

June 2021 | Volume 32 | Issue 6

Times

The Official News Letter of Indian Orthodontic Society



55th INDIAN ORTHODONTIC CONFERENCE

24TH - 26TH SEPTEMBER, 2021

Virtual Conference all the way from Amritsar

Smiles 2021 & Beyond...

A Prism of Opportunities



First Ever Virtual Annual Conference Of The Indian Orthodontic Society

Conference Manager



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Tomorrow's People

www.55thioc.com

President's Message

Respected Members of IOS,

The nation is slowly steering away from the storm of the second wave of Covid 19. This was probably the most challenging phase of the pandemic with the ferocity and pace of spread shaking the confidence of people. Social Media has been a great boon in these difficult times for spreading information and I thank our proactive members who stepped in to help in these times of great need. The lesson learnt is to be a responsible citizen following Covid appropriate behavior and never letting your guard down.

In spite of all the challenges of the second wave, the 7th Virtual EC meeting was held on 20th June and certain key decisions were taken. Considering the prevailing uncertainty surrounding the future and possible threat of a third wave, it was decided to conduct the 55th IOC at Amritsar as a virtual conference, taking in to consideration the well-being of all the registered members and prevailing government restrictions on mass gathering. I express my gratitude to the Organisers

of the IOC for accepting our decision and their kind cooperation in this regard. The annual awards were also announced and I congratulate all the winners. The process of election of the new office bearers have also been initiated. Privileged to attend the American Association of Orthodontist Ambassador's meeting and am happy to share that AAO has accepted our request for reduction of fees and announced a special discounted pricing for IOS members. To register for AAO one pays an initial fee of \$16, subsequently a gradual increase for next four year to a final \$160 against the previous \$396 and avail all the privileges of being a AAO member.

The second Orthodontic Innovation Conclave was a grand success with members showcasing their innovative talents. I thank Dr Amanish Singh and his team for infusing tremendous enthusiasm and creating a great platform for excellence in innovation. The brainstorming session brought out great ideas. The master class lecture by Dr Carlos Flores Mir, moderated by Dr Krishna Nayak on Retention and Relapse, evinced huge interest and participation by members.

Wishing you all a season of good health and prosperity as we unwind from the lockdowns to a cautious stage of normality, please take care and stay safe,

Thanking you,

Jai IOS

Jai Hind

Dr Silju Mathew

President IOS





Hon. Secretary's Message

Respected members of the IOS,

I hope this issue of the IOS times finds you all well and in good spirits. Many parts of the country have gone through the worst of the harsh Corona second wave and are slowly recovering. We hope that things are stabilizing slowly even as apprehensions of the third wave have set in.

The IOS Innovation Conclave was conducted on June 18th & 19th by the enthusiastic team from Adesh University headed by Dr. Amanish Singh. June 20th saw yet another Orthotrends Master Class by another orthodontic Celebrity Carlos Flores- Mir who spoke on Retention and Relapse. The session was moderated by senior member, Dr. Krishna Nayak U.S.

The month of June was critical with several important decisions to be made. With the 55th IOC just three months away, the executive committee which met on 20th June was ever mindful and cautious of the potential risks of a large gathering. The EC decided that the 55th IOC could be conducted in Hybrid mode with limited physical attendance conditional to the govt. regulations at that time. In consultation with the COC it was subsequently decided that all energies could be focused on conducting an excellent virtual conference. This was considered most prudent specially with concerns of an impending third wave. We would miss meeting our friends and colleagues in person but health and well being of members superseded all other considerations for a responsible EC and organizing committee.

Members of the IOS, registered for the 55th IOC can now switch to a virtual mode .Details can be found on <https://www.55thioc.com>.

The IOS awards have been announced and details can be found on the IOS website or on IOS FB. Congratulations to all the winners and respects to the senior members who were chosen for the special awards. The awards would be given during the inaugural ceremony of the 55th IOC. The final list of valid nominations after withdrawals will be announced soon. Good luck to all the candidates who seek to serve IOS even in these challenging times.

Stay Safe! ! Stay Healthy!

Yours in IOS service,
Jai Hind, Jai IOS

Sridevi Padmanabhan

Hon. Secretary, IOS

Editor's Message

Hello Friends,

Greetings from IOSTIMES

Hope you and your family & friends are doing safe and well protected. We are glad to connect to you all through this June Issue of IOS Times. This is 17th Issue of IOS Magazine brought to you during our tenure and I am glad and proud as the editor that all these issues had reached on time as the last day of Every month at the the stroke of 11:59 PM

The office of the Honorary Secretary convened the 7th EC meeting (Virtual) of Indian Orthodontic Society under the directives of the President on the Sunday of 20th June 2021. It was a marathon session, which went on for 8 hrs. Important decisions were made in this particular meeting, especially on the status of conducting the 55th IOC & AGM. We are glad to cover it and present it to you.



On 20th June 2021, the Head office conducted the monthly masterclass program. The insightful and scientifically fluent speaker Dr. Carlos Flores-Mir shared his expert knowledge and practiced appraisal on the topic 'RETENTION and RELAPSE' and turned this webinar to an immersivity scholastic station. A Question/Answer session was held after the completion of presentation which was again moderated by Dr. U.S. Krishna Nayak.

We are glad to cover and present you the IOS Orthodontic Conclave program, which was beautifully conducted by Adesh University. The Highlight of the event was a panel discussion with the seniors and the youth of the society and deliberation on the road map ahead for innovations in orthodontic and how talents should be nurtured. Brilliant lectures on innovation by keynote and invited speakers to inspire the members.

The Covid-19 pandemic and Mucormycosis, a need of the hour interview was covered by our associate editor Dr Kavitha Iyer from Dr.K.Ranganathan, renowned Oral Pathologist. He shared his insights and expertise. A must read for every Dental Professional & Orthodontist, during this crisis while.

Hope you Enjoy this May 2021 issue.

