The New York State Dental Journal

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N Y State Dent J June-July 2021

The COVID/Periodontitis Link

THE NEW YORK STATE DENTAL JOURNAL

NYSDJ

Volume 87 **Number 4**
June/July **2021**

JUST HOW SAFE *are Night Guards?*

Inside: Protecting Workers from Infection

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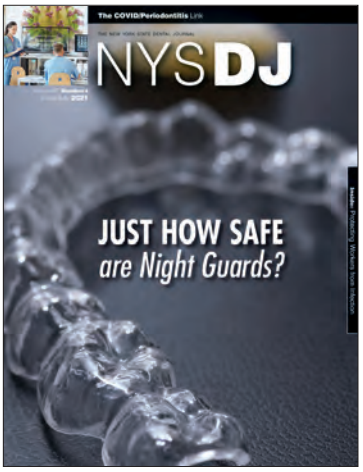
THE NEW YORK STATE DENTAL JOURNAL

NYSDJ

Volume 87 **Number 4** June/July **2021**



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Use your smartphone to scan this QR Code and access the current online version of The New York State Dental Journal.

Never Waste a Serious Crisis

Healthcare must leverage the pandemic to better integrate medical and dental services.

Leaders in various endeavors utilize crises as catalysts for change. The instability and dangers inherent in any crisis create the optimal conditions to rally support and challenge assumptions. Rahm Emanuel, President Barack Obama's Chief of Staff, described the dynamic as the "opportunity to do things that you think you could not before."[1] The uncertainty and morbidity of the COVID pandemic and healthcare's disorganized response to it set the stage for healthcare reform not previously possible. It highlighted that medicine and dentistry currently operate isolated from each other to the detriment of our patients. Regretfully, politicians and special interest groups have exploited the COVID crisis for personal gain and power, without regard to the best interests of our country.

Together, we can change this narrative and use the crisis as an opportunity to accelerate the long overdue professional integration of primary medical care and oral healthcare in the best interests of America's public health.

Oral Cavities Connect to Human Bodies

Medical care and dental care suffer from a long-standing, unnatural separation, despite numerous interrelationships between overall health and oral health. The oral cavity reflects systemic diseases. Diabetes decreases the body's resistance to infection, thereby increasing the risk for periodontal disease. Periodontal disease predisposes patients to adverse overall health outcomes. Many common medications decrease saliva flow, creating xerostomia that predisposes patients to dental caries. Interprofessional collaboration between physicians and dentists should reflect these biological connections and the common risk factors that exist between the mouth and the rest of the body.[2]

The current legal standard of care for dentists incorporates the responsibilities the medico-legal system and society expect from dentists in light of our extensive, medically oriented education and training. These include duties to timely discover and refer oral cancer and head and neck tumors that present clinically and radiographically, manage the interactions and side effects of patient medications, treat medical emergencies that occur in the office, such as vasovagal syncope, angina, hypoglycemia, epileptic seizures, choking, asthma, anaphylaxis, cardiac arrest and stroke, pre-medicate at-risk patients prior to invasive procedures, make final determinations on medical clearance[3] and operate effective infection-control protocols in a high-risk environment.

As further evidence of dentistry's role in overall health, during the early stages of the pandemic,

dentists voluntarily limited their practices to treating dental emergencies, such as uncontrolled bleeding and diffuse soft-tissue infections that compromised the airway, in order to reserve hospital emergency rooms for COVID patients. While dentists stand legally accountable to routinely manage medical-dental interrelationships, the medical care and dental care delivery systems remain divided.

'Ask Not Who Should Do What. Ask What You Can Do for Your Patient'

Healthcare must empower professionals to perform to the maximum limits of their licenses in the best interests of the patient.[4] Medicine and dentistry must rise above the turf battle mindset and view scope-of-practice decisions through the lens of accountability for patients' oral and overall health status. In addition, this would require major reforms to the current medical and dental clinical practice and reimbursement models, with dentists working collaboratively on unified treatment plans with physicians and other medical professionals. Organized dentistry and medicine, along with state legislators, must challenge politically based assumptions that limit who can do what, where and when.

Dentists rarely screen for chronic medical conditions or inquire regarding patients' overall health behaviors, such as flu shots, colonoscopies and mammograms, and HPV vaccines. Since millions of people each year seek a dental visit, but no medical visit, undiagnosed medical conditions increase. Similarly, physicians rarely inquire regarding chronic oral conditions, such as bleeding gums and dry mouth, or inquire about other oral health risk factors. Since mil-

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lions of people each year seek a medical visit, but not a dental visit, undiagnosed oral health conditions increase.[5]

These missed opportunities prevent timely referrals and result in, at best, fragmented and delayed care to the detriment of patients' oral and overall health. This has led to increased demand for hospital emergency departments to render non-definitive care for dental problems.[6] The time has come to increase medical-dental care integration to include the dental team's provision of preventive (non-dental) health services in dental offices, the medical team's provision of preventive oral healthcare services in medical clinics, and a system to coordinate care and referrals.

Communicate, Collaborate and Coordinate

Medicine and dentistry must facilitate the sharing of patient information in a secure system across various platforms. This will enable more efficient communication, feedback and referrals. Dental software companies must continue to improve integrated electronic health records which are, at minimum, compatible and interoperable among various types of providers. Built-in appointment scheduling would also facilitate consultations and referrals. Medicine and dentistry, through increased inter-profession education and CE, must develop common practice and referral guidelines. Since a significant number of malpractice claims stem from communication failures, improved collaboration and communication among physicians and dentists will reduce malpractice vulnerability.

Cutting-edge technology alone will not benefit patients without their ability to navigate the system and make themselves available for care. Each professional must ensure that patients understand their need to access a different clinical setting. We can schedule appointments, engage social services, as needed, to assist patients who lack resources and confirm follow-up visits. A community dental health coordinator, or any trained member of the healthcare team, can perform these vital functions.

Medical-Dental Connection Improves Overall Health

Integrated medical-dental care will reduce the overall cost of healthcare, increase access and improve quality. Studies show screenings for chronic illnesses in dental offices, combined with timely periodontal referrals and treatment for patients with diabetes, coronary artery disease and cerebrovascular stroke, will save costs through reduced hospitalizations and emergency department visits.[7]

Making every dental and medical visit an overall health visit will improve access to care.[8] For example, at a dental visit, a patient with undiagnosed diabetes and hypertension, and in need of a flu shot, could receive an oral exam and prophylaxis, a blood pressure and hemoglobin AIC screening and a referral for the flu shot or any other overdue medical screening. This integration will protect patients who lack the health literacy to link themselves to referrals from delays in diagnoses and failures to obtain treatment.

Challenge Assumptions

Physicians and dentists can only leverage the pandemic to integrate oral healthcare with primary medical care if we challenge assumptions regarding traditional practice models and gain the support of organized medicine and dentistry, medical and dental education, and individual healthcare practitioners in the process. The COVID crisis provides more latitude to question our leaders and the accepted realities of the past. Together, we must focus upon the vast number of interrelationships, links and common goals between medicine and dentistry to make it happen.

D.D.S., J.D.

REFERENCES

1. Walters D. Never Waste a Good Crisis – Part 1 – How Can We Learn from a Crisis? Medium.Com, July 26, 2020. https://medium.com/wioota/never-waste-a-good-crisis-5ae0e5c-1ba12. Accessed May 13, 2021.
2. Atchison K, Weintraub J, Rozier R. Bridging the dental-medical divide. Case studies integrating oral health care and primary health care. JADA 2018;149(1):850-858.
3. Gary C, Glick M. Medical clearance, an issue of professional autonomy, not a crutch. JADA 2012;43(11):1180-1181.
4. Vujicic M. Our dental care system is stuck. And here is what to do about it. JADA 2018;149(3):167-169.
5. Atchison K, Rozier R, Weintraub J. Integration of Oral Health and Primary Care: Communication, Coordination and Referral. National Academy of Medicine, October 8, 2018. https://nam.edu/integration-of-oral-health-and-primary-care-communication-coordination-and-referral/. Accessed May 21, 2021.
6. Atchison K, Rozier R, Weintraub J. Integration of Oral Health and Primary Care: Communication, Coordination and Referral. National Academy of Medicine, October 8, 2018. https://nam.edu/integration-of-oral-health-and-primary-care-communication-coordination-and-referral/. Accessed May 21, 2021.
7. Atchison K, Weintraub J, Rozier R. Bridging the dental-medical divide. Case studies integrating oral health care and primary health care. JADA 2018;149(1):850-858.
8. Jain S. Medicine and dentistry: undoing an illogical 150-year divide. Forbes.com. November 19, 2018. https://www.forbes.com/sites/sachinjain/2018/11/19/medicine-and-dentistry-undoing-an-illogical-150-year-divide/?sh=6c81f12d2bbd. Accessed May 11, 2021.

Call for Papers

THE NEW YORK STATE DENTAL JOURNAL is planning to devote its January 2022 issue to the topic "Increasing Workforce Diversity in Dentistry," an examination of the impact improved diversity among practitioners may have on reducing oral health disparities across population groups. We are looking in particular for papers that explore improvements in recruiting methods to address opportunity gaps, strategic outreach to underrepresented groups and the legal aspects of dental school admission practices.

Interested contributors are asked to submit their papers electronically to the managing editor by Oct. 1, 2021. Address papers and queries to Mary Stoll, mstoll@nysdental.org; (800) 255-2100.

Health and Safety Standards by Committee

New York's HERO Act puts onus on employers to protect workers from exposure to airborne infectious diseases.

Lance Plunkett, J.D., LL.M.

On May 5, Gov. Andrew Cuomo signed into law the Health and Essential Rights (HERO) Act as Chapter 105 of the Laws of 2021. The law took effect on June 4, but the provisions of the bill calling for the formation of joint employer-employee safety committees by employers of 10 or more people take effect Nov. 1. The main part of the law is a new requirement that New York State employers create a written prevention plan of health and safety standards to protect their employees from workplace exposure to airborne infectious diseases.

The New York State Department of Labor, in collaboration with the New York State Department of Health, was charged with creating a model plan by the June 4 effective date. The model plan was to set forth minimum requirements for preventing airborne infectious disease exposure in the workplace that would differentiate between industries and address certain topics, including employee health screenings, face coverings, workplace hygiene stations and social distancing. On June 11, Gov. Cuomo signed into law, as Chapter 142 of the Laws of 2021, amendments that extended the deadline for the Department of Labor to issue its model plan to July 5. Accordingly, the amendments also extended the deadline for employers to comply to 30 days from the date the Department of Labor issues its model plan.

Employers must then establish their own airborne infectious disease exposure prevention plan by either adopting the Department of Labor model plan or developing their own, alternative, prevention plan, as long as it meets or exceeds the minimum requirements in the Labor Department plan. Any alternative prevention plan must be tailored to the employer's specific industry and workplace and be developed in consultation with employees. Employers must also post their prevention plan at a visible and prominent location in the workplace and provide a written copy to employees upon hire, upon any reopening following an airborne infectious disease-related closure and upon 60 days after the Department of Labor issues its model plan.

The law is premised on the fact that there is no federal or state law protecting workers from exposure to airborne infectious diseases in the workplace. While during the novel coronavirus (COVID-19) pandemic there have been several Executive Orders from Gov. Cuomo and guidelines from the New York State Department of Health for protecting some workers from airborne infectious disease, these measures do not cover all industries, nor do they protect all workers. As to the workplace safety committee requirements, the United States Occupational Safety and Health Administration (OSHA) provides a framework for workplace safety committees that the New York law replicates for all employers.

While the Senate sponsor of the bill, Deputy Majority Leader Michael Gianaris (D-Queens

County) has said the bill is not likely to have much effect on dentistry, because dentists already take significant steps to protect against airborne infections in their practices, there is the possibility that existing Department of Health guidelines for dentistry during COVID-19 will just migrate into permanent requirements. Sen. Gianaris explained that COVID-19 is a serious public health emergency that threatens the health and welfare of the people of New York State, resulting in many deaths. Workplace transmission plays a significant role in community spread of COVID-19 and any other airborne infectious disease, constituting a significant public health threat. He noted that the state must act to protect workers and the public from the risks posed by COVID-19 and other airborne infectious diseases. Therefore, the law sets a standard not just for COVID-19, but for all airborne infectious diseases.

Filling the Gap

One reason for the new law is that it was felt OSHA had abdicated its responsibilities to protect working people from airborne infections. There is no general OSHA standard protecting workers from airborne infectious diseases outside of the OSHA Respiratory Infection Control Standard for specified healthcare settings that deal with respiratory infections. Instead, OSHA has issued unenforceable guidance on the matter. OSHA also lacks a specific standard for workplace safety committees that are tasked with raising safety issues to their employers.

In the absence of federal leadership, Gov. Cuomo has issued a series of Executive Orders setting guidelines for COVID-19 safety in the workplace. These Executive Orders have been instrumental in protecting workers in the short run, but the Legislature believed that New Yorkers needed enforceable legislation to set standards for the long run. One problem with this rationale is that OSHA has now decided to put forth regulations on workplace safety in this area and New York may end up unnecessarily competing with OSHA. A number of employment law and healthcare attorneys have suggested that OSHA expressly preempt states in this regulatory area.

However, New York insisted that because of the high potential for transmission of COVID-19 and other airborne infectious diseases in the workplace—and, thereby, the communities that workers live in—and the economic importance of the workplace, it was necessary to enact enforceable safety and health standards for airborne infectious diseases. Moreover, it was felt that employers and employees are best positioned to identify and evaluate risks in the workplace. Therefore, the law creates joint employer-employee health and safety committees. These committees will be tasked with working together to raise health and safety issues and evaluating workplace protocols.

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OSHA has long encouraged worker participation as key to maintaining workplace safety and health. In fact, 14 states statutorily require worker committees to accomplish the occupational safety and health objectives of their jurisdictions. The Legislature noted that the Los Angeles County Board of Supervisors unanimously approved worker-led health councils to monitor business compliance with local health regulations, acknowledging there is not enough staff at the local Department of Public Health to adequately monitor business compliance with public health orders, and that worker-led health councils are necessary to provide more support for enforcement activities during the COVID-19 crisis. These councils would only be effective if workers felt protected, and the New York State Legislature determined that this means giving these worker-led councils formal legal recognition and prohibiting employers from retaliating against workers. It deemed employees in New York should be afforded the vital opportunity to provide input and have a sense of protection in their workplaces by way of participating in workplace safety committees.

Empowering Employees

The joint employer-employee safety committees must be composed of two-thirds non-supervisory employees and be permitted to raise health and safety concerns to the employer, review certain workplace policies (such as policies required by the applicable health or safety law), participate in site visits from a government entity, and attend trainings relating to workplace health and safety standards. The law also requires that non-supervisory employees and not employers select the employee committee members, and it strictly forbids employers from interfering with employees' selection process or retaliating against employees for participating in the committee process.

This is one of those laws that appears laudable on its surface, with its goal of protecting workers from all airborne infectious diseases, but it may well turn into a boondoggle because it is impractical to adequately cover that topic and is fraught with deadline problems. Already there has been a commitment from the governor to seek chapter amendments to fix implementation problems with the law. Those had not yet been passed by the Legislature at the time of writing this article.

Dentistry may well escape the worst of this law, but NYSDA will not. And NYSDA will respond with a nice workplace safety committee by November that will be the very model of workplace safety committees.

The material contained in this column is informational only and does not constitute legal advice. For specific questions, dentists should contact their own attorney.

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When should you consult an oral and maxillofacial surgeon (OMS) about third molars?

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LETTERS

Editor's note: *The letters presented here were received in response to Dr. Gary's editorial "The Expert 'Pair of Docs' Paradox" that appeared in the March* NYSDJ.

An All-too-Common Practice

Your editorial hit exactly home regarding an issue we are currently focusing upon a lot at MedPro, namely, what we refer to as "jousting," which is the common practice of one dentist throwing another under the bus. A significant percentage of litigation cases begin just because of this, and I don't see that ending any time soon.

Marc Lerner, D.D.S., Esq.
Dental/Oral & Maxillofacial Surgery Consultant
MedPro Group
Fort Wayne, IN

Expert Opinion

I read with interest your very well-written article in the current *NYSDJ*. Since serving as the chair of our New York County Dental Society Claims Committee in the '90s, I have acted as an expert witness over the years, almost exclusively for the defense. Primarily a practicing general practice clinician, I have enjoyed the challenges of this expert witness work, and I have liked helping colleagues (and in some ways, also their patients).

I hear and agree with the points you made in the article. So many suits can be avoided with more ethical behavior by both subsequent treating and expert witness dentists. The draw of potential financial gain for some dentists and some attorneys has long been a problem, certainly, in many of the cases I have seen.

Jeff Rabinowitz, D.M.D., FICO
Dental Medicine, Surgery, Implantology
New York, NY

Helpful Reminder

Kudos on an excellent article in the March *Journal*. It is a poignant reminder of what can happen when we are not lending "Helping Hands" (see: Poulos C, NYSDJ January 2021; p 10) and professionalism goes awry.

My insurer stated in a recent CE course that professional malpractice and dental board complaints have been on the rise over the last several years as patients are becoming more mobile and dentists are allegedly making disparaging remarks about another colleague's past work.

Helpful to be reminded of this.

Chris Poulos, D.M.D.
Fayetteville, NY


Kevin Henner


James Galati


Anthony Cuomo


Frank Barnashuk


Brendan Dowd


Craig Ratner

KEVIN HENNER HEADS SLATE FOR 2021-2022

Two Vying for Trustee Position

DURING A ZOOM CONFERENCE on May 19, the NYSDA Council on Nominations approved the slate of officers for 2021-2022. The nominees will be presented for final approval by the House of Delegates when the House meets Saturday, Aug. 14. Their installation will follow.

Delegates will be asked to approve the following nominees:

Kevin Henner, D.M.D., from president-elect to president; James Galati, from vice president to president-elect; Anthony M. Cuomo, D.D.S., vice president; and Frank Barnashuk, D.D.S., secretary-treasurer.

Dr. Henner is a general dentist with a practice in Deer Island on Long Island. He has distinguished himself over many years as an expert in matters of ethics and risk management, having served as chair of the Suffolk County Ethics Committee, the NYSDA Council on Ethics and the ADA Council on Ethics, Bylaws & Judicial Affairs, and as an ethics and risk management instructor and ethics lecturer at Stony Brook University School of Dental Medicine.

Dr. Henner is a graduate of Hobart & William Smith College and Tufts University School of Dental Medicine.

Dr. Galati is in private practice in Clifton Park focusing on esthetic, implant and family dentistry. He also works part-time at an Article 28 facility in Albany serving the less fortunate. He is a past president of the Fourth District Dental Society, originator of the district's annual CE and golf outing and a founder of the district's membership program. He was active on the state level as a member of the Council on Dental Practice and NYSDA governing bodies. He was a delegate to the ADA House. As a member of the ADA Council on Annual Session, he chaired the ADA 2014 meeting in San Antonio, TX.

Dr. Galati is a graduate of the University of Maryland and Georgetown University School of Dentistry, graduating second in his class. He completed a GPR program at Albany Medical Center.

Dr. Cuomo, an oral and maxillofacial surgeon, is in practice with his son, Christopher, at Northeast Implant & Oral Surgery in Carmel and Danbury, CT. He has been involved in leadership roles in dentistry at the community level, serving as chairman of the Dental Department at Danbury Hospital and as section chief of the hospital's oral and maxillofacial section. He is a past president of the Putnam County Dental Society, the Greater Danbury Dental Society and the Ninth District Dental Association. He previously served as a NYSDA Trustee, chaired the NYSDA Strategic Planning Committee and the ADA Committee on Credentials Rules and Order.

Dr. Cuomo is a graduate of Fordham University and New York University College of Dentistry. He did his postdoctoral training in oral and maxillofacial surgery at Lincoln Hospital in south Bronx.

Dr. Barnashuk is clinical assistant professor in the Department of Restorative Dentistry at the University at Buffalo School of Dental Medicine. A general dentist, he was in private practice in Western New York for 27 years before moving into academia, first as a full-time faculty member, then as director of the UB AEGD program, a post he held until 2018. He is a past president of the Eighth District Dental Society, has served on NYSDA governing bodies, is a member of the Board of NYSDA Support Services and a member of *The NYSDJ* Editorial Review Board. He has been active in the ADA, and he is a New York State Education Department-certified Infection Control Trainer and provides SDM and CE courses/lectures in infection control.

Dr. Barnashuk is a graduate of Canisius College and the UB School of Dental Medicine. He completed his general practice residency at Buffalo General Hospital.

ADA Trustee

In one additional piece of business, delegates will cast ballots to select the next ADA Trustee from the Second District (New York State). They will be asked to choose between Brendan Dowd of the Eighth District and Craig Ratner of the Second District. Dr. Ratner is concluding his term as NYSDA President at the August House meeting. Dr. Dowd was NYSDA President 2018-2019.

NYSDA PRESENTS
Albert H. Stevenson Award

THE NEW YORK STATE DENTAL ASSOCIATION proudly awards the Albert H. Stevenson Award every year to a graduating student from each of the dental hygiene schools in New York State who exemplifies the leadership qualities and enthusiasm that Dr. Stevenson displayed for the field of oral hygiene.

In the early 1900s, Dr. Stevenson recognized the importance of oral hygiene, advocating for the field to become a licensed profession. The profession as we know it today was shaped by Dr. Stevenson's tireless promotion.

The 2021 recipients of NYSDA's Albert H. Stevenson Award are: Luis Marquez-Paez, New York City College of Technology; Lindsey Holden, Hudson Valley Community College; Ciara Van Heesch, Broome Community College; Gabrielle Merklinger, Monroe Community College; Junghye Yang, Erie Community College; Brittany Maher Fraser, Orange County Community College; Khalia Smalling, Hostos Community College of the City University of New York; Alyssa Breeze, State University of New York at Farmingdale; Ms. Iuliia Glushchenko, New York University College of Dentistry.

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Alyssa Breeze

Ronald Maitland Reappointed to State Board

RONALD I. MAITLAND, D.M.D., has been reappointed to a five-year term as an extended member of the New York State Board for Dentistry. This is Dr. Maitland's second and final term on the Board, where he will be asked to rule on matters of licensure disciplinary and/or licensure restoration and moral character panels.

Dr. Maitland is clinical professor, New York University College of Dentistry and Tufts University School of Dental Medicine, and chief examiner, Commission on Dental Competency Assessment. A graduate of Tufts School of Dental Medicine, he is a consultant with Bespoke Dental in New York City.

