THE NEW YORK STATE DENTAL JOURNAL

NYSDJ

JUNE/JULY 2024 Volume 90 Number 4

PRESIDENT

Prabha Krishnan

Leading Way Forward with Confidence and Expertise

JOIN US FOR OUR CENTENNIAL CELEBRATION

GREATER NY DENTAL MEETING 2024 100 YEARS
OF GREATNESS & GRATITUDE
NEW YORK COUNTY & SECOND DISTRICT DENTAL SOCIETIES

2024 GREATER NEW YORK DENTAL MEETING™

NO PRE-REGISTRATION FEE

MEETING DATES:	
NOVEMBER	29
DECEMBER	4

EXHIBIT DATES:	
DECEMBER	1
DECEMBER	4

THE LARGEST DENTAL MEETING IN THE UNITED STATES

At The Jacob K. Javits Convention Center, New York City

10 Specialty Programs

WORLD IMPLANT EXPO | GLOBAL ORTHODONTIC CONFERENCE NY DENTAL MEETING | PEDIATRIC DENTISTRY SUMMIT GNYDM | Sleep Apnea Symposium | 3D Printing & Digital Dentistry Conference | Public Health Conference | Oral Cancer Symposium | WOMEN DENTISTS Leadership Conference GNYDM | GNYDM Lab Symposium

FOLLOW US

WWW.GNYDM.COM

THE NEW YORK STATE DENTAL JOURNAL

NYSDJ

Volume 90 **Number 4** June/July **2024**

Cover: NYSDA President Dr. Prabha Krishnan with sons Arjun Kumar, D.M.D., right, and Arvind Kumar, M.D. Arjun is an oral and maxillofacial surgeon. Arvind is a thoracic surgeon.

Vaaho Photo

The New York State Dental Journal is a peer reviewed publication. Opinions expressed by the authors of material included in The New York State Dental Journal do not necessarily represent the policies of the New York State Dental Association or The New York State Dental Journal. EZ-Flip version of The NYSDJ is available at www.nysdental.org and can be downloaded to mobile devices.

Dentist and Dental Hygienist Compact License Portability without Federal Control

State governments and licensing agencies, dental education and organized dentistry must partner to attain dental and dental hygiene license portability through an interstate agreement.

The dental and dental hygienist license portability train has left the station. Its engineers currently include nine states that passed the model interstate Dentist Dental Hygienist Compact (DDH Compact) legislation. However, disputes among oral healthcare stakeholders regarding differing licensing standards, individual state authority, regulatory and resource challenges, and public safety concerns threaten to derail the transport before it boards additional states as members. State dental associations, with the support of the ADA, must advocate and lobby to reconcile these surmountable statutory and administrative policy differences among state boards, licensing agencies and legislatures, and dental education to keep the legislative passage of the DDH Compact on track in all remaining states and prevent calls for federal licensing.

The DDH Compact

The 2018 Report of the ADA Task Force on Assessment of Readiness for Practice recommended states amend dental and dental hygiene licensure requirements to increase license portability.[1] The report proposed state legislatures establish a common core of licensing credentials that act as a template for dentist and dental hygienist licensure compacts among states. Currently, approximately 43 states have entered at least one license compact for physicians, nurses, emergency medical technicians, physical therapists, or audiologist and speech language pathologists.[2]

The Task Force concluded that the current state dental licensing processes involving multiple combinations of different clinical assessment examinations and credentialing requirements offered through multiple regional testing agencies in various states limits professional mobility. License portability would meet increasing demands for streamlined multistate practice, an expanded workforce and improved access to care. Furthermore, the report observed, the often inconsistent and arbitrary state licensing restrictions did not result in measurably better dental health or improved patient safety as intended.[3]

In January 2023, the National Center for Interstate Compacts at the Council of State Governments, in consultation with the American Dental Association and the American Dental Hygiene Association, and funded through the Department of Defense, drafted and released the model DDH Compact. It required states to enact its model language

into law, without substantive change, to officially join the Compact. To date, nine states have signed the Compact into legislation, including Iowa, Washington, Wisconsin, Tennessee, Virginia, Kansas and Maine, the first seven required to officially activate the process.

The DDH Compact enables a dentist or hygienist licensed in their home state to apply for a Compact Privilege to practice in any other participating state without the need to navigate the expensive and time-consuming process of obtaining a license in that state.[4] The Compact creates common licensing requirements, rules and policies that apply to all member states and establishes a Compact Commission composed of one delegate from each state to assist in administrating day-to-day duties, sharing license database information and overseeing compliance with Compact provisions.[5] The provisions represent a consensus on common credentialing requirements that more than adequately incorporates the various differing standards and, at the same time, respects individual states' autonomy to regulate oral healthcare practice and protect the public in their own state.

Reconciling State Concerns

The DDH Compact provisions regarding participating state and licensee eligibility adequately addresses states' primary concern that setting core licensing standards among states with previously differing credentialing requirements could influence or lower standards in states with self-proclaimed higher standards.

THE NEW YORK STATE DENTAL JOURNAL
NYSDJ

PRINTER
Fort Orange Press, Albany

NYSDJ (ISSN 0028-7571) appears two times a year in print: January and June/July. The March, April, August/September and November issues are available online only at www.nysdental.org. The Journal is a publication of the New York State Dental Association, 20 Corporate Woods Boulevard, Suite 602, Albany, NY 12211. In February, May, October and December, members have online access to the NYSDA News. Subscription rates for nonmembers: $75 per year or $12 per issue, U.S. and Canada; $135 per year foreign or $22 per issue. Editorial and advertising offices are at Suite 602, 20 Corporate Woods Boulevard, Albany, NY 12211. Telephone (518) 465-0044. Fax (518) 465-3219. Email info@nysdental.org. Website www.nysdental.org. Microform and article copies are available through National Archive Publishing Co., 300 N. Zeebe Rd., Ann Arbor, MI 48106-1346.

Section 3 of the DDH Compact[6] establishes that states must adopt the following minimum standard licensing requirements, among others, to be eligible to join as a member:

- National Board Exam of Joint Commission on National Dental Exams (JCNDE).
- Degree from Commission on Dental Accreditation (CODA) accredited predoctoral educational program.
- Clinical assessment.
- Continuing professional development requirement.
- Mechanism to receive and investigate complaints regarding licensees.
- Implement applicant FBI background checks.
- Participate in the Compact data system.
- Notify the Compact Commission of any adverse action or investigative information regarding a licensee or applicant.

Section 47 establishes the following requirements for a licensed dentist or dental hygienist to obtain a Compact privilege in a participating state:

- Active, unencumbered license in a participating state.
- National Board Exam of JCNDE.
- Degree from CODA-accredited predoctoral education program.

- Successfully complete a clinical assessment.
- No disqualifying criminal history, including a felony conviction, within five years.
- Meet jurisprudence testing requirement of state in which seeking privilege.
- Report any adverse actions taken by any non-participating state.

The Compact defines clinical assessment to include all paths to licensure currently accepted, including the ADEX exam, certificate from a CODA-accredited PGY-1 program, the Dental Licensing Objective Structured Clinical Exam (DLOSCE), and a Portfolio compilation of clinical assessments. Certain state licensing boards' absolute requirement of a *de novo* psychomotor hand-skill test seems unnecessary and over-reaching in that dental schools average about 100 hours of hand-skill assessments on manikins prior and in addition to live patient care.[8] CODA must ensure schools meet hand-skill assessment standards. State boards should work together with dental schools to calibrate assessments.[9]

In turn, the licensing process must recognize that CODA-accredited schools graduate students only when they demonstrate adequate psychomotor abilities. Regardless, most disciplinary board actions stem from deficiencies in clinical judgment, ethics violations, fraud or substance abuse, not hand-skill deficiencies.[10] Overall, the Compact standards meet most critical state standards and vary only with respect to debatable opinions on the timing and type of assessment of clinical and hand-skill competency.

On the issue of individual states retaining authority and control over licensing and the quality of professional practice, the Compact specifically protects each state's right to control who they license and the scope of practice for their state. Section 9 Rulemaking, Subsection B, states that where the Rules of the Commission conflict with the laws of a participating state regarding scope of practice, the Commission's rule will be ineffective in that participating state.[11] Since each state appoints one delegate to the Commission, each with one vote on rules and bylaws, only participating states collectively retain control, without influence from the federal government or any other national, state, public or private organization.

The Compact enables states to protect the health and safety of its citizens with a detailed disciplinary process, including the authority to take appropriate adverse actions against a licensee's home state license or remote state Compact Privilege. Section 6 provides that, among participating states, the state of licensure has the exclusive authority to take action against a licensee's license but can base its action on the results of a remote state's investigation.[12]

Remote states, individually or jointly with other participating states, can investigate any alleged violations of an applicant for a Compact Privilege or dentist or hygienist practicing under a Compact Privilege utilizing subpoenas for witnesses and evidence from other member states. Section 4D provides that remote states can, in accordance with the remote state's law and due process, revoke or suspend any licensee's Compact Privilege or impose a fine or take any other action necessary to enforce its laws and protect the public. In Section 8, the Compact creates a shared licensing information database that mandates participant states to submit standard information on all licensees.[]The cooperation of multiple states in the investigative processes will increase effectiveness and pool resources to reduce costs.

Organized Dentistry's Role

The license portability train will reach its final destination of a common, reliable process for dental and dental hygienist licensure either as a voluntarily entered DDH Compact among most or all states or, in the alternative, a new costly and inefficient federal agency imposing national licensure upon our profession. State dental associations stand in the best position to open communication, facilitate understanding and build trust among stakeholders as we lobby for legislative passage of the DDH Compact.

The ADA and ADHA have contributed their expertise to the years-long compact drafting process. State dental associations must bring state boards, dental schools and CODA together to measure and determine clinical competency earlier in the educational and credentialing process and depend less on postgraduation, one-time high stakes exams. The dental profession must decide whether we engineer and lead the license portability train to a 50-state DDH Compact Agreement or arrive as a passenger on the national licensing express.

D.D.S., J.D.

REFERENCES

1. Joint Task Force of the American Dental Association, American Dental Education Association, and American Student Dental Association. Report of the Task Force on Assessment of Readiness for Practice. Issued September 2018. https://www.adea.org/TARPreport/
2. NYS Education Department. https://www.op.nysed.gov/sites/op/files/2023-02/Compacts%20Presentation_final.pdf
3. Joint Task Force of the American Dental Association, American Dental Education Association, and American Student Dental Association. Report of the Task Force on Assessment of Readiness for Practice. Issued September 2018. https://www.adea.org/TARPreport/
4. DDH Compact, Sec. 2G and 4A, https://ddhcompact.org/
5. DDH Compact, Sec.7, https://ddhcompact.org/
6. DDH Compact, Sec. 3, https://ddhcompact.org/
7. DDH Compact, Sec. 4, https://ddhcompact.org/
8. American Dental Association. Myths vs. Truth About Dental Education, Testing, and the DDH Compact. 2024. https://ddhcompact.org/wp-content/uploads/sites/31/2024/03/Myths-and-Truths-in-Testing-and-Examination.pdf
9. Joint Task Force of the American Dental Association, American Dental Education Association, and American Student Dental Association. Report of the Task Force on Assessment of Readiness for Practice. Issued September 2018. https://www.adea.org/TARPreport/
10. American Dental Association. Myths vs. Truth About Dental Education, Testing, and the DDH Compact. 2024. https://ddhcompact.org/wp-content/uploads/sites/31/2024/03/Myths-and-Truths-in-Testing-and-Examination.pdf
11. DDH Compact, Section 9B. https://ddhcompact.org/
12. DDH Compact, Sec.6A and 6B. https://ddhcompact.org/
13. DDH Compact, Sec.8. https://ddhcompact.org/

New State Laws Provide Further Protections for Patients and Employees

FTC Weighs in with Final Noncompete Rule

Dentists would be well-advised to pay attention to new employment rules, as they apply to practices of all sizes.

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

The final, enacted New York State Budget contains some interesting laws that will apply to dental practices and hospitals. New York is consistently changing old norms and focusing on financial protections for patients.

One of the most important changes is a new Section 18-c of the New York State Public Health Law that requires obtaining separate informed consent from patients for clinical services and for payment for such services. The new law takes effect Oct. 20. While many dental practices already follow this model, the law now mandates that informed consent must be obtained from a patient to provide any treatment, procedure, examination or other direct healthcare services separately from the patient's consent to pay for the services. In addition, consent to pay for any healthcare services by a patient must not be given prior to the patient receiving such services and discussing treatment costs.

Consent is defined as an action which: 1) clearly and conspicuously communicates the individual's authorization of an act or practice; 2) is made in the absence of any mechanism in the user interface that has the purpose or substantial effect of obscuring, subverting or impairing decision-making or choice to obtain consent; and 3) cannot be inferred from inaction.

Other important changes relate to the use of medical credit cards to pay for services, with new laws all taking effect on Oct. 20. The Budget's changes to the New York State General Business Law created a new Section 349-g that prohibits any hospital or healthcare provider from completing any portion of an application for medical financial products, such as "medical credit cards and third-party medical installment loans," for the patient or otherwise arranging for or establishing an application that is not completely filled out by the patient.

