exact dosing of the medication. In cases where the inflammation is severe and the patient does not have a history of autoimmune or inflammatory disorders, a review of systems and appropriate systemic testing should be considered or employed.

acknowledgements

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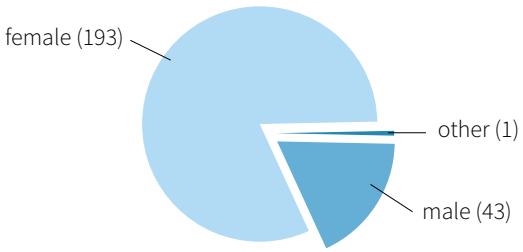
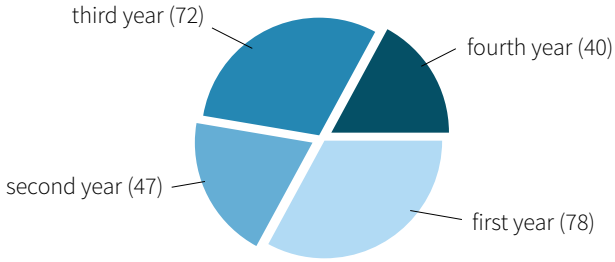
See appendix for references.

STUDENT EXPECTATIONS/ EXPERIENCE SURVEY (SEES)

The Canadian Association of Optometry Students (CAOS) conducted the Student Expectations/ Experience (SEE) Survey in December 2019 to learn more about the student expectations post-graduation and was shown to the professional associations and colleges. The survey was sent to all Canadian students studying in Canada and USA. The full report can be found here.

we surveyed 237 students

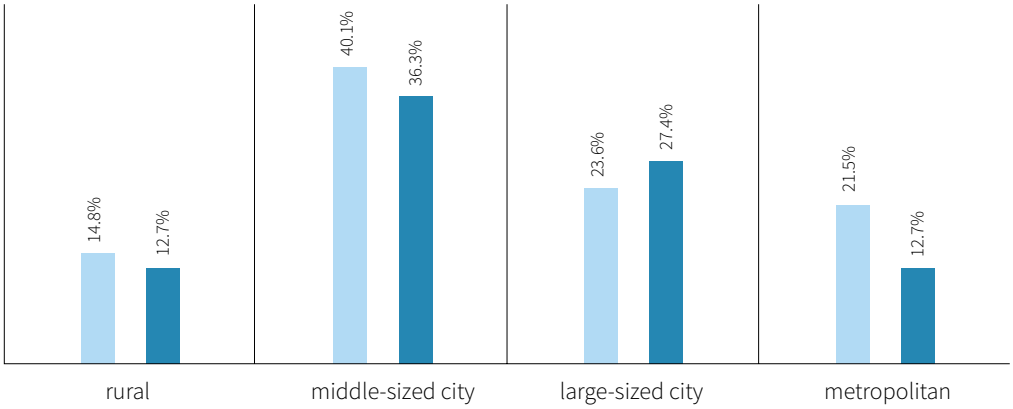




location ambition

Where would you like to work...

- when you first graduate?
- in 15 years?



location influencing factors

The top 3 priorities for students deciding a place of employment:

- proximity to family and friends
- location
- lifestyle

scope of practice expansions

The top 3 expansions students would like to see in 5-10 years:

- expanded drug prescription
- recognition of optometry specialization
- authority to order diagnostic lab tests

challenges of the professions

The top 3 perceived challenges of optometry profession:

- importance of regular eye exams
- regulation of online eyewear and contacts sales
- recognition of optometry's role in healthcare

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APPENDIX

seeing beyond 2020

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