In Memoriam

FIFTH DISTRICT
William Delaney
Georgetown University '51
200 Wendell Terrace
Syracuse, NY 13203
April 1, 2021

Thomas Kent
University of Toronto '68
33 Crestview Drive
Whitesboro, NY 13492
April 3, 2021

SEVENTH DISTRICT
Thomas Gibbs
University at Buffalo '83
1901 Lac De Ville Boulevard
Rochester, NY 14618
May 28, 2021

Richard Lodico
University at Buffalo '56
10 Peaceful Harbor Lane
Webster, NY 14580
May 3, 2021

EIGHTH DISTRICT
John Canney
University at Buffalo '52
106 N Lake Drive
Orchard Park, NY 14127
May 11, 2021

Robert Jarosz
University of Pennsylvania '58
1205 West Long Avenue, #202
Du Bois, PA 15801
May 12, 2021

Richard O'Connor
University at Buffalo '64
433 Silver Moss Drive, #232
Vero Beach, FL 32963
April 13, 2021

NINTH DISTRICT
Maryam Hashemi
Columbia University '85
280 N Central Park Avenue, #460
Hartsdale, NY 10530
April 3, 2021

NASSAU COUNTY
Saverio Fili
New York University '58
14210 Nighthawk Terrace
Bradenton, FL 34202
May 25, 2021

QUEENS COUNTY
Meser Ahmed
New York University '93
3905 234th Street
Little Neck, NY 11363
January 18, 2021

New York State Dental Association

What the Pandemic Taught Me about Team Power

A Message from the NYSDA President

Craig Ratner, D.M.D.

While it starts with the power of one, the success of a leader is often measured by the caliber of the team that surrounds him or her. Looking back on this past year, I quickly realized that my vision for my year as president of the New York State Dental Association (NYSDA) and for the Association had to change. But I knew I would not do it alone.

I also knew going in that times were tough and that my term was going to have unique challenges. I was able to build on the strong standard set forth by my predecessor, Payam Goudarzi, and collaborate with line officers Kevin Henner and James Galati, as well as a very dedicated Board of Trustees. Together, with the support of this "team," we made it through and came out stronger on the other side.

Where We've Been

It is unbelievable to think that just over a year ago, so much changed in one day. Dental practices across the country voluntarily closed their offices to all but emergency care. What was certain, became uncertain. What was known, became unknown. Members quickly turned to NYSDA for guidance on the Paycheck Protection Program (PPP), Economic Injury Disaster Loans (EIDL) and other small business loans, tax ramifications, PPE availability and the Cares Act, just to name a few. NYSDA worked hard to keep New York's dental teams informed. We communicated frequently with our valued members, and the COVID-19 section of our website was updated daily, sometimes hourly.

Our primary focus during the height of the pandemic was to safely get dental offices open again. NYSDA staff and leadership worked day and night to speed up the adoption of state guidelines for reopening. We continuously advocated against being part of the phased state reopening. We knew that dentistry was an essential healthcare service, and we proved our case to the legislators and regulators. Members sent over 6,800 letters to legislators asking them to reopen dental offices. Behind the scenes, we were in constant contact with the offices of the governor and lieutenant governor, the Assembly Speaker, the Deputy Majority Leader of the Senate, the Health Department, health policy leaders in the administration, legislators across the entire state, other elected officials at the county and local levels, and the governor's "Reopening New York" advisory task force. We spoke to anyone who could help us speed up the reopening, and it worked. On June 1, 2020, dental offices statewide were able to reopen with new safety protocols. This was weeks earlier than previously predicted.

As their dental practices were reopening, New York's dentists again turned to NYSDA and the ADA for guidance on how to practice safely. There were questions about safety protocols, staffing, government subsidy programs, etc. And, again, NYSDA answered the call. Timely and frequent communication with members through a variety of methods kept our members informed. NYSDA used email, text, social media, even video messaging to communicate vital information. The Association also started an ambitious public relations campaign on behalf of our members to assure the public that it was now safe to go back to the dentist.

Time and time again, when New York's dentists needed an advocate to help them survive during the pandemic, NYSDA was there. NYSDA successfully advocated for changes to the State Department of Health safety guidelines when they did not make clinical or practical sense. When COVID vaccines finally became available, NYSDA successfully advocated for dentists and their teams to move up in the queue and receive the vaccine on a priority basis. NYSDA was then successful in convincing legislators and regulators to allow dentists to administer COVID-19 testing and to give the vaccine. No other agency or association was advocating in this manner for the dentists of New York. Together, we successfully garnered attention and effected necessary change.

NYSDA Membership Holds Strong

The pandemic brought unprecedented times, resulting in NYSDA taking unique steps to support our members. During the pandemic, NYSDA responded to every email and phone call it received. Each member's concerns were heard, and every question answered. Though NYSDA was working harder than it ever had to serve our members, we paused all renewal dues billing and installment plans from March until June. Our members were thankful,

and we retained 94% of them and welcomed 776 new members. We ended 2020 with over 12,238 dentists, residents and student members—a sign that our efforts did not go unnoticed.

The present slowdown of the pandemic has not diminished our efforts. We continue to translate what governmental actions mean to your practices, and help members navigate through new programs, funds, loans, tax write-offs and other forms of relief as they become available. NYSDA continues to update our COVID-19 webpage with the most recent guidelines for infection-control protocols and more.

Members have Confidence in NYSDA

Crises such as the COVID-19 pandemic provide a unique opportunity to reflect and evaluate how an association such as ours performs. We spent a lot of time and resources reflecting on what worked and what needs improvement. We were also heartened to learn that of the 1,705 members who responded to a COVID-19 survey, 62% rated our overall response to the pandemic as good or excellent. Could the Association have done more? Always. We assure you that is what inspires us to be better for our members.

One thing is certain. We are committed to being there for our members through the good and bad. We are committed to being your trusted source for information and advocacy. We are committed to helping you succeed.

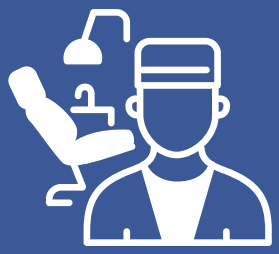
A Look Ahead

As we look ahead to 2022, we may not know what the future holds, but we are sure about our commitment to the profession and to our members.

Thank you for giving me the opportunity to serve as your NYSDA President, and for challenging me and pushing me. It has been my pleasure to lead this great Association.

My Message to the Incoming NYSDA President

I wish Dr. Henner well in his incoming term. I would like him to know that I will be in his corner rooting him on and supporting him every step of the way. If I could offer one piece of advice that has helped me, it is to learn to rely on others. Lean on your team. We have an incredible amount of talent, intelligence and willingness to serve in both our NYSDA staff and those in volunteer positions. Utilize those resources. Allow them to counsel you, help you and point you in the right direction. They will not let you down.



12,238
Total Members

776
New Members

60+ emails
COVID-19 updates sent during March thru July

6,800
Letters delivered to legislators to reopen dental offices

1,705
Members responded to our confidence survey

62%
Rated our overall response to the COVID-19 pandemic as good or excellent

Can Your Practice Withstand a Cyberattack?

NYSDA Information Technology Committee provides dentists with guide to securing their clinical records.

Mitchell Rubinstein, D.M.D.

Cyberattacks in medicine have increased dramatically over the past year, including attacks specifically aimed at dental practices and dental IT providers. The threat of a cyberattack and subsequent ransomware demand continues to grow, and our dental practices are in a uniquely vulnerable position.

The information we collect and use while caring for our patients is increasingly digital in nature; medical histories, clinical progress notes, radiographs, photographs, prescriptions, treatment plans, CT studies and 3D scans are all part of a modern dental clinical record. As digital information technology has made this data easier for us to access, it has also made it easier to hack.

As dentists, our resources, including time and staff, are extremely limited, compared to large hospital corporations and medical groups. Yet, we have the same responsibility to protect the private information our patients entrust to us.

The two basic types of assistance available to dentists have been either industry-provided content that is mostly geared towards selling security products, or extremely lengthy comprehensive documents, which are often impenetrable and confusing to most dentists, resulting in information overload. This guide to protecting your most valuable information was created with the general dentist in mind.

Staff as First Layer of Defense

Most attacks begin when someone clicks on a link in a phishing email or an infected ad banner on a web page. As we learn about cybersecurity best practices, we must pass these lessons on to our staff. Since staff are generally able to access all of the information technology products and services in our offices, they are also potential weak points if they have not been properly trained or instructed in safe practices. Properly trained, your staff will be on guard for the typical types of threats faced by dental practices. They will be aware of the warning signs, and they will be less cavalier about visiting unauthorized websites and using unauthorized software.

- Teach staff how to report suspected phishing emails. And ensure that they feel confident doing so.
- Office computers must only be used for office business. No personal web surfing or personal email ever.
- Periodically check the web browser history on your office workstations to see what websites have been visited. Staff should be forbidden from clearing browsing data without authorization.

IT Service Providers offer Second Layer

Our IT service providers are an essential resource. You want to choose yours wisely. IT providers may have remote access to our servers, and they have a tremendous amount of knowledge about how our systems work. Unfortunately, most dentists are under the impression that their IT provider will set them up to be totally secure, which often is not the case. Communication is essential. Unless you ask the right questions and establish the security standards you wish to achieve, you cannot assume that the provider will set your systems up for proper safety and security.

- Have a written support policy (separate from the vendor's Business Associate Agreement) that clearly states what services your IT company is providing and what type of support your agreement offers.
- Request that your provider "whitelist" or add applications to an allow-list to prevent your employees from running any unauthorized software on your system. This will also help prevent malicious applications from running.

- Request that workstations not be given "administrative access" to the server unless it is absolutely necessary.
- Request that users be blocked from installing new software unless they have an administrative password.

Protecting Mobile Devices and 'Internet of Things'

The "Internet of Things" (IOT), refers to the myriad types of devices that communicate with each other through the internet. Even though we do not think of them as computers, this is exactly what they are. They could be anything that requires a password or logs into your Wi-Fi network. They might also be devices we use in the course of patient treatment, such as cone beam CT scanners, or non-dental connected devices, such as wireless music systems, doorbell cameras, thermostats, even security systems.

In most cases, they are much less secure than the systems we use to run our practices and are, potentially, very serious weaknesses, because these devices have access to your network. If any of your IOT devices are connected to the same networks as your server or clinical devices, they provide a possible conduit for hackers and malware to access your system. Hackers and cybercriminals exploit these weak points, and IOT devices are frequently targeted in order to gain access to sensitive information.

- Identify any device capable of connecting to your network.
- Request that your IT provider "segment" your Wi-Fi to keep IOT devices off your critical networks. Setting up multiple Wi-Fi access points with different levels of security is quite simple.
- Routinely check that the Wi-Fi router is up-to-date and using the highest level of security.
- Always change factory-set passwords to stronger passwords for IOT devices. Ask your IT provider if you are not comfortable doing this yourself.

Backup and More Backup

A complete, secure backup is a critical defense against malware and ransomware. It is also a defense against natural disasters, equipment theft, equipment failure, or anything else that could prevent you from being able to use the server or computers in your office. No matter how good you think your backup is, and no matter how many redundant backups you have, they must be tested periodically. This means actually using one of the backups to completely reinstall everything. Backups can be on a local device, removable hard drive, or in the cloud, and should be on more than one type of media (i.e., cloud and hard disk). Backups

must be encrypted in order to comply with HIPAA. At least one of your backups should be stored disconnected from your network.

- Backup all your data regularly.
- Check your backup periodically to make sure it is complete.

Antivirus Tips

Keep antivirus products up-to-date. Consider using a cloud-backed antivirus product. Cloud-backed antivirus products provide better threat intelligence and more advanced analysis. Ensure that the antivirus software is also capable of scanning scripts and MS Office macros.

Use fully supported systems and software. You must not use operating systems or software that are obsolete or unsupported by their vendors. (Operating systems such as Windows 7 or Windows Server 2008 are no longer being updated with security patches. No system using them could be considered even minimally secure.) Devices that are kept up-to-date have better built-in security.

Unfortunately, there are vendors that are still shipping dental technology products with unsupported operating systems. Identify systems that are obsolete and seek guidance on how to mitigate the risk. By using the most recent software updates, most weaknesses can be negated.

Protect Your Practice from Ransomware

Ransomware has become a primary reason for compromised health records. Medical and dental records contain rich personal health information that cybercriminals can exploit. Our legal responsibility to protect this information allows cybercriminals to extort ransom payments by blocking our access, or threatening to publicly release this information. Ransomware infects systems and files rendering them inaccessible. Your management system will become inoperable, while putting your practice at risk for lawsuits and penalties.

Setting up security monitoring capability is essential to keeping safe backups of important files. The system must protect your data and restrict intruders' ability to move freely around your systems and networks. Ransomware frequently exploits vulnerabilities, such as third-party systems and apps with access to your network.

- ***Understand and control who has direct access to the data generated by your practice and your patients.*** This would mean anyone whose system you connect with directly. Apart from your IT provider, numerous others may have access to your system. These could include practice management software vendors, appointment reminders and contact management, online appointment services, credit card processors, cloud backup systems, website hosting, internet phone service/answering services, accountants, etc. This information would be separate from any HIPAA risk assessment. But beyond that, it is practical actionable information that can help you understand exactly who has access to your systems and under what circumstances.
- ***Incorporate encryption and backup policies***. Proper encryption ensures that even if your system is compromised, the data will be unusable by the attacker. Backing up your data (and confirming the backup is complete) can allow you to restore your system even if a hacked server has been rendered totally inoperable.
- ***Layer phishing defenses***. A variety of products are available to suit different needs and budgets. Detect and quarantine as many malicious email attachments and spam as possible before they reach your end users. Multiple layers of defense will greatly cut the chances of a compromise.
- ***Enable multifactor authentication*** for any application that allows it to improve defense against ransomware attacks. Any e-mail system should require multifactor ID for anyone to log in, including the doctor.
- ***Develop user access policies*** so staff only have access to the systems required to do their jobs. Under no circumstances should staff log in using someone else's password/credentials.

The New York State Dental Association's Information Technology Committee is here to help you manage the ever-changing digital landscape of dental practice. Questions may be directed to the committee by emailing bbray@nysdental.org, or calling (800) 255-2100.

Dr. Rubenstein is chair, NYSDA Information Technology Committee. He thanks committee members Kenneth W. Aschheim, Sharon A. Pollick and Gurinder S. Wadhwa for their assistance in preparing this article.

ADDITIONAL RESOURCES

1. American Dental Association Center for Professional Success: https://success.ada.org/en/practice-management/technology.
2. The Office of the National Coordinator for Health Information Technology (ONC): https://www.healthit.gov/.

Correction of Anterior Open Bite Caused by Super-Eruption of Third Molars after Night Guard Use

A Case Report

Daniel K. Han, D.D.S, M.D.; Do Yoon Kim, D.D.S., M.D.; Matthew J. Stephens, D.D.S., M.D.; Benn L. Lieberman, D.M.D.

ABSTRACT

Night guards are used to treat bruxism and temporomandibular disorder (TMD). However, the use of night guards is not without complications. Occlusal changes caused by improper use of these splints have been documented in the literature. This is especially likely when the splint covers only part of the arch, leading to over-eruption of the posterior dentition. This report examines the case of a 26-year-old male patient who developed an anterior open bite after using an over-the-counter (OTC) night guard. This is an unusual case, in which an anterior open bite caused by over-eruption of the third molars was corrected by surgical extraction.

This report highlights the case of a patient who presented to the oral and maxillofacial surgery (OMFS) clinic with an anterior open bite caused by the premature contact of his third molars after wearing an over-the-counter (OTC) night guard for 12 months. The purpose of this report is to present a clear example of a potential adverse effect of the inappropriate use of an occlusal appliance and to review a simple approach to managing anterior open bite in clinical scenarios in which the culprit is over-erupted third molars.

Night guards are commonly used occlusal devices that are often considered a safe, non-invasive treatment for sleep bruxism and temporomandibular disorder (TMD).[1] Despite widespread adoption by dental professionals, there is a lack of evidence for the efficacy of these devices in treating these conditions.[1] While many patients and professionals elect to employ night guards to improve symptoms, users are often cautioned about the possibility of occlusal alterations when the devices are used for prolonged periods.

Malocclusion due to occlusal splint therapy is well-documented in the literature.[2-8] In particular, anterior open bite seems to be the most common variety of occlusal derangement cited in the literature.[2-5,7,8] These occlusal changes occur as a function of intrusive and eruptive forces imposed upon the dentition by night guards and other occlusal devices over time.[5] Dahl and Krogstad noted that in a population of 20 patients wearing partial-coverage splints for pathological attrition, occlusal changes amounted to an average of 1.47 mm of eruption of uncovered posterior teeth and intrusion of 1.05 mm in anterior teeth covered by the device.[5] Although the literature notes that these changes are most likely to occur in patients using partial-coverage splints, there are documented cases of anterior open bite forming after the use of ill-fitting or inadequately adjusted full-coverage devices.[2-5,7,8]

Treatment for anterior open bite due to skeletal changes varies by case but often involves orthodontic treatment with and without extractions and, in some cases, the use of orthognathic surgery.[9] When it comes to changes in occlusion due to the premature contact of posterior teeth, posterior bite blocks and corrective splints have been used to intrude teeth and achieve even

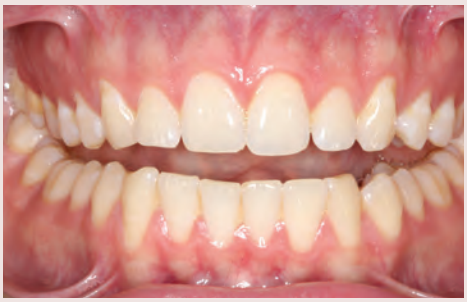


Figure 1. Anterior open bite.

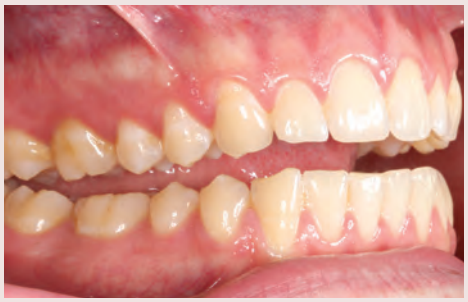


Figure 2. Premature contact on right 3rd molars, with anterior open bite.

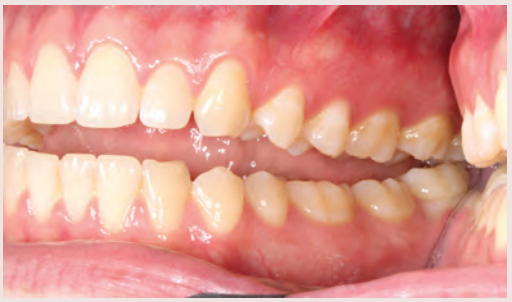


Figure 3. Premature contact on left 3rd molars, with anterior open bite

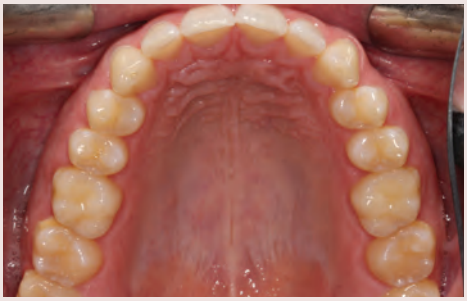


Figure 4. Maxillary occlusal view.

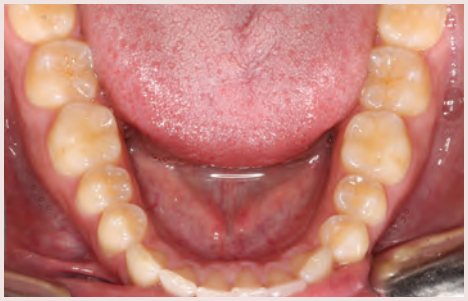


Figure 5. Mandibular occlusal view.

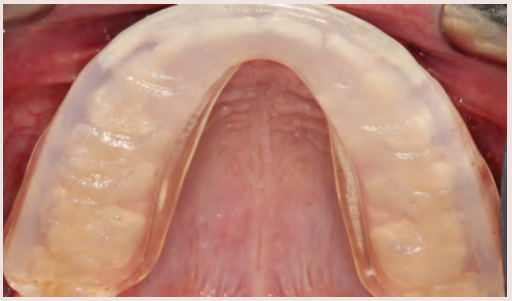


Figure 6. Maxillary occlusal view with night guard covering only up to 2nd molars.

contacts.[4,9] In situations where over-eruption of third molars has resulted in anterior open bite, therapeutic extraction of these teeth has proven effective in establishing a more stable occlusion, albeit with the aid of supplementary orthodontic treatment.[2]

Similar to previous case descriptions, the patient in this case acquired an anterior open bite after using an OTC night guard for 12 months. Notably, by extracting the patient's third molars bilaterally, we were able to effectively restore a stable occlusion without the need for additional orthodontic or surgical treatment.

Case Report

A 26-year-old male who had no significant past medical history presented to our OMFS clinic with the chief complaint of "my front teeth are not touching." The patient had been consistently wearing a commercially available OTC night guard for approximately 12 months to treat his bruxism and had developed an anterior open bite. The patient was initially evaluated by his general dentist, who referred him to our OMFS department for evaluation and treatment of his acquired anterior open bite. His dental history included routine checkups and cleanings without any restorative dental work or orthodontic treatment.

On examination, his face was symmetric, and there was no pain or tenderness in either temporomandibular joint. Mandibular movements were within normal limits, and the maximum incisal opening (MIO) was approximately 44 mms. A dental examination showed complete, natural dentition, with good oral hygiene and no other significant oral pathology. However, the patient had an anterior open bite of approximately 4 mm (Figure 1), with only premature contacts on his third molars (Figures 2,3). These premature contacts seemed to be due to over-eruption of the third molars, as the night guard covered only up to the second molars (Figures 6, 8, 9). A panoramic X-ray showed no other gross bony or dental pathology (Figure 10).

Our diagnosis was an anterior open bite caused by clockwise rotation of the mandible secondary to premature contacts of over-erupted third molars. We recommended treating the anterior open bite by surgically removing the over-erupted third molars. The patient agreed to the treatment proposed and scheduled the surgical removal of all four third molars under IV conscious sedation. This surgical removal of all four wisdom teeth led to immediate correction of the anterior open bite and restoration of the patient's occlusion (Figure 11).

> At the one-week follow-up appointment, the patient appeared to be recovering and in stable condition, with mild residual postoperative swelling. His open bite was confirmed to have been completely corrected, resulting in good intercuspation of the maxillary and mandibular dentition.

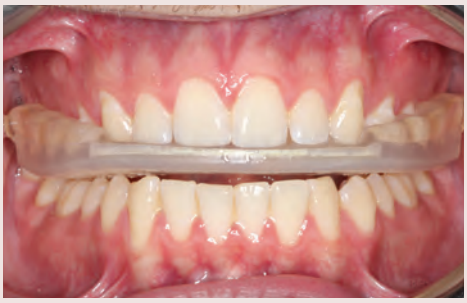


Figure 7. Center view with night guard.