Curbing Credit Card and Medical Debt Abuse

Also created is a new Section 519-a of the General Business Law, which provides that hospitals or healthcare providers cannot require credit card preauthorizations and cannot require the patient to have a credit card on file prior to providing emergency or medically necessary medical services to patients. Section 519-a of the General Business Law also requires hospitals and other healthcare providers to notify patients

about the risks of paying for medical services with a credit card. Such notification shall highlight the fact that by using a credit card to pay for medical services, the patient is forgoing state and federal protections regarding medical debt. The New York State Commissioner of Health has the authority and sole discretion to set requirements for the contents of such notices.

The Budget also amended Section 2807-k of the New York State Public Health Law to prohibit a hospital from commencing a legal action related to the recovery of medical debt or unpaid bills against patients with incomes below 400% of the federal poverty level, which is less than $60,240 per year for 2024. Any legal action related to the recovery of medical debt or unpaid bills by or on behalf of a hospital must be accompanied by an affidavit by the hospital's chief financial officer stating that, based on the hospital's reasonable effort to determine the patient's income, the patient whom they are taking legal action against does not have an income below 400% of the federal poverty level.

Paid Breaks for Lactating Mothers

Due to an amendment to Section 206-c of the New York State Labor Law, as of June 19, all New York employers, regardless of size, are required to provide paid breaks for employees who need to express breast milk for a nursing child. Previously, employers were only required to provide reasonable unpaid break time or permit an employee to use existing paid break or mealtime to express breast milk during the workday.

The new law requires employers to provide 30-minute paid breaks each time an employee has a reasonable need to express breast milk for up to three years following the birth of the child. The law also requires employers to permit employees to use existing paid break or mealtime when nursing breaks longer than 30 minutes are needed. The New York State Department of Labor had previously stated that employees may take lactation breaks at least once every three hours to pump breast milk at work. However, neither the new law nor existing guidance states whether the new paid break time may be used just once or on multiple occasions during a single workday.

Pregnant Employees Entitled to Paid Leave

In a major development, Section 196-b of the New York State Labor Law has been amended to make New York the first state in the nation to require employers to provide paid prenatal leave to pregnant employees. Beginning Jan. 1, all employers will be

NYSDA Directory

OFFICERS

Prabha Krishnan, President	11045 Queens Blvd., Ste 108, Forest Hills, NY 11375
Maurice Edwards, President-Elect	30 East 60th St., #1401, New York, NY 10022
Amarilis Jacobo, Vice President	824 East 181st St., Bronx, NY 10460
Paul Leary, Secretary-Treasurer	80 Maple Ave., Ste 206, Smithtown, NY 11787
William Karp, Speaker of the House	4500 Pewter Ln., Bldg 6, Manlius, NY 13104

BOARD OF TRUSTEES

Anthony M. Cuomo, Immediate Past President	19 Cannon Dr., Newtown, CT 06470
Brendan Dowd, ADA Trustee	1119 Deleware Ave., #6, Buffalo, NY 14209
NY – Lois Jackson	505 Laguardia Pl., Apt L4, New York, NY 10012
2 – John P. Demas	8814 Fort Hamilton Pkwy, Brooklyn, NY 11209
3 – Geoffrey Gamache	24 Eastview Rd., Averill Park, NY 12018
4 – Adrienne L. Korkosz	1309 Union St., Schenectady, NY 12308
5 – Lynn A. Stacy	7504 E State St., Lowville, NY 13367
6 – Louis Giordano	864 Hooper Rd., Endwell, NY 13760
7 – Theresa A. Casper-Klock	33 William St., Ste 1, Auburn, NY 13021
8 – Raymond G. Miller	122 Covington Rd., Buffalo, NY 14216
9 – Gary M. Scharoff	1255 North Ave., Ste A1H, New Rochelle, NY 10804
N – Donald R. Hills	136 Woodbury Rd., Ste L3, Woodbury, NY 11797
Q – Mitchell S. Greenberg	11966 80th Rd., #1A, Kew Gardens, NY 11415
S – Guenter J. Jonke	2500 Nesconset Hwy., Bldg 24A, Stony Brook, NY 11790
B – Jacqueline J. Samuels	120 Alcott Place, Bronx, NY 10475

COUNCIL CHAIRPERSONS

Council on Awards	**Brendan P. Dowd** 1119 Delaware Ave., #6, Buffalo, NY 14209
Dental Benefit Programs	**Joseph A. Craddock** 3325 East Main St., Attica, NY 14011
Dental Education & Licensure	**Robert M. Peskin** 601 Frankline Ave., #225, Garden City, NY 11530
Dental Health Planning & Hospital Dentistry	**Raquel Rozdolski** 52 Shingle House Rd., Millwood, NY 10546
Dental Practice	**Mario Silvestri** 501 Plaza Dr., Vestal, NY 13850
Ethics	**Paul W. Teplitsky** 1 Hanson Pl., # 705, Brooklyn, NY 11243
Governmental Affairs	**Radha Sachdeva-Munk** 203 Smithtown Blvd., Nesconset, NY 11767
Membership & Communications	**Kendra J. Zappia** 1 Pine West Plaza, #106, Albany, NY 12205
Nominations	**Anthony M. Cuomo** 19 Cannon Dr., Newtown, CT 06470
Peer Review & Quality Assurance	**Lawrence J. Lehman** 7303 197th St., Fresh Meadows, NY 11366
Professional Liability Insurance	**Roland C. Emmanuele** 4 Hinchcliffe Dr., Newburgh, NY 12550

OFFICE

Suite 602, 20 Corporate Woods Blvd., Albany, NY 12211
(518) 465-0044 | (800) 255-2100

Greg D. Hill	Executive Director
Lance R. Plunkett	General Counsel
Michael J. Herrmann	Assistant Executive Director Finance and Administration
Grazia A. Yaeger	Senior Director Membership Experience
Mary Grates Stoll	Managing Editor
Jenna Bell	Director Meeting Planning
Briana McNamee	Director Governmental Affairs
Jacquie Donnelly	Director Dental Practice Support
Stacy McIlduff	Executive Director NYS Dental Foundation

required to provide employees with 20 hours of prenatal leave. Like the new paid lactation break law, the paid prenatal leave law will apply to all employers, regardless of size. Paid prenatal leave will allow pregnant employees to attend prenatal medical appointments, physical examinations and discussions with healthcare providers related to the pregnancy.

The 20 hours of paid leave for prenatal care is in addition to existing sick and safe leave to eligible employees, as well as paid parental leave under the New York State Paid Family Leave Law. Employees may take paid prenatal leave in one-hour increments and must be paid at their regular rate of pay or the applicable minimum wage, whichever is greater. Employers are not required to pay employees for any unused paid prenatal leave upon separation from employment.

Finally, New York's COVID-19 Paid Sick Leave Law, which has been in effect since March 2020, will expire on July 31, 2025. It remains in full effect until that date. While the law was no longer deemed necessary, legislators still did not want to end it too abruptly.

Noncompete Law is Final

On a very different employment law topic, the Federal Trade Commission (FTC) published its Final Non-Compete Clause Rule in the Federal Register on May 7, with an effective date of Sept. 4. The FTC final rule is a sweeping ban on noncompete clauses (also known as "covenants not to compete"). Litigation has already commenced to try to block the FTC rule from taking effect, but no result is expected on even a preliminary injunction motion until at least July 23. It is the kind of case that may carry on for a very long time and, eventually, make its way to the United States Supreme Court, because the legal argument is that the FTC exceeded its statutory authority. A summary of the final rule follows.

1. The final rule bans all new noncompete agreements with workers, including senior executives, after Sept. 4, 2024. The rule applies to all employers regardless of size or type of work. Workers are defined to include both employees and independent contractors.
2. The final rule cancels all existing noncompete agreements as of Sept. 4, 2024, except existing noncompete agreements with senior executives. Senior executives are defined to be persons who earn at least $151,164 in total annual compensation in the preceding year and who have job duties as an officer with policymaking authority. The FTC has noted that partners or other owners of a healthcare practice would usually qualify as senior executives.
3. The final rule includes a narrow exception for a bona fide sale of a business." The FTC defines bona fide sale as a sale "made between two independent parties at arm's length, and in which the seller has a reasonable opportunity to negotiate the terms of the sale." There is no percentage ownership threshold for triggering this business sale exception, but the FTC will look at all the circumstances to determine whether there is a legitimate sale of business occurring and if the noncompete agreement is reasonable in relation to the sale of business transaction.
4. The final rule preempts any conflicting state law or state law that is less restrictive than the FTC rule.
5. The final rule bans any contract clauses that "function to prevent" future employment, not just traditional noncompete agreements. Employers will have to be very careful how they draft an employment contract to account for this sweeping prohibition. Semantics will not save an offending provision.
6. The final rule requires employers to notify both current and former employees that their existing noncompete agreements are no longer enforceable as of September 4, 2024, and include model language intended to satisfy this requirement. It should be noted that not all provisions of the existing noncompete agreements are canceled, just the noncompete provisions. For example, an accompanying item like severance pay is not voided.
7. The final rule provides that issuing a noncompete agreement or otherwise failing to comply with the rule is a violation of Section 5 of the FTC Act. Therefore, noncompliance can result in fines, penalties and injunctive relief—all penalties/remedies the FTC can use under the FTC Act.

Given the FTC's action, and regardless of whether any litigation ultimately succeeds in blocking such action, dentists should now carefully review all existing and any proposed new noncompete agreements with a knowledgeable attorney. Planning ahead will be a critical part of managing a dental practice in this regard.

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

New York State Dental Association

A big thank you to our generous sponsors for their support in helping make our 2024 Annual Meeting a tremendous success!

Full House Sponsors

MLMIC
MLMIC Insurance Company
a Berkshire Hathaway company

FELDMAN KIEFFER

NYSS OMS
New York State Society of Oral & Maxillofacial Surgeons

NYSDA
Support Services, Inc.

Dealers Choice Sponsors

TD Bank
America's Most Convenient Bank®

DDSmatch.com
Successfully connecting the dentist's present with their future

AST American SensorTech™

The Welcome Mat is Out

The author relates his own positive experience in encouraging new dentists to become engaged in organized dentistry.

Robert Margolin, D.D.S.

Growing up in the Bronx, I always knew I would pursue a career in the health field, because I was fascinated by TV shows like Medical Center from a very young age. When I was in high school, I decided on dentistry. While in high school and college, I spent time at my dentist's office and shadowing at my local hospital, Jacobi Medical Center. Little did I know that Jacobi would be such a big part of my future.

After graduating from SUNY Binghamton, I went to the University of Maryland Dental School. At Maryland, I was very involved with the local chapter of the Academy of General Dentistry (AGD) and the American Dental Association (ADA). These early activities sparked an interest in being involved in professional dental associations that would last well into the future.

I came back to New York State to complete a general practice residency at Jacobi Medical Center. Following my graduation from the program, I pursued two distinct career paths—one as an associate at a private practice in the Bronx, alongside one of my mentors, and the other involving service at the prison complex on Rikers Island under the guidance of my other mentor. Eventually, I transitioned to a full-time role at St. Barnabas Hospital, contributing to the hospital GPR program.

Dental education was a new experience for me. I turned to my mother, who was an elementary school teacher, for guidance on how to teach. She gave me advice I will never forget: "Be firm but fair." Working in a hospital was the perfect fit for me; I loved interacting with the new residents every year and learned tremendously from my association with other faculty. Eventually, I became the program director. After 18 years, I left St. Barnabas Hospital to become the GPR Program Director at Jacobi Medical Center. Everything had come full circle.

When I returned to New York, I also became involved in the New York State AGD and the Bronx County Dental Society. It helped that my mentor in private practice was very active in both groups. I was welcomed warmly and encouraged to take on more responsibilities. I served on many committees at the state AGD, eventually becoming editor and president. I also served as president of the Bronx County Dental Society. I was a delegate to the AGD House and the ADA House. I also sat on several councils for AGD and ADA. My greatest honor was representing Bronx County on the NYSDA Board of Trustees for four years. The key to my success has been the continued support and encouragement from my home district in the Bronx.

Another group I joined when I returned to New York State was the Manhattan Dental Guild, a group of gay dentists who gathered to support each other and discuss topics related to the healthcare of persons with AIDS. In the late 1980s, the AIDS epidemic was still relatively new, and treatment options were limited. From a personal and professional perspective, this group afforded me an opportunity to network with other dentists who were facing similar challenges during a very difficult time for our community.

In 2021, I was honored to be invited to join the NYSDA Diversity, Equity and Inclusion Task Force as a voice for the LGBTQ+ community. The aim of the task force is to inspire under-represented groups to join organized dentistry and become leaders. The world is a very different place than it was in the 1980s, and NYSDA has made substantial progress in embracing diverse communities. I am grateful that the Association is welcoming the members of these communities, not just with words but through actions as well. My husband, Donnie, and I have attended many NYSDA events and have always felt included and welcomed.

I encourage new dentists from all backgrounds and walks of life to become involved with organized dentistry. It is an exciting and engaging way to make a difference in the profession, meet diverse people, and it provides a change from the routine of practice. NYSDA is here for you. I encourage you to take advantage of the amazing opportunity your state dental society offers.

Dr. Margolin is director general practice residency, Jacobi Medical Center, Bronx, NY.