Stay Strong, Stay Healthy, Stay Motivated

Jai Hind, Jai IOS

வாழ்க,வளமுடன்

Dr Kannan Sabapathy

Editor

IOSTIMES

Team IOSTIMES

Dr M.S.Kannan, Editor,

Dr Kavita Iyer Associate Editor

Dr Ashish Garg , Dr Gaurav Gupta, Dr Swati Acharya, Dr Sandeep Singh

Section Editors

7th EC MEETING 2019-21 of Indian Orthodontic Society

20th June 2021, Sunday

Reported by Chief Editor, Dr Kannan

The 7th Executive Committee meeting was convened on 20th June in Virtual mode at 9.00 a.m.

The Agendas for the meeting were

1. To bring “On record” the minutes of 6th EC meeting of 2019-21
2. Action taken report on the resolutions passed on the 6th EC meeting as per the minutes
3. Status report on IOS finances
4. Reports of JIOS, JCO-IOS and IOS times.
5. Reports of various subcommittees
6. Report on 55th IOC and decision on mode of conduct of IOC
7. Choice of Oration speakers at 55th IOC
8. Decision on mode of conduct of 55th AGM & Elections
9. Scrutinizing Committee’s report on candidates for IOS Elections for 2021-22, to approve and take “on record” the final list of candidates.
10. To approve and take “on record” findings of the Awards committee for 2019-21.
11. Decision and approval of the Best Teachers Award, Dr. Keki Mistry Scroll of Honour and Life time Achievement Award
12. EC recommendations to AGM for the following society year:
Members of the Constitution Committee
Members of the Arbitration Committee
Members for Speaker Selection Committee
13. Report on 56th IOC
14. Report on 25th IOS PG student convention and choice of speaker for the Dr.H.S.Sheikh Oration
15. Taking on record constitutional amendments, reformatted constitution and byelaws
16. Approval of Hon. Secretary’s Report
17. ECs decision and recommendation to the AGM on membership status of
Dr. Joseph Varghese
Dr. Hitesh Nagrath
Dr. Samir Uppal
18. Approval of LM/SLM members

Detailed discussions and fruitful discussions were made on the above-mentioned agendas. The office of the secretary shall release the minutes in few days.

**ACTION TO
BE TAKEN
ON 6TH EC
MINS**

Resolution 5
Dr.Gnanashanmugham and team to pursue the app-based election process and present a report to the EC ASAP.

Resolution 6
In the event of an online election , a referendum to be sent to members regarding members

Resolution 7
President and Secy to have a virtual meeting with the 55th COC to ascertain preparedness of arrangements

Resolution 8
President, Hon. Secretary and Prez Elect to visit the new proposed venue of 56th

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**ACTION TO
BE TAKEN
ON 6TH EC
MINS**

7th EC meeting 2021


From Surya Kantia Das to Everyone
Point about sending a official letter...




Dr. Rajgopal Chaudhary




Dr. Kannan



Dr. Sibi Padmanabhan



Dr. Sibi Manjunath



Puneet Batra

**Important Announcement Made by the Hon. Secretary
Dr Sridevi Padmanabhan,
Post the EC Meeting regarding the Status of 55th Indian
Orthodontic Conference, 26th June 2021**

We trust this communication finds you and your families well and in good health. In view of the heavy toll wreaked by the corona pandemic, and the uncertainties which confront us in the immediate future, with cautionary messages received from government and health authorities regarding the third wave, the executive committee which met on 20th June in virtual mode has taken the following decisions in consultation with the organizers of the 55th IOC . These decisions have been taken with a deep sense of responsibility , placing the health and wellbeing of our members paramount ,over all other considerations.

- i) The 55th IOC will be conducted in virtual mode. The registration details for the same are available on the conference website.
- ii) All delegates who have registered for the 55th IOC may switch to virtual mode and the difference in registration rates will be refunded without penalty within 45 days of conduct of the 55th IOC.
- iii) However refund policies previously published by the 55th COC will apply to those members who wish to cancel their registration to the 55th IOC.

In view of the extraordinary circumstances , the deadline for scientific submissions for both competitive and invited lectures has been extended to 15th July.

Student members of the IOS are invited to present public awareness posters and videos.

Please visit <https://www.55thioc.com> for further details.



55th INDIAN ORTHODONTIC CONFERENCE

24TH - 26TH SEPTEMBER, 2021

Virtual Conference all the way from Amritsar

55th IOC 2021 is now Virtual!

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Your Registration Will Be Automatically Converted Into Virtual Registration

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Conference Manager





IOS ANNUAL AWARDS 2021

IOS Special Awards for 2019-2021

Life time achievement Award

Dr.K.Sadashiva Shetty (LM0402)

Dr.A V Arun Outstanding Professor Award

Dr.Rabindra S. Nayak (LM0376)

Dr.Shobha Sundareswaran (LM0283)

Dr. Anil KR Chandna (LM0365)

Dr.Kenneth F.H. Tan (LM0497)

Dr.Keki Mistry Scroll of Honour

Dr.Krishna Nayak U.S (LM0404)

Dr. J.G. Kannappan Award for best dissertation submitted

Dr. Roopali Shetty (LM4531)

Evaluation of endosseous implant assisted orthodontic therapy.

Dr. Aditya Talwar (LM4211)

A comparative evaluation of surface changes seen on retrieved stainless steel and titanium orthodontic miniscrew implants- an in vitro sem study.

Dr. PP Jacob Award

Dr. Upasak Mukherjee (SLM 8198)

Variations of salivary levels of osteoprotegerin during orthodontic tooth movement.

Dr. Bharvi Kaushik Jani (LM4517)

Comparative evaluation of cortical bone anatomy of mandibular buccal shelf for mini implant placement in different facial divergence: a cone beam computed tomography study.

Dr. George Jacob Award

Dr. Vikas Jharwal (LM2532)

Three dimensional versatile lingual jigs.

