



Academy of
Osseointegration
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Academy NEWS

A QUARTERLY MEMBER NEWSLETTER

Dental Implant Complications:

*Opportunities for progress
and excellence*



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WHY HAVEN'T YOU SWITCHED?

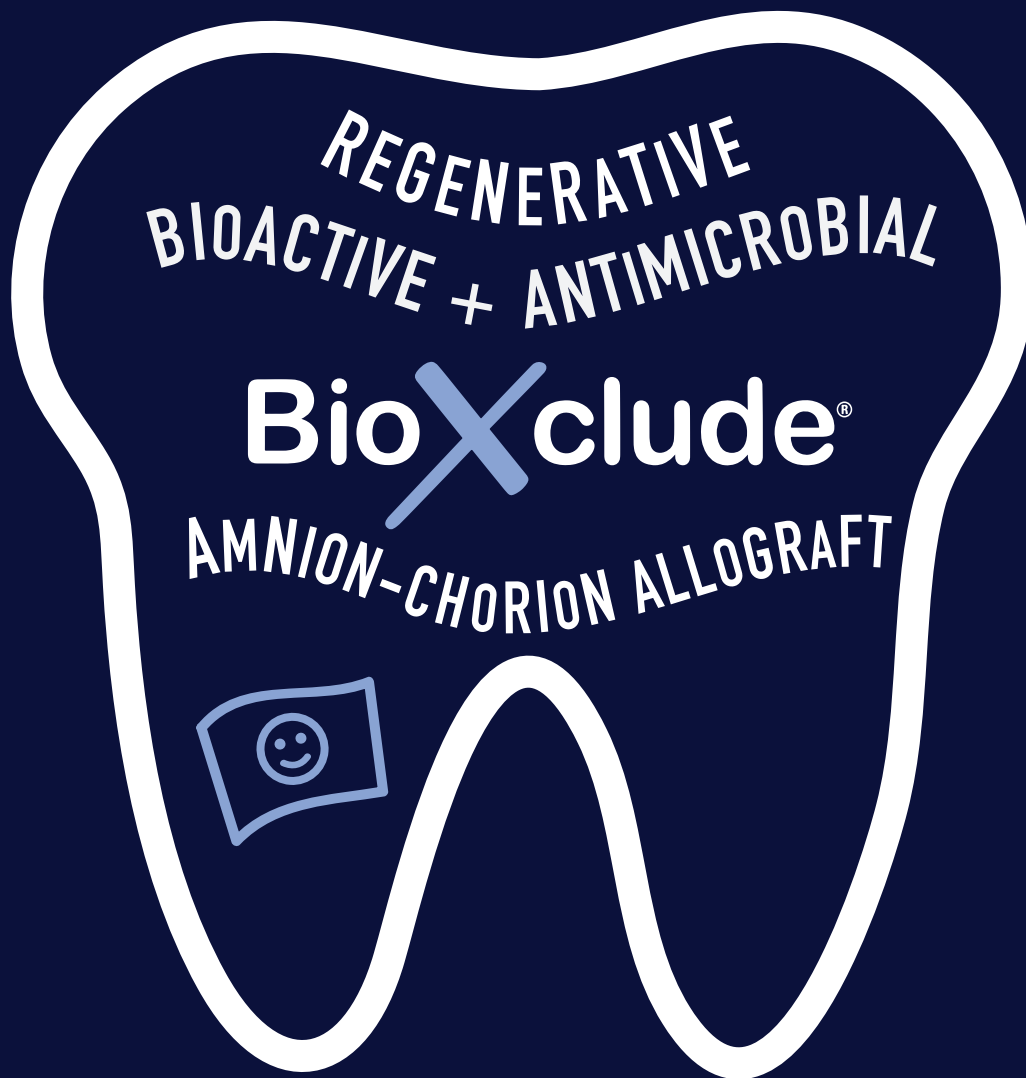


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ACADEMY NEWS

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President's Message

A Year to Lend a Hand

By Tara L. Aghaloo, DDS, MD, PhD



normal. While the COVID-19 pandemic may have resulted in the temporary closure of our offices, research facilities and workplaces, it did provide one important and perhaps unexpected benefit: time.

Whether spending it with our families, or using it to look within ourselves, this unprecedented situation brought to light how important it is to use our time and talents helping others. This brings me to the theme of my first column as the Academy of Osseointegration president - volunteerism - and would like to share a project near and dear to my heart.

For those of you who I have not yet met, I thought I'd take the opportunity to introduce myself. I am currently professor in Oral and Maxillofacial Surgery and assistant dean for clinical research at the UCLA School of Dentistry. I have been at UCLA my entire career thus far, where I completed my MD, oral and maxillofacial surgery training, and PhD in bone biology. Before residency, I attended college and dental school at the University of Missouri-Kansas City. It has now been over 20 years in Southern California, where I continue to be amazed by the beautiful sunshine by day and cool breeze at night.

For the past 30 years, a group of volunteers, including our OMFS team at UCLA, have partnered with the Thousand Smiles Foundation, a non-profit organization dedicated to treating kids with cleft lip and palate in Mexico. For years, our trips have been filled with laughs, tears of joy, and long hours in the operating room. The pandemic put a pause to all this - no longer were we able to treat these children, no longer were we able to provide care for kids in need. My phone was full of pictures of babies who needed surgery, that we could not perform due to the pandemic. Only then did I truly appreciate the impact one can have on somebody else's life. Using the benefit of newfound time, it helped me reflect about going forward and how we, as the AO community, can collectively give back, doing the things we love.

The Osseointegration Foundation (OF) has played an instrumental role in helping to improve the quality of life for needy patients. Through OF's Charitable Grant Program, members of the Academy have been able to

provide life-changing treatment for those with a lifetime dental deficit or those who have suffered from severe dental trauma. In our profession, we all know how important a smile is, even in this new era of masks. This grant program, which provides financial assistance up to \$10,000 per patient, is available only to AO members. If you have not already, consider applying for this unique AO opportunity to help those in need.

There are other avenues to provide charitable care. Most large companies, including our friends in the dental product, service, and technology space, offer charitable items, allowing us to donate our time to help those in need. Last but certainly not least, many members of the Academy already participate in very worthy causes on behalf of the field of dentistry. Some we have profiled here in *Academy News* in the past and I'm sure there are many more. We'd love to hear about them!

