

MSOExpress

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Dear MSO members,

Welcome to the opening issue of our newsletter for 2021. It has been a year since the world went into lockdown for the first time. After adapting to a full year of virtual events, we have become accustomed to doing this and to a certain extent enjoy attending events from the comfort of our homes. Off goes the travel chaos, in comes the IT glitches. We all have seen the many amusing videos of online seminars and meeting going awry. On the hindsight, with the removal of travel from the equation, we all benefitted by spending more time with family, managed to carve out the “me time” and managed to put to action the things we have always wanted to do. Many discovered their hidden talents like baking, dancing, singing, painting and even learned a new language.

However, no one can deny that we all do miss the face-to-face conferences where we get to mingle with our fellow colleagues and friends; and learn in person about the latest technologies available in our field. We all miss the human touch to bond, particularly important in establishing mentorships between enthusiastic young ophthalmologists and wise experts. With the availability of a multitude of vaccines, the once distant flicker of light at the end of the tunnel, now seems radiant and closer. Let's hope that the post pandemic world, allows us to amalgamate the ease of virtual connection with the ability to mingle and freely exchange ideas.

Back at home, this year saw our first fully virtual MSO Annual Scientific Meeting held from 25th-28th of March. We are very grateful to have received an overwhelming response from members for the meet this year, driven by the exciting agenda, professional moderating and engaging debates. For that, we thank you. Bravo to Dr. Shelina Oli Mohamed and her team for the impactful meet. In light of the overwhelming request from members, we would like to announce that the Annual Scientific Meeting 2021 microsite will be online and accessible to members till Sunday, 11th April 2021. MSO members will continue to enjoy access to the recorded sessions, e-posters and virtual exhibition booths during this period.

This year's Annual General Meeting was also efficiently conducted virtually and saw a record turnout. The newly elected committee has been announced on MSO Facebook (FB) page and members have been notified via email. The new committee will be helmed by Dr. Manoharan Shunmugam as the President. Congratulations to all the new committee members and a big thank you for their willingness to contribute more to our society by being in

the committee. On behalf of the new committee, I would like to extend our deepest gratitude to the outgoing President, Dr. Kenneth Fong and esteemed committee members Dr. Fang Seng Kheong, Dr. Shelina Oli Mohamed, Dr. Lee Ming Yueh and Associate Prof. Dr. Amir Samsudin for their invaluable contributions.

In this issue of the MSO Express, we take a sneak preview into the world of Oculoplastics with Dr. Radzlian Othman, a pioneer and trailblazer. He provides insight on his journey from University Sains Malaysia to the halls of fame of Oculoplastics. We follow that up with an exciting analysis on thyroid eye disease classifications, including a new method of classification based on phenotypes. Lastly, we take a time out to discuss an interesting subject that affects all of us as ophthalmologists as well as parents, the impact of the Covid-19 pandemic on myopia in children. The article outlines some preventive tips and hope this is helpful. I hope all of you enjoy the articles in this issue.

As the co-editor of the MSO Express for the past 2 years, I have had the great privilege of working alongside Dr. Manoharan Shunmugam and Ms. Clare. I am no journalist, but helming this position has definitely honed my writing skills and I am grateful for this opportunity. I will now be passing over the baton to Dr. Teh Wee Min and Dr. Chan Jan Bond who will be the new co-editors of MSO Express. With that I would like to bid my Adieu.

DR SUDHASHINI CHANDRASEKARAN

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PERSONALITY FOCUS: A JOURNEY OF AN OCULOPLASTIC SURGEON**Dr Radzlian bin Othman**

A man who had contributed significantly towards the field of oculoplastics in Malaysia, having served the Ministry of Health, Malaysia for 33 years, of which 17 years were as an oculoplastic surgeon. He retired from the government services in November 2020 and is currently enjoying his hard-earned retirement with his family.