Dr.Thakkar Digant Pareshkumar (LM2621)

Digital workflow for CBCT- guided customized miniscrew-assisted rapid palatal expansion (3D digital marpe): a clinical innovation.

Indian Orthodontic Society-Colgate Palmolive Research Award for Life Member

Dr. Navneet Singh (LM3930)

Closure of large alveolar defect by maxillary alveolar distraction using a vector controlled distractor appliance in cleft patients.

Lt Col Gagan Deep Kochar (LM2988)

Management of skeletal class II malocclusion by bimaxillary skeletal anchor supported fixed functional appliance: a novel technique.

Indian Orthodontic Society-Colgate Palmolive Student Research Award

Dr.Swapnaja Gosavi (Jadhav) (SLM10042)

Comparative analysis of associated symptoms of tmd with CR-MI discrepancies in skeletal class I, skeletal class II horizontal & skeletal class II vertical malocclusion using helkimo and craniomandibular indices & advanced design system AD2 articulator.

Dr. Nida Nayyer (SLM8439)

Effect of photobiomodulation on external root resorption during orthodontic tooth movement in humans – a systematic review and meta-analysis.

Dr. H.D. Merchant Award

Dr.Susmita Bala Sheno (SLM9676)

A stitch in time saves nine a cross-sectional study among preschoolers in north karnataka using the baby risk of malocclusion assessment (baby roma) index.

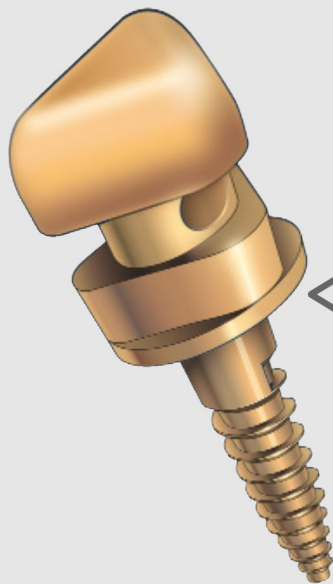
Dr. Keerthi Venkatesan (LM4310)

Evaluation of titanium dioxide coating on surface roughness of nickel titanium archwires and its influence on streptococcus mutans adhesion and enamel mineralization - a prospective clinical study.

Dr.Mrs. Savita Ramesh Vaid Memorial Award

Madras Orthodontic Study Group.

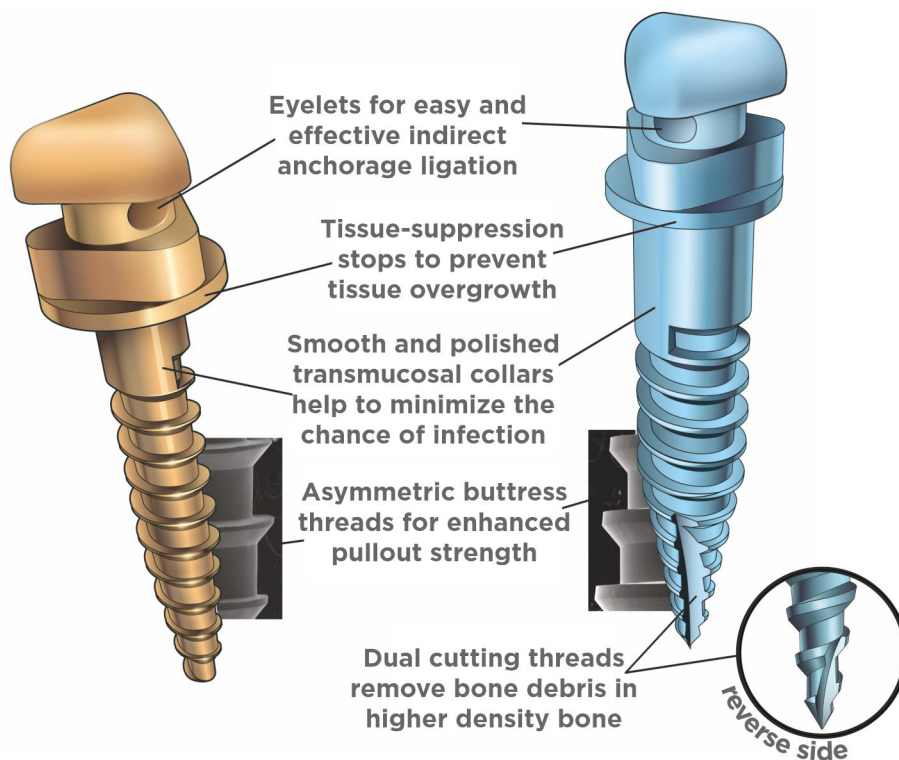
Dr.Sridevi Padmanabhan
Hon. Secretary,IOS



MOVE IN THE
RIGHT DIRECTION.

Simple System Intelligent Design

- ▶ Reduced anchorage demand for more control
- ▶ Surgery cases treated without surgery
- ▶ No headgear and reduced reliance on patient compliance
- ▶ Reduced treatment time & greater patient comfort



2nd IOS Orthodontic Innovation Conclave

Hosted By, Adesh Institute of Dental Sciences & Research, Adesh University, Bathinda (PB.)

18th & 19th June 2021

Reported by Section Editor : Dr. Swati Acharya

"Continuous improvement drives Innovation"



**Indian Orthodontic
Society**



&

**Department of Orthodontics &
Dentofacial Orthopaedics,**



**ADESH INSTITUTE OF DENTAL
SCIENCES & RESEARCH
ADESH UNIVERSITY,
BATHINDA (PB.)**



PRESENTS



18 -19 JUNE, (FRI & SAT) 2021

ON zoom

"Be your Innovative best"

Congratulations to Dr Amanish Singh and his Team from Adesh University for the excellent planning and flawless execution of the event with innovative ideas and concepts. The Highlight of the event was a panel discussion with the seniors and the youth of the society and deliberation on the road map ahead for innovations in orthodontic and how talents should be nurtured. Brilliant lectures on innovation by keynote and invited speakers to inspire the members. Students showcasing their amazing talents in orthodontics. Thanks to the organizers, speakers, moderators and attendees for executing this program with Indian Orthodontic Society in grandeur and excellent professionalism.