As I close this introductory column, I hope that all of us can reflect on this past year and how our lives have changed. The pandemic has affected each and every one of our lives. It has taught us that life is uncertain, and that it in a moment, everything can change. What kinds of outreach or volunteering do you or have you provided, or may be planning now that the pandemic is loosening its grip? Let's take a look at ourselves and how we can help others - if not financially then with our skills and time. I look forward to a year of lending a hand!



In Memoriam:

AO family reflects on life of 9th President



Dr. Thomas A. Collins, Sr.

The Academy was very saddened to recently learn that **Thomas A. Collins, Sr.**, DDS, MS, passed away in January. He was 83.

Dr. Collins, of Springfield, MO, was Academy president from 1993 - 1994 and presided over the 9th Annual Meeting held at the Hilton at Walt Disney World

Village in Orlando, FL. During his tenure, the Academy saw a record-breaking number of new members for the time. Under his leadership, the first member needs and opinions survey was conducted.

Dr. Collins received his advanced degrees from Loyola Dental School and Stritch School of Medicine. In 1967, he completed his Oral and Maxillofacial Surgery internship and residency at Parkland Hospital, Dallas, Texas. Dr. Collins brought orthognathic jaw and facial bone surgery to the Springfield, MO area, and over time, developed and authored advanced dental implant and bone grafting techniques now widely used in the field of oral surgery.

"I met Tom in the late 1980's. At that time, he was having people from Sweden come over to train his restorative staff. I made many trips to Springfield, Missouri over the years. Every time he would have the auditorium packed with dentists. He was without a doubt the most talented surgeon I have ever met. Twenty some years ago when I took an X-ray and saw a huge lesion in my jaw, there was only one person I thought of calling. Tom took great care of me. He was a remarkably talented person in areas besides dentistry as well. He was one of the good guys and will be missed," said **Steven G. Lewis**, DMD (Milford, OH), AO Life Fellow and Academy president, 2008 - 2009.

"I worked with Tom when he was president and I chaired the Finance and Audit Committee. He was a pleasure to work with and a good leader. If you needed help with anything, all you had to do was ask. I remember him most as a real innovator. He broke a lot of ground with bone graft reconstruction using the hip in full arch cases and I used his techniques often. He was iconic in his day," said

Clarence C. Lindquist, DDS, AO Life Fellow and Academy president, 2003 - 2004.

During his rise through the ranks on the Academy Board of Directors, Dr. Collins moderated a session on surgical advances at the 4th Annual Meeting in 1989, the same meeting in which Prof. **P-I Brånemark** spoke on the history of osseointegration and was the guest of honor at a gala banquet.

Dr. Collins was an avid outdoorsman with love for adventure and being outside with nature and a skilled hunter. In fact, in appreciation of his service as Academy president, he was gifted a CITORI 20-gauge over-and-under Browning shotgun by his successor, **Stephen M. Parel**, DDS (Dallas, TX).



▲ *President-elect Dr. Stephen M. Parel (right) presented outgoing president Dr. Thomas A. Collins, Sr., an avid hunter, with a gift in appreciation of his service at the 9th Annual Meeting in 1994.*

Dr. Collins, Sr. was married to his wife, Barbara, for 57 years, father of six children, including AO member **Thomas A. Collins, Jr.**, DDS, as well as 15 grandchildren and five great grandchildren.

Donations in his memory may be made to the not-for-profit Maple Park Cemetery (Springfield MO), www.mapleparkcemetery.org.

Peri-implantitis: Biologic complications to biomaterials

By Binnaz Leblebicioglu, DDS, MS, PhD
Academy News Guest Contributor

Peri-implant diseases are “plaque-associated pathological conditions occurring in tissues around dental implants, characterized by inflammation in the peri-implant mucosa and subsequent progressive loss of supporting bone.”¹ Peri-implantitis is reported in 20-40% of individuals with implant restorations and it’s estimated to involve about 10% of all dental implants.^{2,3}

Clinical signs of peri-implantitis may include suppuration, bleeding on probing, increased probing depths, recession of the mucosal margin, and radiographic bone loss.¹ Diagnosis of peri-implantitis by using periodontal clinical parameters, bite-wing radiographs without baseline documentation has been challenging.⁴ Detecting exposed implant threads or bone loss can be illusive. Thus, most peri-implantitis cases are diagnosed later in disease progression. Clinical detection of peri-implantitis and tissue breakdown is time dependent with a threshold point for more severe bone loss reported five years after implants were in function.^{5,6}

The primary etiological factor for peri-implant diseases is bacterial pathogens.⁷ Peri-implant subgingival biofilm is different in partial vs. complete edentulism.⁸ This has been traditionally explained by possible contamination from tooth sites.⁹ However, more recent reports indicate “peri-implant and periodontal microbiomes represent microbiologically distinct ecosystems” with significant differences during “health and disease in each ecosystem.”¹⁰

History of periodontal disease is considered a risk factor for peri-implantitis.¹¹ However, this may not be due to similarities in bacterial pathogens but may be associated with susceptibility of the host to tissue breakdown.¹² Progression of peri-implantitis can involve a fast-track inflammatory process and rapid bone loss in the presence of minimal dental plaque. It can be regarded as a process similar to connective tissue capsulation of the biomaterial.¹³ Thus, the host response in relation to distinct differences at peri-implant and periodontal interfaces should be considered as we seek to understand implant specific biologic complications.¹⁴ In addition to systemic diseases and habits that may affect host response (e.g., diabetes and smoking), certain medications are currently



▲ Dr. Leblebicioglu is a board certified periodontist from Ohio State University and recipient of the Osseointegration Foundation’s 2017-2018 Applied Science Grant on “Identification of Host Related Risk Factors for Peri-implant Tissue Loss.”

investigated as possible risk indicators/mediators for peri-implantitis.¹⁵ Most recently, the presence of titanium particles within peri-implant tissues, bacterial plaque and the associated host response has been explored.^{16,17} The effect of titanium particles on subgingival biofilm complexity as well as on host response will likely be the subject of more in-depth investigations.