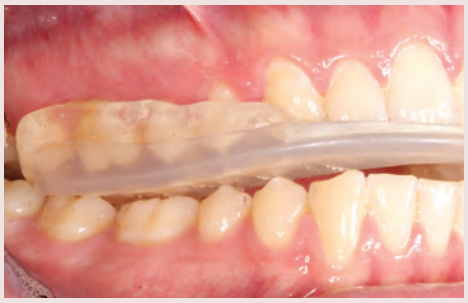


Figure 8. Right side view with night guard covering up to 2nd molars.

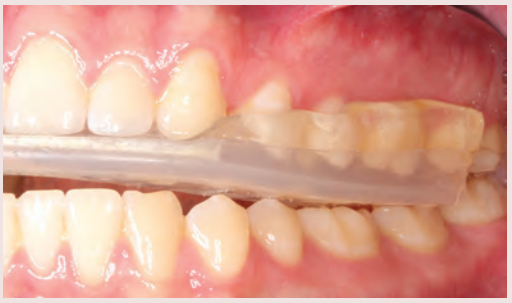


Figure 9. Left side view with night guard covering up to 2nd molars.

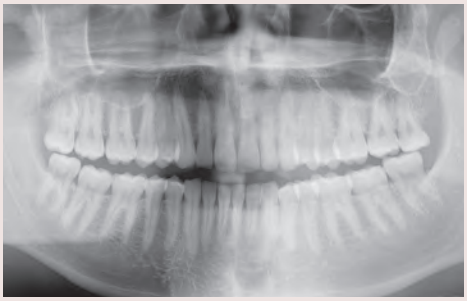


Figure 10. Panoramic X-ray; pre-op.

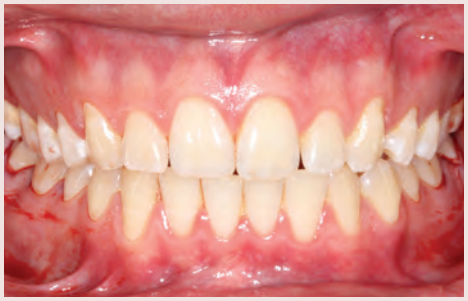


Figure 11. Immediate postop: correction of anterior open bite.

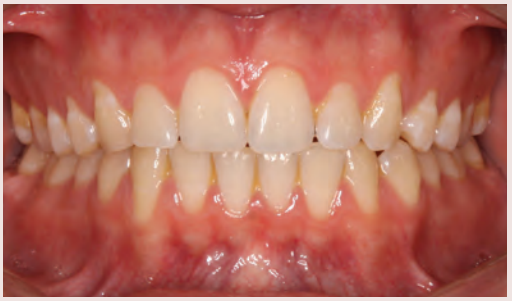


Figure 12. One-week postop: occlusion with good intercuspation of all dentition.

At the one-week follow-up appointment, the patient appeared to be recovering and in stable condition, with mild residual post-operative swelling. His open bite was confirmed to have been completely corrected, resulting in good intercuspation of the maxillary and mandibular dentition.

Discussion

This case supports previously reported findings concerning the potential for an anterior open bite to form with night guard use.[2-5,7,8] In particular, the case provides additional evidence that OTC devices may pose enhanced risks when not used under the supervision of a dental professional.[3,8] The use of OTC devices in patients is problematic, as they are often ill-fitting, lack proper instructions for use and are not reported to the treating dentists.[8] In the instance of the patient presented in this case, the splint failed to cover the third molars, leading to over-eruption and posterior interference, which, in turn, resulted in an anterior open bite.

Our findings also support those of previous studies that have suggested that occlusal changes leading to anterior open bite can happen in as little as 12 months (Dahl and Krogstad reported such changes occurring in as little as 6 months).[5] Although previous evidence suggests that iatrogenic anterior open bite can occur at any age, this phenomenon seems to be particularly common in younger patients.[5] This case supports the idea that younger patients may require stricter monitoring for occlusal changes due to eruption of new teeth.[3]

Although the outcomes of anterior open bite have been well-documented in the literature to date, to our knowledge, this is the first case in which stable occlusion was re-established using extractions alone. Magdaleno and colleagues reported treating a 19-year-old who had posterior interference on the third molars after night guard use by therapeutically extracting the offending teeth.[2] However, they also noted that extracting the patient's third molars did not adequately stabilize the occlusion and that the patient required additional orthodontic treatment to recreate even occlusal contacts.[2]

Admittedly, the findings of this case report are limited by a lack of prior dental records for the patient discussed. Without radiographic documentation or pretreatment casts of the patient's occlusion prior to his use of the OTC night guard, we are unable to fully assess the extent of occlusal changes that occurred in the patient. This is a common problem with OTC night guards and is a point against their unsupervised use.[8] Similarly, the lack of prior records regarding the patient's bite prevents us from knowing whether or not we have fully treated his occlusal changes, as slight alterations may have occurred.

Conclusions

From this case experience, we are able to make the following recommendations regarding the management of anterior open bite after night guard use. Because the clinical efficacy of using occlusal splints to treat sleep bruxism and TMD is increasingly coming into question, it is clear from cases such as this one that caution must be exercised by patients and practitioners electing treatment with night guards. In particular, young patients experiencing eruption of new teeth may require closer moni-

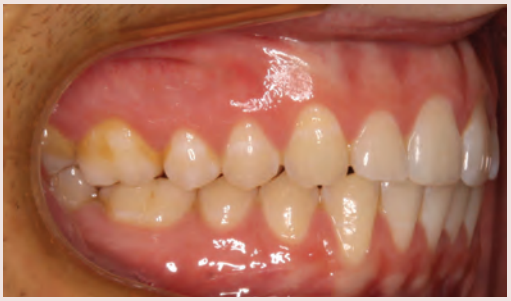


Figure 13. One-week postop: right lateral view.

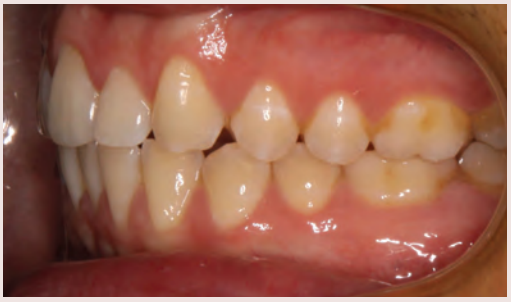


Figure 14. One-week postop: left lateral view.

toring. OTC night guards may be poorly fitting and require the same follow-up as professionally delivered devices. The shrewd provider may find it practical to screen for the use of such devices in his or her patient population. In fact, it may be prudent to discontinue the over-the-counter availability of these devices and, instead, limit their use to a prescription basis, contingent upon a comprehensive dental evaluation. It may be advisable, although not indicated in all cases, to extract teeth to stabilize the occlusion in patients in whom over-eruption has occurred in a few posterior teeth.

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REFERENCES

1. Macedo CR, et al., Occlusal splints for treating sleep bruxism (tooth grinding). Cochrane Database Syst Rev, 2007(4): p. Cd005514.
2. Magdaleno F, Ginestal E. Side effects of stabilization occlusal splints: a report of three cases and literature review. Cranio, 2010. 28(2):128-35.
3. Bereznicki T, Barry E, Wilson NHF. Unintended changes to the occlusion following the provision of night guards. Br Dent J 2018;225(8):715-722.
4. Chate RA, Falconer DT. Dental appliances with inadequate occlusal coverage: a case report. Br Dent J 2011;210(3):109-10.
5. Dahl BL, Krogstad O. The effect of a partial bite raising splint on the occlusal face height. An x-ray cephalometric study in human adults. Acta Odontol Scand 1982;40(1):17-24.
6. Sheridan JJ, LeDoux W, McMinn R. Essix retainers: fabrication and supervision for permanent retention. J Clin Orthod 1993;27(1):37-45.
7. Todd MA, Freer TJ. Case report—anterior open bite as a complication of splint therapy. Aust Orthod J 1994;13(3)164-7.
8. Wassell RW, et al., Over-the-counter (OTC) bruxism splints available on the Internet. Br Dent J 2014;216(11):E24.
9. Reichert I, Figel P, Winchester L. Orthodontic treatment of anterior open bite: a review article--is surgery always necessary? Oral Maxillofac Surg 2014;18(3): 271-7.

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COVID-19 and Periodontal Disease

Associations and Clinical Implications

Kristen Rogers, D.D.S.; Edgard El Chaar, D.D.S., M.S.

ABSTRACT

The oral cavity is highly vulnerable to COVID-19 impact, attributable to abundant expression of ACE2 in oral mucosa epithelial cells and favorable anatomic niches within periodontal pockets and saliva to harbor COVID-19. Periodontitis and COVID-19 are closely linked through complex mechanisms of dysbiotic and inflammatory factors. Periodontal treatment and ideal oral hygiene practices reveal therapeutic influence on both periodontitis and COVID-19 infections. Here we discuss current understandings of COVID-19 pathophysiology and examine potential consequences the coronavirus has on periodontitis patients. In understanding the associations between COVID-19 and periodontitis, we make clinical recommendations to aid in efficaciously managing these patients.

Coronavirus disease 2019 (COVID-19) is a respiratory illness caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The SARS-CoV-2 virus is transmitted primarily through person-to-person contact of respiratory droplets and aerosol particles. Studies of COVID-19 pathophysiology indicate that aggressive inflammatory responses are strongly linked to consequent airway damage and widely ranging systemic complications. As such, COVID-19 progression and severity are not solely due to the viral infection itself, but are also heavily associated with inflammation and host response.

Periodontitis is a noncommunicable, chronic inflammatory disease of the hard and soft tissues of the periodontium. Periodontal disease results from the complex and dysregulated interaction between microbial challenge and host immune response. For the sake of this manuscript, the terms "periodontal disease" and "periodontitis" are synonymous and used interchangeably.

Associations between periodontitis and systemic disease can be linked to two postulated mechanisms: (1) systemic dissemination of microbial toxins and infection; and (2) inflammatory and immunological damage.[1] Uncontrolled systemic disease is associated with elevated serum inflammatory markers, eliciting a low-grade state of systemic inflammation and, consequently, is known to aggravate periodontal disease in periodontitis patients.[2] COVID-19 infection produces a pathologic immune response within the lungs that may advance to have systemic implications, thus potentially exacerbating the periodontal condition of patients suffering from periodontitis.

To aid in providing insight on the significance of COVID-19 in patients with periodontal disease, we discuss various connections between these two conditions. By understanding the clini-

cal implications COVID-19 may have on periodontitis patients, treatment plans can be strategically developed to manage these patients efficaciously.

COVID-19 Pathophysiology

SARS-CoV-2 viral binding to target host cell receptor angiotensin-converting enzyme 2 (ACE2) is required for COVID-19 infection. ACE2-expressing ciliated bronchial epithelial cells of lung parenchyma are the major target of SARS-CoV-2.[6] This paves the way for two important notions: (1) other host cells expressing ACE2 may be additional targets of SARS-CoV-2 and, therefore, may be sites-susceptible to COVID-19 infection and subsequent tissue damage; and (2) membrane-bound ACE2 expression and distribution throughout the human body may predict potential COVID-19 infection routes, justifying the multi-organ damage often seen in severe cases of COVID-19.[6,7]

In severe COVID-19 cases, the bellicose nature of the immune response within the lungs advances to have systemic implications, often leading to multiple organ failure and even death. [9,10]

Aside from the lungs, other organs within the human body that have cells with high ACE2 expression are the intestines, kidney, heart and oral cavity mucosa. Nasal and oral cavity mucosa experience high exposure to SARS-CoV-2, since viral particles enter the upper region of the respiratory tract through nasal and oral inhalation of aerosols and droplets.[5] Thus, there is elevated risk of viral infection in ACE2-expressing cells located in these cavities.

SARS-CoV-2 invasion into the host cell triggers a local immune response.[6,8] This immune response fails to shut down in COVID-19 infection, resulting in excessive secretion of cytokines and immune cell recruitment, enhanced tissue inflammation and severe destruction of host cells. In severe COVID-19 cases, the bellicose nature of the immune response within the lungs advances to have systemic implications, often leading to multiple organ failure and even death.[9,10]

COVID-19 Reservoirs within the Oral Cavity

Saliva

Live viruses can be cultured in salivary samples, indicating that saliva may act as a SARS-CoV-2 reservoir.[1,12] In COVID-19 cases, analysis of saliva may help to explain the pathogenesis of SARS-CoV-2. A study discusses three proposed routes by which SARS-CoV-2 can enter saliva: (1) expectorated droplets from upper and lower respiratory tracts; (2) salivary glands; and (3) gingival crevicular fluid.[13]

First, since small aqueous secretions are regularly exchanged between the respiratory tract and oral cavity, expectorated sputum and liquid droplets derived from COVID-19-infected respiratory tract surfaces can freely enter the mouth and mix with saliva.[13,14]

Second, viruses can enter saliva through infected salivary glands.[5,11,15] SARS-CoV-2 binding to ACE2 epithelial cells lining the salivary gland ducts commences host cell entry, and viral proliferation results in host infection with COVID-19. Infected salivary gland epithelial cells can shed viral particles through salivary duct acini, which are then released into saliva.[11,16]

Lastly, blood containing COVID-19 can access the oral cavity through gingival crevicular fluid.[14] Gingival crevicular fluid (GCF) is an exudate that originates from vascular plexi of the gingiva. Various molecules, including viral particles, circulating within the blood can transport through vascular networks to enter GCF. After integrating into GCF, SARS-CoV-2 has the ability to flow into the oral cavity and mix with saliva.

Periodontal Pockets

Human cytomegalovirus (HCMV), Epstein-Barr virus (EBV) and herpes simplex virus (HSV) are frequently identified within subgingival tissue of chronic periodontitis patients.[17-20] Viral DNA detected within periodontal pockets are regularly found localized to three regions: (1) subgingival plaque; (2) gingival tissues; and (3) gingival crevicular fluid.[18-21] One study examined the relationship between the occurrence of HCMV, EBV-1 and HSV in GCF of periodontitis patients and certain clinical parameters (plaque index, gingival index, probing depth and attachment loss).[22] These viruses were detected more frequently in GCF of chronic periodontitis lesions and showed a positive association between viral presence and increased probing depth and attachment loss. The latter findings were attributed to the notion that viral infections have the ability to impair immune cell responses.

The GCF is found in the periodontal pocket between the gingival epithelium and tooth surface. Inflammation has been known to influence the nature, composition and volume of GCF.[23,24] Inflamed tissue triggers a host response-mediated increase in vascular permeability, allowing for greater influx of crevicular fluid. Accordingly, moderate and severely inflamed periodontal tissues exhibit a greater volume of GCF.[23]

Inflammatory markers and host response-derived immune cells can be measured in crevicular fluid, such as tissue degradation products, pro-inflammatory cytokines and interleukins.[24] As such, GCF composition is highly reflective of constituents present in the blood circulation and components of the inflammatory response.[23] Crevicular fluid can transport cytokines and other inflammatory mediators directly into the periodontal pocket, thus creating an environment in which local inflammatory re-

actions occur, dysfunctional host immune responses ensue and periodontal tissue destruction transpires.

Crevicular fluid can directly harbor viral particles. SARS-CoV-2 virus circulating systemically may bind ACE2-expressing epithelial cells of blood vessels and travel through the bloodstream to enter GCF. Once in GCF, SARS-CoV-2 can target ACE2-expressing cells located in the sulcular epithelium and periodontal pocket epithelium.[5,25]

Although the exact interactions between the periodontal pocket, GCF and SARS-CoV-2 are not yet fully understood, it can be postulated that associated periodontal destruction may be attributed to two potential mechanisms: (1) direct damage from viral infection of periodontal pocket tissues; and (2) inflammatory mediators produced in response to systemic inflammation from COVID-19 infection travelling to the periodontal pocket via GCF and contributing to local inflammatory responses within the periodontium. Dysfunctional host immune responses, paired with an already chronically inflamed state of the periodontal tissues, leads to subsequent progression and exacerbation of periodontitis.[21,25]

Inflammatory and Microbial Associations between COVID-19 and Periodontal Disease

Inflammatory Biomarkers

A retrospective cohort study analyzed the association between inflammatory biomarkers interleukin-6 (IL-6), C-reactive protein (CRP), D-dimer, ferritin and lactate dehydrogenase (LDH) with clinical outcomes (intensive care unit admission, intubation and death) in patients diagnosed with COVID-19.[26] Elevated levels of IL-6, CRP, D-dimer, ferritin and LDH inflammatory biomarkers were all statistically significant and independently associated with an increased risk of clinical deterioration and death in patients.

A similar study reported a strong correlation between elevated serological IL-6 levels and increased risk of respiratory failure in COVID-19 patients.[27] This finding shows that IL-6 is an effective inflammatory biomarker in potentially predicting poorer clinical outcomes in patients infected with COVID-19.

Chronic periodontitis patients exhibit elevated levels of inflammatory biomarkers paralleling those noted in severe COVID-19 cases, such as CRP and IL-6.[1,28] CRP production is amplified by pro-inflammatory stimuli and intricately mediated by cytokines (predominantly IL-6).[1]

Periodontal therapy outcomes on inflammatory biomarker levels were evaluated in a prospective longitudinal study.[28] Periodontitis treatment significantly reduced serum levels of both CRP and IL-6 systemically. Patients lacking substantial decreases in serum CRP levels demonstrated worse clinical periodontal outcomes, such as probing pocket depth and bleeding on probing. These findings allude to an intimate connection between local periodontal inflammation and serum inflammatory biomarker levels, suggesting that periodontitis may play a role in systemic inflammation. The potential significance of this supports the notion that controlling local inflammation through periodontal therapy, in turn, may control systemic inflammation as well.

Cytokine Storm

In severe cases of COVID-19, viral infection of lung cells elicits an aggressive immune response, resulting in a dysregulated overproduction of inflammatory cytokines, referred to as a cytokine storm, which mediates widespread lung inflammation.[6,9] In COVID-19-associated cytokine storms, airway epithelial cells and alveolar macrophages excessively produce pro-inflammatory cytokines within the lung tissue. This leads to a state of hyperinflammation and increased vascular permeability of lung endothelium, allowing cytokines and other recruited immune cells to enter the bloodstream and disseminate systemically.[10] In these patients, peripheral blood levels of IL-6 and IL-1α tend to continually increase and exhibit a higher percentage of CD14+CD16+ inflammatory monocytes, all of which contribute to the cytokine storm and resultant systemic pathology and multi-organ damage often seen in COVID-19 cases.[4,6,8,29]

The cytokine storm associated with COVID-19 is particularly characterized by notably high expression of IL-6 and TNF-α, and is directly associated with disease severity.[6,29-32] Because cytokine storms have a ripple effect throughout the body, it is imperative to consider other preexisting inflammatory conditions that may be exacerbated in these patients, such as periodontitis.

Inflammatory mediators play a significant role in the pathogenesis of periodontitis. In response to injury, inflamed tissue

attracts lymphocytes, neutrophils and macrophages,[33] which signal production and recruitment of various pro-inflammatory molecules, with the most notable being TNF-α, IL-1 and IL-6.[34] In the absence of inhibitory regulators, increased vascular permeability and inflammatory mediators further promote the influx of proinflammatory cytokines, leading to a hyperinflamed state of the periodontium. If chronic, this hyperinflammatory state will result in soft-tissue destruction and bone resorption. Dysregulated immune responses cause a continual feedback loop of pro-inflammatory cell recruitment and activity, closely resembling the cytokine storm seen in severe COVID-19 cases.

Microbial Dysbiosis

Viral respiratory infections are commonly complicated by bacterial superinfections, as seen in the 1918 and 2009 influenza outbreaks.[35] In severe influenza infections, the primary cause of disease exacerbation and mortality was not typically from the virus itself but, rather, from consequences of secondary bacterial infections, such as pneumonia.[35] These influenza pandemics revealed that an important aspect of disease management involves an understanding of the close relationship between viral respiratory illnesses and secondary bacterial infections.

Periodontitis-associated microbes, such as *P. gingivalis* and *A. actinomycetemcomitans*, have been detected in sputum of pneumonia patients.[36] The failure of host defense mechanisms to eliminate these pathogens from the airways results in colonization and contamination of respiratory epithelium. These periodontopathogens disrupt the commensal bacterial community within the lungs and stimulate respiratory epithelial cells to produce pro-inflammatory cytokines (notably, IL-1α, IL-6 and TNF-α).[36] These cytokines recruit additional inflammatory mediators to the site, which may, consequently, lead to respiratory tissue destruction.

Cytokines from periodontally diseased tissues may enter saliva through the crevicular fluid and become aspirated, triggering systemic inflammatory responses and respiratory infection. Thus, aspiration of oral pathogens into the lungs has been recognized as playing a significant role in the pathogenesis of respiratory infections.[36]

Poor oral hygiene elevates periodontopathogen burden within the oral cavity, increasing possible dysbiotic colonization within the oropharynx and airways. In severe COVID-19 cases, this bacterial superinfection may supersede the original viral infection within the respiratory tract, leading to irreversible inflammatory

damage and increased risk of potentially fatal complications, such as sepsis, septic shock, pneumonia and acute respiratory distress syndrome (ARDS).[37]

Influence of Periodontal Therapy and Oral Hygiene on COVID-19

Periodontal Therapy

Dysbiotic plaque biofilm elicits a local inflammatory reaction. In periodontitis, this host response becomes dysregulated, prompting inflammation to amplify and potentially spread to cause destruction beyond the periodontium. Periodontal therapy in the form of mechanical debridement and removal of subgingival biofilm demonstrates a substantial decrease in bacterial burden. Accordingly, the host immune response is significantly reduced and harmful inflammatory reactions consequently subside.

Increased production and activity of inflammatory mediators and cytokines attribute largely to the relationship between COVID-19 infections and periodontal disease. Inflammatory status can be monitored by the presence of serum inflammatory biomarkers, such as CRP and IL-6. Periodontal treatment has been shown to reduce serum inflammatory biomarkers, thus demonstrating a dual therapeutic effect both periodontally and systemically.[28,38] As such, periodontal therapy may have a therapeutic influence on both periodontitis and COVID-19 infections.

Oral Hygiene

There is a positive association between bacterial load and COVID-19 complications.[37] Poor oral hygiene increases bacterial load within the mouth, increasing the risk of microbial migration between the oral cavity and lungs. In severe COVID-19 cases, oral cavity-associated bacteria have been found in respiratory tracts. Superinfection from oral microbes contribute to COVID-19 complications, such as pneumonia and acute respiratory distress syndrome (ARDS).

Inadequate oral hygiene heightens the possibility of bacterial exchange between the lungs and oral cavity, increasing the risk and severity of COVID-19 infection and resulting complications. When sufficient oral hygiene is practiced, the oral cavity demonstrates a significant decrease in dysbiotic bacterial load. Therefore, optimal oral hygiene may be therapeutically beneficial in diminishing microbial insult in COVID-19 and periodontal disease cases.