NYSDA Fills Top Offices

NYSDA House of Delegates Annual Meeting came to a close with installation of officers for 2024-2025. Immediate Past President Anthony Cuomo administers oath of office to, from left, President Prabha Krishnan, Secretary-Treasurer Paul Leary, Speaker William Karp, Vice President Amarilis Jacobo, President-Elect Maurice Edwards. Annual Meeting took place May 30-June 1 at Turning Stone Resort & Casino, Verona.

William Mueller

Board Welcomes New Members

ON THE WAY to their first meeting as members of NYSDA Board of Trustees are from left, Drs. Louis Giordano, Sixth District; Jacqueline Samuels, Bronx County; Geoffrey Gamache, Third District. Completing terms on the Board at the conclusion of Annual House Meeting were Drs. Steven Essig, Third District, and Luis Mauleon, Sixth District. Dr. Amarilis Jacobo, Bronx County, was installed as vice president.

William Mueller

Team NYSDA

In what has become an annual tradition, NYSDA fielded a group of runners/walkers in the CDPHP Workforce Team Challenge taking place May 16 in downtown Albany. The 3.5-mile challenge attracts 10,000 participants, making it the largest running event in the Capital Region. Proceeds go to the Hudson-Mohawk Road Runners Club. Assembled at the starting point are, from left, Patty Marcucia, Kasey Healy, Lynne Prignon, Christa Murray, Dr. Lauren Heisinger, Peter Lacijan, Heather Relation, Maureen O'Brien, Dr. Divyanka Pawaskar. Amanda Armao, at far right, participated virtually.

Council Takes Disciplinary Action

ON APRIL 5, 2024, the NYSDA Council on Ethics issued an order to suspend Dr. James Merle Roger (License No. 056896) from membership for two years. After a full hearing on March 22, 2024, the council found that Dr. Roger had been disciplined for professional misconduct by the New York State Education Department Board of Regents and, as such, was in violation of Paragraph B of Section 20 Chapter X of the NYSDA Bylaws.

Dr. Roger did not appeal the council's decision within the requisite 30-day timeframe to the American Dental Association (ADA). The decision of the NYSDA Council on Ethics thereby became final and effective as of May 5, 2024.

In Memoriam

NEW YORK COUNTY
William Jarrett
Georgetown University '54
2957 Oakside Circle
Alpharetta, GA 30004
December 5, 2022

SECOND DISTRICT
Peter Lama
Columbia University '88
6123 5th Avenue
Brooklyn, NY 11220
January 15, 2023

SEVENTH DISTRICT
Joanne Sasse
University at Buffalo '63
7 Margo Drive
Fairpoint, NY 14450
March 25, 2024

EIGHTH DISTRICT
Tracy Culver
University at Buffalo '90
2052 Winch Road
Lakewood, NY 14750
August 1, 2023

NINTH DISTRICT
Alan Pitegoff
New York University '66
66 Susan Drive
Newburgh, NY 12550
March 20, 2024

NASSAU COUNTY
Hyman Citron
Columbia University '50
5749 Camino Del Sol, #207
Boca Raton, FL 33433
March 22, 2024

QUEENS COUNTY
Lawrence Mass
New York University '60
103 Emerald Key Lane
Palm Beach Gardens, FL 33418
May 19, 2024

Robert Miller
University of Pennsylvania '80
10026 67th Road
Forest Hills, NY 11375
December 15, 2023

SUFFOLK COUNTY
Gerald Fine
University of Pennsylvania '59
25 Gaul Road
Setauket, NY 11733
December 15, 2023

Dr. Maria Maranga
Embrace, Educate and Elevate

THE NEW YORK STATE DENTAL ASSOCIATION (NYSDA) is incredibly proud of Dr. Maria Maranga, one of our own, and thrilled to support her in her bid to become President-Elect of the American Dental Association (ADA). Dr. Maranga currently serves as chair of the New York State Dental Foundation (NYSDF), and recently completed a term as ADA 1st Vice President. Her unwavering commitment to the tripartite has been shown through her involvement with Suffolk County Dental Society, NYSDA and the ADA, as she has held positions on councils, volunteered at events and taught at the dental schools and residency programs.

Dr. Maranga was 1st Vice President at the end of the pandemic. Undeterred, she was out front, helping her colleagues during a national crisis. She said, "We must be there for both our members and the public, providing communication, connection and collaboration. Working together, we will make Membership Meaningful. We must continue to demonstrate that we understand they have serious fears and care for them in a safe and compassionate way. "

Dr. Maranga is unwavering in her concern for the future of dentistry. She welcomes students, residents and dentists into her home on many occasions—especially baking cookies during the holidays. She has mentored and guided young professionals toward successful careers, by teaching them the importance of the tripartite in their professional lives. She has helped lead students and young dentists toward amazing career paths, friends and service as the next generation of dental professionals.

Dr. Maranga holds positions in the American Association of Endodontics, American Association of Women Dentists, American Dental Political Action Committee, American Dental Education Association, Empire Dental Political Action Committee and many other professional organizations. This allows her to really understand what dentists from across the country want and need.

NYSDA fully supports Dr. Maranga in her quest for the office of ADA President-Elect. We look forward to her reaching her goal at the ADA House of Delegates in October.

"I am grateful to our profession that has given me so much. My desire is to further serve and help carve new pathways for our young dentists both through mentorship and advocacy. I believe that I have the competence to facilitate change when necessary and build consensus for that change. We must not give up our core values as ADA members and I stand beside each of them and for them."

—Dr. Maranga

M2 Maria Maranga
FOR ADA PRESIDENT-ELECT
Embrace, Educate and Elevate

CONTRIBUTIONS TO THE CAMPAIGN CAN BE MADE:
Venmo: **mmaranga** *or* **https://tinyurl.com/mmaranga**

Vacho Photo

Dr. Prabha Krishnan relaxes at home with her family. Sons Arvind Kumar, MD, thoracic surgeon, left, and Arjun Kumar, DMD, oral and maxillofacial surgery resident, right. Seated at left, Shivee Gilja, MD, Arvind's significant other, and at right, Dr. Krishnan's mother, Parvathy.

Empowerment and Engagement

Members who are respected and listened to are key to NYSDA's strength and success.

The New York State Dental Association welcomes Prabha Krishnan, D.D.S., ITS 143RD PRESIDENT AND CHAMPION OF ALL MEMBERS.

PRABHA KRISHNAN, D.D.S., installed June 1 as the 143rd president of the New York State Dental Association, has not strayed far from her roots in formulating her goals for the coming year.

Born and schooled in Mumbai, India, Dr. Krishnan describes her native country as:

"...one of the most diverse in the world, home to more than 100 languages, over 700 different tribes and every major religion in the world, where we are taught compassion, respect and tolerance for everyone. We believe in peace together and the love-thy-neighbor philosophy."

It comes as a little surprise, then, to learn that Dr. Krishnan says her first goal as NYSDA President is to make sure that everyone feels welcome in the Association, that they are respected and listened to. Or that she believes that the key to maintaining the relevancy of the Association is to broaden its appeal to all dentists, members, and nonmembers alike, and to work on enhancing their professional lives.

"Empowering and engaging all members are vital components of our Association's growth and success," Dr. Krishnan says.

More than that, the newly installed president says, NYSDA must look out for its members by embracing "a holistic approach that encompasses not only professional development, but also personal well-being and work-life balance. Wellness programs, tailored specifically for dental professionals, that provide resources and support for physical, mental and emotional health are very important."

William Mueller

Celebrating Dr. Krishnan's installation as NYSDA President are, from left: son Arjun; cousin Dr. Vijay Ramachandran; Dr. Ramachandran's wife, Dr. Emily Johnson, dentist from Fifth District; their daughter, Iris; Dr. Krishnan; mother, Parvathy; cousin Kamal Iyer; son Arvind and significant other Dr. Shivee Gilja.

Lead by Example

An active member of organized dentistry for more than 30 years, Dr. Krishnan credits the guidance she received from her mentors, Drs. Chad and Rekha Gehani, with helping her become established in her career—Dr. Krishnan is a board-certified periodontist and attending and chief of periodontics at Flushing Hospital Medical Center—and on the path to leadership roles in the tripartite. Before being appointed to the NYSDA Board of Trustees in 2015—the first woman to sit on the Board—Dr. Krishnan had served as president of the Queens County Dental Society, delegate to the ADA House, chair of the NYSDA Council on Governmental Affairs, and a member of the Empire Dental Political Action Committee Board of Directors.

When she was elected vice president of NYSDA in 2022, she was also serving as chair of the ADA Council on Communications, and as a New York State Dental Foundation Trustee. In the intervening years and since, she has notched several other noteworthy accomplishments, including serving on the ADA Board Committee on Diversity and Inclusion, the NYSDA Council on Dental Benefits and the Indian Dental Association Board of Trustees. And she still has found time to participate in health fairs/dental screenings and Give Kids A Smile events in Queens County and to volunteer with the Hindu Temple Society of North America.

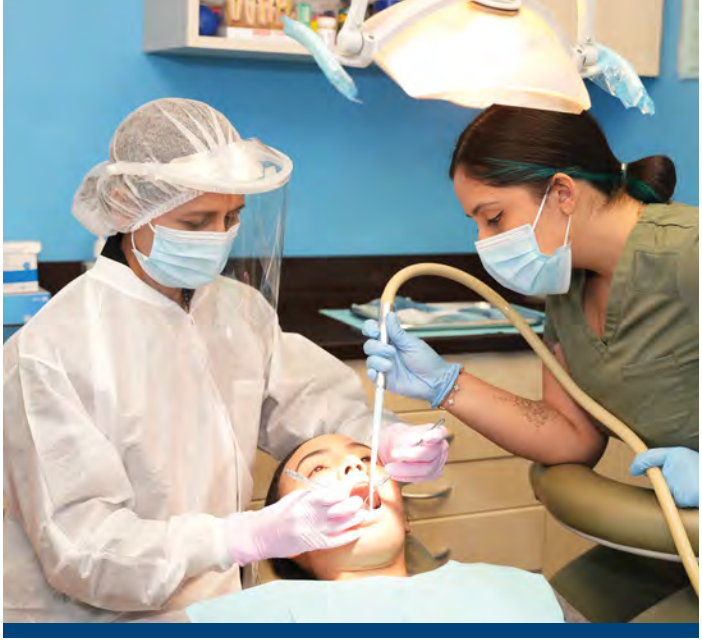
We Must be Strong

Dr. Krishnan's decision to be an active participant in organized dentistry—or, perhaps, it's because she is involved and has seen for herself—mirrors her belief that a strong association is essential to preserving the profession and protecting the public.

William Mueller

Dr. Krishnan delivers her first address as president to NYSDA House of Delegates.

Vaaho Photo



At work in her Forest Hills periodontal office, Dr. Krishnan is assisted by Christine Cespedes.

"We (NYSDA) must be New York State's foremost authority on oral health," Dr. Krishnan says, "not just for patients, but also for the media, regulators, policymakers and other health professionals. We must continue to advocate for the public and on their behalf with our one united voice."

A passive association won't do, Dr. Krishnan warns. "We must be a proactive voice, to provide unbiased, evidence-based advice on proper oral care. No other organization comprehends dentistry as we do, and we will not allow any intruders to interfere with our efforts to serve our profession."

Intent on increasing professional ranks, Dr. Krishnan has volunteered over the years to mentor young people, hoping to interest them in careers in dentistry. Now, she is hopeful of reaching them in the early days of practice, by bringing her message of engagement to both current NYSDA members and those new to the profession who are yet to be fully involved in the Association. Her plans for the coming year include development of an emerging leaders' program that will focus on imparting leadership skills to dentists, to position them to assume roles of influence within the dental profession and community.

"It will convey the ideas of empowerment, growth and professional development, while also emphasizing the members' unique perspectives and contributions to the profession," Dr. Krishnan explains. "The individuals in the program will have an opportunity to self-select engagement points, such as attending Foundation or NYSDA Board meetings, as well as participate in shared experiences, such as NYSDA's Advocacy Day or a leadership lecture offered to the entire cohort."

Dr. Krishnan is quick to add that she rejects the idea of an insular organization: "Our NYSDA will collaborate with all stakeholders, including dental educators, public policymakers, the industry, to find solutions. We must lead the way forward with confidence and expertise."

A Conversation with
NYSDA President Prabha Krishnan

Where did you grow up?

I grew up in Mumbai, India. It was a dream that propelled me across oceans to the bustling streets of New York, where I embarked on my journey to a career in dentistry, enrolling at New York University College of Dentistry.

When I moved to the United States 35 years ago, I began life and career in Queens. I was fortunate to meet my mentors Drs. Chad and Rekha Gehani in Queens, who introduced me to organized dentistry and the Queens County Dental Society, and who have been with me all the way. I will always be a Queens' girl.

Who are the members of your immediate family?

I am an only child. My parents migrated to the United States to provide me with a better education and more opportunities. My father, Mr. T. H. Krishnan, taught me to always look at the glass as half-full. So, I accept every challenge as an opportunity to get better. He passed away in 2018. My mother, Parvathy, is my strongest supporter, my friend and guide. My husband, Sushil Kumar (CPA), also migrated to the United States for better opportunities. We were married for 30 years. His life ended abruptly due to the COVID pandemic. My pillars of strength are my two sons: Arjun Kumar, D.M.D., and Arvind Kumar, M.D.