This is a wonderful initiative, to bring in light the talents of our members as innovators and highlight them for their scientific demeanour.



IOS Master Class for the Month of June

Dr. Carlos Flores-Mir , Canada

Shared his Expertise on the Topic “Retention & Relapse”

20th June 2021

Reported by Section Editor : Dr. Ashish Garg,



ORTHO trends MasterClass

20th June 2021, 7.00 pm IST

RETENTION AND RELAPSE



Speaker:

Dr Carlos Flores-Mir
Canada



Moderator:

Prof. (Dr.) U.S. Krishna Nayak



Learning Never Stops @
INDIAN ORTHODONTIC SOCIETY



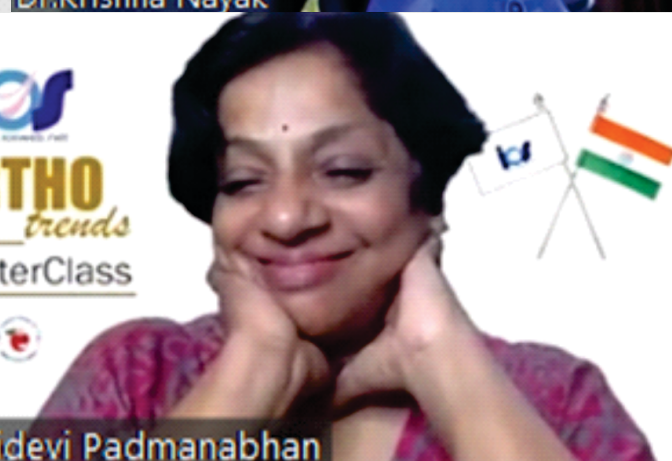
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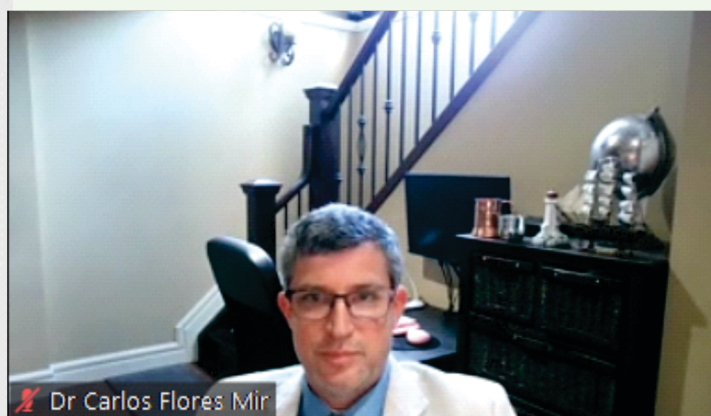


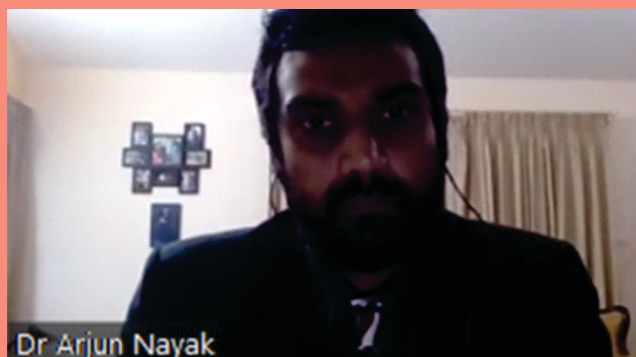
Dr Silju Mathew President I...



Dr.Sridevi Padmanabhan

The series of Master Classes under the banner of ‘ORTHO trends’, organized under the aegis of Indian Orthodontic Society, delivered excellence once again in the form of its Sixth online webinar on the topic ‘RETENTION and RELAPSE’ on 20th June 2021. The event garnered and aired for an audience of around 350 delegates nationwide and was very intriguing as it didn’t fail to take a bite at every intellects mind.





CONCLUSIONS

The following dimensional changes occur from adolescence to late adulthood: decreases in mesiodistal tooth size and increases in clinical crown height; decreases in mandibular intercanine width, arch length, arch perimeter, and overbite; and increases in mandibular anterior crowding and palatal depth. Overjet, and maxillary intercanine, interpremolar, and intermolar distances do not experience significant changes.

Clinical crown height, mandibular anterior crowding, palatal depth increases

MD IC-IPM-IM, OB, perimeter, mesiodistal tooth size decreases

OJ, Mx IC-IPM-IM no changes

Carlos Flores-Mir

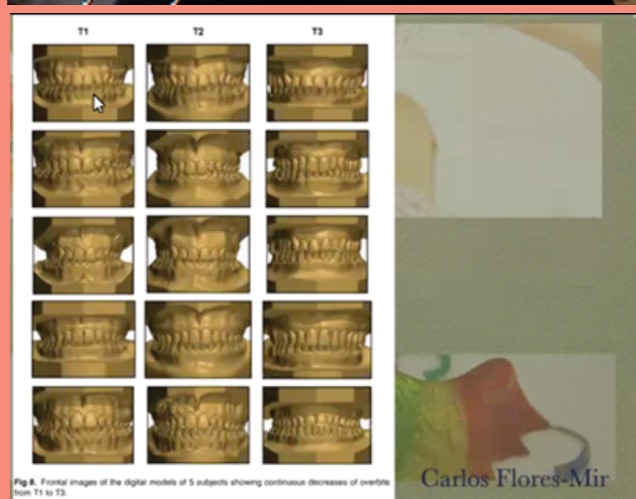


Fig 8. Frontal images of the digital models of 5 subjects showing continuous decreases of overbite from T1 to T3.