Discussion

In severe COVID-19 cases, dysregulated immune responses to microbial dissemination and cytokine storm within the lungs lead to systemic hyperinflammation. This systemic hyperinflamed state may aggravate the periodontal disease status of a periodontitis patient.

Periodontitis is associated with a dysbiotic microbiome and an overactive host inflammatory response. A surge in periodontal pathogens increases possible microbial migration into the respiratory tract, triggering an immune reaction, which may contribute to the cytokine storm of COVID-19 infection.

Therapeutic periodontal mechanical debridement and daily oral hygiene disruption of plaque biofilm are both shown to decrease bacterial load and shift the oral environment towards microbial symbiosis. As there is a shift towards microbiome homeostasis, the overactive immune response is able to be regulated, and destructive inflammatory activity consequently diminishes both within the periodontal tissues and systemically, exhibiting therapeutic influence on both periodontitis and COVID-19 infections, respectively.

Conclusions

Independent of specific underlying mechanisms, maladaptive inflammatory responses seem to be a fundamental link between periodontitis and COVID-19. Inflammatory biomarkers and cytokines seen in COVID-19 infection parallel those of periodontitis. It is well understood that systemic maladies of inflammatory nature can greatly affect the periodontium.

As such, we recommend that periodontitis patients infected with COVID-19 be closely monitored by dental healthcare professionals for changes in periodontal disease activity. We advise that optimal oral hygiene levels be continued, if not improved, in patients with COVID-19 infection. Patients should be educated about the importance of oral hygiene, and oral hygiene instruction should be continually reinforced at every dental visit. It may be necessary to perform nonsurgical and/or surgical periodontal therapy in these patients to assist in disease control.

As always, periodontal treatment plans and recall schedules should be tailored to the individual needs of the patient. Consideration of the influence COVID-19 infection may have on periodontal disease can assist in appropriately designing preventative and therapeutic treatment plans to effectively control the periodontal status of COVID-19 patients.

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REFERENCES

1. Mawardi HH, Elbadawi LS, Sonis ST. Current understanding of the relationship between periodontal and systemic diseases. Saudi Medical Journal 2015;36(2):150-158.
2. Nagpal R, Yamashiro Y, Izumi Y. The two-way association of periodontal infection with systemic disorders: an overview. Mediators of Inflammation 2015;2015:793898.
3. Ciaccio M, Agnello L. Biochemical biomarkers alterations in coronavirus disease 2019 (COVID-19). Diagnosis 2020;7:365-372.
4. Hussman J. Cellular and molecular pathways of COVID-19 and potential points of therapeutic intervention. Frontiers in Pharmacology 2020;11:1169.
5. Xu H, Zhong L, Deng J, et al. High expression of ACE2 receptor of 2019-nCoV on the epithelial cells of oral mucosa. International Journal of Oral Science 2020;12(1):8.
6. Tay M, Poh CM, Rénia L, MacAry PA, Ng LFP. The trinity of COVID-19: immunity, inflammation and intervention. Nature Reviews Immunology 2020;20:363-374.
7. Hoffmann M, Kleine-Weber H, Schroeder S, et al. SARS-CoV-2 cell entry depends on ACE2 and TMPRSS2 and is blocked by a clinically proven protease inhibitor. Cell 2020;181(2):271-280.
8. Merad M, Martin JC. Pathological inflammation in patients with COVID-19: a key role for monocytes and macrophages. Nature Reviews Immunology 2020;20:355-362.
9. Cascella M, Rajnik M, Cuomo A, Dulebohn SC, Di Napoli R. Features, evaluation and treatment coronavirus (COVID-19). StatPearls Publishing 2020. Available from: http://www.ncbi.nlm.nih.gov/pubmed/ 32150360.
10. Polidoro RB, Hagan RS, de Santis Santiago R, Schmidt NW. Overview: Systemic inflammatory response derived from lung injury caused by SARS-CoV-2 infection explains severe outcomes in COVID-19. Frontiers in Immunology 2020;11:1626.
11. Li Y, Ren B, Peng X, et al. Saliva is a non-negligible factor in the spread of COVID-19. Molecular Oral Microbiology 2020;35:141-145.
12. To KK, Tsang OT, Yip CC, et al. Consistent detection of 2019 novel coronavirus in saliva. Clinical Infectious Diseases 2020;71(15):841-843.
13. Sabino-Silva R, Jardim ACG, Siqueira WL. Coronavirus COVID-19 impacts on dentistry and potential salivary diagnosis. Clinical Oral Investigations 2020;24(4):1619-1621.
14. Baghizadeh Fini M. Oral saliva and COVID-19. Oral Oncology 2020;20:104821.
15. Braz-Silva PH, Pallos D, Giannecchini S, To KK. SARS-CoV-2: What can saliva tell us? Oral Diseases 2020.
16. Liu L, Wei Q, Alvarez X, et al. Epithelial cells lining salivary gland ducts are early target cells of severe acute respiratory syndrome coronavirus infection in the upper respiratory tracts of rhesus macaques. Journal of Virology 2011;85(8):4025-4030.
17. Parra B, Slots J. Detection of human viruses in periodontal pockets using polymerase chain reaction. Oral Microbiology and Immunology 1996;5:289-293.
18. Cappuyns I, Gugerli P, Mombelli A. Viruses in periodontal disease—a review. Oral Diseases 2005;11:219-229.
19. Grenier G, Gagnon G, Grenier D. Detection of herpetic viruses in gingival crevicular fluid of patients suffering from periodontal diseases: Prevalence and effect of treatment. Oral Microbiology and Immunology 2009;24:506-509.
20. Slots J. Periodontal herpesviruses: Prevalence, pathogenicity, systemic risk. Periodontology 2000 2015;69(1):28-45.
21. Badran Z, Gaudin A, Struillou X, Amador G, Soueidan A. Periodontal pockets: a potential reservoir for SARS-CoV-2? Medical Hypotheses 2020;143:109907.
22. Saygun I, Sahin S, Ozdemir A, et al. Detection of human viruses in patients with chronic periodontitis and the relationship between viruses and clinical parameters. Journal of Periodontology 2002;73(12):1437-1443.
23. Lamster IB, Ahlo JK. Analysis of gingival crevicular fluid as applied to the diagnosis of oral and systemic diseases. Annals of the New York Academy of Sciences 2007;1098:216-229.
24. Barros SP, Williams R, Offenbacher S, Morelli T. Gingival crevicular fluid as a source of biomarkers for periodontitis. Periodontology 2000 2016;70(1):53-64.
25. Sakaguchi W, Kubota N, Shimizu T, et al. Existence of SARS-CoV-2 entry molecules in the oral cavity. International Journal of Molecular Sciences 2020;21:6000.
26. Ayanian S, Reyes J, Lynn L, Teufel K. The association between biomarkers and clinical outcomes in novel coronavirus pneumonia in a US cohort. Biomarkers in Medicine 2020;14:1091-1097.
27. Herold T, Jurinovic V, Arnreich C, et al. Level of IL-6 predicts respiratory failure in hospitalized symptomatic COVID-19 patients. Journal of Allergy and Clinical Immunology 2020;146(1):128-136.
28. D'Aiuto F, Parkar M, Andreou G, et al. Periodontitis and systematic inflammation: Control of the local infection is associated with a reduction in serum inflammatory markers. Journal of Dental Research 2004;83(2):156-160.
29. Hu B, Huang S, Yin L. The cytokine storm and COVID-19. Journal of Medical Virology 2020;93:250-256.
30. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020;395(10223):497-506.
31. Moore JB, June CH. Cytokine release syndrome in severe COVID-19. Science 2020;368(6490):473-474.
32. Ye Q, Wang B, Mao J. The pathogenesis and treatment of the 'cytokine storm' in COVID-19. Journal of Infection 2020;80(6):607-613.
33. Cekici A, Kantarci A, Hasturk H, Van Dyke TE. Inflammatory and immune pathways in the pathogenesis of periodontal disease. Periodontology 2000 2014;64(1):57-80.
34. Graves D. Cytokines that promote periodontal tissue destruction. Journal of Periodontology 2008;79(8 Suppl):1585-1591.
35. Cox MJ, Loman N, Bogaert D, O'Grady J. Co-infections: potentially lethal and unexplored in COVID-19. Lancet Microbe 2020;1(1):e11.
36. Scannapieco FA. Role of oral bacteria in respiratory infection J Perio 1999;70(7):793-802.37. Sampson V, Kamona N, Sampson A. Could there be a link between oral hygiene and the severity of SARS-CoV-2 infections? British Dental Journal 2020;228(12): 971-975.
38. D'Aiuto F, Parkar M, Nibali L, Suvan J, Lessem J, Tonetti MS. Periodontal infections cause changes in traditional and novel cardiovascular risk factors: results from a randomized controlled clinical trial. American Heart Journal 2006;151(5):977-984.

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DIY Dentistry with Krazy Glue

Report of a Case

Klenise S. Paranhos, D.D.S. M.S.; Ben Kahan, B.A.; Yujun Wang, B.S.; Aaron Yancoskie, D.D.S.

ABSTRACT

Background: **This article describes a patient who used Krazy Glue to fabricate a dental prosthesis. The purpose of this article is to explain the adverse effects of DIY dentistry.**

Case Description: **A 64-year-old male presented with a DIY dental prosthesis on his anterior mandible spanning an edentulous space between teeth #24 through #26. Treatment included removal of the prosthesis, extractions of teeth #23, #24 and #26, and fabrication of a partial mandibular denture.**

Practical Implications: **DIY dentistry has exploded on social media to gain the general public's attention. It is imperative that as dental professionals, we educate patients on the dangers of DIY dentistry.**

Do-it-yourself (DIY) dentistry is gaining momentum as the public increasingly relies upon internet content to offer quick-fix solutions for their dental issues. In response to this trend, the ADA launched a public awareness campaign in The Wall Street Journal urging patients to seek proper dental care before considering any DIY treatments.[1] However, DIY treatments to stabilize protheses, repair fractures or avulsed dentition, and fix edentulous sites continue to be promoted on social media. This article documents a case of a patient who fabricated a DIY prosthesis with Krazy Glue.

Krazy Glue, otherwise known as Super Glue, was manufactured for commercial use during the late 1950s. It is an all-purpose adhesive that forms strong bonds to various surfaces, including wood, glass, metal, bone, enamel and soft tissues. The bond results from the properties of cyanoacrylate (CA), a monomer formed by the condensation of formaldehyde and an alkyl cyanoacetate. CA undergoes a rapid exothermic reaction by anionic polymerization when a weak base, such as water, is present.

The polymerization of CA occurs at the methyl and ethyl alkyl side chains, which react spontaneously with weak bases.[2,3] However, when the reactive intermediates in Krazy Glue degrade, they can release toxic byproducts.[2-6] This release is determined by the length of the alkyl's side chain. When short chains are present, the degradation of the polymer is rapid and releases toxic byproducts, namely, formaldehyde and cyanoacetate.[2,3] It is well-documented in the literature that the methyl and ethyl homologues of CA, like those found in Krazy Glue, may elicit acute inflammatory responses in tissues and may have histotoxic effects.[2,3,7]

During the 1970s, CA was modified to have longer alkyl chains. This has allowed the monomer to polymerize at slower

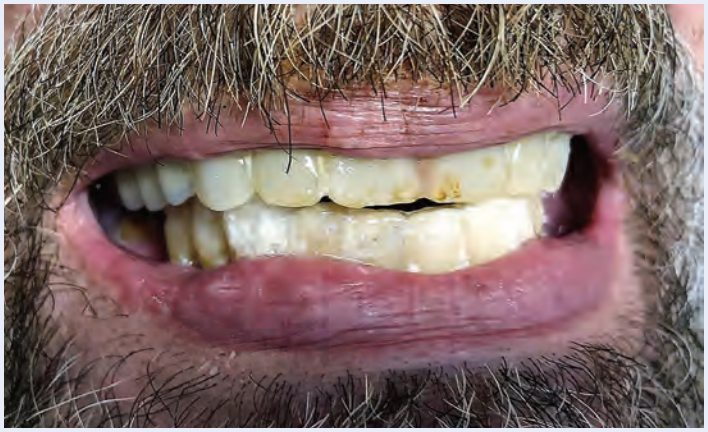

Figure 1. Anterior view showing visible mass at lower anterior mandible.

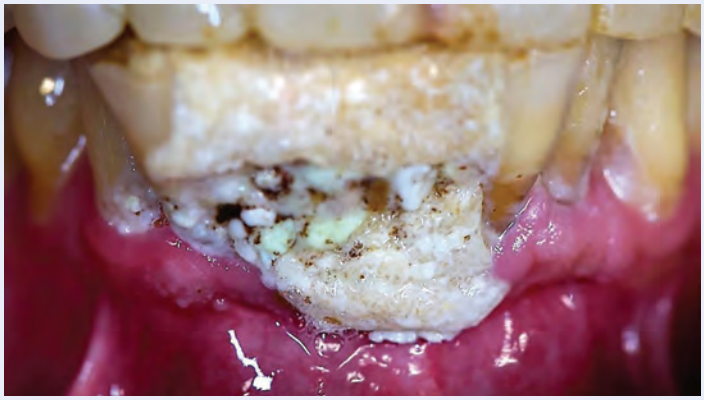

Figure 2. Mass from buccal view.

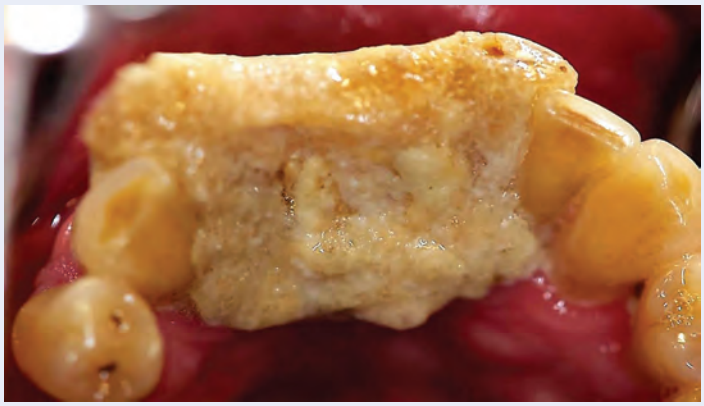

Figure 3. Mass from lingual view.

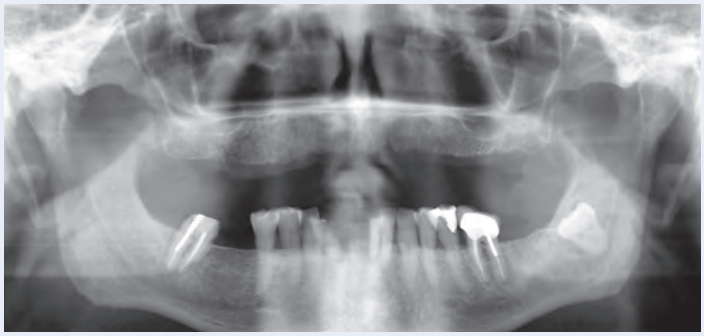

Figure 4. Panoramic radiograph indicating severe bone loss at mandibular incisors.

rates than its short chain counterparts. Slower polymerization leads to slower degradation, yielding significantly fewer toxic by-products. By 1998, the FDA had approved 2-octyl cyanoacrylate (Dermabond) for medical use.[2,3,8,9] Since then, the FDA has approved other tissue adhesives for many medical and surgical applications. These include, but are not limited to, hemostasis in cardiopulmonary procedures, open surgical repair of large vessels, and for wound closure as an alternative to sutures.[2] More recently, CA adhesives were approved for use in dentistry.

A study by Bhaskar et al. reported that non-methyl and non-ethyl CA homologues could be useful in select dental applications.[10] CA performed well as a tissue adhesive in moist environments and displayed hemostatic and bacteriostatic properties.[10] Several case reports have documented successful use of CA in endodontic, oral surgical, periodontic and prosthodontic procedures.[1,12-14]

Krazy Glue offers many advantages given its accessibility, ease of use and limited contraindications. It has proven to be a strong, reliable adhesive that rapidly cures.[2,3] This case report documents the clinical and histopathological findings of a patient who used Krazy Glue to fit a prosthesis at an edentulous site on his anterior mandible.

Case Description

A 64-year-old male presented to Touro College of Dental Medicine with a chief complaint of "I need to fix my front teeth so that I can look good in front of my students." The patient said he was experiencing mild discomfort and sensitivity around his anterior mandibular gingiva that had developed several months prior. His medical history included follicular lymphoma treated by IV rituximab and atrial fibrillation, for which he received cardioversion followed by ablation. His medication regimen was limited to daily 325 mg aspirin. He reported no drug allergies and smoked two packs of cigarettes a week.

Intraorally, we identified an amorphous mass of tan-white material between teeth #23 and #26, measuring approximately 3.5 cm x 2.0 cm (Figures 1,2,3). Generalized, severe gingival inflammation and marked accumulation of plaque and calculus were observed. Panoramic radiography showed an edentulous maxilla and a partially edentulous mandible. Teeth #18, #25, #30 and #32 were absent. Generalized mandibular horizontal bone loss was observed. Severe bone loss was identified at sites #23, #24 and #26. Tooth #17 demonstrated complete impaction (Figure 4).

Upon questioning the patient regarding his edentulous space, he reported losing his mandibular central incisor due to periodontal disease one year prior. The patient did not seek professional care because of financial and scheduling constraints. As an elementary school teacher, he had experienced social anxiety from the appearance of his smile after becoming partially edentulous.

Subsequently, he decided to fabricate his own dental prosthesis out of Krazy Glue. Fabrication involved polymerizing a large mass of the product to fit the edentulous space. The mass was then secured to the abutment teeth #23 and #26 with further application of Krazy Glue. He maintained the prosthesis with additional Krazy Glue as the adhesive properties diminished with time.

While the DIY prosthesis did not cause any initial irritation or discomfort, pain and inflammation became persistent over several months.

The Krazy Glue bridge was manually removed by the treating dentist. The gingiva adjacent to the prosthesis demonstrated erythema and edema and exhibited sensitivity upon palpation. Class III mobility was noted on both abutment teeth, #23 and #26, as well as tooth #24, which was clinically visible after removal of the mass (Figure 5).

Following discussion of several treatment options, the patient elected to have teeth #23, #24 and #26 extracted, with subsequent fabrication of a removable partial denture. Extraction with socket curettage and debridement of the affected tissue was completed. Wound closure was achieved through placement of three interrupted 3-0 chromic gut sutures. Curetted tissue was submitted for histopathological evaluation to an oral and maxillofacial pathologist. An Essix retainer was placed immediately following extraction as a provisional prosthesis.

Microscopic review of the biopsied tissue showed hyperparakeratotic oral mucosa with underlying dense fibrous connective tissues possessing a mild chronic inflammatory infiltrate. Epithelial-lined granulation tissue and reactive bone were also identified (Figures 6, 7).

A removable partial denture was fabricated for the patient following complete healing of the extraction sites at two months (Figure 8). The patient expressed satisfaction with the appearance of his lower teeth and reported elevated confidence. He is now an established patient and presents regularly for recall appointments.

Discussion

CA is a monomer formed by the condensation of formaldehyde and cyanoacetate. It was formulated for commercial use in the 1950s, proving to be an excellent adhesive. In the presence of moisture, CA polymerizes rapidly to form a solid. The rate of polymerization and degradation are determined by the length of the alkyl side chains in CA. When the methyl or ethyl homologs are present, degradation is rapid, thus releasing toxic by-products.[2,3,4,10] CA was modified in the 1970s to release fewer toxic byproducts during polymerization. Subsequently, it was approved by the FDA for applications in surgery and medicine. Its uses have been documented in dental publications, but more research is needed to determine its viability as a reliable dental adhesive.

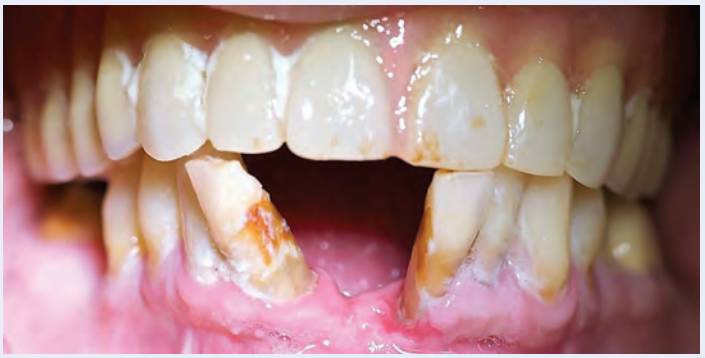

Figure 5. Preoperative view of anterior mandible after removal of Krazy Glue prosthesis.

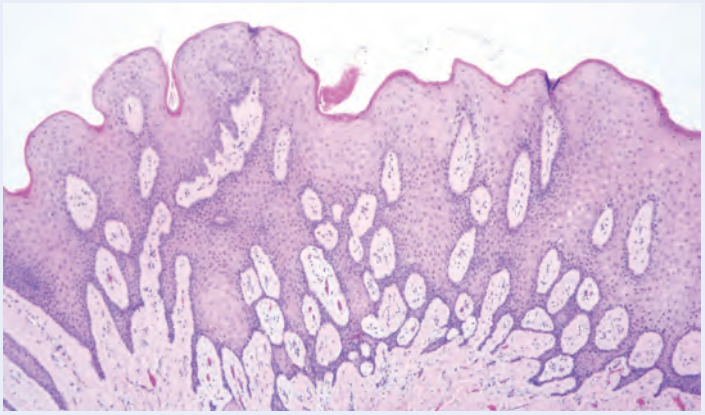

Figure 6. 100x magnification view demonstrating epithelial lined granulation tissue.

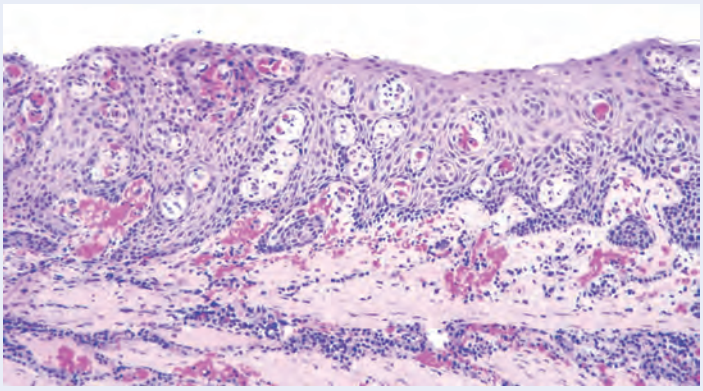

Figure 7. 100x magnification view demonstrating reactive bone formation.