Early Life and Background

Dr Radzlian was born in Perlis. Since his father was a police officer, his family was required to move around the country. Thus, most of his childhood was spent in Kepong, Kuala Lumpur. He was the youngest of three siblings. He completed his secondary education at the Victoria Institution, Kuala Lumpur. He then pursued USM matriculation programme and joined the medical faculty of Universiti Sains Malaysia. He graduated with a medical degree in 1987.

**Medical school days...****What made you choose medicine as a profession?**

Becoming a doctor was never my ambition. It was only after my MCE and upon joining the matriculation programme that I decided to try medicine. I like the idea of a non-office-based work, to learn about diseases and the ability to help others.

Career in Ophthalmology

Dr Radzlian did housemanship at the HTAR Klang. When he was a medical officer at the Out Patient Department of Hospital Besar Kuala Lumpur, he befriended a Medical Assistant named Andi who worked in the ophthalmology department. He persuaded Dr Radzlian to go for a post graduate training in Ophthalmology.

What made you choose Ophthalmology as your passion?

I see ophthalmology as a well-rounded discipline. It is both surgical based and medical based. I am able to treat adult as well as paediatric patients. I applied and was accepted for the UKM's Master of Surgery (Ophthalmology). I joined the Master Programme in April 1991. There were ten trainees in my batch and I was the only one who joined without any experience in Ophthalmology. I had to start from scratch. I did not know how to use the slit lamp, let alone the indirect ophthalmoscope. It was difficult but I had good teachers right from the beginning.

Journey in Oculoplastics

Dr Radzlian underwent subspecialty training in Oculoplastic Surgery in the United Kingdom at The Queen Elizabeth Hospital, The Norfolk and Norwich University Hospital and the Addenbrooke's Hospital Cambridge. After completion, he was posted to Hospital Selayang while providing session based Oculoplastic Services to Hospital Putrajaya. He was transferred to start and head the Ophthalmology Department in Hospital Serdang in 2005 where he was also tasked to set up the National Oculoplastic Center which later became the Oculoplastics Excellence Center.



The first oculoplastic surgery and team in Hospital Serdang

What do you enjoy most about being an oculoplastic surgeon?

Firstly, there is a varied scope and fascinating diseases and procedures. There are plenty of procedure that one can do, which I love. In doing procedures, I am allowed to use my creativity. My passion has always been the orbit. It encompassed pathologies like fractures, tumours, inflammatory lesions, vascular lesions and foreign body. There are various approaches in performing orbitotomy or orbital reconstruction. At times, it can be a tense and anxious moment like when doing a biopsy of the optic nerve lesion, excision of large orbital tumours and deep seated orbital lesions. Doing bony orbital decompression can be taxing but it is rewarding.



Endoscopic DCR course in collaboration with ORL department

What is your advice to those interested in pursuing oculoplastics as a subspecialty?

First is to ensure that you really love the field of oculoplastic surgery. Do research on oculoplastic surgery by reading up journals or even from the internet. Youtube is also helpful. Get a basic oculoplastic surgery book and see if it fascinates you. Talk to the Oculoplastic surgeons or to the fellows undergoing training and get their advice. It is good to spend some time at the oculoplastic clinics or attend the surgical theatres. Do attend seminars or conferences on oculoplastics. If you find this subspecialty interesting, you can use your creativity and develop your own art.

What are some of the challenges often faced by fellows training to be oculoplastic surgeons?

They may not have enough exposure and some may also lack supervision as there is also a lack of trainers and training centers. It would be good if a trainee can be posted to various trainers. Most of the trainees just what to cut. However, many do not possess adequate oculoplastic knowledge. Trainees need to update their knowledge. A trainee needs to have greater understanding of aetiology of problems. When doing a procedure, a trainee need to know the aim and the principle of the procedure. They need to be more proactive. For an example, when in the operating theatre; fellows should come prepared with knowledge regarding the procedure even if they have not seen one before. This will help them to learn more efficiently. Co-management is also an aspect the trainees need to master.

What is the current status of oculoplastics sub-specialty in Malaysia and how can it be improved?