Take home messages

Thermoplastic retainers seem to have more failures than Hawley retainers when used long term.

Modified thermoplastic retainers seem to perform similarly to standard ones.

Adjunctive procedures (IPR, positioners) do not seem to generate a clinically relevant difference.

Fixed Md vs. IPR Md Stability

Analysis 4.2: Comparison of Upper removable and lower fixed retainers versus upper removable and lower adjunctive procedures. Outcome 2 Interchange change in upper (V-CTC vs. V-5).

Notes: Randomized controlled trial comparing upper removable and lower fixed retainers versus upper removable and lower adjunctive procedures.

Comparison: 4 Upper removable and lower fixed retainers versus upper removable and lower adjunctive procedures

Outcome: 2 Interchange change in upper (V-CTC vs. V-5)

Study	Events	Risk Ratio	95% CI	Weight
Thermoplastic Mx + Fixed Md vs. Thermoplastic Mx + Md IPR - 1 year	25	100.0%	0.10 [0.26, 0.40]	100.0%
Thermoplastic Mx + Fixed Md vs. Thermoplastic Mx + Md IPR - 2 years	24	100.0%	0.10 [0.26, 0.40]	100.0%

No difference in Interchange Irregularity in Mx after 1 & 2 years

The motive of this webinar was to air the proverbial dirty laundry associated with the ever present controversy on the topic of 'Retention and Relapse' and also dispel some the myths and misconception revolving around the topic. The webinar's point of view provided a fresh angle to a topic that is as important as it is basic to the world of orthodontics. The new insight is bound to hone the skills of the clinicians and obtain a better and long lasting treatment results.

The program started at 7pm with the play of IOS logo video, followed by the introductory remark by our MOC, Dr. Arjun Nayak. Following which, the cheerful, optimistic, dashing and dynamic President of IOS, Dr. Silju Mathew delivered his welcome address and shared his thoughts about this master class. Then the gracious and zestful Hon. Secretary of IOS, Dr. Sri Devi Padmanabhan introduced the keynote speaker Dr. Carlos Flores-Mir. After this our Brilliant and industrious chairman of academic council of IOS and editor of JIOS, Dr. Puneet Batra introduced the iconic moderator of the event Dr. U.S. Krishna Nayak.

In this masterclass, the insightful and scientifically fluent speaker Dr. Carlos Flores-Mir shared his expert knowledge and practiced appraisal on the topic 'RETENTION and RELAPSE' and turned this webinar to an immersively scholastic station. A Question/Answer session was held after the completion of presentation which was again moderated by Dr. U.S. Krishna Nayak.

At the end of program Dr. U.S. Krishna Nayak shared his thoughts about this program and appreciated our keynote speaker for such a wonderful delivery of knowledge. Then, President Elect of IOS Dr. Sri Krishna Chalsani handed over the Certificate of Appreciation to Dr. Carlos Flores-Mir and Vice President Dr. Suryakanta Das handed over the certificate of appreciation to the moderator Dr. U.S. Krishna Nayak. The MOC, Dr. Arjun Nayak delivered vote of thanks at the end of program.

All the delegates and faculties appreciated the vision of this master class and were grateful for the knowledge they received via this webinar.

THE COVID-19 PANDEMIC AND MUCORMYCOSIS

Dr Kavitha Iyer interviews Dr.K.Ranganathan, renowned Oral Pathologist as shares his insights and expertise. A must read for every Dental Professional & Orthodontist, during this crisis while.



Dr.K.Ranganathan, renowned Oral Pathologist and an academician with 30 years of teaching experience and an expertise in the field of research on Oral Pre-cancer and Cancer , HIV and dental stem cells. He is a Fellow of American Academy Of Oral And Maxillofacial Pathology (1995) and Fellow of Indian Association of Oral and Maxillofacial Pathologists (2010). Currently, he holds the post of President, Asian Society of Oral and Maxillofacial Pathology (ASOMP) Secretary, International Association of Oral Pathologist (IAOP) Chairperson, Fellowship committee, Indian Assoc. of Oral & Maxillofacial Pathology and as a PhD guide in The TN MGR medical University and three other deemed universities. His academic accomplishments include 170 publications in National and International peer reviewed journals, 130 invited and guest lectures, guided 115 post-graduates and has achieved research awards such as

The Bennett Graduate Research award for the Best Research Society Annual Research Award Ohio State University, USA (1994) and Best Teacher Award for Perpetuating Academic Excellence from The TN Dr. MGR Medical University Chennai. (2011).

The COVID-19 pandemic, caused by Severe Acute Respiratory Syndrome -Coronavirus2 (SARS-CoV2), was first identified in Wuhan in December 2019. It went on to spread rapidly to take the form of a pandemic. The ravages caused by this virus has spared no nation and as of June 25th, 2021 there have been 179,686,071 confirmed cases. However, this number may be way less than the actual infections. This infection has spared no strata of society and many health care providers have succumbed to it.

Dental surgeons are at a higher risk of exposure to this virus due to the presence of virus in saliva and its potential for dissemination during aerosol generating procedures. The high morbidity and mortality in COVID-19 is mainly because of the damage to the lungs and the “cytokine storm” that can lead to multiple effects which ultimately leads to multi-organ failure because of the inflammasomes. Even with effective treatment the patient has a compromised immune system due the effects of the virus and drugs used in treatment, particularly steroids. This immunocompromised state leads to opportunistic infections like mucormycosis.

Mucormycosis is of significance to the dental surgeon as not only is the head and neck a common site, but also because it spreads very rapidly and can cause severe morbidity and mortality, in a few days, if not treated quickly and appropriately. All health care providers should be aware of the different aspects of Mucormycosis.

Dr Kavitha Iyer :- What is Mucormycosis?