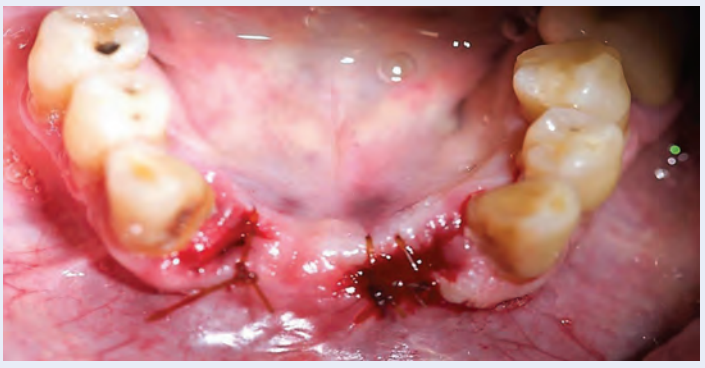

Figure 8. Postoperative anterior occlusal view of mandible after extraction of teeth #23, #24 and #26.

Use of Krazy Glue for DIY dental applications is ill-advised due to its potential for creating a surface primed for the accumulation of plaque and calculus. Oral hygiene may be compromised, and esthetics may be lost at sites of application. The rapid polymerization of CA creates an exothermic reaction, which could burn oral tissues.[2,3] In this patient's case, the mass was polymerized outside of the oral cavity, thus avoiding trauma. There would have been a high likelihood for thermal burn had the product been directly applied to his oral tissues.

It is well-documented in the literature that CA can cause local tissue necrosis. However, the histopathologic findings in this case are consistent with those identified in settings of local irritation of the oral mucosa. Since necrotic tissue was absent in the biopsied specimen, we postulate that any CA-induced necrosis took place around the time of prosthesis insertion. Such necrotic mucosa likely sloughed off prior to the biopsy procedure. Based on our microscopic findings, the effects on the oral tissues was indiscernible from other common local irritants (e.g., heavy plaque and calculus accumulation). As such, the local inflammatory effects could promote alveolar bone loss. Additionally, placing CA in extraction sockets has also been shown to trigger a foreign body response.[7]

While unlikely in small doses, the potential for toxic systemic effects from methyl, ethyl and alkyl homologues of CA remains a concern.[2,3,4,10] The systemic effects of CA related to quantities used in the fabrication of this patient's DIY prosthesis are unknown. There were no indications that the patient in this case suffered from toxic side effects at a systemic level.

Conclusion

This report documents the clinical and histopathological findings of a patient who performed DIY dentistry utilizing Krazy Glue in lieu of professional dental care because of financial and scheduling constraints. We reviewed the literature on CA, including its industrial history, applications in dentistry, and potential adverse side effects. The patient in this case eventually had his dentition restored through appropriate dental treatment, which stabilized his appearance, function and phonetics. As dental professionals, it is imperative that we educate our patients on DIY treatments by asking them to seek our advice prior to beginning any such treatment.

The authors report no conflicts of interest in the preparation of this article. Queries about the article can be sent to Mr. Kahan at bkahan2@student.touro.edu.

REFERENCES

1. Kimber SA. ADA launches public awareness campaign discouraging DIY dentistry. Chicago, Ill. ADA News; 2018. "http://www.webcitation.org/76L8tEYYq". Accessed Dec. 20, 2018.
2. Mattamal GJ. US FDA perspective on the regulations of medical-grade polymers: Cyanoacrylate polymer medical device tissue adhesives. Expert Review of Medical Devices 2008;5(1):41-9.
3. Quinn JV. Tissue adhesives in clinical medicine PMPH-USA; 2005.
4. Beam JW. Tissue adhesives for simple traumatic lacerations. J Athl Train 2008;43(2):222-4.
5. Winkler S, Wood R, Facchiano AM, Boberick KG, Patel AR. Prosthodontic self-treatment with acrylic resin Krazy Glue®: a case report. J Oral Implantol 2006;32(3):132-6.
6. Winkler S, Wood R, Facchiano AM, Bergloff JF. Esthetics and Krazy Glue®: a case report, J Oral Implantol 2003;29(6): 286-8.
7. Herod El. Cyanoacrylates in dentistry: a review of the literature. J Can Dent Assoc 1990 Apr;56(4):331-4.
8. Hines, E Q, Cohen JS, Klein BL. Glue adhesives for repairing minor skin lacerations. Contemporary Pediatrics 2013;30(1):25–34.
9. Le PT, Weinstein M, Borislow AJ, Braitman LE. Bond failure and decalcification: a comparison of a cyanoacrylate and a composite resin bonding system in vivo. Am J Orthod Dentofacial Orthop 2003;123:624-7.
10. Bhaskar, Surindar N, Frisch J, et al. Use of cyanoacrylate adhesives in dentistry. J Am Dent Assoc 1968;77:831-7.
11. Gogulanathan M, Elavenil P, Gnanam A, Krishnakumar Raja VB. Evaluation of fibrin sealant as a wound closure agent in mandibular third molar surgery: a prospective, randomized controlled clinical trial. Int J of Oral Maxillofac Surg 2015;44:183-8.
12. Moretti Neto RT, Mello I, Moretti AB, Robazza CR, Pereira AA. In vivo qualitative analysis of the biocompatibility of different cyanoacrylate-based adhesives. Braz Oral Res 2008;22:43–7.
13. Joshi AD, Saluja H, Mahindra U, Halli R. A comparative study: efficacy of tissue glue and sutures after impacted mandibular third molar removal. J Maxillofac Oral Surg 2011;10(4):310-5.
14. Habib A, Mehanna A, Medra A. Cyanoacrylate: a handy tissue glue in maxillofacial surgery: our experience in Alexandria, Egypt. J Maxillofac Oral Surg 2013;12(3):243-7.


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Mucous Membrane Pemphigoid

Report of a Case and Literature Review

Kimberly L. Mei, B.A.; Scott M. Peters, D.D.S.

ABSTRACT

Mucous membrane pemphigoid (MMP) is a rare, chronic, autoimmune subepithelial blistering disease that primarily affects the mucous membranes of the body. MMP encompasses a wide variety of presentations and severities. We report the case of a 53-year-old female with MMP of the oral mucosa.

Mucous membrane pemphigoid (MMP), also known as cicatricial pemphigoid, is a chronic autoimmune disorder that targets hemidesmosomal proteins and is characterized by disintegration of the dermal-epidermal junction within the skin and mucous membranes, leading to desquamation and formation of subepithelial blisters.[1] Unlike the more common bullous pemphigoid (BP), which predominantly affects the skin and is seen in older patients, MMP typically affects the oral mucosa, but with possible additional involvement of the ocular mucosa, skin, nasal cavity, anogenital mucosa, pharynx, larynx and esophagus.[1,2] Women are more frequently affected than men, with no racial or geographical predilection, and with an average age of presentation of 62 years.[3]

Scarring is the hallmark of this disorder except when confined to the oral cavity; the latter appearance is sometimes referred to as low-risk MMP,[1] and presents with bleeding, burning and masticatory impairment.[4] Oral manifestations of MMP are often the first sign of disease, and the condition can progress to ocular involvement, leading to blindness; genital involvement, leading to urinary and sexual dysfunction; and laryngeal involvement, leading to life-threatening airway obstruction if treatment is delayed or ineffective.[1,5,6] Herein, we present the case of MMP on the alveolar mucosa, gingiva and soft palate of a 53-year-old female.

Case Report

A 53-year-old female with no significant past medical history was referred to a local oral and maxillofacial surgeon for evaluation of "painful, recurrent oral sores." The patient reported that the lesions had been present for about six months, and complained of pain upon eating and drinking.

Extraorally, no facial swelling or cervicofacial lymphadenopathy was noted. No asymmetry or trismus was observed. The intraoral examination revealed generalized erythema of the maxillary and mandibular gingiva, with large irregular ulcerations covered by tan-gray pseudomembranes (Figures 1A, 1B). The lesions were painful to palpation, and manipulation of the patient's gingiva resulted in peeling and further ulceration. Similar ulcerated lesions were also identified on the patient's right and left buccal mucosa and soft palate (Figure 2).

Two incisional biopsies were performed and sent for routine microscopy and direct immunofluorescence (DIF) analysis. Histologic examination revealed a neat separation between the epithe-

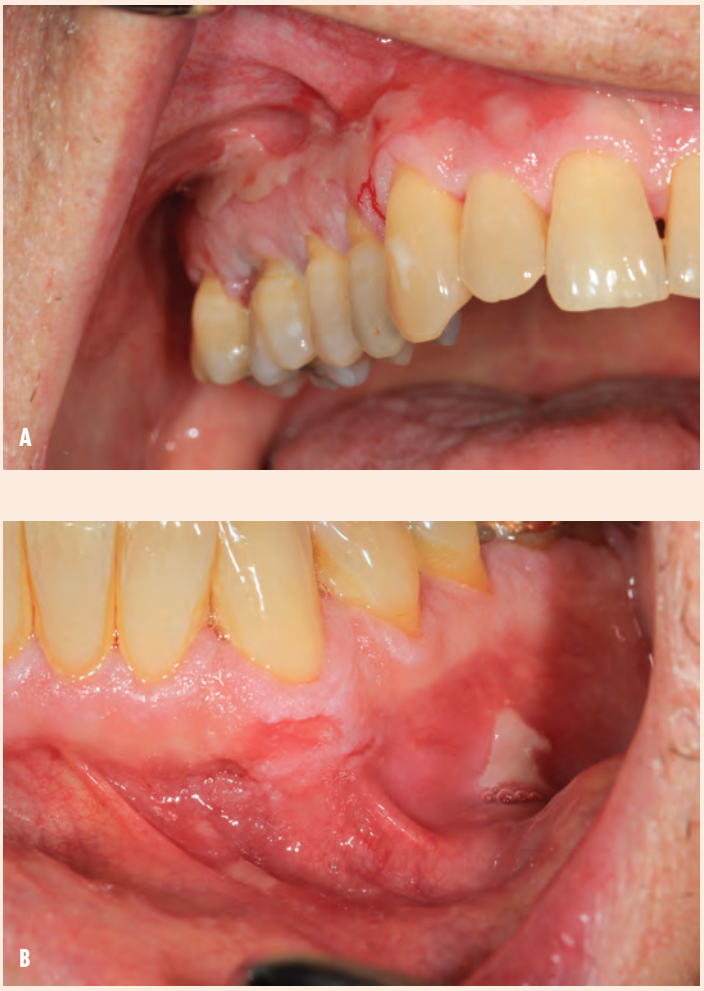

Figure 1. Mucous membrane pemphigoid. Intraoral view of generalized erythema and irregular ulcerations extending from (A) gingiva to alveolar mucosa on right maxillary quadrant; (B) on left mandibular quadrant, covered by tan-gray pseudomembranes.

lium and connective tissue (Figure 3). These findings, along with the results of the DIF testing, confirmed a diagnosis of MMP. The patient's oral lesions were successfully managed with topical corticosteroids and tacrolimus ointment, and she was referred to a dermatologist and ophthalmologist for preventive assessment for skin and ocular lesions.

Discussion

In 2002, an international consensus redesignated a heterogeneous group of diseases characterized primarily by autoimmune, chronic inflammatory subepithelial blistering of the mucous membranes as MMP.[1] MMP included diseases previously known by a variety of names, such as oral pemphigoid, benign mucous membrane pemphigoid, and cicatricial pemphigoid, among others.[1] These names reflected efforts to distinguish individual presentations of this subepithelial mucosal blistering disease, which can vary significantly in location and severity, ranging from relatively benign oral lesions or conjunctival injection to widespread mucosal involvement with hallmark fibrosis, leading to pain, blindness, genitourinary dysfunction, or life-threatening laryngeal or esophageal involvement.[1,7]

MMP now clearly designates all chronic inflammatory subepithelial blistering diseases that primarily affect any and all of the mucous membranes and in which direct immunopathological studies can verify the continuous linear deposition of IgG, IgA or C3 against various autoantigens along the epithelial basement membrane zone (BMZ) of perilesional areas. A summary of characteristics of MMP can be found in Table 1.

The incidence of MMP in the United States is unclear, but is 1.3 to 2 per 1 million people per year in France and Germany, respectively.[8,9] Mean age of onset for MMP is earlier than in BP

TABLE 1.

Characteristics of Mucous Membrane Pemphigoid

Mucous membrane pemphigoid: all chronic inflammatory subepithelial blistering diseases that primarily affect any and all of the mucous membranes and in which direct immunopathological studies can verify the continuous linear deposition of IgG, IgA, or C3 against autoantigens along the epithelial basement membrane zone of perilesional areas.	
Reported incidence	1.3 to 2 per 1 million people (in France and Germany, respectively)
Demographic	Mean age of onset: 62 years Females twice as often affected as males No racial or geographic predilection
Symptoms	- Primarily affects mucous membranes, as opposed to skin, unlike other autoimmune blistering muco-cutaneous diseases - Continuous linear deposition of IgG, IgA, or C3 against various autoantigens along epithelial basement membrane zone of perilesional areas - Oral involvement frequently leads to desquamative gingivitis - Chronic disease course with gradual onset of symptoms, followed by acute exacerbations and remissions - Scarring leading to progressive loss of function, except in oral lesions
Most common sites of involvement, in descending order of frequency	Oral, ocular, nasal, nasopharyngeal, anogenital, skin, laryngeal, esophageal
Most common sites of oral involvement, in descending order of frequency	Gingival and palatal mucosae, labial mucosa, tongue, buccal mucosa

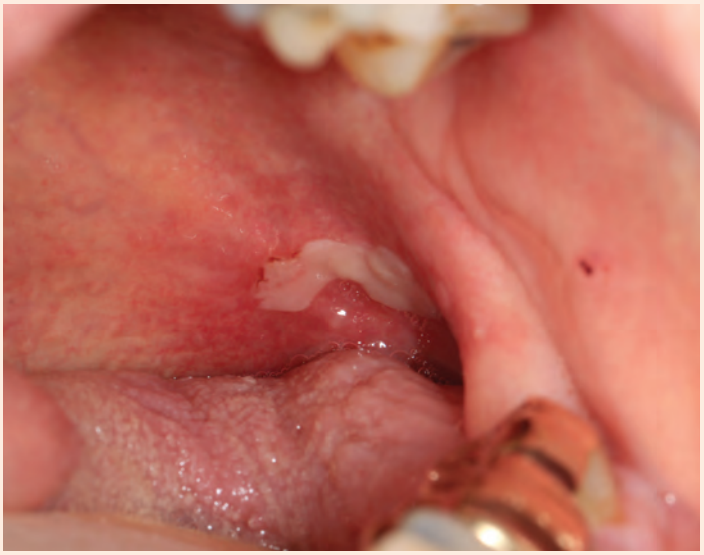

Figure 2. Mucous membrane pemphigoid. Intraoral view of irregular lesions covered with tan-gray pseudomembranes on left soft palate, extending to buccal mucosa.

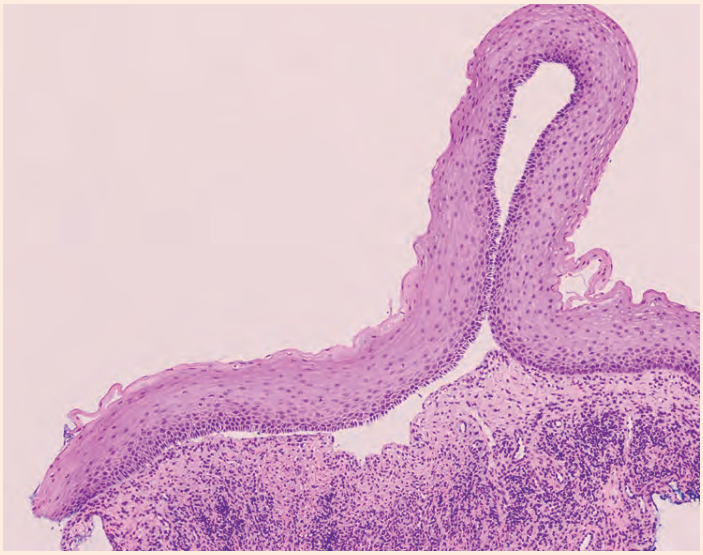

Figure 3. Histologic examination revealed neat separation between epithelium and connective tissue, consistent with diagnosis of MMP (H&E, x40).

and somewhat later than in the case presented here, at 62 years.[3] Women are twice as often affected as men, with no racial or geographic predilection. Scarring leading to progressive loss of function in affected areas is seen in most patients except those with MMP confined to the oral mucosa.[1]

Although many patients have more than one site of involvement, MMP most commonly affects the oral mucosa, followed by ocular, nasal, nasopharyngeal, anogenital, skin, laryngeal and esophageal involvement in descending order of frequency.[10] Oral MMP often results in desquamative gingivitis and most commonly affects attached gingival and palatal mucosae, followed by labial, tongue and buccal mucosae.[10] A hallmark of MMP is gradual onset of symptoms, followed by acute exacerbations and remissions.[11]

Histological examination from light microscopic studies is not an absolute criterion for diagnosis, as biopsy of lesional tissue is either not always demonstrative of subepithelial blisters or not clinically appropriate (for example, in ocular presentations). Also, MMP cannot be histologically distinguished from BP or epidermolysis bullosa acquisita (EBA).[1] Likewise, indirect immunofluorescence testing is recommended but not required for diagnosis, as patterns of circulating autoantibodies in MMP are not disease-specific and not all patients have detectable circulating autoantibodies, the titer of autoantibodies in MMP being lower than in BP.[12,13]

Although direct immunofluorescence studies clearly distinguish MMP from lichen planus (linear or shaggy fibrinogen deposits along BMZ) or erythema multiforme (no linear BMZ immune deposits), there is no established relationship between individual presentations of MMP and specific patterns of autoantibody binding, although 10 epithelial BMZ autoantigens have been identified since the mid-1980s.[1]

Historically, the mechanism of subepithelial blister formation in oral MMP remains unclear, although the fact that MMP tends to present with fewer inflammatory findings than BP may suggest that the blistering mechanism of MMP is unique.[14] Proposed mechanisms include pathogenesis stemming from the role of epithelial BMZ autoantibodies, the HLA-DQB1*0301 allele,[15] fibrosis-inducing cytokines,[16] and epitope spreading, whereby previously hidden autoantigens become exposed and launch an immune response.[17,18]

MMP is distinguished from other autoimmune blistering muco-cutaneous diseases in that it primarily affects the mucous membrane, as opposed to primarily affecting the skin.[1] Pemphigus is less common and more aggressive than pemphigoid and describes intraepithelial, acantholytic blistering with IgG deposition at epithelial cell surfaces rather than at the BMZ.[1] Pemphigus vulgaris results in extensive oral mucosal lesions also often associated with desquamative gingivitis, but is followed by extensive skin involvement. Paraneoplastic pemphigus occurs in association with internal neoplasms, most commonly lymphoid malignancies, and is usually associated with conjunctival mucosal erosions.[19]

In lichen planus, fibrinogen is deposited at the epithelial BMZ, with purple, pruritic papules and plaques affecting the skin and mucous membranes.[20] In 20 percent of patients, lichen planus manifests only in the oral cavity, usually in a reticular pattern. However, oral lichen planus can also result in full thickness desquamative gingivitis.[21] Lupus erythematosus in the oral mucosa deposits IgG, IgA, IgM, or C3 in a granular pattern, rather than a linear one as in MMP, and additionally presents with antinuclear antibodies and specific clinical symptoms.[2]

Erythema multiforme presents abruptly and is self-limited, with symmetrical erythematous targetoid lesions on the torso,

TABLE 2.

Treatment Guidelines for Mucous Membrane Pemphigoid

Site of involvement	Severity	Treatment
Ocular, nasopharyngeal, laryngeal, esophageal, or genital **("High-risk")**†‡	Severe disease or rapid progression	Initial management: prednisone (1-1.5 mg/kg/day) and cyclophosphamide (oral or intravenous) (1-2 mg/kg/day) or azathioprine (1-2 mg/kg/day). Patients should be referred to appropriate specialists, particularly with complaints of ocular disturbances, epistaxis, hoarseness, cough, dysphagia, weight loss, gastroesophageal reflux disease, dysuria, or rectal bleeding. -Consider subconjunctival mitomycin C with ocular involvement to reduce mucosal fibrosis. -Cyclophosphamide may be preferred for short-term use as efficacy of azathioprine not established until 4 to 8 weeks after initiation. -If treated with azathioprine, serum levels of thiopurine methyltransferase activity should be monitored to predict adverse effects on myelosuppression. Once disease stabilizes, prednisone should be tapered off while immunosuppressive therapy is maintained. -Patients receiving long-term prednisone or immunosuppressive treatment may require anticandidal medication and therapies for preventing osteoporosis.
	Mild disease	Initial management: dapsone (50-200 mg/day) for 12 weeks. After 12 weeks, re-evaluate symptoms for possible initiation of prednisone and cyclophosphamide.
Lesions confined to oral mucosa or oral mucosa and skin **("Low-risk")**†‡		Initial management: topical corticosteroid of moderate to high potency such as 0.05% clobetasol propionate ointment in orabase or 0.05% fluocinonide ointment in orabase. -Consider tetracycline hydrochloride (1-2 g/day) and nicotinamide (2-2.5 g/day). If symptoms persist, dapsone (25-200 mg/day) or morning doses of prednisone (0.5 mg/kg/day) with or without azathioprine (100-150 mg/day).

†All patients diagnosed with MMP must be referred to ophthalmologist for baseline assessment.

‡In refractory patients, higher dose of prednisone with or without immunosuppressive therapy may be helpful.

palms and soles, but with no linear immune deposits at the BMZ.[1] Oral manifestations of erythema multiforme involve mainly the anterior part of the oral cavity, leading to crusting of the lips and ulceration of the buccal mucosa and tongue, while leaving the gingiva unaffected.[20] Stevens Johnson syndrome presents abruptly after a prodrome of fever, malaise, headache, sore throat, rhinitis, cough and arthralgia, and is characterized by shallow ulcers in oral mucosa, spreading to extremities in a self-limiting manner.[21]

Direct immunofluorescence studies do not distinguish MMP from other subepithelial blistering diseases, such as BP and EBA, but these diseases can be clinically differentiated. BP commonly spares the mucous membranes and, instead, presents as large, tense bullae of the skin.[1] EBA blisters are usually induced by trauma and, less frequently, involve the attached gingiva than in MMP, pemphigus vulgaris or lichen planus.[11] Although in skin-dominated EBA some mucous membrane involvement is typically seen, those with primarily mucosal membrane involvement are instead recategorized as having MMP according to diagnostic guidelines mentioned previously.[6]

When treating patients with MMP, careful consideration of the site, severity and rate of progression of disease is necessary. A summary of the treatment guidelines for MMP can be found in Table 2. Following a comprehensive examination of all mucous membranes and skin, patients with MMP should be referred to appropriate specialists, particularly with complaints of ocular disturbances, epistaxis, hoarseness, cough, dysphagia, weight loss, gastroesophageal reflux disease, dysuria, or rectal bleeding.[1] All patients diagnosed with MMP must be referred to the ophthalmologist for baseline assessment.