On the basis of currently available RCTs, there is insufficient evidence to support that any particular non-surgical treatment for peri-implantitis showed better performance than debridement alone.¹⁸ Recent systematic reviews report that there is no evidence to support one surgical peri-implantitis treatment modality approach to another since short- and long-term outcomes are not predictable.^{19, 20} In addition, titanium surface decontamination through various mechanical and chemical methods, and its effect on material integrity requires clarification.²¹

In summary, peri-implantitis is different from periodontitis and it should not necessarily be managed in the same way. Challenges in diagnosing and treating this disease are overwhelming due to complexity of biologic complications around an implant device. However, it’s clear that prevention and maintenance in the form of supportive implant therapy may play important roles for successful long-term outcomes.²²

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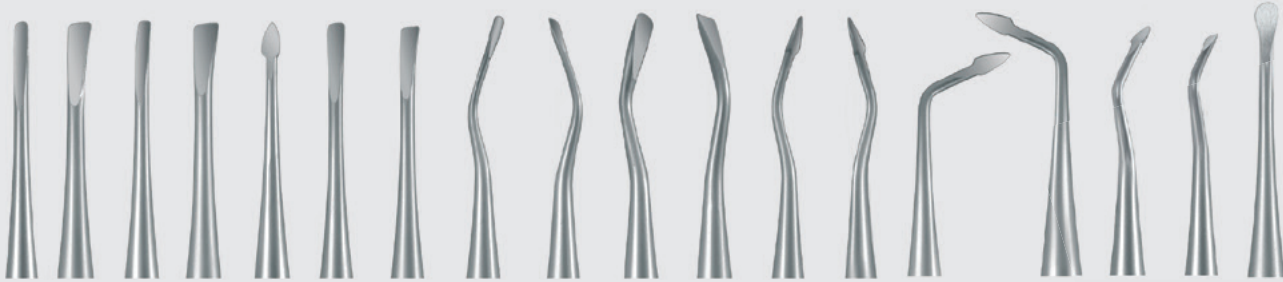
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Dr. Tara L. Aghaloo elected AO President; new officer, director also selected

Tara L. Aghaloo, DDS, MD, PhD, professor in Oral and Maxillofacial Surgery and assistant dean for clinical research at the UCLA School of Dentistry, was elected the Academy's 35th president at its Annual Business Meeting. One new AO at-large director and secretary were also among those elected.

"In the coming year, I would like to see us getting back to normal, but obviously with a new sense of normal. We have really seen what it is like to be a community of like-minded professionals and have connected on so many new levels never thought possible. Let's use this community we have strengthened through 2021 into a new 2022," stated Dr. Aghaloo during her acceptance remarks.

Also elected also were AO Fellows **Stephen L. Jacobs**, BDS (Glasgow, United Kingdom) as a new at-large director and **Robert C. Vogel**, DDS (Palm Beach Gardens, FL) as secretary, who has served as a director since 2017.

A member of the Academy since 2002, Dr. Jacobs' involvement with the Academy currently includes serving as a member of the Fellowship & Certificate and Global Education committees, where he also served as chair, and has also served as a member on the *Academy News*, William R. Laney Award, and Clinical Innovations committees.

"Being elected to the AO Board is a true career highlight, one that I am very proud of and one that I know my late wife, Lucy, would have also been proud of, and I dedicate this appointment to her. I cannot wait to get to work, where the focus is naturally going to be the progression of the Academy in a 'post-COVID' world. This next phase is going to be both exciting and challenging," said Dr. Jacobs.

The 2021 - 2022 AO slate of officers and directors includes:

Officers:

President - AO Fellow **Tara L. Aghaloo**, DDS, MD, PhD, oral and maxillofacial surgeon, Los Angeles, CA

President-elect - AO Fellow **Amerian D. Sones**, DMD, MS, prosthodontist, Dallas, TX

Vice President - AO Fellow **Hom-Lay Wang**, DDS, MSD, PhD, periodontist, Ann Arbor, MI

Secretary - AO Fellow **Robert C. Vogel**, DDS, general practitioner, Palm Beach Gardens, FL

Treasurer - AO Fellow **Joerg Neugebauer**, DDS, PhD, oral surgeon, Landsberg am Lech, Germany

Immediate Past President - AO Fellow **Clark M. Stanford**, DDS, PhD, MHA, prosthodontist, Chicago, IL

Directors:

AO Fellow **Joseph Y. K. Kan**, DDS, MS, prosthodontist, Loma Linda, CA

AO Fellow **Joseph P. Fiorellini**, DMD, DMSc, periodontist, Philadelphia, PA

AO Fellow **Jeffrey Ganeles**, DMD, periodontist, Boca Raton, FL

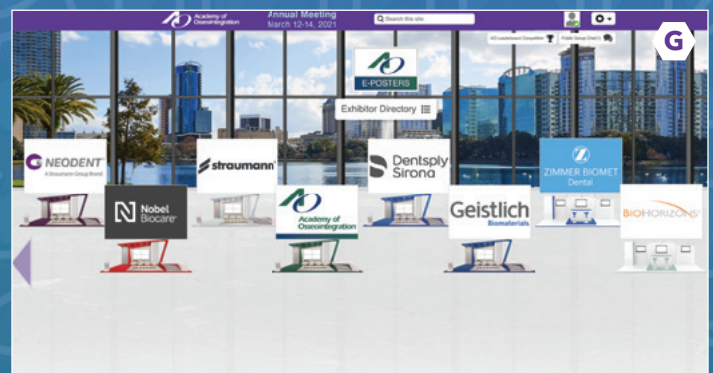
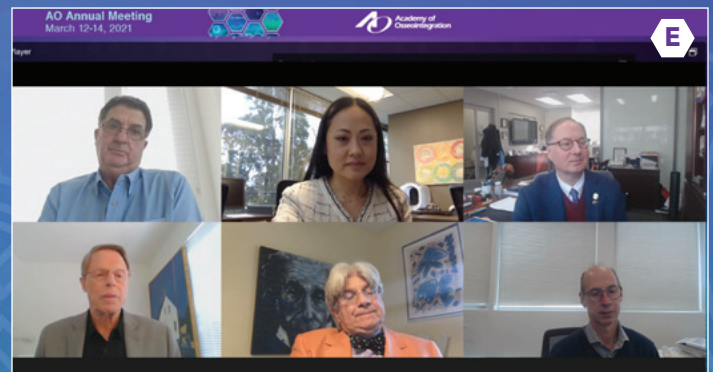
Robert R. Lemke, DDS, MD, oral and maxillofacial surgeon, San Antonio, TX

AO Fellow **Lambert J. Stumpel**, DDS, general practitioner, San Francisco, CA

AO Fellow **Stephen L. Jacobs**, BDS, general practitioner, Glasgow, United Kingdom



Virtual Scenes from the 2021 AO Annual Meeting



CAPTIONS

A President Dr. Clark M. Stanford virtually welcomed nearly 1,100 registrants. **B** Dr. Tara L. Aghaloo accepts her election as AO's 35th President. **C** Dr. E. Dwayne Karateew assembled 235 expert presentations and 55 CE hours. **D** Attendees easily found all meeting assets from the lobby. **E** Live Q&A interaction was part of all plenary sessions. **F** AO's platform allowed for many visuals from faculty like Keynote Presenter Dr. Catherine Mohr. **G** Thank you Corporate Sponsors and exhibitors for your support and hosting 20 Corporate Forums. **H** Social networking included a special magic show.