It is still at a young stage. Although, there is a steady increase in the number of oculoplastic surgeons over the years, the number is still inadequate. More over, the oculoplastic surgeons are not evenly distributed throughout the country. There is still lack of availability of oculoplastic services to the general public. Despite this, there is good networking between the local oculoplastic surgeons. We need to encourage more doctors to take up oculoplastic

subspecialty. Having said that, we are progressing. In Malaysia, there is now a group called Malaysian Oculoplastic Interest Group, MOIG. This interest group has succeeded in organising Oculoplastic conferences in 2019 and 2020 which was well received.

Malaysian oculoplastic surgeons now sit amongst the committee members of the Asia-Pacific Society of Ophthalmic Plastic and Reconstructive Surgery, APSOPRS. Malaysian oculoplastic surgeons have also been invited to present at international conferences and we will be seeing more progress among oculoplastic surgeons in the world arena with time.



Receiving the lifetime achievement award by MOIG from the MSO President



**DR PREMALA DEVI
SIVAGURUNATHAN**

Vitreo-retina Fellow
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THYROID EYE DISEASE: NEW PARADIGM OF DISEASE CLASSIFICATION

Introduction

Thyroid eye disease (TED) is an orbital inflammatory disease that is related to autoimmune thyroid conditions. It causes expansion and fibrosis of orbital fat, striated extraocular muscles and lacrimal gland. This orbital disorder significantly disrupts appearance, vision and quality-of-life, although it is self-limited. Managing TED requires identifying its clinical features and grade its severity and activity, translating into a few classifications. Accurate evaluation of the clinical features of TED is essential for early diagnosis, identification of high-risk disease, planning medical and surgical intervention and assessing response to therapy. This article illustrates and compares several TED classifications together with the new one proposed by Uddin et al.

Activity versus Severity in TED

An impression of the degree to which the body reacts to autoantigen is defined as an activity. Assessment of activity in TED includes an absence or presence of the symptoms and signs related to inflammation. The degree of activity can be inactive, moderately active or severely active. In contrast, severity signifies physical consequences of activity that persists despite control of activity.

TED Classification

Few systemic classifications of TED have been described and proposed by several authors. Nunery et al. defined a dichotomous Type I versus Type II classification based on the clinical features and CT scan findings. Type I of lipogenic variant manifests symmetrical proptosis with no signs of orbital inflammation. Type II is the restrictive myopathy type of orbitopathy and presents with diplopia and asymmetrical proptosis. The following are several classifications that are commonly used for TED classification.

NO-SPECS Classification by Dr Wegener (1977)

This classification is an acronym that represents the symptoms and signs related to TED. It grades the disease features in order of frequency of presentation. However, the descriptions are loosely defined. It is often based on only one variable. There is neither assessment for clinical activity nor a guide for management.

ABRIDGED CLASSIFICATION OF
EYE CHANGES OF GRAVES' DISEASE¹

Class*	Definition†
0	No physical signs or symptoms
1	Only signs, no symptoms (signs limited to upper eyelid retraction, stare, and eyelid lag)
2	Soft tissue involvement (symptoms and signs)
3	Proptosis
4	Extraocular muscle involvement
5	Corneal involvement
6	Sight loss (optic nerve involvement)

European Group on Graves' Orbitopathy (EUGOGO) by Dr Mauritz

This classification measures severity based on three categories which are mild, moderate to severe and sight threatening. Patients with eyelid retraction, mild proptosis and minimal muscle involvement are categorized as mild disease and treated conservatively. Whereas patients with moderate to severe disease are those with features of proptosis greater than 25 mm, inflammation or significant extraocular movement limitation that impairs daily function. This condition is often treated medically. For sight-threatening conditions, for example, compressive optic neuropathy and corneal ulceration, are often managed surgically.