Patients with MMP in ocular, genital, nasopharyngeal, esophageal or laryngeal involvement are classified as high risk and can be managed initially with prednisone (1-1.5 mg/kg per day) and cyclophosphamide (1-2 mg/kg per day).[1] Cyclophosphamide can also be administered intravenously, and azathioprine may be used instead of cyclophosphamide, but cyclophosphamide may be preferred for short-term use as clinical efficacy of azathioprine is not established until four to eight weeks after initiation.[6] Prednisone should be tapered off once the disease stabilizes, while immunosuppressive therapy should be maintained.[1]

Subconjunctival mitomycin has been shown to effectively reduce mucosal fibrosis.[6] For those with milder presentation, dapsone (50-200 mg/d) should be initiated for 12 weeks before re-evaluation of symptoms for possible initiation of prednisone and cyclophosphamide.[16] Low-risk patients, such as in the case presented here, are those with lesions confined to the oral mucosa or oral mucosa and skin only.

A topical corticosteroid of moderate to high potency may be sufficient to manage MMP, given that oral mucosa has a

lower tendency of scarring.[1] Tetracycline hydrochloride (1-2 g/d) and nicotinamide (2-2.5 g/d) have been shown to be clinically helpful in some cases.[6] If resolution of symptoms is not obtained, dapsone (25-200 mg/d) or low daily doses of prednisone (0.5 mg/kg per day) with or without azathioprine (100-150 mg/d) is indicated.[1] In refractory patients, a higher dose of prednisone with or without an immunosuppressive may be helpful.[1]

In the case presented here, the patient was categorized as low risk and is responding well to topical corticosteroid therapy, combined with a topical immunosuppressive.

Queries about this article can be sent to Dr. Peters at smp2140@columbia.edu.

REFERENCES

1. Chan LS, Ahmed AR, Anhalt GJ, et al. The first international consensus on mucous membrane pemphigoid: definition, diagnostic criteria, pathogenic factors, medical treatment, and prognostic indicators. Arch Dermatol 2002; 138:370-79. doi:10.1001/archderm.138.3.370.
2. Schmidt E, Zillikens D. Pemphigoid diseases. The Lancet. 2012;381(9863):320-332. doi:10.1016/s0140-6736(12)61140-4.
3. Ahmed AR, Hombal SM. Cicatricial pemphigoid. Int J Dermatol 1986;25:90–96.
4. Cizenski JD, Michel P, Watson IT, et al. Spectrum of orocutaneous disease associations: immune-mediated conditions. Journal of the American Academy of Dermatology 2017;77(5):795–806. doi: 10.1016/j.jaad.2017.02.019.
5. Foster CS. Cicatricial pemphigoid. Trans Am Ophthalmol Soc 1986;84:527–663.
6. Kirtschig G, Murrell DF, Wojnarowska F, Khumalo NP. Interventions for mucous membrane pemphigoid and epidermolysis bullosa acquisita. Cochrane Database Syst Rev 2009;4 CD004056.
7. Thorne JE, Anhalt GJ, Jabs DA. Mucous membrane pemphigoid and pseudopemphigoid. Ophthalmology 2004;111:45–52.
8. Bertram F, Brocker EB, Zillikens D, Schmidt E. Prospective analysis of the incidence of autoimmune bullous disorders in Lower Franconia, Germany. J Dtsch Dermatol Ges 2009;7:434-40.
9. Stoopler, ET, Sollecito TP. Oral Mucosal Diseases. Medical Clinics of North America 2014;98(6):1323-1352. doi:10.1016/j.mcna.2014.08.006.
10. Chan LS, Yancey KB, Hammerberg C, et al. Immune-mediated subepithelial blistering diseases of mucous membranes: pure ocular cicatricial pemphigoid is a unique clinical and immunopathological entity distinct from bullous pemphigoid and other subsets identified by antigen specificity of autoantibodies. Arch Dermatol 1993;129:448-455.
11. Carey B, Setterfield J. Mucous membrane pemphigoid and oral blistering diseases. Clinical and Experimental Dermatology. 2019. doi:10.1111/ced.13996.
12. Kamaguchi M, Iwata H, Ujiie H, Izumi K, Natsuga K, Nishie W, et al. Oral mucosa is a useful substrate for detecting autoantibodies of mucous membrane pemphigoid. Br J Dermatol 2017. 178:e119–21. 10.1111/bjd.15925.
13. Taylor J, McMillan R, Shephard M, Setterfield J, Ahmed R, Carrozzo M, et al. World Workshop on oral medicine VI: a systematic review of the treatment of mucous membrane pemphigoid. Oral Surg Oral Med Oral Pathol Oral Radiol 2015;120:161-71.e20. 10.1016/j.oooo.2015.01.024.
14. Kamaguchi M, Iwata H, Nishie W, Toyonaga E, Ujiie H, Natsuga K, et al. The direct binding of collagen XVII and collagen IV is disrupted by pemphigoid autoantibodies. Lab Invest 2018;99:48–57. 10.1038/s41374-018-0113-9.
15. Delgado JC, Turbay D, Yunis EJ, et al. A common major histocompatibility complex class II allele HLA-DQB1*0301 is present in clinical variants of pemphigoid. Proc Natl Acad Sci USA 1996;93:8569-8571.
16. Kamaguchi M, Iwata H. The diagnosis and blistering mechanisms of mucous membrane pemphigoid. Frontiers in Immunology. 2019;10. doi:10.3389/fimmu.2019.00034.
17. Chan LS, Soong HK, Foster CS, Hammerberg C, Cooper KD. Ocular cicatricial pemphigoid occurring as a sequela of Stevens-Johnson syndrome. JAMA 1991;266:1543-1546.
18. Chan LS, Vanderlugt C, Hashimoto T, et al. Epitope spreading: lessons from autoimmune skin diseases. J Invest Dermatol 1998;110:103-109.
19. Broussard KC, Leung TG, Moradi A, Thorne JE, Fine J-D. Autoimmune bullous diseases with skin and eye involvement: Cicatricial pemphigoid, pemphigus vulgaris, and pemphigus paraneoplastica. Clinics in Dermatology 2016;34(2):205-213. doi:10.1016/j.clindermatol.2015.11.006.
20. Zillikens D, Caux F, Mascaro JM, et al. Autoantibodies in lichen planus pemphigoides react with a novel epitope within the C-terminal NC16A domain of BP180. J Invest Dermatol 1999;113:117–21.
21. Ribhi Hazin, Omar A. Ibrahimi, Moustafa I. Hazin & Arash Kimyai-Asadi. Stevens-Johnson syndrome: Pathogenesis, diagnosis, and management, Annals of Medicine 2008;40:2:129-138,DOI: 10.1080/07853890701753664.

Ms. Mei

Dr. Peters

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Scott M. Peters, D.D.S., is assistant professor, Division of Oral and Maxillofacial Pathology, Columbia University College of Dental Medicine, New York, NY.

Be Prepared for Uptick in Patients Enrolled in Medicare Advantage Plans

WHEN TREATING A PATIENT covered by Medicare, it is important to know the rules determining whether you will be reimbursed for providing services. Medicare covers dental care only in limited circumstances. Dentists can be paid by Medicare if they perform medical services covered under Medicare Part A (hospital) or Medicare Part B (medical) as long as they have enrolled as a Medicare provider. (There are different forms for Medicare enrollment, so you must be sure you use the correct form.) Covered services include biopsies, the extraction of teeth to prepare the jaw for radiation treatment, and an oral examination performed on an inpatient basis as part of a comprehensive exam prior to renal transplant surgery or performed in a federally qualified health center prior to heart valve replacement.

Medicare Advantage plans (Medicare Part C) offer supplemental benefits through private insurance carriers. Supplemental benefits can include dental and vision, which are not typically covered under original Medicare. Dentists are now seeing an increase in patients who are enrolled in Medicare Advantage plans. According to the National Association of Dental Plans, 51% of Medicaid-eligible individuals are expected to enroll in a Medicare Advantage plan by 2030.

If you have not filed a Medicare opt-out affidavit with a CMS Medicare Administrative Contractor (MAC)—in New York State, the MAC is National Government Services, www.ngsservices.com—you will receive payment from Medicare when treating enrolled patients. However, if an opt-out affidavit was filed, you will not be reimbursed by Medicare and your patients will not be able to receive reimbursement from their plan. Patients should be told prior to treatment that you are not a Medicare provider and that they will be responsible for your full fee.

If your opt-out affidavit was filed prior to June 16, 2015, it will automatically renew every two years. Dentists who do not want their opt-out to renew at the end of a two-year period must cancel the renewal by notifying, in writing, all MACs with which they filed an affidavit at least 30 days prior to the start of the next opt-out period.

Dentists can determine whether they have opted-out of Medicare and when their opt-out affidavit expires at: https://data.cms.gov/Medicare-Enrollment/Opt-Out-Affidavits/7yuw-754z.

For additional information about Medicare, visit www.cms.gov.

UB Accepts First Class to Pipeline Program Designed to Increase Diversity in Dentistry

THE UNIVERSITY AT BUFFALO School of Dental Medicine welcomed the first cohort of 24 students to the Destination Dental School program, a new initiative that aims to remove barriers to careers in dentistry for underrepresented students.

The free, eight-week program, which is open to underrepresented undergraduate and post-baccalaureate students nationwide, drew participants from 14 states, stretching from New York to Florida to California.

Destination Dental School will provide participants with an understanding of the day-to-day life of a dentist and dental student, help strengthen their dental school applications and develop their skills as researchers.

By increasing the enrollment of underrepresented students in dental schools, the program will help address the shortage of dentists of color. Latino, African American and Native American people make up around 5%, 4% and 1% of dentists, respectively, despite representing a larger percentage of the United States population, according to the American Dental Association's Health Policy Institute.

Pipeline programs, however, have proven to be an effective solution, increasing enrollment of underrepresented students in dental schools by 54%, according to a report by the Journal of the American Dental Association.

Held virtually from June 5 to July 31, the program will provide hands-on simulations that teach tooth anatomy and the process for creating fillings and taking impressions; presentations that explore the various disciplines within dental medicine; networking opportunities with local dentistry leaders; and dental school application assistance that includes weekly guidance from more than 30 UB dental faculty, staff, students and alumni, and preparation for the Dental Admission Test.

Students will also complete a capstone research project that may address a range of topics, including disparities in dental care, the long-term impact of veneers on young patients with healthy teeth, and comparing the effectiveness of Invisalign with traditional orthodontic treatment.

The program will cover the cost of the Dental Admission Test, and participants who apply to the UB School of Dental Medicine will receive an application fee waiver.

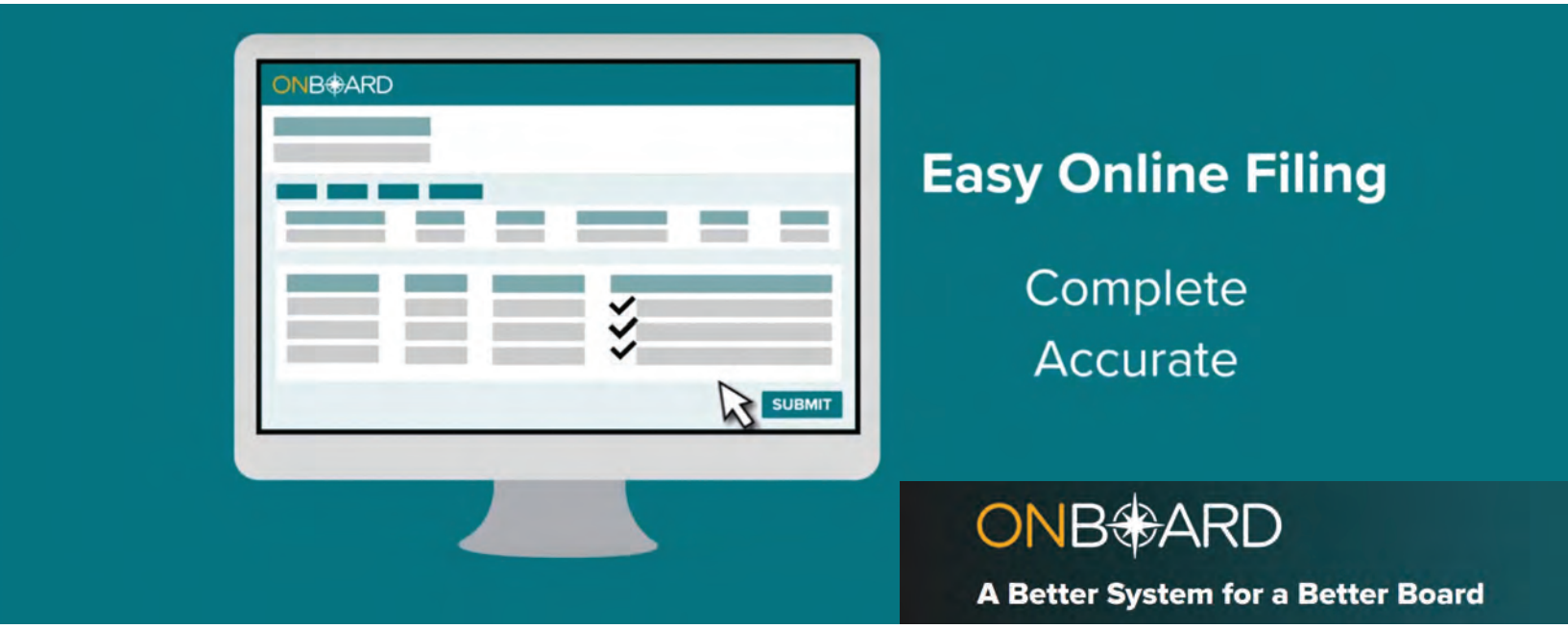
Destination Dental School is sponsored by the family of UB alumnus and former faculty member Philip Galeota, and Aspen Dental. Supplies and resources were provided by Evolution Dental, Henry Schein, Ivoclar Vivadent and Kaplan.

NYU Dentistry Receives Gift to Expand Access, Education for Implant Dentistry

NYU COLLEGE OF DENTISTRY has received major funding and in-kind support from BioHorizons Implant Systems, Inc., to make dental implants more accessible for patients in need and enhance the college's continuing education programs. BioHorizons, part of Henry Schein, Inc., is a leading global provider of dental implant and tissue regeneration products.

The gift includes dental implant products developed and manufactured by BioHorizons, which will lower the cost of implant treatment for patients, including those treated at the NYU Dentistry Oral Health Center for People with Disabilities and. NYU Dentistry Brooklyn Patient Care. The gift will also support the college's newly launched Patient Care Access Fund, created to reduce financial barriers for those who would otherwise not be able to afford dental implants as part of their treatment plans.

The funding from BioHorizons will also support NYU Dentistry's continuing education programs for oral health professionals, enabling the college to develop new offerings related to prosthodontics and implant dentistry.



Workers' Compensation Unveiling New System for Dental Claims Submissions

IF YOU TREAT PATIENTS injured in workplace accidents, you should be aware that the Workers' Compensation Board is developing a new claims system called OnBoard (http://www.wcb.ny.gov/onboard/). OnBoard is a web-based platform that will enable providers to submit dental and medical claims and prior authorization requests electronically. Providers will have access to real-time claims data and will be able to track claims status.

The first phase of the upgrade will be implemented this summer. OnBoard: Limited Release (http://www.wcb.ny.gov/onboard/#limited-release) for dentists will include the submission of prior authorization requests (PAR). Providers will be able to view their PAR submissions on a dashboard with 24/7 access, receive PAR status updates via email and communicate directly with insurers concerning a PAR.

The second and third phases of OnBoard are scheduled for release some time in 2022 and 2023, respectively. Dental claim submissions will be included at that time. Providers should begin preparing now to be ready for the transition to electronic PAR and dental claim submissions.

To get started:

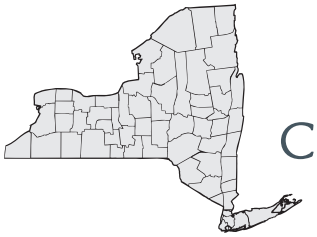
1. Register for access to the Board's Medical Portal (http://www.wcb.ny.gov/medicalportal/).
2. Select "Access and Administration" under Health Care Providers.
3. Select "Sign Up for Access to the Medical Portal."

It may take up to five business days for the board to review your registration. Once your registration is approved, you will receive an email containing an ID number and temporary password to access the Medical Portal.

Workers' Compensation Law does not require dental providers to be authorized by the board, as physicians are. Registering for access to the Medical Portal to submit PARs and claims does not mean that you are "enrolled" in Workers' Compensation or are required to treat every patient seeking treatment as a result of a workplace accident.

To receive updates, dentists should register for OnBoard emails http://www.wcb.ny.gov/onboard/#get-involved. The board is hosting webinars that provide training and updates on the OnBoard: Limited Release system, in addition to factsheets, website content, and instruction guides and tutorial videos to demonstrate use of the new system.

Questions about the registration process should be addressed to Customer Service at the Workers' Compensation Board, (877) 632-4966. You can email questions about OnBoard to OnBoard@wcb.ny.gov. Additional questions may be directed to Jacquie Donnelly at NYSDA, jdonnelly@nysdental.org.



Component NEWS

SEVENTH DISTRICT
Zooming to the New Normal
Bradley Davidson, D.D.S.

As New York State and much of the United States get close to taming the COVID pandemic, the Seventh District is closing in on what will be our "new normal." While little has happened on the "live" front, considerable work has been and continues to be accomplished by volunteers on various committees. It could be said that the district has taken this time to reassess itself and create its own new normal.

ED Search Underway
The Seventh District expects to name a new executive director in the near future. The District Search Committee has examined this position, redefined it, delineated the essential competencies and key responsibilities of the position and is currently collecting and reviewing resumes from interested applicants. We look forward to having the new ED, working hand in hand with the BOD, leading the district to an exciting future, building on the leadership for which the Seventh is so well known.

Planning for the Future
Throughout the pandemic, the Strategic Planning Committee has been developing a new strategic plan to guide the district's future activities. It's in its final stages now and will be available to members soon. The plan will include our Vision, Mission Statement; Core Values; Goals; Objectives; and a list of pertinent tactics to accomplish those goals. It is expected that this strategic plan will guide all the activities of the district as it moves forward.

Financial Well-Being
The Finance Committee has been particularly active, responding to the internal audit that was commissioned and performed last year. Its work has been broad in scope and essential to our future. Many new checks and balances have been refined and will enable the Board to more effectively monitor district finances.

A Matter of Insurance
Empire Dental Administrators is a wholly owned for-profit subsidiary of the Seventh District and the committee that oversees it has been notably active over these past many months. At the committee's recommendation, the Seventh District Board agreed unanimously to partner with the firm of Walsh Duffield going forward, allowing WD to administer the insurance offerings to our members. This should provide members with additional trusted expertise as they consider how to best protect themselves from various risks.

Live CE is Back
Finally, in a sign we are reemerging from the virtual world of the past year and a half, the district hosted a live, full-day CE program on May 14. Brian Bradley presented on the EGOSCUE method, in a talk entitled "Treating Dentistry as a Sport and How to Train for It." Attendees agreed that, while virtual Zoom meetings have their place and offer many benefits, there is nothing like physically joining with one's colleagues for a day of education and collegiality.

SECOND DISTRICT
Shred Fest
Alyson Buchalter, D.M.D.

Among the SDDS's most popular member benefits is our semi-annual Shred Fest. This year's events took place on Friday, May 14, in Staten Island, and on Friday, May 21, in Brooklyn. Almost 50 members brought carloads of boxes filled with old charts, financial records, insurance claims and various other private documents to be destroyed in a HIPAA-complaint manner. We were reminded that all adult patient records must be retained for at least six years, and children's records for at least six years or one year after the minor patient reaches the age of 21, whichever is later.

For the past seven years, Shred Fest has offered us relief from bursting at the

On hand for Shred Fest '21 are, from left, SDDS Treasurer Paul Teplitsky, past president Alyson Buchalter, President Babak Bina.

Second District *cont.*

seams with records we are no longer required to keep. Watching hundreds of pounds of unwanted documents disappear into the shredder truck was beyond words, satisfying.

Reneida Reyes

The SDDS congratulates one of its own for being honored by the American Association of Pediatric Dentistry (AAPD). Reneida Reyes was named the 2021 recipient of AAPD's Distinguished Service Award, the association's most prestigious honor. Dr. Reyes is a pediatric dentist with a master's degree in public health. She has used that training effectively to champion children's oral health and oral health education.

Dr. Reyes is a past president of the SDDS (the first woman to rise to component president in New York State), past president of the ADA Foundation, a longtime chair of the SDDS Oral Health Committee and the current chair of the AAPD President's Task Force on Equity and Inclusion. She leads SDDS's annual Give Kids A Smile program and countless other outreach efforts throughout Brooklyn and Staten Island. In 2020, the SDDS presented her with its own Distinguished Service Award, an award given only 13 times in the society's 160-year history and like the AAPD award, the highest honor the SDDS can give.

Reneida Reyes

Everyone at the SDDS agrees, Dr. Reneida Reyes is an extraordinary woman who deserves all the awards she has received and more.

Loan Forgiveness Program

For the past five years, the SDDS has awarded $10,000 targeted grants to deserving recent dental school graduates practicing in our district. These grants decrease recipients' dental education loan debt by direct deposit into their loan account. Last year, due to Covid-19 and its financial ramifications, the SDDS was forced to give fewer awards than in past years. This year, our Board voted to make up for that and then some! Last month, the Board voted to present 24 $10,000 awards, the largest number ever! Yes, we are giving $240,000 to the next generation of dental colleagues. We are grateful to be in a position to make a significant difference in the lives of those starting out in our great profession.

NINTH DISTRICT

Despite Hardships, Science is Winning!

Olga Lombo-Sguerra, D.D.S.

As that light at the end of the tunnel gets brighter and brighter, and we begin to emerge from the trials imposed by this past year and a half, we are seeing signs of a new normal coming into focus. It is with that sense of hopefulness that Renuka Bijoor, chair of the Ninth District's Membership & Communications Committee, planned our first in-person event in more than a year. It was a Members Social on June 24 at St. Andrews Golf Club in Hastings-on-Hudson. This outdoor event helped ease us back into safely gathering and we were delighted to see everyone who attended.