How to avoid three common pitfalls when restoring single dental implants

By AO Fellow Riad Almasri, DDS, Academy News Guest Contributor

After years of running dental implant practices, I have picked up a few pearls for restoring single dental implants.

As the age-old, but slightly modified saying goes, "measure a hundred times and cut once." Many would agree that we run into a few common issues when restoring a single implant: lack of inter-occlusal space, implant position that is too mesial, distal, palatal or facial, and issues concerning residual or excess cement. These issues can be avoided during the diagnostic phase, day of surgery, or the delivery appointment.

As we know, we need at least 4 millimeters of abutment height to achieve good retention for a crown. Unfortunately, a lot of clinicians do not evaluate the space between the gingiva of the missing tooth and the opposing dentition prior to implant placement. This mistake can lead to an implant platform that is too shallow, resulting in inadequate restorative space for both an abutment and crown. One solution for this problem includes first fabricating diagnostic casts and a surgical guide, then making a mark on the surgical guide at the desired depth of the implant. Next, plan the length of implant by verifying if the bone on the CBCT can accommodate for such depth without violating vital structures, such as the inferior alveolar nerve and the maxillary sinus.

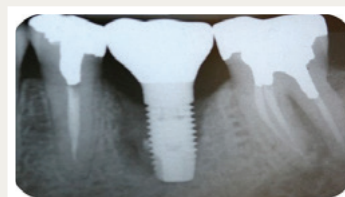
After planning the platform depth and length of the dental implants, one must plan the path of placement. This can be done by using a surgical guide that can help orient the path of placement in both a mesial-distal and facial-lingual dimension, acknowledging both the proximity of neighboring teeth and avoiding restorative complications that arise from an implant that is placed too facial or too lingual (Fig. 1).

Last but not least, cement remnants can be detrimental to implant health and is proven to cause implant failure.

A solution for avoiding residual cement around the margins of the implant restoration is planning for a screw retained crown when possible. If that cannot be achieved due to an unfavorable screw access location, a custom abutment can be used to bring the margins to a level where the cement can be easily reached to clean completely after delivery of an implant crown (Fig. 2 & 3).



▲ Figure 1



▲ Figure 2



▲ Figure 3

Dr. Almasri is a prosthodontist in private practice in Dallas Texas, and a member of the Academy's Allied Professional Staff Education, Research Submission and Young Clinicians committees.





Avoiding Mistakes in Implant Surgery

By Paul A. Fugazzotto, DDS, Academy News Editorial Consultant, and
Kanyon R. Keeney, DDS, Board Certified Oral and Maxillofacial Surgeon, Guest Contributor

There is nothing as
complicated as the truth

- Daniel Kemp

Because of the unparalleled success of implant dentistry, the number of practices incorporating implant surgery has risen dramatically. Unfortunately, there has been an accompanying rise in the number and incidence of complications. All clinicians have had these problems.

Here are mistakes we have seen and made in over 70 combined years of implant surgical practice:

Not understanding your patient:

No two patients are alike. Recognize their variations and modify treatments accordingly.

- Performing less than a thorough and comprehensive history, examination and diagnosis.
- Forgetting that a patient's medical history will affect outcomes more than surgical materials, techniques or protocols.
- Forgetting that patient pre- and post-op compliance affects outcomes, often more than surgical materials, techniques or protocols.
- Recency bias: Techniques that worked well for one patient may not work as well for another patient. It is vital to use surgical approaches which account for the individual patient's capability to heal and be successful!

Not understanding yourself:

- Forgetting you don't know what you don't know!
- Letting your ego write checks your skill set can't match! Surgical competency is a process, not an event.

The progression of case difficulty must match that of your experience and training.

- Mistaking "dog and pony shows" for science based, quality training. Don't let speakers, marketing hype or braggadocio of friends and colleagues replace fundamentals, surgical protocols and clinical instincts.

Not separating the science from the sell:

- Thinking that the latest and greatest products will compensate for poor surgical treatment choices, techniques and experience.
- Allowing corporate hype to influence choice of materials, surgical approaches and protocols.
- Utilizing products without demanding and assessing their basis in science.

Forgetting that implant surgery is merely a component of the overall treatment plan:

- Performing the surgery without understanding prosthetic / restorative protocols and workflows or providing a "restoratively driven" surgery.
- Not understanding when to regenerate bone and when to "work around" bone deficiencies.
- Failure to recognize and treat patients with parafunction, which often leads to failure and frustration for the patient and the treatment team.

Do not forget the mission! Patients want teeth which will last. All components of the team must work together to execute this mission and attain long term success.

In closing, when complications occur, look in the mirror, not elsewhere, for the reason.

Success is a result of self assessment, introspection and proper training, not "hopium."

With proper work-up: Patients taking oral bisphosphonates for less than five years may still be good candidates for implant surgery

By Pouran Famili, DMD, MDS, MPH, PhD, Board Certified Periodontist, Academy News Guest Contributor

Bisphosphonates are widely used to protect bone in management of osteoporosis. They mimic inorganic pyrophosphates, which are naturally occurring compounds formed as a byproduct of normal metabolism.

There are two routes of administration for bisphosphonates: oral or intravenous (IV) infusion. Oral bisphosphonates are usually used to treat osteoporosis, while intravenous bisphosphonates (IV) are commonly used during cancer treatment or for management of other bone maladies.

Bisphosphonates can also be divided further into two categories: nitrogen containing and non-nitrogen containing. Nitrogen containing, IV bisphosphonates are associated with increased risk of osteonecrosis of the jaw following invasive dental treatment.

The most common bisphosphonate prescribed is Alendronate (Fosamax), which is an orally administered nitrogen containing bisphosphonate indicated for management of osteoporosis. The newer nitrogen containing bisphosphonate, Zoledronate acid (Reclast) is widely used, since it is given as a once-a-year IV injection for treatment of postmenopausal osteoporosis and therefore patient compliance is much better.