Stage	Feature
Mild thyroid eye disease	<p>Minor impact on activities of daily living</p> <p>Insufficient justification for immunosuppression or surgical treatment</p> <p>One or more of the following</p> <ul style="list-style-type: none"> Minor lid retraction (< 2 mm) Mild soft tissue involvement Proptosis < 3 mm above normal for race and gender No or transient diplopia Corneal exposure responsive to lubricants
Moderate-to - severe thyroid eye disease	<p>Impact on activities of daily living</p> <p>Justifies treatment (immunosuppression and/or surgical treatment)</p> <p>Two or more of the following</p> <ul style="list-style-type: none"> Lid retraction 2 mm or more Moderate to severe soft tissue involvement Proptosis ≥ 3 mm above normal for race and gender Diplopia (inconstant or constant)
Sight threatening thyroid eye disease	<p>Compressive optic neuropathy</p> <p>Corneal ulceration</p>

Clinical Activity Score (CAS)

This classification is intended to identify the activity of TED. However, it does not correlate with the risk of developing significant complications such as diplopia or compressive optic neuropathy. The setback of CAS is that it does not reflect the equality of each clinical feature. For instance, one who had optic neuropathy would have a similar weightage to another person with eyelid erythema. It is a binary scale that only shows symptoms or signs but does not demonstrate disease progression or response to therapy.

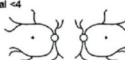

	For initial CAS score items 1-7
1	Spontaneous orbital pain
2	Gaze evoked orbital pain
3	Eyelid swelling that is considered to be due to active GO
4	Eyelid erythema
5	Conjunctival redness considered due to active GO
6	Chemosis
7	Inflammation of caruncle or plica
	Follow-up after 1-3 months score items including 8-10
8	Increase of > 2 mm proptosis
9	Decrease in uniocular ocular excursion in any one direction of > 8 degrees
10	Decrease of acuity equivalent to 1 Snellen line

One point is given for the presence of each of the parameters assessed. The sum of all points define clinical activity: Active ophthalmopathy if score is $>3/7$ at first examination or $>4/10$ in successive examination. GD = Graves' orbitopathy

VISA by Dr Peter Dolman

The VISA four parameters determine the activity and severity of TED. This system requires a worsening of the inflammatory score of 2 or

more as evidence of disease progression and activity with a maximum score of 20 to grade it. There is also additional information on risk factors such as smoking, family history of TED and other comorbidities (e.g. diabetes) included in the form.

VISA CLASSIFICATION:		Patient Label:	
Date:	Visit #:		
ORBITOPATHY Time since onset: Progress: Tempo: Symptoms:	THYROID Time since onset: Progress: Status: Symptoms:	GENERAL Smoking: Family Hx: Medical Hx: Allergies: Medis:	
Therapy:	Anti-thyroid meds: Radioactive iodine:		
SUBJECTIVE	OBJECTIVE	OD	OS
VISION			Refractions
Vision: n / abn	Central vision: sc / cc / ph with manifest	20/____ 20/____	20V_____ 20V_____
Color vis: n / abn	Color vision errors (AO) Pupils (afferent defect)	y / n y / n	y / n y / n
Fundus	Optic nerve: Edema Pallor	y / n y / n	y / n y / n
Progress: s / b / w			
INFLAMMATORY			Inflammatory Index (worst eye/yel/d)
Retrolbular ache At rest (0-1) With gaze (0-1) Lid swelling AM: y / n	Cheiosis (0-2) Conjunctival injection (0-1) Lid injection (0-1) Lid edema Upper (0-2) Lower (0-2)		Cheiosis (0-2): Conjunctival injection (0-1): Lid injection (0-1): Lid edema (0-2): Retrolbular ache (0-2): Total (8):
Progress: s / b / w			
STRABISMUS/MOTILITY			Prism Measure
Diplopia: None (0) With gaze (1) Intermittent (2) Constant (3) Head turn: y / n	Ductions (degrees): Restriction > 45° 30-45° 15-30° < 15°	+ + 0 1 2 3 0 1 2 3	+ + ↑ ↓ ← →
Progress: s / b / w			
APPEARANCE/EXPOSURE			Fat prolapse and eyelid position:
Lid retraction y / n	Lid retraction (upper): MRD-4 (lower scleral show) Levator function Lagophthalmos Exophthalmometry (Hertel) Corneal erosions Corneal ulcers IOP -straight -up	mm mm mm mm mm mm mm mm y / n y / n y / n mm mm mm mm y / n y / n monthly monthly	mm y / n y / n y / n y / n monthly monthly
Proptosis y / n			
Tearing y / n			Base:
FB Sensation y / n			
Progress: s / b / w			
DISEASE GRADING	Grade	Progress / Response	
V (optic neuropathy)	y / n	s / b / w	
I (inflammation) 0-8	/ 8	s / b / w	
S (strabismus) 0-3	/ 3	s / b / w	
(restriction) 0-3	/ 3	s / b / w	
A (appearance/exposure)	mild / mod / severe	s / b / w	
MANAGEMENT		FOLLOWUP INTERVAL:	