Dual Presenters

On May 12, we were recipients of a lot of valuable information delivered by Chad and Rekha Gehani at our General Meeting. Chad Gehani provided a wonderful overview of organized dentistry before presenting "Management of Periapical Pathosis." After a break, during which our sponsors had an opportunity to address all of us about the services they offer, Rekha Gehani presented case studies in "Orthodontics: An Integral Part of Cosmetic Dentistry." Participants received six MCE credits, awarded at no charge.

Our next General Meeting, Sept. 22, will take place in person at the Crowne Plaza Hotel in Suffern. Paul Zhivago will present "How is Digital Technology Revolutionizing the Art and Science of Dentistry?"

Keeping Current on COVID

Our thanks to the ADA, NYSDA and our executives and delegates, who continue to follow and update us on COVID vaccinations and protocols. As of June 1, most protocols remained in effect; however, dentists no longer need to allow 15 minutes after a patient is treated to clean and prep the exam room for the next patient. As we have throughout the pandemic, we will eblast all changes to members as soon as they are announced. In the meantime, if you have any questions, please contact headquarters and we will be glad to help.

Taking a Look Back

Our May Bulletin was an online issue that featured several nostalgic photographs from past events. Members got a real kick out of the trip down memory lane, identifying themselves and colleagues from years ago. The September issue will be a hard-copy version, which should arrive in time to discuss at the General Meeting. Once again, we are grateful to our advertisers and sponsors for their continuing support and welcome any comments and ideas for upcoming issues.

Stay Vigilant

We continue to encourage members and their staffs to get vaccinated as soon as possible, to continue to be vigilant in efforts to contain the virus and to reach out to headquarters with any issues, questions or concerns they have.

BRONX COUNTY

Remote Lecture Series

Laurence Schimmel, D.D.S.

In response to the COVID-19 pandemic, the Bronx County Dental Society has continued its lecture series via Zoom. Like the first series, the second has been an overwhelming success. First up was Richard Madow, who presented a lecture entitled "Ten Simple Ways to Create a Memorable Patient Experience." Dr. Madow offered specific techniques for improving the patient experience, including the proper way to discuss treatment needs to increase treatment plan acceptance rates.

Next up was Al Mercado, managing attorney of the downstate region for Fager Amsler Keller & Schoppmann, LLP. Mr. Mercado's presentation was titled "The Devil is in the Details." He covered the different types of employment that exist in dentistry, as well as how to negotiate an employment contract.

Upcoming Lectures

On Oct. 5, BCDS will offer cardio-pulmonary resuscitation with defibrillator training. This continuing education course will take place at Maestros Caterers in the Bronx. Please contact Joy at bronxdental@optonline for more information.

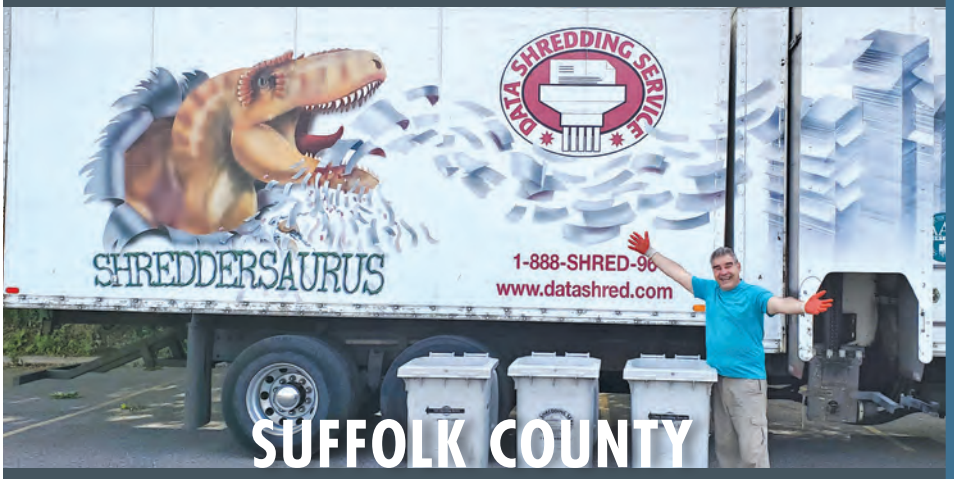
On Oct. 14, Richard Lipscomb Jr. will present the lecture "Better Preps, Less Stress.... Creating Readable, Workable C+B Margins." This will be part of the BCDS remote lecture series, offered via Zoom. To register, contact Joy at bronxdental@optonline.net.

BCDS Dentist Helps Administer Vaccine

BCDS member Samuel Taller returned to the high school he attended to help administer the COVID-19 vaccine. The site of the vaccine clinic was the prestigious Bronx High School of Science, from which Dr. Taller graduated in 1973. Dr. Taller, was one of some 25 vaccinators who provided the Moderna vaccine to Bronx residents, all of whom appeared to be eager to receive their shot.

Meeting with Rep. Andrew Garbarino. Seated, from left: Oksana Golovina, Statewide Public Affairs; ADA 2nd Vice President Maria Maranga; SCDS New Dentist Chair Lauren Heisinger; Sharon Pollick, chair, NYSDA Council Governmental Affairs. Standing, from left: Roy Lasky, Statewide Public Affairs; SCDS Executive Director Bill Panzarino; ADA Trustee Paul Leary; Rep. Garbarino; NYSDA President-Elect Kevin Henner; Guenter Jonke, ADA Council Ethics, Bylaws, Judicial Affairs.

In place and ready to shred. SCDS volunteers prepare to greet members anxious to properly dispose of sensitive records.



SUFFOLK COUNTY

Nick Vittoria enthusiastically welcomes colleagues to SCDS annual Shredding Event.

SUFFOLK COUNTY

New Dentist Events

Howard Schneider, D.D.S.

Our New Dentist Committee planned and hosted the following well-attended events:

- April 21: "It's Complicated?"
- April 28: "Navigating Dental Associate Agreements"
- May 12: "Professional Liability and Defensive Dentistry

We are looking forward to the New Dentist Summer Social on July 21. This will be an in-person event at Insignia Steakhouse in Smithtown.

You can find details on these and other events at http://suffolkdental.org/calendar-of-events.html.

Shredding Event

SCDS held its annual Shredding Event May 22 in the parking lot of society headquarters. We had a great day, and it was excellent to reconnect with our dental community in person! A big thank you to the SCDS volunteers who came out to help the approximately 80 dentists who took advantage of this SCDS event, especially SCDS President Patricia Hanlon, past presidents Claudia Mahon-Vazquez, Ivan Vazquez, Nick Vittoria and Martin Dominger.

Also supporting the effort were Lawrence Absatz, Laurence Schwartz, Terry and Tara Sanders, Carol Deerwester and Bill Panzarino.

GOP Sit-Down

SCDS appreciated the opportunity to sit down with Republican Congressman Andrew Garbarino, a Suffolk County resident, on June 2. At a dinner arranged by NYSDA President-Elect Kevin Henner, we covered many subjects, including dentistry, Suffolk County, New York State, lobby days, wines and some boating adventures.

Don't Miss a Thing

We continue to make a significant push to better communicate and connect with our members using methods that more easily integrate with their lifestyle. You can find us on Facebook, Twitter, Instagram, LinkedIn and, even, Spotify, in addition to our traditional www.Suffolk-Dental.Org presence.

NEW YORK COUNTY

Avoiding the Pitfalls of Dentistry

Mina C. Kim, D.M.D.

New York County Dental Society hosted a webinar on "Professional Liability & Defensive Dentistry" on April 14 to provide guidance on managing the risks of the dentist-patient relationship. During the one-hour session, attorney Al Anthony Mercado shared his insights on best practices from 30 years as a litigation lawyer to help members avoid the potential pitfalls of practicing dentistry.

Mr. Mercado is managing attorney of the downstate region for Fager Amsler Keller & Schoppmann, LLP, the law firm that supports MLMIC Insurance Co., sponsor of the webinar.

Financial Wellness

The first seminar in a new financial wellness series launched by the Greater New York Dental Meeting and NYCDS Corporate Friend Bank of America Practice Solutions was held on May 5. As the title indicates, the intent of this series was to build financial and investing wellness in tough times on a variety of relevant topics. The seminar provided dentists with the opportunity to discuss the various aspects of starting or acquiring their first practice. The discussion covered just about everything one needs to know to start a new practice, acquire an existing practice and plan for future growth as a dental practice.

ACD Mentoring Lecture Program

As part of the ACD Mentoring Lecture Series, Egidio Farone, past chair of the NYCDS Peer Review Committee, examined the peer review process and discussed its importance as a dispute resolution alternative. At the May 19 webinar "Peer Review: Facts, Findings, and Dispelling Fears," participants learned how peer review benefits both the public and the practitioner and why it is a process that dentists should embrace and not fear. They also came to understand why peer review is one of the most important benefits of membership in NYSDA.

NEW YORK COUNTY

Peer review lecturer Egidio Farone.

Continuing Education

NYCDS plans to continue offering daytime and early evening webinars to fit members' schedules through summer 2021, and we plan to have in-person continuing education programs starting after Labor Day. In the meantime, we are excited to offer "live" online (or on demand) courses featuring top educators from Hands-OnLine LIVE. Participants will be guided by world-class instructors in a step-by-step manner through state-of-the-art clinical learning and hands-on training. A virtual Q&A environment allows for live interaction between participants and the instructor. Best of all, attendees using code NYCDS10 will receive 10% off any 2021 course. Visit www.handsonlinelive.com for course descriptions and to register.

Visit www.nycdentalsociety.org for our latest course and registration information.

Read, Learn and Earn

Readers of *The New York State Dental Journal* are invited to earn three (3) home study credits, approved by the New York State Dental Foundation, by properly answering the following 30 True or False questions, all of which are based on articles that appear in this issue.

When you have completed the questionnaire, return it to the New York State Dental Foundation, along with payment of $60. All those who achieve a passing grade of at least 70% will receive verification of completion. Credits will automatically be added to the CE Registry for NYSDA members.

For a complete listing of online lectures and home study CE courses sponsored by the New York State Dental Foundation, visit www.nysdentalfoundation.org/course-catalog.html.

Correction of Anterior Open Bite Caused by Super-Eruption of Third Molars after Night Guard Use—Page 19-22

1. The use of night guards has proven to produce no complications.
   ❑ T or ❑ F
2. The clinical case was caused by the use of an over-the-counter (OTC) night guard.
   ❑ T or ❑ F
3. Night guards are not used to treat sleep bruxism.
   ❑ T or ❑ F
4. There is a lack of evidence for the efficacy of night guards in treating temporomandibular disorder (TMD) according to the authors.
   ❑ T or ❑ F
5. Malocclusion due to occlusal splint therapy is well-documented in the literature.
   ❑ T or ❑ F

❑ *Enclosed is a check for the full amount of $60. (Make checks payable to the New York State Dental Foundation.) Mail to NYSDF, 20 Corporate Woods Boulevard, Suite 602, Albany, NY 12211. Questionnaires must be received within 90 days of Journal publication.*

Please charge my: ❑ VISA ❑ MasterCard ❑ American Express

Card # _____

Expiration Date _____

Name _____

Address _____

City _____ State _____ Zip _____

Telephone _____

E-mail _____

ADA # _____

License # _____

NYSDA Member? ❑ yes or ❑ no

Local/State Dental Society _____

6. Splints that only cover part of the arch are most likely to cause occlusal changes.
❑ T or ❑ F
7. Full- cover splint devices never create occlusal issues.
❑ T or ❑ F
8. The clinical case was resolved by extracting the patient's third molars bilaterally.
❑ T or ❑ F
9. The authors suggest caution should be exercised when using night guards, in particular, with young patients with erupting new teeth.
❑ T or ❑ F
10. The authors do not suggest that the OTC availability of night guards should be discontinued.
❑ T or ❑ F

COVID-19 and Periodontal Disease—Page 23-28

1. Periodontitis and COVID-19 are closely linked.
❑ T or ❑ F
2. Aerosol particles are not involved in the transmission of COVID-19.
❑ T or ❑ F
3. Chronic inflammation is not associated with periodontitis.
❑ T or ❑ F
4. The oral cavity mucosa has a high ACE2 expression.
❑ T or ❑ F
5. SARS-CoV-2 invasion into the host cell triggers a local immune response.
❑ T or ❑ F
6. Blood containing COVID-19 can access the oral cavity through gingival crevicular fluid.
❑ T or ❑ F
7. Inflammatory mediators do not play a significant role in the pathogenesis of periodontitis.
❑ T or ❑ F
8. Viral respiratory infections are commonly complicated by bacterial superinfections.
❑ T or ❑ F
9. There is a positive association between bacterial load and COVID-19 complications.
❑ T or ❑ F
10. The authors recommend that periodontitis patients infected with COVID-19 be closely monitored by dental healthcare professional for changes in periodontal disease activity.
❑ T or ❑ F

Mucous Membrane Pemphigoid—Page 33-37

1. Mucous membrane pemphigoid (MMP) is a common autoimmune disease.
❑ T or ❑ F
2. MMP leads to desquamation and formation of subepithelial blisters.
❑ T or ❑ F
3. MMP affects men more frequently than women.
❑ T or ❑ F
4. Oral manifestations of MMP are often the first sign of the disease.
❑ T or ❑ F
5. MMP is not known to lead to blindness.
❑ T or ❑ F
6. MMP can lead to life-threatening airway obstruction if treatment is delayed or ineffective.
❑ T or ❑ F
7. The clinical patient presented with painful, recurrent oral sores.
❑ T or ❑ F
8. MMP has been designated internationally as a heterogeneous group of diseases characterized primarily by autoimmune chronic inflammatory subepithelial blistering of mucous membranes.
❑ T or ❑ F
9. MMP that has laryngeal involvement is not considered high-risk.
❑ T or ❑ F
10. When treating patients with MMP, careful consideration of the site, severity and rate of progression of the disease is necessary.
❑ T or ❑ F

CLASSIFIED INFORMATION

Online Rates for 60-day posting of 150 words or less: Members: $100—can include photo/image online. Non-Members: $150 + $40 fee for online photo. Corporate/Business Ads: $200 + $40 fee for photo/image/logo. Classifieds will also appear in print during months when Journal is mailed: Jan, March, July and Sept.

FOR SALE

SUFFOLK COUNTY: Pediatric dental practice with five ops in 1,961 square feet. Easy Dental, digital radiography, 10 workstations. Mainly Child Health Plus program; grossing $1.6M. Overhead 30%. For more information contact Scott Firestone by phone: (516) 459-9258; or email: scott.firestone@henryschein.com.

MIDTOWN MANHATTAN: Long-established FFS practice for sale. Owner dentist losing lease and wishes to remain in practice 6 months at suitable Midtown location as buyer's subtenant leading to transfer of patients. Will need at least 2 ops FT from July 1 and closing on or around November 30. For more information, please call (917) 526-0721; or email: madisonddsgroup@aol.com.

CAPITAL DISTRICT: Suburban general dentistry practice for sale. Grossing $600K on 3.5 days/week. Four modern ops, new equipment, fully computerized with Dentrix software. Large FFS base, with minimal insurance participation. Good new-patient flow and referral base with patients seeking esthetic and implant dentistry. Ample off-street parking available. Seller retiring but will stay to introduce. Email: jgrossman@ggcpallp.com.

GREATER ALBANY: Considering an eastern NY practice? This is it. Current doctor highly regarded in community and practicing for 40 years. Dental office located in charming, free-standing building with 2,800 square feet. Real estate also for sale. 6 fully equipped ops. Collections $1.02M and EBITDA over $250K. 4,000 active patients. Contact Kaile Vierstra with Professional Transition Strategies via email: kaile@professionaltransition.com; or call: (719) 694-8320.

WESTCHESTER: Full buyout of Tri-State periodontal practice. Thriving practice for sale and sure to go quickly. Currently sees over 40 new patients/month with 7,500 active patients. Gorgeous practice located in one of most desirable and attractive communities north of Manhattan. 8 fully equipped operatories. Collections of $1.7M and EBITDA of $29K. To learn more, email Kaile with Professional Transition Strategies at: kaile@professionaltransition.com. We look forward to speaking with you! View online at: https://professionaltransition.com/properties-list/westchester-ny-periodontal-practice-for-sale.

CENTRAL NY: Prosthodontic practice for sale. New to market. Well-established prosthodontic practice just outside downtown in one of region's most desirable communities. Located in gorgeous free-standing building, real estate also for sale. Current doctor interested in buy-out or partnership. 3 fully equipped operatories. Collections nearly $900K and SDE $330K. 2,350 active patients and 10 new patients/month. To learn more, please email Kaile with Professional Transition Strategies at: kaile@professionaltransition.com. We look forward to speaking with you! View online at: https://professionaltransition.com/properties-list/syracuse-ny-prosthodontic-practice-for-sale.

WESTCHESTER: Periodontal practice for sale. 8 fully equipped ops. Collections $1.7M and EBITDA $290K. Well-established practice with excellent referral base. 7,500 active patients and 40 new patients per month. Contact Kaile Vierstra with Professional Transition Strategies via email: kaile@professionaltransition.com; or call: (719) 694-8320.

MIDTOWN MANHATTAN: Esthetic/Restorative FFS-only practice for sale. Low to mid 7-figure gross for past 5 years. 32-hour week. 1,850 square feet. 5 ops, 2 POs, lab. Can extend lease or willing to move. Paperless, Itero scanner, Dentrix. Contact for details: midtowndmd2@gmail.com.

BRONX: Newly renovated, 31-year-old practice in Bronx. Running well; owner retiring. Three ops, digital X-rays, lab, sterilization room, Nitrous oxide. Very good set up; must see. No Medicaid, no HMO, no DMO. Only good insurance and private pay. Call for details (718) 862-9232.

OSWEGO: 6 ops in north central part of NYS. Town is located on beautiful lake housing popular state college. Revenue $868K; sale price $550K. All digital, quality equipment, 3,000-square-foot office space in professional standalone building. Includes rental space earning $25K/year also for sale. Loyal staff; large patient base of PPO patients, accepting all insurances; no Medicaid. Contact Henry Schein Professional Practice Transition Sales Consultant Donna Bambrick at (315) 430-0643; email: donna.bambrick@henryschein.com. #NY1751.

BRONX: Great family neighborhood in highly desirable area. Strong PPO/FFS private practice, features 3 ops in 900-square-foot condo. Real estate also available. Seller refers Endo, Pedo, Oral Surgery, Perio, and implant placement. Room to grow adding days and procedures. Strong hygiene program. Contact Henry Schein Professional Practice Transition Sales Consultant Michael Apalucci at (718) 213-9386; email: michael.apalucci@henryschein.com. #NY1874.

WATERTOWN: Class act office in best location near Fort Drum off main highway with high visibility in active small strip mall. Doctor moving out of state. Gross revenue $445K working 3.5 days. Three ops. Eaglesoft, Planmeca digital pan, all A-dec chairs and cabinetry, including sterilization center. Only 9 years old. Contact Henry Schein Professional Practice Transition Sales Consultant Donna Bambrick by email: donna.bambrick@henryschein.com; or call (315) 430-0643. #NY2484.

CICERO: Well-established general practice in community's fastest growing suburb. Located in busy plaza with 1,460 square feet. Walking distance to area's largest high school creating potential for significant growth. Four (4) A-dec ops, sterilization center, new digital Pan, Dentrix software and Dexis sensors. Doctor refers out most specialty procedures. Healthy new patient flow and patient base; accepting mix of insurances, plus FFS. Gross just under $700K. Contact Transition Sales Consultant Donna Bambrick by email: donna.bambrick@henryschein.com; or call (315) 430-0643. #NY1677.

WATERTOWN AREA: General practice with $500K revenue. Digital, walk-in ready with nice equipment, located in standalone building which is for sale with two (2) apartments with private entry. Contact Henry Schein Professional Practice Transition Sales Consultant Donna Bambrick by email: donna.bambrick@henryschein.com; or call (315) 430-0643. #NY1421.

LONG ISLAND: North Shore. Ready for terrific opportunity in highly desirable area? Step right up. PPO and FFS private practice with updated equipment features 3 ops in 900 square feet utilizing Dentrix, digital X-rays, Dexis and laser. Clinical procedures referred. 41 patient hours per week and strong supporting staff. Met all post-COVID challenges and now uses Electrostatic Disinfection. Seller available to stay as needed. Contact Henry Schein Professional Practice Transition Sales Consultant Mike Apalucci at (718) 213-9386; or email: michael.apalucci@henryschein.com. #NY2403.

WOLCOTT: Great rural lifestyle with fully modernized, up-to-date, high-tech general practice. Revenue $850K on 3 days/week. One hour from Rochester and Syracuse. Standalone, converted 2,500-square-foot residence has real estate for sale. Two full-time hygienists; four (4) ops, mostly all A-dec, new Sirona CBCT, Eaglesoft, Schick sensors, CEREC scanner and milling machine. 50% FFS and 50% indemnity plans with 8-10 new patients per month. Consideration for Associate with buy-in agreement. Contact Henry Schein Professional Practice Transition Sales Consultant Donna Bambrick by email: donna.bambrick@henryschein.com; or call: (315) 430-0643. #NY2692.

SOUTH BUFFALO: Very reasonably priced practice for sale. Excellent option especially if considering expansion of current practice or recent graduate not desiring to incur sizeable debt. 2 large, bright ops with great Pelton Crane chairs/delivery units. Utilizes Sirona Orthophos XG5 pan with bitewing feature. Clinical production highly focused on quality restorative with most specialty services referred to local specialists. In-network with larger insurance providers. No Medicaid. Contact Henry Schein Professional Practice Transition Sales Consultant Donna Bambrick at (315) 430-0643; email: donna.bambrick@henryschein.com. #NY273.

STATEN ISLAND: Wonderful family practice in well-designed, 2-op office with third plumbed op. Digital X-rays, intraoral camera and Dentrix. Beautiful 3,700-square-foot property for sale with two-story 1,800-square-foot office and patient-friendly, open-air area. High-visibility neighborhood, with easy access off main highway. Mix of FFS/PPO grossing $287K on 28 hours/week. Great potential for more days with additional procedures kept in-house. Contact Henry Schein Professional Practice Transition Sales Consultant Mike Apalucci at (718) 213-9386; or email: michael.apalucci@henryschein.com. #NY311.

NASSAU COUNTY: North Shore. Productive, well-established practice located in very desirable community. 5 operatories, plus 1 additional not equipped in 1,700 square feet, utilizing Eaglesoft, Schick, Biolase, Sirona CBCT and Itero. 60% PPO; 20% FFS; 20% Delta Premier. Seller willing to work post-sale for agreed timeframe. Great opportunity to acquire strong solid practice running at 39 hours/week with unlimited growth potential. Location, location, location. Contact Henry Schein Professional Practice Transition Sales Consultant Linda Zalkin at (631) 357-1003; or email: linda.zalkin@henryschein.com. #NY313.