Many studies have investigated the role of bisphosphonates in pathogenesis of MRONJ (Medication-Related Osteonecrosis of the Jaw) in patients undergoing extractions or other oral surgery. However, there are fewer studies or guidelines specifically looking at the effect of bisphosphonates on success of implant surgery.

In a prospective study, we showed osteoporotic patients taking oral bisphosphonate for five years or less can successfully receive implant without any complication.

Other investigators reported similar conclusions: Koka, et al. looked at survival of implants in postmenopausal women taking bisphosphonates. Fifty postmenopausal women received 121 implants while they were taking bisphosphonate and 82 patients had 166 implants without taking bisphosphonate. The survival rate in the bisphosphonate group was 99.17% while in the control group it was 98.19% with no statically significant difference.

Suvarna, et al. reviewed records of 112 patients on oral bisphosphonate therapy that received implants. The overall success rate was 92.9%.

Menon, et al. reviewed two hundred female patients who received 285 implants. The test group received 153 implants and control group received 106 implants. Seventy-two patients used Alendronate with six failures, 23 used Risedronate with one failure, and five used Ibandronate with three failures. There was no statistically significant difference based on bisphosphonate use, implant failure, and implant location. Success rate was 93.5% for bisphosphonate users and 95.5% for control.

While most studies were either chart review or retrospective, they concluded that oral bisphosphonates did not significantly affect implant success rates and that women with osteoporosis taking bisphosphonate did not develop osteonecrosis of the jaw. Despite these findings, there is a concern about a small incidence of complications in patients taking bisphosphonates for more than five years.

With proper workup and informed consent, clinicians may rely on the existing scientific evidence to cautiously recommend implants on a case-by-case basis for those patients taking oral bisphosphonates for less than five years with no other risk factors. Further prospective studies with larger sample size and longer follow up are needed to determine the true risk to patients.

References available upon request



Pandemic results in extraordinary award recognition by Academy

While the COVID-19 pandemic forced the cancellation of the Academy's 2020 Annual Meeting, it made up for lost time recognizing many members and clinicians for a wide variety of accomplishments at its 2021 Virtual Annual Meeting.

New Fellows

Riad Almasri, DDS, in private practice, Dallas, TX, and adjunct faculty member at Nova Southeastern University College of Dental Medicine.

Joseph Y K Kan, DDS, MS, a professor in the Department of Implant Dentistry at Loma Linda University and a member of the Academy's board of directors.

Gustavo Mendonca, DDS, MSc, PhD, clinical associate professor of dentistry at the University of Michigan School of Dentistry, Ann Arbor, MI.

Alireza Moshaverinia, DDS, MS, PhD, FACP, tenure track assistant professor at the UCLA School of Dentistry, Los Angeles, CA.

Zeev Ormianer, DMD, head of the Department of Oral Rehabilitation at Tel Aviv University.

Alessandro Pozzi, DDS, MSc, entitled full professor in oral sciences by the Italian Ministry of University and Research, adjunct associate professor at the Goldstein Center for Esthetics and Implant Dentistry of Augusta University, and guest lecturer in the Continuing Education in Implant Dentistry Program at UCLA.

Robert C. Vogel, DDS, general practitioner from Palm Beach Gardens, FL and has served on the Academy's board of directors since 2017.

William R. Laney Award Recipients

2019 Recipient

The winning abstract by **Zeev Ormianer**, DMD, prosthodontist from Tel Aviv, Israel, is entitled, "The Effect of Moderately Controlled Type 2 Diabetes on Dental Implant Survival and Peri-implant Bone Loss: A Long-term Retrospective Study," originally published in Volume 33, Issue 2, 2018 of the *International Journal of Oral and Maxillofacial Implants (JOMI)*.

2020 Recipient

"The Effect of Crown-to-Implant Ratio on the Clinical Outcomes of Dental Implants: A Systematic Review" published in Volume 34, Issue 5 September/October

2019 was the title of the winning *JOMI* abstract authored by 2020 recipient **Andrea Ravida**, DDS, MS, graduate student in the Periodontics and Oral Medicine Department at the University of Michigan School of Dentistry in Ann Arbor.



Dr. Andrea Ravida

Osseointegration Foundation Research Grants

Basic Science Research Grant: 2020

Michele Stocchero, DDS, PhD, private practitioner and adjunct researcher at Malmo University, "Effect of Drilling Preparation on the Cortical Bone Around Implants Subjected to Immediate Mechanical Load."

Basic Science Research Grant: 2021

Sahar Ansari, MSc, PhD, UCLA School of Dentistry, recipient of the 2021 Basic Science Grant, "A Novel Growth Factor-free Adhesive Hydrogel Delivery System for Enhanced Bone Tissue Engineering Applications."



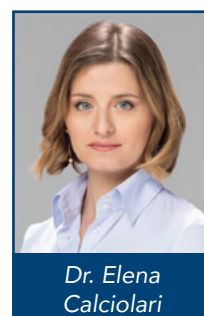
Dr. Sahar Ansari

Applied Science Research Grant: 2020

Irina Dragan, DDS, MS, Tufts University School of Dental Medicine, recipient of the 2019-2020 Applied Science Research Grant, "Using Digital Implant Planning in Assessing Outcomes of Maxillary Sinus Augmentation Procedures: A Retrospective Study."

Applied Science Research Grant: 2021

Elena Calciolari, DDS, MS(Perio), PhD, senior clinical lecturer at Queen Mary University of London and at University of Parma, "The Effect of Osteoporosis on Osseointegration and Bone Regeneration."



Dr. Elena Calciolari

Best Presentation Research Awards

Best Oral Clinical Presentation

Pietro Felice, MD, DDS, Bologna, Italy, 4mm Supershort Implants Compared with Longer Implants Placed in Reconstructed Posterior Atrophic Jaws: 3 Year Results from an RCT.

Continues on page 18

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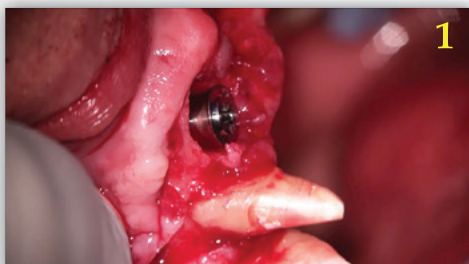
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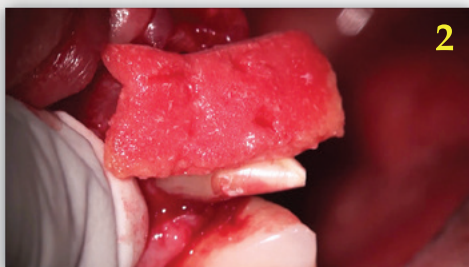
The Impladent Ltd **OsteoGen® Bone Grafting Strip** infuses **OsteoGen®** bone graft crystals into a collagen sheet which eliminates issues associated with particulate migration. The **OsteoGen® Strips** are a predictable solution for grafting gaps around immediately placed implants and can be utilized in the sinus or anywhere particulates are typically used.