Dr. Krishnan lost her husband and soulmate, Sushil Kumar, to the COVID pandemic.

Where did you go to school?

My initial schooling was at St. Theresa's Convent High School and then Nair Hospital Dental College in Mumbai. In the United States, I graduated from NYU College of Dentistry, where I received my D.D.S. degree, in 1991, and completed specialty training in periodontics in 1993. I was one of the youngest applicants to the periodontal specialty program at NYU and among the youngest at the time to become a diplomate of the American Board of Periodontology/Board-Certified Periodontist. Immediately after graduation, I started my practice in Queens from the ground up. Joining the Queens County Dental Society helped me network with my peers and build my practice. During this time, I met Sushil Kumar, my soulmate, and we started our family. So, early in my career, I had to juggle a lot of roles at the same time.

What are your goals for the coming year? You have mentioned establishing a "leadership pipeline." What is that and how would it work?

My first goal is to create a welcoming environment at NYSDA, that is, an environment where everyone feels welcome and where we listen to our members, hear their pain points, the things that are bothering them, and try to provide results in real time.

NYSDA must be New York State's foremost authority on oral health, not just for patients, but also for the media, regulators, policymakers and other health professionals. We must lead the way forward with confidence and expertise.

To fill the membership pipeline, I recommend NYSDA look into developing an emerging leaders' program. I will work with my Board of Trustees to create leadership development programs that provide aspiring leaders with the skills and knowledge needed to take on important roles within our Association. By identifying potential leaders and offering tailored training programs, we can nurture their talents and equip them to make a significant impact. Investing in leadership development ensures a vibrant and sustainable future for our Association.

What are the greatest challenges facing dentistry today and how should the profession respond?

The needs of today's dentist are changing as we face a rapidly evolving set of challenges. New dentists are entering the workforce with a six-figure debt burden, while the number of solo practices is declining and large group practices are becoming more common. Delivery models, dental education, technology, new regulations, third-party intrusion, scope of practice, artificial intelligence, pandemics, demographics, staff shortages and escalating costs of doing business are all issues the profession is facing.

At the same time, patient expectations are changing in unprecedented ways, driven by trends like electronic appointments, Google reviews, etc.

We are challenged as well by a shortage of dental team members, which is likely to continue into the future. Our overhead expenses will keep increasing, but our fees will remain the same; running a solo practice has become much more challenging.

And we need to be cognizant of student debt. As new dentists are increasingly part of dual-career families, we must address the issues that concern them to ensure that they do not add stress to their early careers. We must change alongside them to remain relevant, and we must help them overcome the fear and anxiety they face, as they deal with significant debt and an uncertain future.

We must work as well with legislators to increase Medicaid fee reimbursements and to reduce the administrative burden on dentists, create loan forgiveness programs for

Vacho Photo

Dr. Krishnan and staff, from left, Helen Pena, Christine Cespedes, Jasmin Cruz.

dentists and include dentists in the Doctors Across New York Program. This will also help solve the access-to-care issues.

And that's not the end to what the profession is confronting. We have been and will continue to contend with artificial intelligence and augmented intelligence, third-party intrusion in our daily practice, regulatory challenges, work-life balance and health equity.

Do you come to this position with an overarching philosophy and, if so, what is it?

NYSDA is a member-driven, staff-supported organization. Its membership depends on the quality and value of the services we provide. Our members want everything at their fingertips, accessible with just the click of a button. We need to listen to and understand the pain points of our members, and we must provide results in real time. If we have no members, we have no money, no influence.

The president of NYSDA is the face of dentistry in New York State. We may have different points of view, but we must agree to disagree. Members expect their president to speak for the dental profession on their behalf.

What is your number-one priority?

To make everybody feel welcome at NYSDA. To unite all dentists, bring everyone together and speak with one voice. It starts at the local level. Get members involved early on.

NYSDA must be the go-to source for everyone, the Google of dentistry; we must provide an AMAZON experience.

As the profession of dentistry is experiencing a major generational transition, we must focus on bringing innovative member value offerings to the table to sustain and attract members, so that we remain the unified, inclusive, future-focused voice of the dental profession.

We must continue to serve the public for the improvement of their overall health, continue to mentor the next generation of dentists, always be a servant leader of this great profession.

By fostering strong relationships and collaborative efforts with all stakeholders, we can create a united front that drives positive change and advancements in oral healthcare within New York State.

Vacho Photo

Fun and games at home.

SALUTE VETS WITH A SMILE New York

WILL YOU PLEDGE TO PROVIDE DENTAL CARE FOR ONE VETERAN IN 2024?

Through major acts of courage and simple acts of kindness, Veterans have protected Americans' rights and defended our freedoms. Yet millions of U.S. Veterans are going without much-needed, essential oral health care.

The New York State Dental Foundation is organizing a crew of dentists across New York State who will pledge to provide free dental treatment to one or more United States Veterans in 2024.

PLEDGE YOUR SUPPORT TODAY

- Fill out the pledge form using the QR code below. You can choose to have your name added to our list recognizing Dental Heroes on web and social, or you may remain anonymous.
- We will contact you when there is a Veteran in need in your area. You can review the specific case details and decide whether or not to accept the case.
- Free toothbrushes and up to $500 in funding for supplies will be provided to any components wishing to organize an additional Veterans event in their district.

NYSDF
New York State Dental Foundation
IMPROVING THE ORAL HEALTH OF ALL NEW YORKERS

"85%, or about 7.8 million veterans enrolled in the Veterans Affairs health care system, are ineligible for VA dental benefits... in order to qualify for dental services, Veterans must either have a dental issue that is service-connected or qualify based on narrow criteria."

Managing Perforating Internal Root Resorption Nonsurgically

A Report of Two Cases and Review of the Literature

Joseph C. Stern, D.D.S.

ABSTRACT

Aim: **To describe the use of bioceramics in the nonsurgical treatment of perforating internal root resorption.**

Summary: **Confusion over the subject of root resorption seems ubiquitous in the general dental community. Because of the several subheadings, such as internal, external cervical and apical, and because of a variety of causes for each, such as trauma, pressure, infection, inflammation and systemic, the confusion can be understandable. It seems that this confusion arises primarily from the nomenclature describing the location and etiology of root resorption. This case report deals with perforating internal root resorption (IRR), its causes, diagnosis and successful nonsurgical treatment, effectively using cone-beam computed tomography to visualize the extent of the lesion and bioceramics to fill the defect. The differential diagnosis between internal and external root resorption is examined, as well as a review of the literature.**

Root resorption is defined as the loss of dental hard tissues as a result of clastic activities, which can occur as a pathologic or physiologic process depending on the location and timing of the resorptive process.[1] While most internal and external resorption is pathologic in nature, the resorption associated with the primary dentition is most often a normal physiologic process.[2]

The primary theory for what initiates internal root resorption (IRR) is multinucleated giant cells located in the granulation tissue that forms in response to infected coronal pulp tissue. These odontoclasts are believed to be responsible for the resorption of the lining of the pulp space. A second theory suggests that the granulation tissue arises from the vascular system, outside of the pulp space. Damage and/or loss of the predentin and odontoblastic layer must occur prior to the resorptive process.[3] Trauma is suspected as an initiating cause, possibly supported by continuous stimulation from infection. Iatrogenic causes of continued inflammatory excitation of the coronal pulp include overheating the tooth.[4-8]

IRR is insidious and often progresses without symptoms. Pain and/or swelling may not occur until the process perforates the root, at which time the prognosis for a successful outcome becomes more questionable. As long as the apical portion of the pulp retains vital tissue, the resorptive process continues. Another requirement for continued

resorption is bacterial infection, as a microbial stimulus is required for the continuation of IRR.[7]

When and/if the pulp tissue becomes necrotic, before perforation, the process can be self-limiting. Usually, internal root resorption is first observed at a routine radiographic exam. Because it begins in the pulp space, the lesion is contiguous with the space. It can be confirmed if two acute-angled radiographs, taken from extreme mesial and distal positions show no separation between the lesion and the pulp space. Cone-beam computed tomography (CBCT) can help make this differential diagnosis between external and internal resorption.

One of the treatment options for large lesions associated with perforating IRR has been a surgical approach. This is based on the literature that suggests that periapical lesions of greater than 5 mm have a poor prognosis with conventional, nonsurgical endodontic treatment.[9-10] Given advances in disinfecting and sealing the root canal space, it is time to question the surgical approach as the primary treatment based on the lesion size alone, whether the lesion is associated with the periapex or a perforating resorptive defect.

There is nothing magical about a 5 mm lesion that it should portend a negative future outcome. Rather, we should look more closely during the diagnostic phase at other biologic factors that can influence future results. All-size lesions can have successful outcomes when planned and treated properly. Our treatment of IRR follows the standard protocol for nonsurgical endodontics. The root canal space is debrided and decontaminated to the apical constriction and, subsequently, filled. Interrupting the vital tissue pathway at the apex arrests the resorptive process. Extra care, mechanically and chemically, may be in order to remove tissue from the undercut areas that are created by the resorptive process. Creating a straight-line access to the resorptive defect is often not feasible, as this would require removal of more dentin, further weakening the root structure.

Our technique in these two cases differs from the 17 cases reported previously in the literature (Table 1). We use a calcium silicate sealer to both fill the perforating defect and seal the gutta-percha simultaneously, thus saving the time of an extra visit.

Case One

A 41-year-old male presented for treatment with a chief complaint of pain and swelling adjacent to tooth #10. The patient reported a history of trauma when he was a teenager. The area had not bothered him until this recent development of pain and swelling. Clinical exam revealed

TABLE 1

Perforating IRR Case Reports Published Between 2001-2021

Study	Diagnosis	Technique	Repair Method	Follow-up
Benenati FW. (2001)	Retreatment No CBCT	Calcium hydroxide (10 months) Multi-visit	Long-term calcium hydroxide placement. Warm vertical condensation.	A 17-month follow-up film showed osseous repair apically and also adjacent to the distal root surface.
Hsien HC, Cheng YD, Lee YL, Lan WH, Lin CP. (2003)	No CBCT	Single visit The apical third was obturated with gutta-percha, and the perforated lesion was repaired surgically with mineral trioxide aggregate. The residual canal space was filled by thermoplasticized gutta-percha technique, and the coronal cavity was restored with composite resin.	Surgical repair with MTA	A 2-week follow-up evaluation found that the sinus tract had healed. The patient was asymptomatic at the 1-year follow-up. The clinical examinations and radiographic findings showed satisfying results.
Meire M, De Moor R. (2008)	No	Calcium hydroxide	Internal repair with MTA	At a 2-year follow-up examination, no clinical abnormalities were found, and complete resolution of the alveolar bone lesion and establishment of a new periodontal ligament were observed.
Jacobovitz M, de Lima RK. (2008)	No	Calcium hydroxide	Internal repair with MTA	Clinical and radiographic follow-up was conducted for 20 months, demonstrating a functional tooth with no endodontic pathosis.
Altundasar E, Demir B. (2009)	No	Calcium hydroxide	Surgical repair with MTA	The tooth was in function with satisfactory clinical and radiographic results after 48 months.

TABLE 1 *continued*
Perforating IRR Case Reports Published Between 2001-2021

Study	Diagnosis	Technique	Repair Method	Follow-up
Brito-Júnior M, Quintino AF, Camilo CC, Normanha JA, Faria-e-Silva AL. (2010)	No	Calcium hydroxide	Internal repair with MTA	The clinical findings and periapical radiographs indicated success of treatment until 2 years of follow-up. However, the radiograph after 8 years showed an extensive radiolucent area in the middle third of the root with separation of the apical and coronal root segments.
Takita T, Tsurumachi T, Ogiso B. (2011)	Yes	Calcium hydroxide	Internal repair with MTA	Follow-up radiographs at 3 years showed adequate repair of the resorption, and the tooth remained asymptomatic.
Bhuva B, Barnes JJ, Patel S. (2011)	Yes	None	Internal repair with MTA followed by apical surgery 1 year later	1 year after treatment the periodontal lesion did not decrease in size and the patient complained of apical tenderness. Apical surgery was completed in which the entire 'MTA filled resorptive defect' was removed. 1-year follow-up revealed the tooth to be asymptomatic and the lesion decreasing in size.
Nunes E, Silveira FF, Soares JA, Duarte MA, Soares SM. (2012)	No	Calcium hydroxide	Long-term calcium hydroxide followed by internal repair with MTA	At the follow-up after 11 years and 8 months, the patient was clinically asymptomatic and the sinus tract had disappeared. The radiographic examination and computerized tomography indicated periodontal bone repair.
Kothari HJ, Kumar R. (2013)	Yes	Calcium hydroxide	Internal repair with MTA	Follow-up intraoral periapical radiographs and CBCT scans at 6 months showed adequate repair of the resorption and periapical rarefaction and the tooth remained asymptomatic.
Mittal S, Kumar T, Mittal S, Sharma J. (2014)	No	Calcium hydroxide	Internal repair with MTA	Follow up ranged from 8-12 months with successful healing of the associated lesions.
Bendyk-Szeffer M, Łagocka R, Trusewicz M, Lipski M, Buczkowska-Radlinska J. (2015)	Yes	Calcium hydroxide	Internal repair with MTA	A control cone-beam computed tomographic scan acquired 6 months after the endodontic treatment revealed complete resolution of the sinus retention cyst. Moreover, the patient's frequent otolaryngologic disturbances ceased. The tooth was functional with satisfactory clinical and radiographic results after 12 months.
Borkar S, de Noronha de Ataide I. (2015)	Yes	Calcium hydroxide	Internal repair with Biodentine	43 months confirmed remineralization of the osseous defect and asymptomatic function of the tooth.
Saoud TM, Mistry S, Kahler B, Sigurdsson A, Lin LM. (2016)	No	Calcium hydroxide/triple antibiotic paste dressing	Regenerative endodontic procedures utilizing an MTA plug	Periapical radiographs showed evidence of healing of the root resorption and periapical lesion at the 8- and 15-month follow-up examinations with a reduction in the size of the periapical radiolucency. The final follow-up examination at 19 months showed more evidence of progressive healing of the root resorption and periapical lesion.
Kaval ME, Güneri P, Çalıskan MK. (2018)	No	Calcium hydroxide	Regenerative endodontic procedures utilizing an MTA plug	After 2 years, the tooth was asymptomatic and radiographic examination revealed hard-tissue formation in the perforated resorption area and remodeling of the root surface.
Arnold M. (2021)	Yes	Calcium hydroxide	Regenerative endodontic procedures utilizing an MTA plug	Hard-tissue repair and healing of the apical lesion could be observed in the 3-year recall.

tenderness on the buccal gingiva around tooth #10. The tooth was sensitive to percussion and biting. A small, fluctuant intraoral swelling was noted near the apex of tooth #10. The tooth did not respond to vitality testing. Radiographic examination revealed a large perforating internal resorptive defect towards the apical third of the root (Figure 1A).