Phenotypes of Thyroid Eye Disease by Dr Uddin JM et al. (2018)

Phenotype is an observable physical property of a disease. This encompasses the clinical and radiological appearances of the disease as well as its response to treatment. It was proposed by Dr Uddin et al. in ITEDS 2019 and published in OPRS ed 2018. The concept of phenotype in disease classification is still early in development and has been explored in chronic obstructive pulmonary disease (COPD). Phenotypes in COPD are associated with prognosis and with different responses to currently available therapies. Similarly, personalized treatment in TED -such as immunosuppression or decompression – can be based on the features of the disease, together with their severity and activity.

Summary of clinical features, imaging, and potential response to therapies in TED phenotypes

	Congestive (Active Inflammatory)	"White Eye" Expansion	"Hydraulic" Apex	"White Eye" Apex	Cicatricial Active	Cicatricial Passive
Timeline to presentation	Weeks/months	Late presentation	Late/posttreatment presentation	Late/posttreatment presentation	Early presentation with progression	Late/posttreatment presentation
Ocular surface	Moderate/severe injection and chemosis	Minimal injection and chemosis	Moderate/severe injection and chemosis with dilated episcleral vessels	Minimal injection and chemosis	Minimal injection and chemosis	No/minimal injection and chemosis
Extraocular movements	Moderate global limitation	Moderate global limitation	Moderate/global limitation	Moderate global limitation	Marked limitation	Moderate limitation
Resistance to retropulsion	Soft/moderate orbit	Soft/moderate orbit	Firm orbit	Moderate/firm orbit	Soft/moderate orbit	Soft/moderate orbit
Optic neuropathy	No	No	Yes	Yes	No	No
CT findings	Muscle and fat expansion	Fat expansion	Apical crowding with muscle expansion	Apical crowding	Single muscle expansion	Muscle expansion
Response to treatment	Responds to immunosuppression	Unknown response to immunosuppression	Good response to decompression; poor response to immunosuppression	Good response to decompression; partial response to immunosuppression	Possible response to local steroid	Poor response to treatment, likely inactive/fibrotic phase

TED, thyroid eye disease.

Comparison of All Classifications

The author made a comparison among those classifications and concluded the following:

NO SPECS	EUGOGO	CAS	VISA	Phenotype of TED
<p>Class 0: No physical signs or symptoms</p> <p>Class 1: Only signs (eyelid retraction or eyelid lag)</p> <p>Class 2: Soft tissue involvement (0: absent, a: minimal, b: moderate, c: marked)</p> <p>Class 3: Proptosis (0: absent, a: minimal, b: moderate, c: marked)</p> <p>Class 4: Extraocular muscle signs (0: absent, a: limitation in extreme gaze, b: evident restriction, c: marked)</p> <p>Class 5: Corneal involvement (0: absent, a: stippling, b: ulceration, c: clouding, necrosis, perforation)</p> <p>Class 6: Sight loss (0: absent, a: vision 0.63-0.5, b: 0.4-0.1, c: 0.1-no light perception)</p>	<p>Mild:</p> <ul style="list-style-type: none"> < 2mm eyelid retraction Mild soft-tissue involvement < 3 mm exophthalmos (above normal for race & gender) Transient or no diplopia Corneal exposure responsive to lubricants <p>Moderate-to-severe:</p> <ul style="list-style-type: none"> ≥ 2 mm eyelid retraction Moderate or severe soft-tissue involvement ≥ 3 mm exophthalmos (above normal for race & gender) Inconstant or constant diplopia <p>Sight-threatening (or very severe):</p> <ul style="list-style-type: none"> Dysthyroid optic neuropathy Corneal breakdown 	<p>Pain:</p> <ul style="list-style-type: none"> Painful, oppressive feeling on or behind globe during the last 4 weeks Pain on attempted up, side or downgaze during the past 4 weeks <p>Redness:</p> <ul style="list-style-type: none"> Redness of the eyelid(s) Diffuse redness of the conjunctiva, covering at least one quadrant <p>Swelling:</p> <ul style="list-style-type: none"> Swelling of the eyelid(s) Chemosis Swollen caruncle Increase by 2 mm or more in proptosis for the past 1-3 months <p>Impaired function:</p> <ul style="list-style-type: none"> Decrease in eye movements in any direction of ≥ 5° for the past 1-3 months Decrease in visual acuity ≥ 1 line on Snellen chart (pinhole) for the past 1-3 months 	<p>Vision:</p> <p>Subjective</p> <ul style="list-style-type: none"> Vision: n/ abn Colour vision: n/ abn <p>Objective</p> <ul style="list-style-type: none"> Central vision: sc/ cc/ ph Colour vision error Pupils (afferent defect): Y/N Optic nerve: oedema (Y/N), pallor (Y/N) <p>Inflammation:</p> <p>Subjective</p> <ul style="list-style-type: none"> Retrobulbar ache (none: 0, with gaze: 1, at rest: 2) Lid swelling a.m: Y/N <p>Objective</p> <ul style="list-style-type: none"> Chemosis: 0-2 Conjunctival injection: 0-2 Eyelid injection: 0-1 Lid oedema: upper (0-1), lower (0-1) Total: 0-8 <p>Strabismus:</p> <p>Subjective</p> <ul style="list-style-type: none"> Diplopia: (none: 0, gaze: 1, intermittent: 2, constant: 3) <p>Objective:</p> <ul style="list-style-type: none"> Restriction: <15°: 0, 15-30°: 1, 30-45°: 2, >45°: 3 <p>Appearance:</p> <p>Subjective</p> <ul style="list-style-type: none"> Lid retraction: Y/N Proptosis: Y/N Tearing: Y/N FB sensation: Y/N <p>Disease Grading for each segment</p>	<p>6 Phenotypes of TED were identified based on the following features:</p> <ul style="list-style-type: none"> Timeline to presentation Ocular surface Extraocular movement Resistance to retropulsion Optic neuropathy CT findings Response to treatment <p><u>Congestive (active inflammatory) Phenotype</u></p> <p><u>White Eye Expansion Phenotype</u></p> <p><u>Hydraulic Apex Phenotype</u></p> <p><u>White Apex Phenotype</u></p> <p><u>Cicatricial Active Phenotype</u></p> <p><u>Cicatricial Passive Phenotype</u></p>

Features	NO-SPEC Classification	EUGOGO	CAS	VISA	TED Phenotype
Assessment	Symptoms and signs	Symptoms and signs	Symptoms and signs	Symptoms and signs (subjective and objective manner)	Clinical, radiological of TED and treatment response
Grading System	Severity	Severity	Activity	Severity and Activity	Identifying of characteristics from 6 phenotypes TED
Advantages	<ul style="list-style-type: none"> Simple and easy to remember 	<ul style="list-style-type: none"> Simple and easy to remember 	<ul style="list-style-type: none"> Simple and easy to remember Not time-consuming Provide guidance to management 	<ul style="list-style-type: none"> Both subjective and objective assessment of the disease activity and severity are taken into account Inclusion of risk factors and morbidities 	<ul style="list-style-type: none"> Clinical and radiological features together with definitive management and prognosis
Disadvantages	<ul style="list-style-type: none"> Difficult to assess disease response No guidance to management 	<ul style="list-style-type: none"> Distinction between mild and moderate is imprecise and broad 	<ul style="list-style-type: none"> Binary scale No correlation with the complications 	<ul style="list-style-type: none"> Much effort needed to fill up the form 	<ul style="list-style-type: none"> Need more established study to confirm with the clinical correlation and prognosis