CLINICAL CASE EXAMPLE



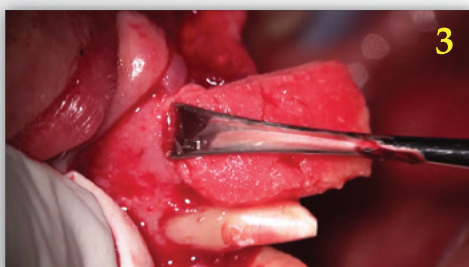
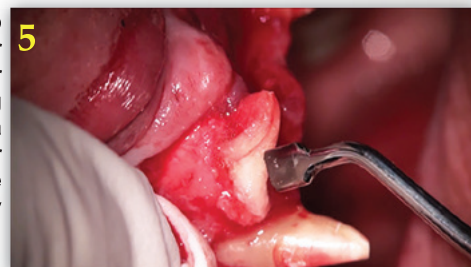
1 Implant is placed lingually following extraction. OsteoGen® Strip will be used to fill gaps and to reinforce the buccal wall

The OsteoGen® Strip is a hydrophilic material that can be hydrated with patients blood and substantially compressed to fill a variety of defects



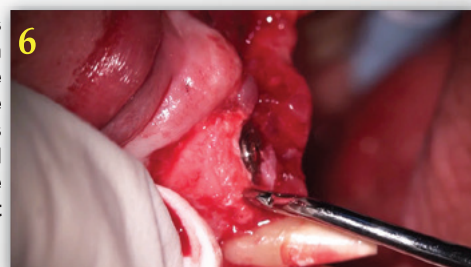
2 OsteoGen® Strip is hydrated with patients blood from the surgical site and, if desired, autologous serum or other growth factors prior to delivery

OsteoGen® Strip can be folded after hydration and prior to or during placement with a blunt instrument for additional bone width and stability



3 Buccal plate is reinforced by feeding the OsteoGen® Strip downwards in between the implant and the buccal wall

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Clinical images courtesy of Robert Miller, MA, DDS, FACD, DABOI

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Reusing healing abutments – Is detoxification possible?

By Aniruddh Narvekar, BDS, MS, and Salvador Nares, DDS, MS, PhD, MBA, Academy News Guest Contributors

There are conflicting views regarding the safety and economic value of reusing healing abutments (HA) due to their potential for initiating an inflammatory reaction to residual biomaterial on their surfaces. Previous studies have shown the presence of a biofilm on used, sterilized HA, raising concerns about the efficacy of surface decontamination.

According to FDA guidelines, HA are implantable devices, designed for single use. Since the primary reason HA are reused is economical, an ethical and legal dilemma is whether clinicians should seek patient consent prior to reusing HA. Clinicians who re-sterilize used HA often point to the lack of evidence demonstrating adverse outcomes. This may be due to the absence of formal reporting and/or a lack of clinical studies.

Many investigators have focused on the negative effects of debris found on re-used HA. How other factors, such as the cleaning and sterilization process, impact the mechanical properties of re-used HA await further investigation. Findings from one study indicated cell attachment levels were diminished and cell spreading was reduced in the autoclaved sterilization group and had a strong correlation with the number of sterilization cycles.

This is important, as avoiding bacterial penetration into peri-implant structures is key to maintaining implant health in an already compromised trans mucosal barrier. To truly understand the implications of this practice, the biological responses to contaminants, as well as identification of an effective decontamination protocol are needed. This is important, given the uncertainties as to whether used HA trigger an immune response.

Our team investigated the degree to which used HA triggered an inflammatory response in-vitro, compared to new HA, following four decontamination methods available in most clinical settings. Our findings demonstrated the presence of residual contaminants on the surfaces of all used HA, which agreed with previous studies. We also

performed immunologic assays, further demonstrating how used, sterilized, “decontaminated” HA triggered the release of proinflammatory cytokines in human macrophages.

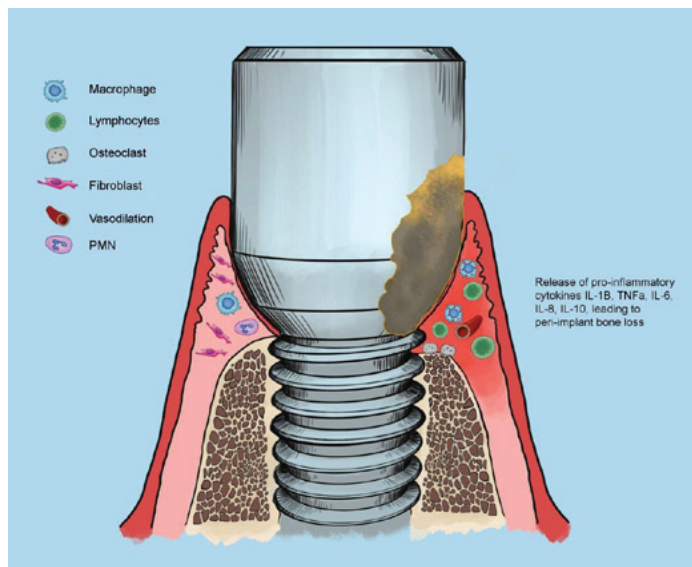


Image 2: Model of tissue response to used HA (Illustration by Ray Zupp)

Importantly, proinflammatory cytokines have been shown to have a strong correlation with disease progression, due to their ability to activate osteoclast differentiation and inhibit osteoblast differentiation. Used HA may potentially trigger inflammatory responses during the early, critical phases of osseointegration. More clinical research is needed to show the clinical significance of our in-vitro study.

Regarding detoxification strategies, macroscopically we found the most effective protocol utilized a prophy jet with glycine powder. However, those HA were still capable of triggering an inflammatory response, likely due to the presence of residual contaminants, such as endotoxin. Therefore, our recommendation supports single use of HA.