The CBCT *(Veraviewepocs 3D R100; J. Morita)* showed significant alveolar bone loss adjacent to the resorptive defect, enveloping the entire mesial side of the apical half of the root of tooth #10 and extending to the root of tooth #9 (Figures 1B,C). A diagnosis of pulpal necrosis with acute apical abscess was made. All options of treatment were discussed with the patient, including extraction and replacement with an implant or bridge. The patient was motivated to try to retain this tooth with root canal therapy and repair of internal resorptive defect, rather than have it extracted. Informed consent was obtained from the patient.

First Visit

The patient was anesthetized with 1.7 mL 4% articaine 1:100000 epinephrine *(Septocaine; Septodont, New Castle, DE)* via labial infiltration. Rubber dam isolation was achieved, and the tooth was accessed within a #2 surgical length carbide round bur. A necrotic pulp was encountered. Working length was established with a Root ZX apex locator *(Morita, Tokyo, Japan)*. The canal was instrumented up to a size 35 .04 Vortex Blue rotary file *(Dentsply Tulsa Dental, Johnson City, TN)*. Care was taken that the files passed through the resorptive defect and entered the apical portion of the canal.

The canal was irrigated with 5.25% sodium hypochlorite. The EndoActivator *(Dentsply, Tulsa, OK)* was used to sonically agitate the irrigant in the canal to ensure thorough disinfection of the resorptive defect. The canal was dried with paper points, and calcium hydroxide *(Ultracal XS, Ultradent Products Inc, South Jordan, UT)* was syringed into the canal and the defect. The tooth was temporarily restored with Cavit *(3M ESPE, Neuss, Germany)*.

Second Visit

The patient returned after two weeks for completion of endodontic treatment. He reported that all symptoms had subsided. Clinical examination revealed that the swelling had resolved. Calcium hydroxide was removed from the canal with instrumentation, irrigation and activation with the EndoActivator. The canal was dried with paper points, and excess irrigant was removed using surgical suction with a micro-tip. A master gutta-percha cone was placed to length and confirmed by radiographic exam (Figure 1D).

The canal was coated with EndoSequence BC (bioceramic) sealer *(Brasseler USA, Savannah, GA)* to allow for suffi-

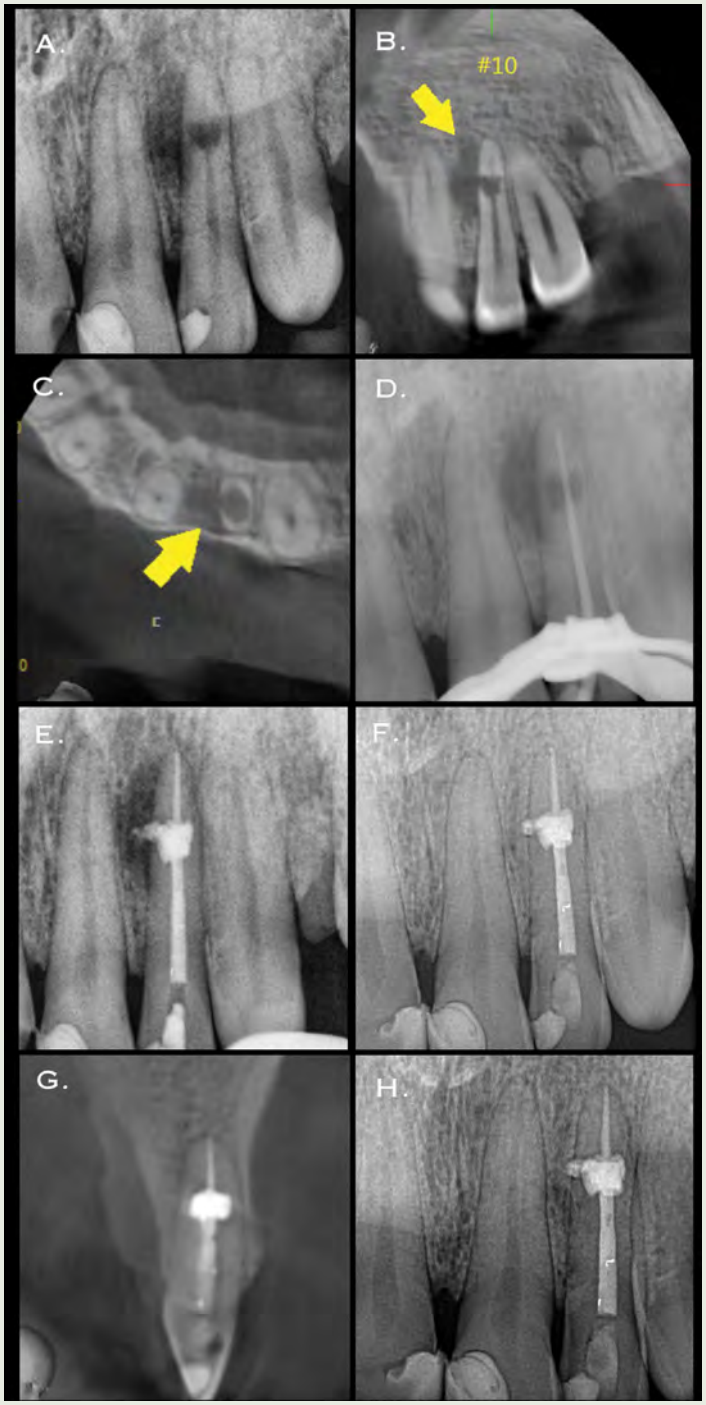


Figure 1.
A. Preoperative periapical radiograph of tooth #10 showing internal root resorption in apical third of root. There is significant alveolar bone loss adjacent to defect.
B. Sagittal CBCT image of tooth #10 showing internal resorptive defect perforating on mesial aspect of root. Note adjacent alveolar bone loss extending proximally to tooth #9.
C. Axial CBCT image of internal resorptive defect perforating on mesial aspect of root. There is thin layer of circumferential dentin remaining and extensive alveolar bone loss adjacent to defect.
D. Periapical radiograph showing gutta-percha cone fit. Gutta-percha cone passes through resorptive defect to contact apical portion of root canal.
E. Immediate postoperative periapical radiograph of tooth #10 once root canal was completed and resorptive defect was restored.
F. Two-year follow-up showing complete healing of radiolucency adjacent to defect and reestablishment of PDL.
G. Two-year follow-up CBCT. Coronal slice showing complete healing of radiolucency adjacent to defect and reestablishment of PDL.
H. Five-year follow-up radiograph. Patient is completely asymptomatic.

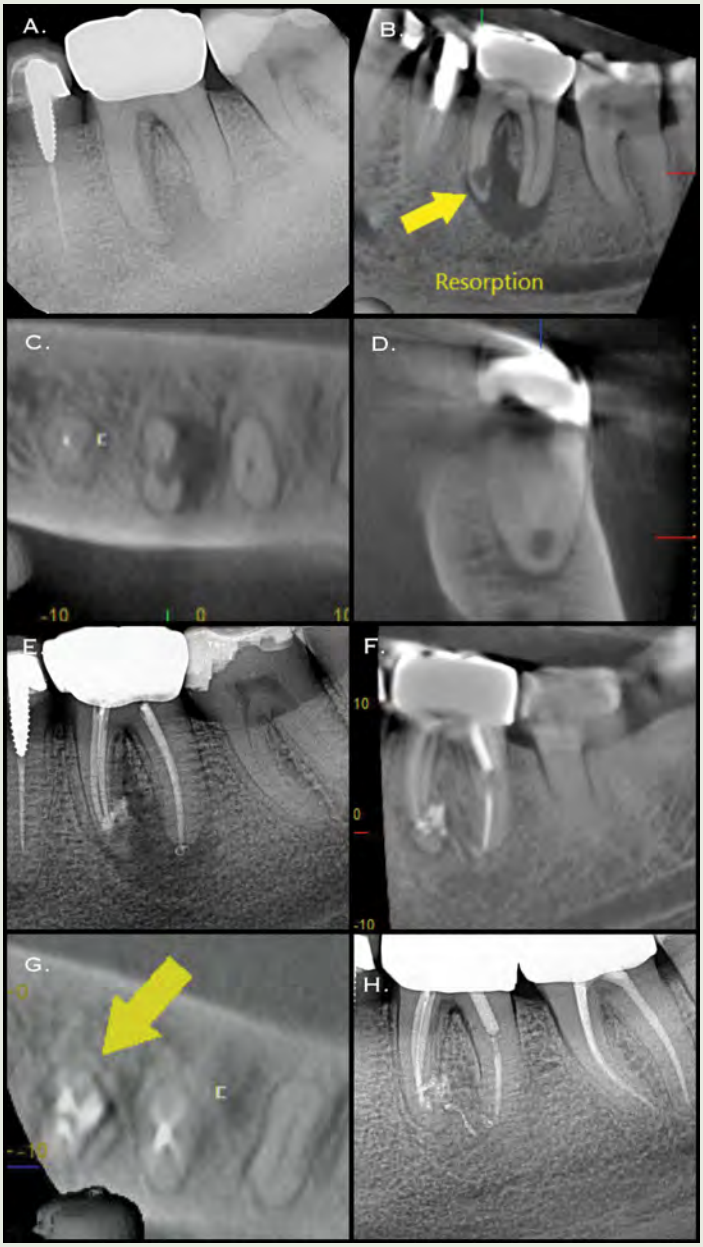


Figure 2.
A. Preoperative periapical radiograph of tooth #19. Visualization of periapical radiolucency associated with mesial root is possible. Root also appears to be calcified in middle and apical thirds.
B. Sagittal CBCT slice showing internal resorption in apical portion of mesial root. Visualization of resorptive defect perforating on distal aspect of mesial root and significant periapical pathology extending close to furcation is possible. Defect and extent of pathology was not visualized on periapical radiograph.
C. Axial CBCT slice showing resorptive defect encapsulating both MB and ML canals and perforating on distal aspect of mesial root. There is significant bone loss adjacent to perforating defect.
D. Coronal CBCT slice showing internal resorptive defect encapsulating both mesiobuccal and mesiolingual canals.
E. Immediate postop radiograph after completion of endodontic treatment.
F,G. Coronal and axial CBCT slice at 16-month follow-up. Note resorptive defect filled with bioceramic sealer and complete healing of adjacent bone and reestablishment of PDL. Patient returned at 16-month point for endodontic treatment of tooth #19.
H. Three-year follow-up radiograph. Patient remained completely asymptomatic on tooth#19.

cient amounts of sealer to fill the resorptive defect, and was then obturated with gutta-percha and BC sealer using the technique of warm vertical condensation (Figure 1E). The lingual access opening was restored with TPH Spectra ST composite *(Dentsply Sirona, Charlotte, NC)* and the patient was put on a recall schedule to monitor healing.

At the one-year, two-year and five-year recall visits, the patient was completely asymptomatic, and radiographically showed complete healing with full restoration of the bone and lamina dura adjacent to the resorptive defect (Figures 1F,H). The patient was very satisfied with the result, as he was able to get significant time out of a tooth that was originally planned for extraction.

Case Two

A 56-year-old male presented with a chief complaint of vague discomfort in the left mandible. The patient reported that this discomfort had been present on and off for more than six months, but recently the pain had worsened. Clinical examination revealed pain to percussion on tooth #19. No swelling was noted, and the tooth was not sensitive to palpation or biting.