Conclusion

The author concludes that the more recent classification has a promising way to guide ophthalmologists to manage patients with TED. It includes imaging and response to therapy that allow us to prognosticate the outcome of TED and personalized treatment. However, the concept of phenotype in disease classification especially for TED is still early in development. It requires a validated, larger scale study of patients with this disease. Perhaps in future, we could contribute to future research correlating the phenotypes with pathogenesis of TED.

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THE COVID-19 PANDEMIC AND MYOPIA IN CHILDREN

Since the beginning of the Covid-19 pandemic, almost everyone including children have been facing a steep increase in screen time in order to continue with work and learning. Does this cause any serious harm to the eyes?

As Asians, even before the Covid-19 pandemic, we have been in the epicentre of myopia or shortsightedness, due to our genetic factor. A systematic review and meta-analysis done by the Holden's Institute, predicts that by 2050 there will be 4758 million people with myopia (49.8% of the world population)¹, and this is before the increase of near work in children, due to "lockdown" and online learning, as a method to curb the Covid-19 spread.

Some optometrists even came up with the term "covidopia", which is myopia that is induced or worsened by the Covid-19 pandemic. In the eye clinics and optometrist practices, there has been an increase in the number of children complaining of refractive errors. Among adults, digital strain symptoms such as eye tiredness, dry eyes, tired neck and back ache have been increasing during this pandemic.

What are the contributing factors to the rise in cases of myopia in children during this pandemic?

If I have to pinpoint 3 factors, it would be online learning, increased digital device use both for education and entertainment and reduced outdoor time.²

Many studies over the years have shown an association between near work and myopia³, years of schooling and myopia⁴ and near work behavior and myopia⁵ though some studies failed to show a significant association.⁶ Insufficient outdoor time is also considered a major lifestyle factor that contributes to myopia in children. With the inevitable increase in near work and reduced outdoor time as a result of this pandemic has thus caused heightened concerns about myopia in children.

Children are increasingly getting used to online learning and thus are becoming more attached to their gadgets and would choose gadgets during their recreation time as well, as opposed to playing outdoor. Outdoor activities and exposure to natural light are known protective factors against myopia onset and to some extent, myopia progression⁷. With the recurrent Movement Control Order in our country, getting outside to play is becoming increasingly difficult.

As an ophthalmologist, my bigger concern is the lengthening of interval of eye examination in children, who are already myopic. The recommended interval for eye examinations for children may be 4 months to one year, but low adherence and postponements of appointments during this pandemic may result in longer intervals between reviews.

Myopic children or pre-myopic children not undergoing active myopia monitoring and management are not likely to have axial length measurements. With this gap in follow-ups, it may be challenging to detect a change in myopia incidence or progression in the population. However, more data need be collected before any conclusion is made on the actual impact of this pandemic on the incidence and progression of myopia in children in this country, and worldwide.

Are there any tips for parents and teachers, to ensure good visual hygiene to reduce the risk of myopia during usage of gadgets in children?

The illumination from the gadget should be set to be neither too dim nor too bright. The illumination of the room is also important, as studies have shown that studying in a lowly lit room can promote myopia progression.

A safe distance of approximately 30cm from the device is recommended. If possible, avoid using smart phone and instead use gadgets with bigger screens such as laptops or desktops for online learning and recreation in younger children. As

smaller gadgets require higher accommodation for the eyes and cause straining.

A good visual hygiene practice to follow is the 20-20-20 rules, in which for every 20 minutes, one takes a 20 seconds break to look at something at 20 meters away, to relax the eyes.

If children complain of any symptoms such as headache or blurring of vision or seen to have an abnormal head posture such as head tilt or face turn, kindly bring them to an optometrist or an ophthalmologist for a complete eye examination.

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