Dr K Ranganathan :- Mucormycosis is a rare fungal infection, caused by fungi in the Order Mucorales comprising 261 species in 55 genera. (Think of Order as a broad group under which you have different genera, with each genus having many species). The genera most associated with human infection in the decreasing order of the frequency are Rhizopus, Mucor, Cunninghamella, Apophysomyces, Lichtheimia, Saksenaea, Rhizomucor.

It is a saprophytic fungus, seen in soil and decaying organic material. They are thermotolerant and thrive in a humid environment. They multiply rapidly and release spores into the air. In the hospital setting the spores can infect and spread from:

- Non-sterile products, bandages, linen, wooden tongue depressors, catheters and even prepackaged foods and probiotics.
- Tooth extraction and surgical sites
- Defective ventilation systems and sites of construction

The older term for Mucormycosis is zygomycosis. It is not a new, emerging infection. The first known case was reported in Germany in 1876, in the lung of a patient who had succumbed to cancer and in 1885 Arnold Paltauf published a case of disseminated Mucormycosis. It is the third most common invasive fungal infection in the world, following Aspergillosis and Candidiasis. In India the estimated prevalence is 80 times higher than that in developed countries, being around 0.14 cases per 1000 population.

Dr Kavitha Iyer :- How does it enter the body and what part of the body does it affect?

Dr K Ranganathan :- The fungi can enter the body by inhalation, ingestion, or inoculation. Based on the site of infection it is clinically classified as

- Rhino-orbital-cerebral mucormycosis
- Pulmonary mucormycosis
- Cutaneous mucormycosis
- Gastrointestinal mucormycosis
- Disseminated mucormycosis
- Other uncommon presentations such as renal infection

Dr Kavitha Iyer :- If the fungi are present in the environment, why is the infection not so common?

Dr K Ranganathan :- It is an opportunistic infection. In a healthy, immunocompetent individual infection does not occur normally because of local and systemic immunity which include

- | | |
|----------------------|---|
| • Intact skin/mucosa | Barrier against inoculation |
| • Tissue Macrophages | Phagocytose the organisms |
| • Neutrophils | Part of innate immunity. Produce protective cytokines, neutrophil extracellular traps and Toll-like receptor activation |
| • T cells | Part of adaptive immunity targeting Mucorales antigen |
| • NK cells | Lymphocytes that prevent dissemination of pathogens |
| • Platelets | Adhere to hyphae and spores damaging the hyphal structure and preventing its growth |
| • Endothelial cells | Phagocytose the spores |
| • Dendritic Cells | Link between innate and adaptive immunity. They are seen in the epithelium and the interstitium and coordinate the immune enhancement against the fungi |

In addition to the above the alkalinity of blood and the fact that iron in blood is firmly bound to serum proteins (the fungi need iron as a nutrient and thrives in acidic environment) adds a further level of protection.



Expansion of the right maxilla with bluish-black discoloration and ulceration

Dr Kavitha Iyer :- Who gets mucormycosis?

Dr K Ranganathan :- Given the ubiquitous presence of the fungal spores it is very important to understand that exposure to the fungi is common. It is only the “Susceptible” who gets infection. In a susceptible host the above-mentioned defenses fail to varying extent resulting in an immunocompromised state leading to Mucormycosis. The most common risk factors that render the host susceptible to mucormycosis include:

- Diabetes mellitu
- Steroid (glucocorticoid therapy)
- Malignancies of the hematological tissues
- Transplantation: solid organ/hematopoietic
- AIDS
- Major Trauma/burn wounds
- Iron overload: the fungi need iron for its growth and dissemination
- Treatment with deferoxamine (used in renal dialysis patients to chelate aluminum or iron overload in patients receiving multiple blood transfusions; may be avoided to some extent by using newer drugs such as deferasirox and deferiprone)
- Malnutrition

In addition to immunosuppression due to steroids the most important predisposing condition is Diabetes mellitus. Mucormycosis is a diabetes-defining disease. In India, mucormycosis led to identification of diabetes in 12-31% patients and diabetes was the risk factor in 73.5% of mucormycosis cases in India. Uncontrolled diabetes and accompanying ketoacidosis are the most important risk factor for mucormycosis, especially the rhino-orbital-cerebral type. Hyperglycemia and ketoacidosis favor fungal growth. Some fungi such as *Rhizopus* spp have an enzyme (ketone reductase) that enable them to grow in high glucose and acidic milieu.

Dr Kavitha Iyer :- Mucormycosis in COVID-19: what is the relation?

Dr K Ranganathan :- Multiple factors favor the development of mucormycosis and other invasive fungal infections in these patients. Some of them are

- These patients are critically ill and need assisted ventilation which carries a high risk of fungal infection
- Dysregulation of the T helper cell function (Th1 and Th2) contributes to pulmonary infection
- High pro-inflammatory cytokines including IL-1, IL-6, IL-2 and TNF-alpha
- Altered CD4+ and CD8+ cell levels
- Steroid therapy
- Comorbidities particularly diabetes

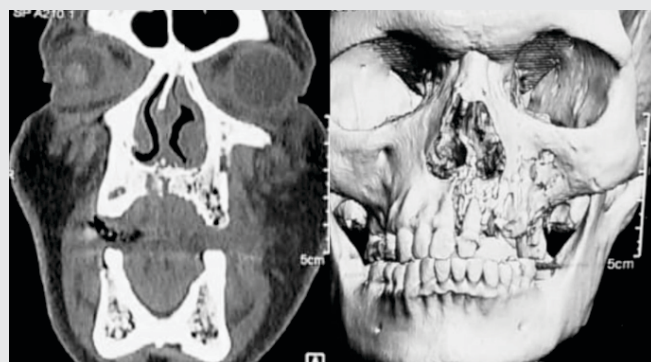


Visible necrotic bone and expansion of the maxillary tuberosity

Dr Kavitha Iyer :- What does the fungi do once it enters the susceptible host?