Radiographic and CBCT *(Veraviewepocs 3D R100; J. Morita)* examination revealed a crowned tooth #19 with perforating internal root resorption near the apical end of the mesial root with associated periapical pathology extending distally to encompass the distal root and coronally toward the furcation (Figures 2A-D). A diagnosis of pulpal necrosis with symptomatic apical periodontitis was made. A discussion was had regarding the prognosis for treating this tooth with root canal therapy. Alternative options of extraction and implant or bridge placement were discussed. As finances were an issue, the patient opted to have the tooth endodontically treated rather than extracted. Informed consent was obtained from the patient.

First Visit

The patient was anesthetized with 1.7 mL 3% mepivicaine *(Carbocaine, Dentsply Pharmaceutical, York, PA)* administered via left inferior alveolar nerve block and 1.7 mL 4% articaine 1:100000 epinephrine *(Septocaine; Septodont, New Castle, DE)* via local buccal infiltration. Rubber dam isolation was achieved, and the tooth was accessed through the porcelain-fused-to-metal (PFM) crown with a combination of a round diamond bur and a #2 surgical length carbide round bur. A necrotic pulp was encountered. Working length was established with a Root ZX apex locator *(Morita, Tokyo, Japan)*.

The canals were instrumented up to a size 35 .04 Vortex Blue rotary file *(Dentsply Tulsa Dental, Johnson City, TN)* and irri-

gated with 5.25% sodium hypochlorite. The EndoActivator *(Dentsply, Tulsa, OK)* was used to sonically agitate the irrigant in the canal to ensure thorough disinfection of the resorptive defect. The canals were dried with paper points, and calcium hydroxide *(Ultracal XS, Ultradent Products Inc, South Jordan, UT)* was syringed into the canals and the defect. The tooth was temporarily restored with Cavit *(3M ESPE, Neuss, Germany)*.

Second Visit

The patient returned after three weeks for completion of endodontic treatment. He reported that all symptoms had subsided. Calcium hydroxide was removed from the canals with instrumentation, irrigation and activation with the EndoActivator. The canals were dried with paper points, and excess irrigant was removed using a surgical suction with a micro-tip. The canals were coated with BC sealer to allow for sufficient amounts of sealer to fill the resorptive defect and were then obturated with gutta-percha and BC (bioceramic) sealer using the technique of warm vertical condensation (Figure 2E). The occlusal access opening was restored with TPH Spectra ST composite *(Dentsply Sirona, Charlotte, NC)* and the patient was put on a recall schedule to monitor healing.

The patient returned at the 16-month point for endodontic treatment of tooth #18. At a 16-month recall visit, the patient was completely asymptomatic on tooth #19. and radiographic/CBCT examination revealed complete healing of the lesion adjacent to the resorptive defect on tooth #19 (Figures 2 F,G). At the three-year recall, the patient was asymptomatic on both teeth #18 and #19.

Discussion

As this is an uncommon phenomenon, the exact cause of IRR has not been fully determined. The literature suggests trauma related to pulpitis, pulpotomy,[11] cracked tooth, tooth transplantation, restorative procedures, orthodontic treatment and herpes zoster virus,[12] leading to pulpal necrosis. Trauma can also be iatrogenically related to heat when drilling without adequate coolant. The trauma, regardless of its source, disrupts the predentin layer, predisposing the denuded root surface to invasion by multinucleated giant cells.[4]

For IRR to progress, the pulp tissue apical to the resorptive lesion must have vital tissue to provide nutrition to the viable clastic cells, while the infected necrotic coronal pulp tissue provides the irritant and stimulus for those clastic cells to continue to resorb the adjacent dentin. (Figure 3).[5-8] As the resorptive lesion progresses it can eventually perforate into the adjacent periodontal ligament causing an extraradicular lesion (Figures 1, 2).

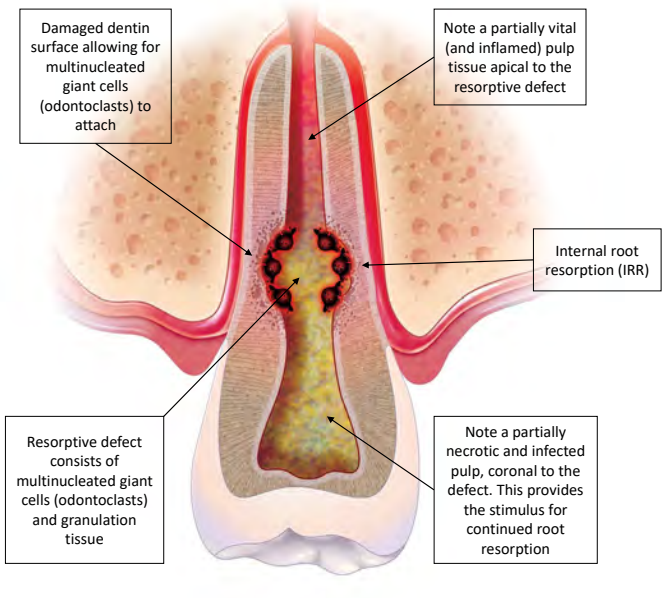


Figure 3. Illustration showing different compartments of internal resorptive defect.

If the pulp tissue becomes completely necrotic, the resorptive process will halt, as there is no longer any vital tissue to supply the clastic cells with the nutrients needed for the resorptive process to continue. As the pulp continues to degenerate, bacteria will usually infect the entire root canal system, resulting in apical periodontitis, which can become contiguous with the extraradicular lesion if the IRR perforation has occurred. This lesion may also migrate coronally through the periodontal ligament to the gingival sulcus, forming a pseudo-periodontal pocket.

It is interesting to note that internal resorption can be thought of as a misplaced periapical lesion found inside the root canal rather than at the apex. Both are caused by the presence of bacteria and the triggering of resorptive cells. Both form in a symmetrical manner. However, the periapical lesion has surrounding vital tissue, which allows these lesions to grow in size, unlike IRR, which is self-limiting. Because active IRR requires a pulp space that is partially vital and partially necrotic, vitality testing is unreliable. One cannot be sure whether the pulp tissue at the time of diagnosis is necrotic and, therefore, the resorptive process is arrested, or vital tissue remains, and the IRR is ongoing (Figure 3). Regardless, if perforation has occurred, the external lesion has a life of its own and treatment is essential.

One of our challenges with teeth that develop IRR is the compromised remaining root structure that predisposes the tooth to future fracture. We must also deal with the perforating defect into the periodontal ligament that creates

significant bone destruction. Control of infection is much more difficult when there is a perforation. If the tooth is deemed restorable and has a reasonable prognosis, nonsurgical root canal treatment is the treatment of choice.

The goal should be to preserve tooth structure during treatment to avoid further weakening an already compromised tooth.[8]Most of these defects are located in the middle or apical thirds of the root and the perforation is thus incased within the alveolar bone. It is important to use a biocompatible material to seal the defect, as well as to contribute to the regeneration of the bone and periodontal ligament. If, however, the defect is located in the cervical region of the tooth, and the tooth is deemed restorable, it might be better to restore it with a resin composite or glass ionomer restoration, given that these materials might strengthen an already weakened tooth structure, preventing potential snap-off of the coronal tooth structure. This is not an issue when the resorption is located more apically in the root.

Both cases presented here are examples of perforating internal resorption located in the apical third of the root, which were treated exclusively with an internal approach and sealed with the same biocompatible bioceramic material that was simultaneously sealing the gutta-percha in place. In all the previous nonsurgical treated cases in the literature, the MTA was used first, as an additional step to seal the defect prior to filling the canal. These 17 previously reported cases fall into one of the four classical treatment categories:

- Long-term calcium hydroxide treatment to trigger hard-tissue formation.
- Surgical repair with MTA.
- Nonsurgical internal repair with MTA.
- Regenerative endodontic procedure using an MTA plug.

Treatment for IRR includes removal of the infected and inflamed pulp tissue throughout the pulp space. The canal, both apical and coronal to the resorptive defect, must be thoroughly disinfected, using irrigant activation, which allows for vigorous agitation of irrigant solutions to reach the often undercut, untouched and hard-to-reach resorptive areas of the root canal.[13-16] The irrigants of choice for this disinfection are sodium hypochlorite and Ethylenediaminetetraacetic acid (EDTA).[17-21] If the perforation is large, it might be advisable to use lower concentrations of sodium hypochlorite or an alternative irrigant, such as chlorhexidine. If the resorption is active, there can be excessive bleeding upon access, making visualization difficult. Thorough disinfection and packing of the root canal space with calcium hydroxide is the best way to achieve hemostasis between visits.[22-26]

One of the treatment modalities discussed in the literature used long-term calcium hydroxide in the canal for extended periods of time until healing of the periodontium was achieved. This was then followed by either conventional obturation of the root canal with gutta-percha and sealer[27] or an MTA (mineral trioxide aggregate) plug with[28] or without gutta-percha.[29]

The most common treatment for IRR discussed in the literature was the use of MTA to seal perforating resorptive defects with the use of calcium hydroxide as a short-term inter-visit medicament.[30-37] The primary reason for the use of MTA is its biocompatibility. Not only does MTA react favorably when it contacts vital tissue, it also can provide an impervious seal. One study utilized Biodentine *(Septodont, Saint-Maur-des-Fosses, France)* as an alternative calcium silicate cement as the material of choice to seal the perforating lesion.[38]

Two reported cases used a surgical approach, in which the lesion is accessed and restored surgically with a bioceramic material such as MTA.[39-40] If conventional nonsurgical methods fail, there is always an option to then surgically treat the resorption.[34]

A novel approach of utilizing regenerative endodontic treatment to treat these cases has also been reported.[41-43] These cases are unique in that the canals are not filled by conventional techniques but, rather, an MTA plug is placed on top of a blood clot in the canal. Historically, it was not advised to use standard gutta-percha and cement with perforating internal resorption, as this did not provide an adequate seal.[7] With the advent of bioceramic (calcium silicate) sealers, a more standard nonsurgical, internal approach can be used to restore these defects,[44] as our two cases have shown. A standard two-visit approach can be utilized with calcium hydroxide used as a short-term medicament only.

Bioceramics such as BC sealer have qualities which make it an ideal sealer for repairing a perforating internal root resorption. As a bioactive material, BC sealer has the ability to create a hydroxyapatite layer when in contact with tissue fluid. This allows the material to be highly biocompatible, osteoinductive and osteoconductive.

BC sealer, a newer generation hydraulic cement, uses nanotechnology to reduce the particle size to a mixture of nano and microparticles and, hence, gives it the ability to flow much better in filling the irregular sizes and shapes of the internal resorptive defect. Unlike MTA, BC sealer cement can set in the presence of tissue fluids, where no

additional setting time is needed.[45-46] These sealers can be utilized with either warm vertical condensation or with a single-cone technique and hydraulic condensation.[47-50] Bioceramic sealers further help fill these spaces by expanding slightly while setting and once set, will not resorb easily.[51-55]

While external root resorption comes in many forms, such as transient surface resorption, pressure resorption, external inflammatory root resorption, invasive cervical root resorption and replacement resorption (ankylosis), internal root resorption is uniquely different. The differential diagnosis is made by taking multiple radiographs at different angles.[56,57] Utilizing the buccal object rule, a lesion of internal origin will remain close to the canal regardless of the angle, while a lesion of external origin will move away from the canal depending on the angle of the radiograph (Figures 4 A,B).

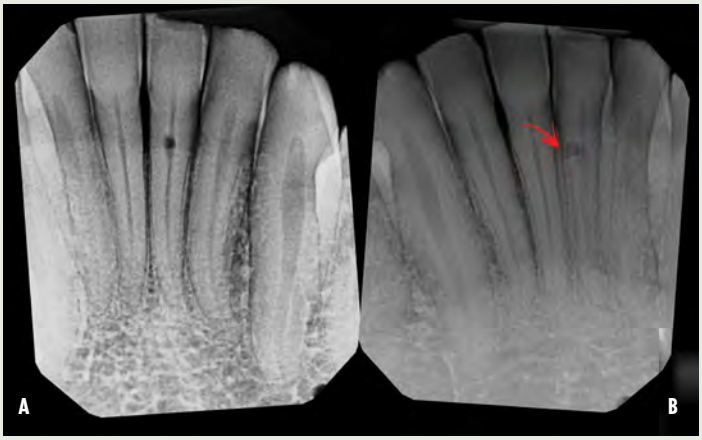


Figure 4.A,B: Two periapical radiographs of tooth #24 taken at different angles. Resorptive defect changes position relative to root canal, which according to buccal object rule means defect is separate from canal and, hence, external to canal.

Additionally, with IRR, the outline of the root canal is usually distorted and appears contiguous with the resorptive defect, while with external resorption, the root canal outline appears normal and can usually be seen running through the radiolucent resorptive defect, as there remains a thin layer of dentin separating the canal from the resorptive area[56-57] (Figures 5 A-D). The radiographic appearance of IRR is a fairly uniform radiolucent enlargement of the root canal. There would only be alveolar bone loss adjacent to the resorption if the resorption perforates into the PDL.

The best and most accurate tool we have for diagnosing IRR and determining the path of the perforating lesion is cone-beam computed tomography (CBCT). It is best to use a limited field of view (FOV), as opposed to the larger FOV used with other disciplines in dentistry. A smaller FOV increases image resolution, while at the same time providing a lower effective radiation dose to the patient. It is worth noting that in Case Two, one cannot visualize the resorptive defect from just looking at the periapical radiograph. It has been shown in countless studies that CBCT gives a more accurate diagnosis and better visualization of periapical pathology.[58-60]

It is worth noting that despite the sizeable perforations and concomitant bone resorptions that rendered the canal architecture most challenging from a mechanical perspective, successful outcomes were achieved in both cases. Given these structural hazards created by the IRR, one can safely assume that the disinfection and subsequent filling of the canals were less than ideal.