NASSAU COUNTY: General practice with 3 equipped ops, digital, high tech. Updated using EagleSoft. Located in desirable, diverse financial community. Gross $387K. Contact Henry Schein Professional Practice Transition Sales Consultant Mike Apalucci at (718) 213-9386; or email: michael.apalucci@henryschein.com. #NY316.

SYRACUSE: Immaculate general practice. Fully equipped with latest technology: Dentrix, Dexis, Waterlase, CAD/CAM, digital Pan. Three ops; 2,300 active patients. Strong FFS and some PPO. Revenue $481K. Refers out specialties. Standalone, converted residence with income apartment featuring 3 bedrooms, 1.2 baths. Building for sale; near hospital and college. Contact HSPPT Consultant Donna Bambrick at (315) 430-0643; or email: donna.bambrick@henryschein.com. #NY317.

NASSAU COUNTY: Exciting opportunity to purchase extraordinarily profitable GP dental practice on Long Island's North Shore. In this location for 35 years in terrific community. 4 operatories, large lab, administrative space and ample reception room. Wireless intraoral camera, Dexis digital X-ray and Tru-Def Intraoral Scanner included in fully computerized office with 8 workstations and server. Seller willing to stay for period to assure strong and effective transition. 3-year average annual gross: $987K. Contact Henry Schein Professional Practice Transition Consultant Mike Apalucci at (718) 213-9386; or email: michael.apalucci@henryschein.com. #NY1296.

SUFFOLK COUNTY: South Shore. Begin practicing immediately in beautifully treated facility located in growing and popular community. 1,500 square feet. 3 ops, plus additional room for expansion. Digital X-rays, intraoral camera with Dexis and Dentrix software. Insurance and FFS driving $528K in gross receipts with strong profit margins. Seller owns condo available for lease or purchase. Strong hygiene program; all specialties referred out. 22- to 24-hour workweek. Lovely office; amazing upside for continued growth. Contact Mike Apalucci at (718) 213-9386; or email: michael.apalucci@henryschein.com. #NY1587.

AMHERST: General/Prosthodontic practice situated in growing community. 4 fully equipped operatories and one unequipped for expansion. 1,875 square feet of leased space in handicapped-accessible beautiful office park. Dentrix, Digidoc cameras, Gendex sensors, Planscan with milling unit and glazing machine, Sirona Pan digital X-rays and Ivoclar laser. Great staff. All endo and oral surgery referred out; no state insurance. Doctor willing to stay for transition. Gross revenue $439K. Contact Donna Bambrick at (315) 430-0643; or email: donna.bambrick@henryschein.com. #NY1594.

ERIE COUNTY: Located on busy road surrounded by established residential population and beautiful town. 3-op digital practice; well-positioned for future growth. $307K gross revenue. Crown and bridge, restorative and preventative focus. Some specialties referred out. Strong patient base and mixed PPO. Real estate next to practice owned by seller and for sale with practice. Contact Brian Whalen at (716) 913-2632; or email: brian.whalen@henryschein.com. #NY1648.

SUFFOLK COUNTY: Seller ready to retire from 40 years of practicing in small professional building in lovely community. 1,350 square feet. 4 ops plus 1. Nicely appointed; extremely neat with welcoming, warm feel. 2019 gross receipts $330,951; 2018 gross receipts $373,230. Specialties referred out. 70% PPO and 30% FFS. 1,250 active patients. Rent: $2,705 including water. Functional office needs updating. Seller highly motivated. Contact Henry Schein Professional Practice Transition Consultant Linda Zalkin at (631) 357-1003; or email: linda.zalkin@henryschein.com. #NY1704.

ERIE COUNTY: Well-established general practice in heart of south Buffalo. Highly visible practice located on busy street with on-street and off-street parking. 5 ops with excellent workflow. Dentrix, digital pan and sensors. Mix of FFS and PPO with some Medicaid. Real estate for sale with apartment for rental or to live. Great opportunity to acquire strong net income practice and grow. Gross revenue $410K. Contact Brian Whalen at (716) 913-2632; or email: brian.whalen@henryschein.com. #NY1796.

NASSAU COUNTY: North Shore. Well-established practice in desirable community with 4 ops, digital X-ray and Easy Dental in 1,200 square feet. Open 39 hours/week; referring out most specialty procedures. 85% PPO and 15% FFS. Well-trained, experienced staff of 6 available for transition. Fourteen new patients per months with no outside marketing and 1,800 loyal patients. 2020 showed nice post-Covid production rebound. Seller will remain available for smooth transition. Contact Linda Zalkin at (631) 357-1003; or email: linda.zalkin@henryschein.com. #NY1854.

DUTCHESS COUNTY: Well-established GP in desirable growth community. Established 47 years, practice has loyal patient base and located in professional building with ample free parking and main street visibility. 1,000-square-foot office. Seller owns real estate and willing to continue long-term lease. Four treatment rooms, digital X-ray, intraoral cameras, laser unit and Eaglesoft. Most specialty procedures referred. $613K revenue can quickly grow by adding days and procedures. Contact Henry Schein Professional Practice Transition Sales Consultant Mike Apalucci at (718) 213-9386; or email: michael.apalucci@henryschein.com. #NY2390.

LIVERPOOL: North of Syracuse. Six (6) ops with Pelton & Crane and X-ray room with pan, Dexis and ScanX. Insurance practice. Professional building with parking, working 4 days/week. Contact Henry Schein Professional Practice Transition Sales Consultant Donna Bambrick at (315) 430-0643; or email: donna.bambrick@henryschein.com. #NY250.

QUEENSBURY: North of Albany. General practice with revenue of $520K. Selling practice and building for $400K. Practice alone valued at $367K. Stand-alone building in professional office park with large parking lot. Six miles from Lake George; near 4-year college, ski areas and 20 minutes from Saratoga Springs. Four bright ops. Practice Works practice management program, Kodak intraoral cameras and pan. Contact Henry Schein Professional Practice Transition Sales Consultant Donna Bambrick by email: donna.bambrick@henryschein.com; or call (315) 430-0643. #NY1735.

NORTHEAST BRONX: Established since 1980, private and insurance-based GP located in busy, desirable Bronx community. Loyal patient base with active new patients per month. Street corner, street-front location with bus stop right at office and directly across from Montefiore Medical Center. Selling practice and real estate together. 1,700-square-foot office. 3 equipped treatment rooms with 2 additional plumbed. Seller willing to stay as needed. Contact Henry Schein Professional Practice Transition Sales Consultant Mike Apalucci at (718) 213-9386; or email: michael.apalucci@henryschein.com. #NY2404.

KINGSTON: Biological/Holistic, high-producing FFS practice that is mercury safe. About 2 hours from NYC and minutes from Woodstock. Revenue of $1.5M. Five ops. Standalone building also for sale. Great systems keep A/R low; open 5 days/week. Equipment 6 years old includes Ozone Generators, IQ air operatory filtration, Dentrix and Dexis. Paperless office. 1,600 patients. Perio associate one day/week. Doctor will stay if needed. 15 new patients/month, dedicated staff. Contact Transition Sales Consultant Donna Bambrick at (315) 430-0643; or email: Donna.bambrick@henryschein.com. #NY2560.

SUFFOLK COUNTY: Orthodontic practice on North Shore. 1,280-square-foot 4-chair condominium office. Modern decor and equipment, management

software, digital pan/cep unit and model scanner. PPS and FFS. Contact Dr. Scott Firestone by email: Scott.Firestone@henryschein.com; or call (516) 459-9258.

CENTRAL PARK SOUTH: Oral Surgery practice for sale. Transition to ownership. Premier Oral Surgery practice with four operatories with windows facing Central Park. Prime exclusive Medical Condominium building on Central Park South. Established dentoalveolar surgery practice since 2001, with large patient database, complete medical equipment and website. Long-term lease of professional space of approximately 900 square feet included. Current oral surgeon retiring. Office-based practice includes dentoalveolar surgery, bone grafting, ridge augmentation, sinus floor augmentation, dental implants, wisdom teeth and IV general anesthesia. Pristine office in prime location. Tremendous growth potential. Please inquire by email: nycentralparksouth@gmail.com.

BROOME COUNTY: Beautiful, busy, well-established practice with very limited competition available for immediate purchase. Six well-equipped operatories, digital X-ray and pan, updated computer system, turnkey. Easy transition to new owner. Gross revenue $585K/net $285K on 4-day work week. Practice alone appraised at $411K. Will sell practice and building for $399K. Contact cncnl@aol.com; or text to: (607) 768-3810.

ROCKLAND COUNTY: Suffern. Dental practice for sale. Office for rent. Be the exclusive dentist in beautiful, middle class, 1,500-family residential garden apartment complex. Immediate income. Fully furnished and equipped. Retiring dentist will introduce. Contact: (845) 642-2463.

BUFFALO: Periodontal practice. Ownership opportunity. Busy periodontal practice; two locations; over 2,100 active patients. Current doctor seeking 50/50 partner. 9 operatories and collections of $2.25M. Adjusted EBITDA $480K. 40-50 new patients per month. To learn more, please contact Kaile Vierstra with Professional Transition Strategies: kaile@professionaltransition.com.

SARATOGA COUNTY: Dentist looking to sell thriving private practice. Building included. Collections average $500-$600K. Doctor seeks to retire. Highly motivated seller. Inquiries to: practiceforsale601@gmail.com.

ASTORIA: Practice available for sale due to illness. 6-op practice grossing $900K. New equipment. Will give 12-year lease. No Brokers. Please inquire via email: buymypractice45@gmail.com.

SARATOGA COUNTY: Long-established quality general dentistry practice for sale. Desirable location. Newly renovated building. Looking for enthusiastic, caring provider to take over practice. Sustainable fee schedule. Dental plan participation limited to Delta Premier and BSNENY. Few Medicaid. Great potential. Located in most desirable city in upstate NY. Inquiries to Dave Kasper, Kasper Associates: dave@jimkasper.com; or phone: (603) 381-4392.

WATERTOWN: New opportunity. General dental practice grossing approximately $1M. Located north of Syracuse, close to the Thousand Islands. 9 ops with digital X-ray, CBCT, 3D printing and Cerec. Real estate also available. For more information, please contact Sean Hudson at (585) 690-6858; or email: sean@hudsontransitions.com. Listing #6130.

STATEN ISLAND: Beautiful office in prime location on busy street. Gross just under $1.1M in 2019 and 2020. High visibility, with plenty of onsite parking. Practice must be seen in person to appreciate how much has been put into office. 5 ops with room to expand and add 5 more. Owner is GP with busy hygiene and re-care system in place. Practice open only 2.5 days/week and 20-25 hours/week. Practice is FFS with big focus on cosmetic and implant restorations. Periodontist comes in to place implants. Referring out Endo, Ortho and Pedo. Dentist owns commercial real estate subject to sale with right package deal. Inquiries to: info@btqconsult.com; or call (866) 881-9157.

LONG ISLAND: Northwest Suffolk County. Fort Salonga. Small practice in 500-square-foot home office with separate entrance. Unusual tax advantages. 3,100-square-foot colonial with 4 bedrooms, 4.5 baths, full finished basement, family room, formal dining room and eat-in kitchen. 4 heat zones, 3 AX zones and 2-car garage on 1 lush acre. $889K. Call Renee and Bill at (516) 635-0411; email: reneeandbill@realtor.com. Visit online at: reneeandbill.com.

GLENS FALLS: General dental practice for sale. Outstanding, long-time, quality family practice. Fully digital with CEREC. Owner will train during transition. Sale includes building with office, equipment and apartment. Self-sufficient. Three ops and room for fourth. Excellent reputation and ever-expanding patient base and loyal staff. Golden, walk-in opportunity for right person. $550K on 4.5-day week. For details call: (518) 791-7457.

FOR RENT

BROOKLYN: Dental office for rent at 1525 Pitkin Avenue. Second floor. Longstanding office plumbed for OMS. Four operatories in 2,000-square-feet. Planmeca Panoramic and digital PA; plumbed for oxygen and nitrous oxide. Office is vacant. Patients are insured by Medicaid and some private insurers. $4,500/month. Contact Dr. Marks at (516) 953-4199.

NASSAU COUNTY: Excellent opportunity for specialists seeking space sharing at new, modern, digital office. Easy access to highway. Please contact to discuss options. Phone: (516) 592-1555; or email: parul-dua@yahoo.com.

TRIBECA: 10-foot ceiling dental operatory in brand new dental office located in Tribeca. State-of-the-art dental chair with curing light, Cavitron, camera and monitor. X-ray machine and TV in room. Please contact for information. Phone: (917) 392-0506; or email: Patmoez@gmail.com.

MANHATTAN: Murray Hill. Space available in established, friendly dental practice off Park Avenue. One op with shared reception area, Wi-Fi and utilities. First floor of luxury doorman building in desirable location at 35 East 35th Street. Call (212) 532- 0690; or email: parkavedentistny@gmail.com.

NORTH FORK: 1,300-square-foot office for rent. Three ops fully plumbed and equipped with fourth plumbed and ready to go on the booming North Fork in Southold. Large lab, private office with bath. Main road frontage; high-traffic area. Specialist ONLY due to covenants. Dire need for Endos, Oral Surgeons and Pediatrics. Flexible for use as multi-specialty. For more information, please contact: amcdds44655@optimum.net.

MIDTOWN MANHATTAN: Beautiful, new, large-windowed dental operatories for rent. Pelton Crane equipment, massage chairs, private office and front desk space. Doorman; warm environment. Best location — 46th Street and Madison Avenue. Please call (212) 371-1999; or email: karenjtj@aol.com.

MANHATTAN: Murray Hill. 4-op office available for rent 1-3 days/week. Accessible all weekends and holidays. Established dental practice in luxury doorman building. Convenient to public transportation. Perfect for start-up or established general practice that needs room to grow or maintain existing practice. Owner reducing days. Opportunity to transition into buy out. Contact: murrayhilldentist@gmail.com.

WHITE PLAINS: Modern, state-of-the-art operatories available in large office with reception. Available FT/PT; turnkey. Rent includes digital radiology with Panorex, equipment, Nitrous, all disposables. Start-up or phase down. Need a satellite or more space? Upgrade or downsize. Please call (914) 290-6545; or email: broadwayda@gmail.com.

MIDTOWN MANHATTAN: Facing Central Park South. Fully digital dental office, including i-Cat, for lease. Great opportunity; be on your own. State-of-the-art décor, newly renovated, modern office and equipment; handicap access. Near all public transportation. Available immediately, full time or part time. To schedule appointment, please email: perioimplantbythepark@gmail.com; or call: (917) 679-6013.

MIDTOWN MANHATTAN: Dental ops for rent on Madison Avenue. FFS practice has 1-2 ops available full time or part time. Beautiful, new, large-windowed dental ops with Pelton Crane equipment, massage chairs and two TVs at 12 o'clock and overhead. Pano/CT/Ceph available. Shared front desk space and private office. Will consider sharing staff if needed. Located at 53rd Street and Madison Ave. Please inquire at: nycmidtownoffice@gmail.com.

SERVICES

TAXES: Your office, business or personal. Specialty dentists. Personable CPA. Call Stuart A. Sinclair, CPA, at (516) 935-2086. Visit our website: www.dentaxsolutions.com. Offices located at 1120 Old Country Rd., Plainview, NY 11803.

DENTAL LEGAL SERVICES: Whether a dentist purchasing or selling dental practice, buying, selling, or leasing office space, employment matters, partnership agreements or litigation, the Law Office of Alan C. Stein, PC, will zealously advocate for your rights. With over 25 years of legal experience in dental transactions, the Law Office of Alan C. Stein can handle the most complex dental transactions to most basic. "I'm not just married to a dentist……I live dentistry!" Zoom and in-person appointments available. Offices in Woodbury & Southampton, NY. Call the most trusted law firm for dentists today for your free consultation: (516) 932-1800. Find us online at: www.alanstein.net.

OPPORTUNITIES AVAILABLE

SCHENECTADY: Seeking general dentist full time in booming solo practice. Come join and lead well-established practice. Practice has long history of consistent, quality care and foundation of wonderful, loyal patients. Staff well-tenured, positive and passionate about patient care. Ideal opportunity for highly motivated, driven producer to step into practice that is humming. If you're comfortable leading motivated team, can provide diverse mix of services and always put patient care first, this is incredible, high-earning opportunity. 36 hours/week (M-TH), plus benefits. No capitation plans taken. Please contact Brett for more information. Email: bblough@midwest-dental.com; or call (774) 670-8875.

SARATOGA COUNTY: Fantastic and rare opportunity to join high-quality and rapidly growing dental group. Modern, state-of-the-art facilities with new equipment, digital X-rays and paperless charting. Seeking the right dentists to join our team as we expand and grow. First- and second-year salary minimum guaranteed, with opportunity for earnings well above average. Flexible terms can be tailored to fit individual desires if determined to be right fit. Very competitive compensation methodology. Training available for precision-guided dental implant surgery. Very strong mentorship program for new and recent graduates. Contact John O'Brien DDS by email: jobrien1218@gmail.com; or call (518) 703-5321.

POTSDAM: Full-time associate wanted for partnership. Busy FFS general practice supports 2 FT and 1 PT dentist and 5 FT hygienists. Senior dentist retiring. New 4,500-square-foot building and 9 operatories of new equipment, including digital X-rays, paperless charting, iTero scan. Services include restorative, periodontal, endodontics, orthodontics and hybrid dentures. Potsdam is located in Adirondack foothills in center of St. Lawrence County. Outdoor enthusiasts will enjoy St. Lawrence River and Adirondack mountains in backyard. Ottawa, Lake Placid and Thousand Islands all within 90 minutes. Tight-knit community, considered cultural and educational center rich in education and technology hosting State University of Potsdam and Clarkson University with St. Lawrence University and SUNY Canton 15 minutes away. Potsdam boasts one of NY's finest public school systems and progressive medical facility St. Lawrence Health System. Other nearby employers include ALCOA Aluminum, Corning Glass, NYS Power Authority and NYS Dept. of Corrections. Email: stmfhdds@hotmail.com. To learn more, visit: www.sandstonedentistry.com.

BINGHAMTON: Longstanding group practice in Southern Tier producing high-quality work with attention to detail. Looking for full-time associate leading to possibility of partnership buy-in for right candidate. Ideal candidate will possess great attention to detail, strong communication skills, as well as strong work ethic. FFS practice with some insurance plans. We pride ourselves on practicing dentistry the way it was meant to be practiced. Benefits include health insurance, 401K, malpractice and more. For more info, email: davidsalomons@hotmail.com; or call: (607) 760-9064.

FACULTY POSITIONS: Midwestern University. Faculty Position: Assistant Professor Midwestern University College of Dental Medicine-Illinois Midwestern University, Downers Grove, IL. Seeking full-time faculty member responsible for teaching in one-to-one, small group and plenary settings; demonstration and facilitation related to clinical situations; and the use of electronic media as needed. Candidates must possess DDS/DMD degree and be eligible for licensure in Illinois. Successful candidate will possess an enthusiasm for dentistry; excellent clinical, communication and interpersonal skills; and ability to embrace new technology. Previous teaching experience not required but candidate must have history of clinical experience. Also hiring for Clinical Assistant Professor, Pediatric Dentist. http://midwestern.edu/faculty-and-staff/employment.xml. Midwestern University is Equal Opportunity. Affirmative Action employer that does not discriminate against an employee or applicant based upon race, color, religion, gender, national origin, disability, or veterans status, in accord with 41 C.F.R. 60-1.4(a), 250.5(a), 300.5(a) and 741.5(a).

CAPITAL DISTRICT: Associate dentist. Well-established, multi-doctor practice seeks FT associate to join our progressive practice. Work in state-of-the-art facility where team is focused and diligent. Candidate should be positive, outgoing and dedicated to patient care and education. Please forward CV and cover letter to: eastviewjo@gmail.com.

BINGHAMTON: Third-generation family practice seeks capable associate to build long career. We recently merged with another practice and have plenty of treatment for eager doctor. 100% FFS and offering advanced technology, such as CBCT and intraoral scanning. Also open to considering candidates who have open time while building their own practices or senior doctors looking to continue part time. Please contact Michael C. Perna, DDS, at Perna Dental, 55 Oak Street, Binghamton, by phone: (607) 722-0832; or email: drmike@drperna.com.

ORLEANS COUNTY: Silsby Dental is an extraordinary, comprehensive and growing general dentistry practice in search of associate to join our team. Looking for team member to provide the highest level of quality dentistry to each of our valued patients. Ideal candidate is highly motivated, shares our values for quality care, engages in honest dialogue with our patients, is committed to continued education and embraces our friendly, team-oriented atmosphere. Our office has fully remodeled operatories and state-of-the-art technology, including CBCT, fully digital imaging and scheduling, online patient tools and more. At Silsby Dental, you would start off the process as associate with partnership opportunity as you grow within the practice. Please reply to with resume and cover letter via email to Heidi Silsby: silsbyfamilydental@gmail.com.

ASTORIA, BAYSIDE AND BRONX: Dentists and specialists needed. Multi-specialty offices looking for General Dentist (must provide treatment for crowns, bridges & root canals); Oral Surgeon, Pedodontist & Endodontist positions available in 3 locations. Must examine, diagnose and provide treatment counseling to patients in comprehensive manner; solicit patient feedback to improve service; direct assistants and other auxiliary personnel. Specialists must provide certificate of residency. Please email CV for consideration: belldentalcare@gmail.com.

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Raymond A. Cohlmia

ADA Selects Oklahoma Dentist for top Staff Position

Raymond Cohlmia hails from large family of dentists.

RAYMOND A. COHLMIA, D.D.S., of Oklahoma City, OK, dean of the University of Oklahoma College of Dentistry, has been named executive director of the American Dental Association. Dr. Cohlmia will assume his post effective Nov. 15, following the retirement of the current executive director, Kathleen O'Loughlin.

Dr. Cohlmia was born into dentistry. His father, Ray, who died in April, was a dentist, and the younger Dr. Cohlmia's partner in a private practice that also included his brother Matthew. Dentistry is the career path chosen as well by one of Dr. Cohlmia's uncles, more than a dozen of his cousins and two of his three sons.

A graduate of the University of Oklahoma College of Dentistry, Dr. Cohlmia joined the college faculty in 2009. Among the positions he held are director of comprehensive care and assistant dean for patient care. He was appointed dean of the college in 2015.

Dr. Cohlmia has held numerous leadership positions within organized dentistry, including president of his local and state dental associations, chair of the ADA Council on Membership and membership on the ADA Council on Annual Sessions, Council on Dental Benefits and ADA Dental Political Action Committee. He served on the ADA Board of Trustees from 2015-2019.

In an interview with the ADA News, Dr. Cohlmia identified his main goals. They include: creating a market share drive, that is, persuading dentists that the ADA is a product they need to support their practices and they will use daily; building on the ADA's relationship with dental education; and ensuring the long-term financial stability of the association.

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