Dr K Ranganathan :- Mucormycosis is an angioinvasive infection. The fungi invade the vessels and causes eschar that gives it the characteristic name “black fungus”. These fungi have a protein on their surface (Spore coat homolog-coth) that binds to Glucose-related protein 78 (GPR 78, member of the Heat shock protein 70 family) on the endothelial cells lining the blood vessels, which leads to host invasion and eventual dissemination

No matter the site of infection, the hallmark of Mucormycosis is tissue infarction and necrosis as a sequela of angioinvasion



CT scan and 3D reformatted image showing extensive maxillary and nasal wall destruction

Dr Kavitha Iyer :- What are the different clinical types?

Dr K Ranganathan :- As mentioned above there are different clinical types. I shall only elaborate on the features of Rhino-orbital-cerebral mucormycosis as not only does it affect the head and neck - and consequently is of relevance to the dental surgeon, but also because it is the most common type of infection reported in India

Rhino-orbital-cerebral mucormycosis

The inhaled spores that enter the sinus and airways in healthy individuals are transported to the pharynx and cleared through the gastrointestinal tract. (The importance of cilia and mucosal barrier underlines the observation that aggressive steam inhalation can potentially damage the first line of defense against these organisms).

The organism can enter the sinus or tissue planes via deep oral mucosal wounds - traumatic or surgical, major trauma sites and extraction sockets.

Symptoms of infection in the susceptible host are

- Fever, nasal ulceration/necrosis, periorbital or facial swelling. ophthalmoplegia, decreased visual acuity, sinusitis, and headache
- The infection spreads rapidly from the nasal passages and sinus in a few days with extensive involvement of the structures contiguous with sinus causing palatal necrosis, destruction of the turbinates and erythema of the facial skin. Black eschar may be seen in the nasal mucosa, palatal mucosa, or facial skin
- Orbital involvement can lead to periorbital edema, proptosis, and blindness
- Infarction involving the sensory branches of the trigeminal nerve can cause facial numbness
- Involvement of the cavernous sinus can lead to palsy of the cranial nerves, sinus thrombosis and carotid artery invasion

Pulmonary mucormycosis

Pulmonary infection occurs following inhalation of spores that enter the bronchioles and alveoli by the susceptible host. Clinical symptoms include fever and hemoptysis. Spread of infection causes extensive tissue necrosis of surrounding tissues in the mediastinum and systemic dissemination

Gastrointestinal mucormycosis

Follows ingestion of spores in a susceptible individual. It is not common. When it occurs it commonly affects stomach followed by colon. Clinically, it presents as necrotic ulcers which may result in perforation and peritonitis and eventually hemorrhagic shock, with poor prognosis if not treated early.

Cutaneous mucormycosis

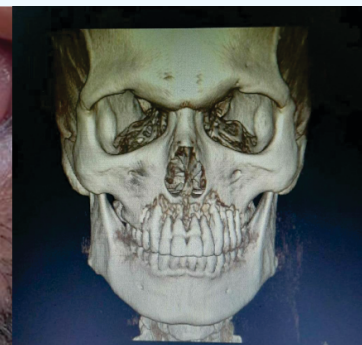
Occurs following inoculation of the spores into the dermis in a susceptible host. Usually occurs in sites of burn, trauma, or deep open wounds. Clinically they present as an indurated area of cellulitis with pain and erythema. If the infection occurs in a deep wound there is extensive necrosis and dissemination of infection.

Disseminated mucormycosis

It is rare and occurs only in patients who are severely immunocompromised, in severe burns, premature infants and patients who are undergoing treatment with Iron chelator deferoxamine. The prognosis is poor with a mortality rate of around 96%.



Swelling anterior maxilla presenting as abscess



3D formatted image showing extensive bone resorption anterior maxilla

Acknowledgement : Thanks to Dr. Vivek N and Dr. Magesh KT, SRM Kattankulathur Dental College and Hospital

Dr Kavitha Iyer :- How is mucormycosis diagnosed?

Dr K Ranganathan :- Mucormycosis is diagnosed by:

- Clinical signs and symptoms
- Characteristic black eschar in facial region
- Identification in tissue specimen (smears, sputum or bronchoalveolar lavage) stained with calcofluor white. Tissue biopsies may be stained with silver stains or PAS. This method is the most dependable and commonly used
- Culture – not usually done as there is often no growth.
- PCR
- Radiology: CT scan is preferred in the early stages to ascertain bone loss and extent of involvement. As the infection progresses MRI helps in detection of intracranial and intraorbital involvement

Dr Kavitha Iyer :- How is Mucormycosis managed?

Dr K Ranganathan :- Management is a combination of surgical debridement of the involved tissues and antifungal therapy.

- Aggressive surgical debridement should be done as early as possible to remove the necrotic and infected tissue. This is very important to reduce the morbidity and mortality.
- The mortality rate ranges from 28-52%. Early treatment cannot be overemphasized. In one study a delay (6 days or more) of initiating treatment and antifungal therapy after diagnosis resulted in a twofold increase in mortality at 12 weeks after diagnosis
- Lipid formulations of Amphotericin B is the drug of choice, as high doses can be given with minimal nephrotoxicity
- Broad spectrum azoles such as Posaconazole or Isavuconazole can be used in patients who cannot tolerate Amphotericin or as Step-down therapy following amphotericin therapy
- Therapy is continued until the resolution of clinical signs and symptoms; resolution of infection as indicated by diagnostic tests, and should continue till the patient's immunosuppression is corrected.

On behalf of IOS Times , I thank you for sharing your knowledge and experience with us.



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Study Group Events

PUNE ORTHODONTIC STUDY GROUP WEBINAR ON 25-06-2021

Reported by Section Editor : Dr Sandeep Singh



PUNE ORTHODONTIC STUDY GROUP WEBINAR ON 25-06-2021

In these extraordinary times upholding the tradition of conducting good scientific sessions, the Pune Orthodontic Study Group is happy to report that a webinar was organised on the 25th June 2021 on Aligner Treatment for adults and teens by Dr Jignesh Kothari and Dr Arun Nayak. Both the speakers gave an excellent presentation with lot of clinic tips for the delegates.