Why, then, the success? The key is probably due to a thorough and detailed diagnostic workup utilizing CBCT that confirmed IRR. If the lesions were from a necrotic pulp, with external root biofilm, or if the multinucleated giant cells that were resorbing hard tissue had their origin

Figure 5.
A: Periapical radiograph of tooth #21. Large resorptive defect is noted in external cervical region. Blue arrows pointing to thin layer of predentin that appears to be running through defect. Outline is what remains of root canal wall. Tooth tested vital and diagnosis of invasive cervical root resorption was made. Due to minimal remaining tooth structure, extraction was advised. **B,C,D**: Sagittal, coronal, axial slices show resorptive defect external to root canal.

in the periodontal ligament and not the pulp space, success would probably not have been attainable nonsurgically. A larger sample size and longer-term follow-ups of 10 or more years would help to better assess the treatment outcomes for perforating IRR.

Conclusion

Two cases of extensive perforating internal root resorption, treated nonsurgically, are presented. A discussion of the biologic process of IRR, along with the need for an accurate diagnosis, shows that a nonsurgical approach in these situations should be the primary treatment plan. With the advent of bioceramic sealers, we now have the opportunity to treat perforating internal resorption with a more standard endodontic approach. The use of CBCT in the diagnostic planning phase is of critical importance in visualizing the full extent of the lesion.

Queries about this article can be sent to Dr. Stern at jstern5819@gmail.com.

REFERENCES

1. Patel S, Ford TP. Is the resorption external or internal? Dent Update 2007;34(4):218-229. doi:10.12968/denu.2007.34.4.218.
2. Harokopakis-Hajishengallis E. Physiologic root resorption in primary teeth: molecular and histological events. J Oral Sci 2007;49(1):1-12. doi:10.2334/josnusd.49.1.
3. Wedenberg C, Zetterqvist L. Internal resorption in human teeth—a histological, scanning electron microscopic, and enzyme histochemical study. J Endod 1987;13(6):255-259. doi:10.1016/S0099-2399(87)80041-9.
4. Tronstad L. Root resorption—etiology, terminology and clinical manifestations. Endod Dent Traumatol 1988;4(6):241-252. doi:10.1111/j.1600-9657.1988.tb00642.x.
5. Calişkan MK, Türkün M. Prognosis of permanent teeth with internal resorption: a clinical review. Endod Dent Traumatol 1997;13(2):75-81. doi:10.1111/j.1600-9657.1997.tb00014.x.
6. Fuss Z, Tsesis I, Lin S. Root resorption—diagnosis, classification and treatment choices based on stimulation factors. Dent Traumatol 2003;19(4):175-182. doi:10.1034/j.1600-9657.2003.00192.x.
7. Haapasalo M, Endal U. Internal inflammatory root resorption: the unknown resorption of the tooth. Endodontic Topics 2006;14(1), 60–79. https://doi.org/10.1111/j.1601-1546.2008.00226.x.
8. Patel S, Ricucci D, Durak C, Tay F. Internal root resorption: a review. J Endod 2010;36(7):1107-1121. doi:10.1016/j.joen.2010.03.014.
9. Wang N, Knight K, Dao T, Friedman S. Treatment outcome in endodontics—The Toronto Study. Phases I and II: apical surgery. J Endod 2004 Nov;30(11):751-61. doi: 10.1097/01.don.0000137633.30679.74. PMID: 15505504.https://doi.org/10.1097/01.don.0000137633.30679.74.
10. Ricucci D, Russo J, Rutberg M, Burleson JA, Spångberg LS. A prospective cohort study of endodontic treatments of 1,369 root canals: results after 5 years. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2011 Dec;112(6):825-42. doi: 10.1016/j.tripleo.2011.08.003. PMID: 22099859.
11. Cabrini RL, Manfredi EE. Internal resorption of dentine; histopathologic control of eight cases after pulp amputation and capping with calcium hydroxide. Oral Surg Oral Med Oral Pathol 1957 Jan;10(1):90-6. doi: 10.1016/s0030-4220(57)80120-0. PMID: 13400487.
12. Solomon CS, Coffiner MO, Chalfin HE. Herpes zoster revisited: implicated in root resorption. Journal of Endodontics 1986;12(5), 210–213. https://doi.org/10.1016/s0099-2399(86)80157-1.
13. Weller RN, Brady JM, Bernier WE. Efficacy of ultrasonic cleaning. J Endod 1980 Sep;6(9):740-3. doi: 10.1016/S0099-2399(80)80185-3. PMID: 6935384.
14. Jensen SA, Walker TL, Hutter JW, Nicoll BK. Comparison of the cleaning efficacy of passive sonic activation and passive ultrasonic activation after hand instrumentation in molar root canals. J Endod 1999 Nov;25(11):735-8. doi: 10.1016/S0099-2399(99)80120-4. PMID: 10726540.
15. Blanken J, De Moor RJ, Meire M, Verdaasdonk R. Laser induced explosive vapor and cavitation resulting in effective irrigation of the root canal. Part 1: a visualization study. Lasers Surg Me. 2009 Sep;41(7):514-9. doi: 10.1002/lsm.20798. PMID: 19639622.
16. Boutsioukis C, Lambrianidis T, Kastrinakis E. Irrigant flow within a prepared root canal using various flow rates: a computational fluid dynamics study. Int Endod J 2009 Feb;42(2):144-55. doi: 10.1111/j.1365-2591.2008.01503.x. PMID: 19134043.
17. Yamada RS, Armas A, Goldman M, Lin PS. A scanning electron microscopic comparison of a high-volume final flush with several irrigating solutions: Part 3. J Endod 1983 Apr;9(4):137-42. doi: 10.1016/S0099-2399(83)80032-6. PMID: 6406635.
18. Calt S, Serper A. Time-dependent effects of EDTA on dentin structures. J Endod 2002 Jan;28(1):17-9. doi: 10.1097/00004770-200201000-00004. PMID: 11806642.
19. Zehnder M. Root canal irrigants. J Endod 2006 May;32(5):389-98. doi: 10.1016/j.joen.2005.09.014. PMID: 16631834.
20. Mohammadi Z. Sodium hypochlorite in endodontics: an update review. Int Dent J 2008 Dec;58(6):329-41. doi: 10.1111/j.1875-595x.2008.tb00354.x. PMID: 19145794.
21. Haapasalo M, Shen Y, Qian W, Gao Y. Irrigation in endodontics. Dent Clin North Am 2010 Apr;54(2):291-312. doi: 10.1016/j.cden.2009.12.001. PMID: 20433979.
22. Sjögren U, Figdor D, Spångberg L, Sundqvist G. The antimicrobial effect of calcium hydroxide as a short-term intracanal dressing. Int Endod J 1991 May;24(3):119-25. doi: 10.1111/j.1365-2591.1991.tb00117.x. PMID: 1778624.
23. Safavi KE, Nichols FC. Effect of calcium hydroxide on bacterial lipopolysaccharide. J Endo 1993 Feb;19(2):76-8. doi: 10.1016/S0099-2399(06)81199-4. PMID: 8509740.
24. Siqueira JF Jr, Lopes HP. Mechanisms of antimicrobial activity of calcium hydroxide: a critical review. Int Endod J 1999 Sep;32(5):361-9. doi: 10.1046/j.1365-2591.1999.00275.x. PMID: 10551109.
25. Peters LB, van Winkelhoff AJ, Buijs JF, Wesselink PR. Effects of instrumentation, irrigation and dressing with calcium hydroxide on infection in pulpless teeth with periapical bone lesions. Int Endod J 2002 Jan;35(1):13-21. doi: 10.1046/j.0143-2885.2001.00447.x. PMID: 11858203.
26. Siqueira JF Jr, Guimarães-Pinto T, Rôças IN. Effects of chemomechanical preparation with 2.5% sodium hypochlorite and intracanal medication with calcium hydroxide on cultivable bacteria in infected root canals. J Endod 2007 Jul;33(7):800-5. doi: 10.1016/j.joen.2006.11.023. PMID: 17804315.
27. Benenati FW. Treatment of a mandibular molar with perforating internal resorption. J Endod 2001 Jul;27(7):474-5. doi: 10.1097/00004770-200107000-00010. PMID: 11504000.
28. Nunes E, Silveira FF, Soares JA, Duarte MA, Soares SM. Treatment of perforating internal root resorption with MTA: a case report. J Oral Sci 2012 Mar;54(1):127-31. doi: 10.2334/josnusd.54.127. PMID: 22466897.
29. Ebeleseder KA, Kqiku L. Arrest and calcification repair of internal root resorption with a novel treatment approach: report of two cases. Dent Traumatol 2015 Aug;31(4):332-7. doi: 10.1111/edt.12171. Epub 2015 Mar 15. PMID: 25771955.
30. Meire M, De Moor R. Mineral trioxide aggregate repair of a perforating internal resorption in a mandibular molar. J Endod 2008 Feb;34(2):220-3. doi: 10.1016/j.joen.2007.11.011. PMID: 18215687.
31. Jacobovitz M, de Lima RK. Treatment of inflammatory internal root resorption with mineral trioxide aggregate: a case report. Int Endod J 2008 Oct;41(10):905-12. doi: 10.1111/j.1365-2591.2008.01412.x. Epub 2008 Aug 11. PMID: 18699793.
32. Brito-Júnior M, Quintino AF, Camilo CC, Normanha JA, Faria-e-Silva AL. Nonsurgical endodontic management using MTA for perforative defect of internal root resorption: report of a long-term follow-up. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2010 Dec;110(6):784-8. doi: 10.1016/j.tripleo.2010.07.008. PMID: 21112535.
33. Takita T, Tsurumachi T, Ogiso B. Endodontic treatment of a maxillary lateral incisor with a perforating internal resorption by using cone beam computed tomography as a diagnostic aid: a case report. Quintessence Int 2011 Oct;42(9):745-52. PMID: 21909499.
34. Bhuva B, Barnes JJ, Patel S. The use of limited cone beam computed tomography in the diagnosis and management of a case of perforating internal root resorption. Int Endod J 2011 Aug;44(8):777-86. doi: 10.1111/j.1365-2591.2011.01870.x. Epub 2011 Mar 4. PMID: 21371054.
35. Kothari HJ, Kumar R. Endodontic management of a mandibular second premolar with perforating internal resorption by using MTA and cone beam computed tomography as a diagnostic aid. J Conserv Dent 2013 Jul;16(4):380-4. doi: 10.4103/0972-0707.114343. PMID: 23956546; PMCID: PMC3740655.
36. Mittal S, Kumar T, Mittal S, Sharma J. Internal root resorption: an endodontic challenge: a case series. J Conserv Dent 2014 Nov;17(6):590-3. doi: 10.4103/0972-0707.144612. PMID: 25506152; PMCID: PMC4252938.
37. Bendyk-Szeffer M, Łagocka R, Trusewicz M, Lipski M, Buczkowska-Radlińska J. Perforating internal root resorption repaired with mineral trioxide aggregate caused complete resolution of odontogenic sinus mucositis: a case report. J Endod 2015 Feb;41(2):274-8. doi: 10.1016/j.joen.2014.10.007. Epub 2014 Nov 22. PMID: 25459569.
38. Borkar S, de Noronha de Ataide I. Management of a massive resorptive lesion with multiple perforations in a molar: case report. J Endod 2015 May;41(5):753-8. doi: 10.1016/j.joen.2014.12.022. Epub 2015 Feb 26. PMID: 25728818.
39. Hsien HC, Cheng YA, Lee YL, Lan WH, Lin CP. Repair of perforating internal resorption with mineral trioxide aggregate: a case report. J Endod 2003 Aug;29(8):538-9. doi: 10.1097/00004770-200308000-00011. PMID: 12929703.
40. Altundasar E, Demir B. Management of a perforating internal resorptive defect with mineral trioxide aggregate: a case report. J Endod 2009 Oct;35(10):1441-4. doi: 10.1016/j.joen.2009.06.017. PMID: 19801247.
41. Saoud TM, Mistry S, Kahler B, Sigurdsson A, Lin LM. Regenerative endodontic procedures for traumatized teeth after horizontal root fracture, avulsion, and perforating root resorption. J Endod 2016 Oct;42(10):1476-82. doi: 10.1016/j.joen.2016.04.028. Epub 2016 Aug 26. PMID: 27576211.
42. Kaval ME, Güneri P, Çalışkan MK. Regenerative endodontic treatment of perforated internal root resorption: a case report. Int Endod J 2018 Jan;51(1):128-137. doi: 10.1111/iej.12784. Epub 2017 May 29. PMID: 28439906.