HA are designed with several retentive areas and are used in the oral cavity anywhere between 2-16 weeks, making them prone to biofilm development. It is therefore reasonable to suggest HA disconnected during try-ins prior to final delivery of a restoration may benefit from decontamination using a prophy jet prior to their reconnection but discourage sterilization and reuse in a different patient.

References available on request.

Drs. Narvekar and Nares are Diplomates - American Board of Periodontology



Image 1: Used HA after 4 detoxification methods showing residual biomaterial (pink)

Are you prepared? – A simple implant turned emergency tracheostomy

By Robert R. Lemke, DDS, MD, Academy News Guest Contributor

We learn from the knowledge and experience of others. Experiences are harder to teach. The AO DocMatter Community is a new online platform for members to pass on not just knowledge, but also our experiences. Here is an experience I recently shared on the forum:

It was over 12 years ago. My OMS practice at that time did not have a CT machine. The day began by treating a kind gentleman who is a surgeon himself. I had placed several implants. One required a soft tissue graft.

I noticed the implant recently placed at #28 demonstrated bone loss and mobility. I decided to replace it with a new implant placed slightly deeper. The culprit was an abscess from the neighboring #27. I decided to extract the non-restorable canine and graft it.

During this time, our patient had spikes of elevated blood pressure, which I controlled with IV Labetalol. This worked for about five to 10 minutes at a time. When I drilled to place the new implant, I slightly perforated through the lingual cortex. There was no immediate bleeding, but within 20 minutes, a sublingual hematoma grew, pushing his tongue to the roof of his mouth. To remove the pool of blood, I had to access the floor of his mouth. I opened the lingual tissue away from the mandibular body expecting to find a little gush of blood, I found nothing.

Finishing, I then noted significant swelling in the sub-mental area. I used liposuction cannulas to attempt evacuation of blood in the sub-platysmal space. Nothing came. To use gravity to help drainage, I connected the floor of the mouth to the outside of his face through the sub-mental space. Still nothing came. I placed extra-oral drains and packed the floor of the mouth with gauze with no apparent bleeding.

During his post-operative recovery, he was awake and stable. After some time, I removed the intra-oral gauze and the site was perfectly dry. Just before I could place a collagen tape, our patient coughed. Then all heck occurred. He began to bleed profusely. Pressure would not stop it. Blood was filling his mouth. He started to gag, desaturate, and gag more. A yanker suction was not enough.

I could either apply pressure intra-oral to control bleeding or ventilate with an ambu/mask. If I used an ambu bag to keep his oxygen up, he would choke on the blood that was welling intra-orally. I could not intubate him as his tongue was at the roof of his mouth from the swelling. After about three minutes of alternating, I called 911. His oxygen level dropped to the 70's. He became diaphoretic with beads of

sweat all over his forehead. Within another minute, his saturation dropped to 50's. He turned slightly pale, then blue and his arm dropped limp by his side.

I knew in about five minutes I could have a brain-dead patient. I told my assistant: "We need to do a trach" (tracheostomy). I asked for local anesthesia and then thought "why on earth do I need local? He's non-responsive!" I took a breath and performed the tracheostomy placing the ET tube into his neck.

The EMT's arrived. I went to the hospital in the EMT van and assisted an ENT in the OR to convert my emergency cricothyrotomy to tracheostomy. The ENT, Dr. **Nathan Marshall**, that day gave up his own cancer therapy to help my patient (As a side note, Dr. Marshall eventually succumbed to his cancer, but not after dedicating his life helping others). The next day, I went to visit the patient. Intubated through his tracheostomy, he rested in the SICU. I was worried he was brain dead.

He opened his eyes. I said, "Thank you God" (internally). He asked for a clipboard and wrote "What the --- happened?" (just like that).

I told him. He was a general surgeon himself. He took my hand, gently squeezed it and then wrote on the clipboard "Will you still be my doctor?" Now, many years later, I still get teary eyed thinking about this wonderful gentleman. I learned more from his compassion as a patient than from any other "lesson" over my career.

Subsequently, I learned that the literature has numerous reports of patients dying from hematoma associated with "routine" placement of a mandibular implant.

Do you have an emergency story to share with others? Please do so on DocMatter. Challenges occur through each of our lives. Overcoming them is what makes life meaningful.

Editor's note: The AO DocMatter Community is a new, secure and confidential online forum for exchange of clinical and scientific information, and the newest benefit of membership in the Academy. The terms of use are strict and disclosure outside the forum is prohibited. This narrative was published by the author with special permissions.

Dr. Lemke is a board certified oral & maxillofacial surgeon in private practice in San Antonio, Texas and member of Academy's board of directors.

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Award Recognition

(continued from page 13)

Best Oral Scientific Presentation

Gülce Çakmak, DDS, PhD, Mexico City, Mexico, Accuracy of Different Complete-arch Digital Scanning Techniques, Using a Combined Healing Abutment-scan Body System.

First Place ePoster Award

Ping Wang, DMD, Temple University, P119 - Effect of Connective Tissue Graft on Buccal Bone Dimension and Esthetics Following Immediate Implant Placement.

Second Place ePoster Award

Alexandra Stuart-Smith, MSc, South Africa, P106 - Angulated Screw Channel Solution With Increased Preload.

Best Case Presentation

Buddhapoom Wangsrimongkol, DDS, NYU College of Dentistry, P122 - New Implant Abutment Design for Vertical Orthodontic Movement: A Case Report.

Best Clinical Innovations

Rafael Siqueira, DDS, MS, PhD, University of Michigan, Ann Arbor, Comprehensive Peri-implant Tissue Evaluation With Ultrasonography and Cone-Beam Computed Tomography.

AO Certificate in Implant Dentistry Recipients

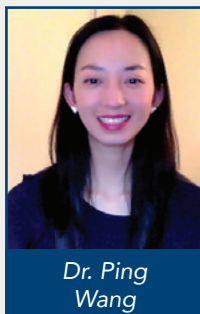
Yuen Lok Loretta Ching, BDS, MSD, assistant clinical professor, Department of General Dentistry, School of Dentistry, Loma Linda University.

Jorge Mauricio Hervas, DDS, MS, in private practice and various faculty positions at Nova Southern University.

Sunee Limmeechokchai, DDS, MSD, assistant professor, School of Dentistry, Loma Linda University.

Robert H. Sattler, DMD, a general practitioner in a family private practice in Southampton, PA.