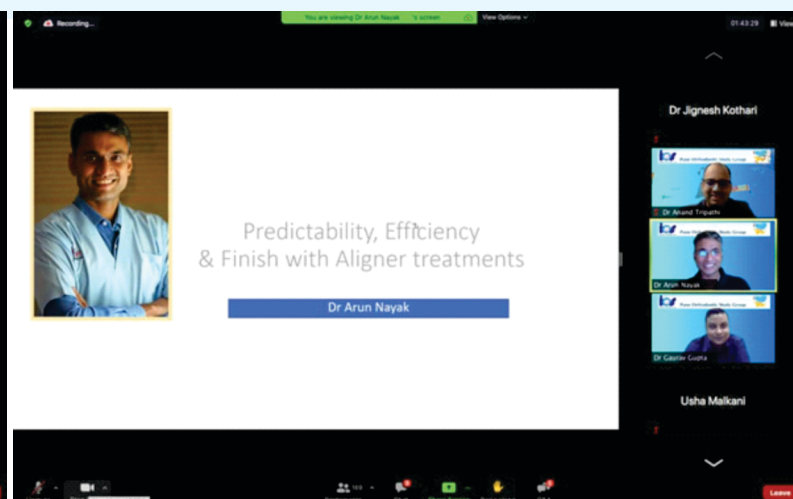
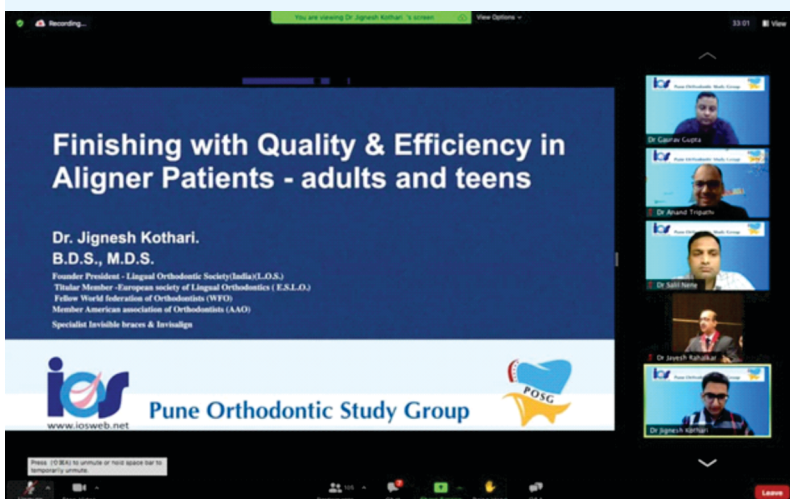
The webinar was well attended with over 500 registrations from all over the country. The webinar began with a welcome message by Dr Gaurav Gupta (Convenor POSG) who welcomed all the delegates which included Dr Silju Mathew, President of the IOS, Dr Sridevi Padmanabhan Hon Secretary of the IOS, Dr Sri Krishna Chalasani President Elect IOS and many senior members of IOS. POSG is thankful to all for gracing the occasion.

As we live in these challenging times, webinars have become our only sources to upgrade our knowledge, learning continues, helping us all to learn and apply it to our clinical practices.

At the end of the program Q&A session was moderated by Dr Anand Tripathi (Convenor POSG) and then the program ended by thanking all as Dr Salil Nene (Convenor POSG) proposed the vote of Thanks.

Regards


Dr Gaurav Gupta, Convenor POSG
Dr Salil Nene, Convenor POSG
Dr. Anand Tripathi, Convenor POSG

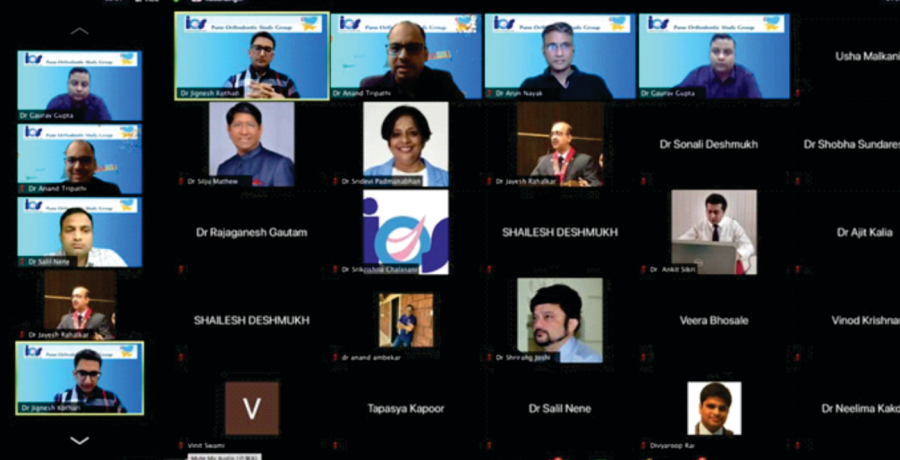


Finishing with Quality & Efficiency in Aligner Patients - adults and teens

Dr. Jignesh Kothari.
B.D.S., M.D.S.

Founder President - Lingual Orthodontic Society (India) (L.O.S.I.)
Trainer Member - European Society of Lingual Orthodontics (E.S.L.O.)
Fellow World Federation of Orthodontists (WFO)
Member American Association of Orthodontists (AAO)
Specialist invisible braces & Invisalign





Participants

Chat

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Recording...

Welcome and Program Introduction

- By Dr Gaurav Gupta



Vote Of Thanks

- By Dr Salil Nene



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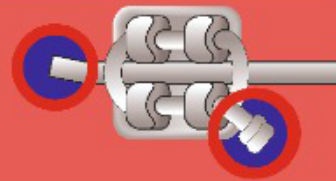
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