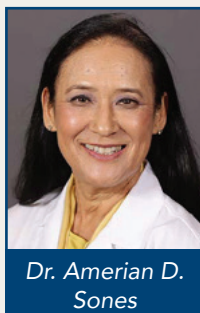
Amerian D. Sones, DMD, MS, prosthodontist and AO Board of Directors president-elect. She is director of the Department of Continuing Education at the University of Texas A&M. Dr. Sones has been the main driver of the Certificate program since its inception at the Academy's 2016 Annual Meeting.



Dr. Ping Wang

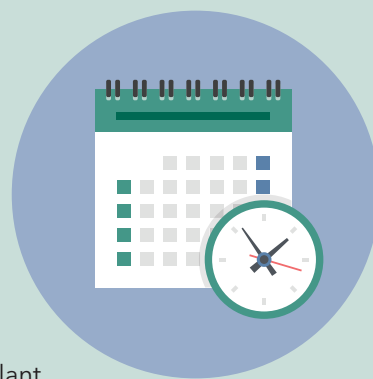


Dr. Rafael Siqueira



Dr. Amerian D. Sones

AO events and CE calendar



June 5, 10:00 am EDT

Student Webinar Series:

Fundamentals of Dental Implant Surgery - Predictable Outcomes

Tara Aghaloo, DDS, MD, PhD

June 9, Noon EDT

Live Webinar: Personalized 3-D Printing

Jennifer Chen, DMD, DMSc

July 14, Noon EDT

Live Webinar:

Occlusion and Implant Dentistry

Tony Daher, DDS, MSEd

July 15, Noon EDT

Live Webinar:

Digital and Analog Implant Planning for Esthetic and Functional Long-term Restorative Success

Gabriele Cervino, DDS, PhD

July 17, 10:00 am EDT

Student Webinar Series:

Digital Implant Workflow - Restorative and Surgical Considerations

German Gallucci, DMD, PhD

August 10, Noon EDT

Live Webinar:

Clinical and Microscopic Evaluation of a New Implant Surface: From Surgical Healing to Peri-implantitis Management

Luca Fiorillo, DDS, PhD, MSc

August 19, Noon EDT

Live Webinar:

Practical Pearls to Improve Your 2-D and 3-D Diagnostic Skills

Setareh Lavasani, DDS, MS

September 1, Noon EDT

Live Webinar:

Pterygoid Implants

Dan Holtzclaw, DDS, MS

Complimentary to members, all webinars are recorded and available for CE credit, now for up to one year following the live presentation (previously 90 days). To register, go to osseos.org/online-learning-center.

Complications and failures offer valuable lessons for success

By Mehrdad Favagehi, DDS, MS, Academy News Editor

In January 2009, the headlines heralded Capt. "Sully" Sullenberger's miraculous landing of a US Airways jet on New York's Hudson River after a flock of geese struck his plane during takeoff, disabling both engines. The unruffled pilot acted swiftly to land his plane on water, saving numerous lives. In a recent post on the AO DocMatter Community (see page 16), we read how a quick-thinking surgeon performed a life-saving emergency procedure to save his patient's life.

In both instances, lives were saved. The difference is that clinical emergencies, such as the one recounted by Dr. **Robert R. Lemke** (San Antonio, TX), was not reported in the headlines, in TV interviews, in a book or in a movie.

Pilots all around the world can run simulations and practice scenarios based on experiences like Capt. Sullenberger's. Unfortunately, once we leave school as dental professionals, we rarely get the opportunity to learn about complications our colleagues have had to grapple with, since most clinicians shy away from reporting failures.

The Academy's online DocMatter Community is here to fill this gap. With strict terms of use, restricting rebroadcast of content on social media or through other means and with legal confidentiality agreements in the terms of use, AO members can privately ask questions, share their views and put on display photos and radiographs as they share their views and experiences. DocMatter discussions can receive input by more than 4,000 AO members all around the globe, including top experts in every implant related discipline.

Managing complications gained a new dimension this year, as our organization, challenged by the pandemic, had to change its highly cherished Annual Meeting to a 100% virtual format.

The 2021 AO Virtual Annual Meeting will always be remembered as a "game changer." In fact, the meeting is still in progress. Nearly 1,100 Annual Meeting registrants are still watching the 235 presentations at their own pace, in the comfort of their homes or offices, accumulating up to 55 ADA-CERP credit hours (an increase of more than 70 percent over last year). Another game changer of the 2021 Virtual Annual Meeting was the inclusion of a five-minute recorded video to many ePoster submissions this year presented by the main author, explaining the content of their research.

To be sure, we miss the splendid parties enjoyed in person at the AO annual meetings. However, with visionary leadership and hard-working staff, the Academy has provided opportunities for networking and exchange of information among members through programs such as DocMatter, ePosters, and new additions to the website, which is a gateway to our annual meeting, international journals, summit reports, and hundreds of webinars.

In this edition, dedicated to prevention and management of complications, you will also read about common surgical and prosthetic complications in implant dentistry, as well as the latest scientific updates about peri-implantitis, and the effect of bisphosphonates on implant success.

Complications and failures are expected during the career of any clinician or organization. With the right state of mind, our reaction to complications has made them valuable opportunities for progress, as we strive for excellence, both individually and as an organization.

The Editor's Editorial is intended to contribute to the dialogue on issues important to implant dentists. The views expressed in the editorial do not necessarily reflect the policy of the Academy of Osseointegration or its Board of Directors. To provide feedback about this issue, or to contribute as a guest author, please contact me at mfavagehi@yahoo.com. We will endeavor to publish pertinent comments or views when space permits.



Dr. Mehrdad Favagehi

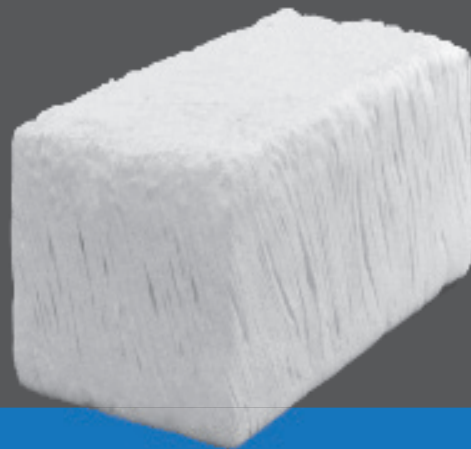


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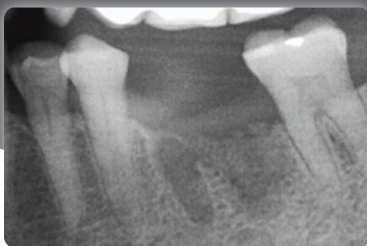


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