43. Arnold M. Reparative endodontic treatment of a perforating internal inflammatory root resorption: a case report. J Endod 2021 Jan;47(1):146-155. doi: 10.1016/j.joen.2020.09.022. Epub 2020 Oct 14. PMID: 33065177.
44. Main C, Mirzayan N, Shabahang S, Torabinejad M. Repair of root perforations using mineral trioxide aggregate: a long-term study. J Endod 2004 Feb;30(2):80-3. doi: 10.1097/00004770-200402000-00004. PMID: 14977301.
45. Zhang H, Shen Y, Ruse ND, Haapasalo M. Antibacterial activity of endodontic sealers by modified direct contact test against Enterococcus faecalis. J Endod 2009 Jul;35(7):1051-5. doi: 10.1016/j.joen.2009.04.022. PMID: 19567333.
46. Camilleri J, Formosa L, Damidot D. The setting characteristics of MTA Plus in different environmental conditions. Int Endod J 2013 Sep;46(9):831-40. doi: 10.1111/iej.12068. Epub 2013 Feb 26. PMID: 23441890.
47. Barbosa FO, Gusman H, Pimenta de Araújo MC. A comparative study on the frequency, location, and direction of accessory canals filled with the hydraulic vertical condensation and continuous wave of condensation techniques. J Endod 2009 Mar;35(3):397-400. doi: 10.1016/j.joen.2008.12.009. PMID: 19249603.
48. Al-Haddad A, Che Ab Aziz ZA. Bioceramic-based root canal sealers: a review. Int J Biomater 2016;2016:9753210. doi: 10.1155/2016/9753210. Epub 2016 May 3. PMID: 27242904; PMCID: PMC4868912.
49. Kharouf N, Hemmerlé J, Haikel Y, Mancino D. Technical quality of root canal filling in preclinical training at Strasbourg University using two teaching protocols. Eur J Dent 2019 Oct;13(4):521-526. doi: 10.1055/s-0039-1698848. Epub 2019 Dec 31. PMID: 31891969; PMCID: PMC6938450.
50. Zavattini A, Knight A, Foschi F, Mannocci F. Outcome of root canal treatments using a new calcium silicate root canal sealer: a non-randomized clinical trial. J Clin Med 2020 Mar 13;9(3):782. doi: 10.3390/jcm9030782. PMID: 32183124; PMCID: PMC7141324.
51. Zhang W, Li Z, Peng B. Ex vivo cytotoxicity of a new calcium silicate-based canal filling material. Int Endod J 2010 Sep;43(9):769-74. doi: 10.1111/j.1365-2591.2010.01733.x. Epub 2010 Jun 8. PMID: 20546044.
52. Ma J, Shen Y, Stojicic S, Haapasalo M. Biocompatibility of two novel root repair materials. J Endod 2011 Jun;37(6):793-8. doi: 10.1016/j.joen.2011.02.029. Epub 2011 Apr 13. PMID: 21787491.
53. Chen I, Karabucak B, Wang C, Wang HG, Koyama E, Kohli MR, Nah HD, Kim S. Healing after root-end microsurgery by using mineral trioxide aggregate and a new calcium silicate-based bioceramic material as root-end filling materials in dogs. J Endod 2015 Mar;41(3):389-99. doi: 10.1016/j.joen.2014.11.005. Epub 2015 Jan 14. PMID: 25596728; PMCID: PMC4415855.
54. Silva Almeida LH, Moraes RR, Morgental RD, Pappen FG. Are premixed calcium silicate-based endodontic sealers comparable to conventional materials? A systematic review of in vitro studies. J Endod 2017 Apr;43(4):527-535. doi: 10.1016/j.joen.2016.11.019. Epub 2017 Feb 16. PMID: 28216270.
55. Safi C, Kohli MR, Kratchman SI, Setzer FC, Karabucak B. Outcome of endodontic microsurgery using mineral trioxide aggregate or root repair material as root-end filling material: a randomized controlled trial with cone-beam computed tomographic evaluation. J Endod 2019 Jul;45(7):831-839. doi: 10.1016/j.joen.2019.03.014. Epub 2019 May 9. PMID: 31078325.
56. Gartner AH, Mack T, Somerlott RG, Walsh LC. Differential diagnosis of internal and external root resorption. J Endod 1976 Nov;2(11):329-34. doi: 10.1016/S0099-2399(76)80071-4. PMID: 1069086.
57. Gulabivala K, Searson LJ. Clinical diagnosis of internal resorption: an exception to the rule. Int Endod J 1995 Sep;28(5):255-60. doi: 10.1111/j.1365-2591.1995.tb00310.x. PMID: 8626208.
58. Lofthag-Hansen S, Huumonen S, Gröndahl K, Gröndahl HG. Limited cone-beam CT and intraoral radiography for the diagnosis of periapical pathology. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007 Jan;103(1):114-9. doi: 10.1016/j.tripleo.2006.01.001. Epub 2006 Apr 24. PMID: 17178504.
59. Ee J, Fayad MI, Johnson BR. Comparison of endodontic diagnosis and treatment planning decisions using cone-beam volumetric tomography versus periapical radiography. J Endod 2014 Jul;40(7):910-6. doi: 10.1016/j.joen.2014.03.002. Epub 2014 Apr 16. PMID: 24935534.
60. Rodríguez G, Abella F, Durán-Sindreu F, Patel S, Roig M. Influence of cone-beam computed tomography in clinical decision making among specialists. J Endod 2017 Feb;43(2):194-199. doi: 10.1016/j.joen.2016.10.012. PMID: 28132707.

Joseph C. Stern, D.D.S., is director of endodontics and clinical assistant professor of dental medicine at Touro College of Dental Medicine at New York Medical College, Hawthorne. A diplomate of the American Board of Endodontics, he is in private practice in Clifton, NJ.

Read, Learn and Earn
CE
CONTINUING EDUCATION

Clinical Pharmacology of Cannabis Relevant to Dentistry

Fran M. Gengo, PharmD, FCP

ABSTRACT

Cannabis is no longer an illicit drug but, rather, a drug whose use has dramatically increased because its recreational use is largely legal and its use in medicine has demonstrated efficacy in the treatment of many difficult-to-treat disorders, including chronic pain, spasticity and several cancer-related problems, to name a few.

This change represents several new challenges for dentists. Chronic cannabis use can increase the prevalence and severity of periodontal disease and dental caries. Cannabis also has been shown to alter the clinical pharmacokinetics and the magnitude of the clinical actions of many pharmacologic agents frequently used by dentists. This includes but is not limited to, local anesthetics, nonsteroidal anti-inflammatory drugs, medications with anticholinergic activity, opiates and sedative/anxiolytic medications.

This review is intended to provide the practicing dentist with an overview of the pharmacology and pharmacokinetics of cannabis, as well as a catalog of medications used in dentistry whose actions can be clinically altered in patients who frequently use cannabis.

Cannabis products are derived from the plant *Cannabis sativa*. Hence, patients using cannabis are taking an entourage of constituents, including major cannabinoids delta-9-tetrahydrocannabinol (Δ9THC), cannabidiol (CBD) and cannabinol (CBN), as well as other cannabinoids and non-cannabinoid phytochemicals, such as terpenes. Most of the constituents of the cannabis plant have some pharmacologic activity. The pharmacologic activity of the non-cannabinoid phytochemicals is the least well-understood, though rapidly evolving. Much more is known about the two main cannabinoids, Δ9THC and CBD.[1-3]

Δ9THC is the cannabinoid with the most potent central nervous system activity. It binds to endogenous cannabinoid receptors to produce its CNS effects. Δ9THC is metabolized to an array of cannabinoid metabolites; only the 11-hydroxy-THC metabolite has relevant psychopharmacologic activity, though its relative potency compared to Δ 9THC in humans is not clear, it is less than that of Δ9THC.[4]

When cannabis is absorbed through the lungs as a vaporized solution or smoked raw plant leaves, bioavailability of Δ9THC is reported to be around 25%, ranging from 2% to 56%, with several sources of variability. CBD bioavailability is reported around 31%, ranging from 11% to 45%. Following smoking, vaping or sublingual absorption via the buccal mucosa (i.e., tinctures), Δ9THC and CBD concentrations rise extremely quickly and then begin to decline.[5] Most first-pass hepatic metabolism is bypassed, so systemic uptake of ΔTHC is high, but the production of the active Δ9THC metabolite 11-hydroxy-THC is very limited. Conversely, when cannabis is consumed orally and swallowed,

absorption of ΔTHC and CBD is much slower and more limited due to the low-lipid solubility of the solution and significant first-pass hepatic metabolism. However, while delayed, production of the pharmacologically active 11-hydroxy-THC metabolite is much greater than when cannabis is smoked or vaped.[6,7] (Figure 1).

The absorption of oral formulations, such as tablets or capsules, is slower and more limited than the oral tinctures. Accordingly, cannabis preparations, either as medical cannabis or as recreational cannabis, when taken orally have a much slower onset of action and much longer duration of action.

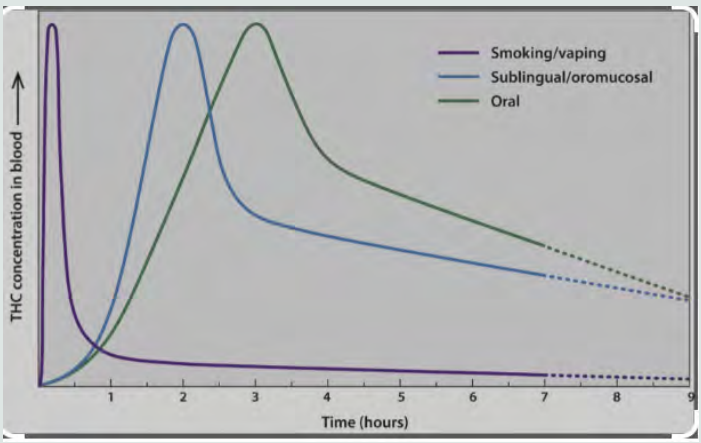


Figure 1 Time course of △9THC concentrations in blood following adminstration from smoking, sublingual and oral routes.

Evaluating Your Patient: Treat or Not Treat

Just as you would never consider providing dental treatment to a patient inebriated from alcohol, you should never knowingly treat a patient under the influence of cannabis. However, unlike alcohol, impairment from cannabis can be much more challenging for the clinician to detect.

Unlike alcohol, there is no reliable chemical analysis that will rule in or out cannabis intoxication. Some dental offices may have a low-cost portable ethanol breath test device to assist them in evaluating patients suspected of being under the influence of alcohol. A breath alcohol concentration higher than 0.08 gm/2100L is considered legally intoxicated, and the patient should not be treated or allowed to drive home.

With cannabis, there is no analogous device that could be used in a dental office. Even if such a device were to become available, it would not be of use since there is no reliable relationship between breath or mouth fluid cannabis concentrations and the magnitude of cannabis impairment. Even with state-of-the-art gas chromatography/mass spectroscopy analysis of blood cannabis concentrations, there has been no consensus regarding a "per se" cannabis blood concentration associated with impairment/intoxication.

The 2017 Department of Transportation National Highway Traffic Safety Administration Marijuana-Impaired Driving Report to Congress states, "While fewer studies have examined the relationship between THC blood levels and degree of impairment, in those studies that have been conducted the consistent finding is that the level of THC in the blood and the degree of impairment do not appear to be closely related. Peak impairment does not occur when THC concentration in the blood is at or near peak levels. Peak THC levels can occur when low impairment is measured, and high impairment can be measured when THC level is low. Thus, in contrast to the situation with alcohol, someone can show little or no impairment at a THC level at which someone else may show a greater degree of impairment." *(Compton 2017)*[8]

Further, a 2009 study showed that "some participants showed no impairment in motor control even at THC serum concentrations higher than 40 ng/ml." *(Hunault et al. 2009)*[8,9]

In addition, urine testing for cannabis fails to provide useful information to assist in determining cannabis intoxication since urine testing measures only the pharmacologically inactive metabolite of Δ9THC, Δ9Carboxy THC. This provides the clinician with no information about cannabis dose, time of consumption or likelihood of impairment.

It is also more challenging to clinically assess a patient for cannabis impairment as compared to alcohol impairment. In this the clinician faces the same challenge as the law enforcement community in assessing drivers suspected of cannabis impairment. Recent publications have reported that the established "Standardized Field Sobriety Tests" used by law enforcement for field evaluation of drivers suspected of ethanol intoxication are not reliable in cannabis impairment.[7]

The International Drug Evaluation & Classification Program provides some direction. This program, used by law enforcement, indicates that individuals "under the influence of cannabis" will have an elevated heart rate and blood pressure, dilated pupils, conjunctival injection, and impaired time and distance perception. While this evaluation tool has been shown to result in significant false positives, it may be useful to the dental clinician, since the consequence of a false positive may only be a rescheduled clinic visit rather than arrest and possible incarceration.[10]

Like so many other aspects of dentistry, the evaluation of the patient when the dentist suspects cannabis intoxication relies heavily upon the clinician's clinical judgment.

Medical vs. Recreational Cannabis

Medical cannabis and recreational cannabis have been shown to contain similar content of cannabinoids.[12] However, patients using medical cannabis in New York State are under the ongoing medical monitoring of the prescribing physician. In general, the dose of THC and the ratio of THC:CBD, the number of refills, etc., are monitored as part of the patient's ongoing medical care. Because the goal of therapy with medical cannabis is to produce efficacy without adverse effects, including impairment, these patients should not receive dental treatment "under the influence" of cannabis.

In New York State, a specially certified medical provider must grant an individual prescription for a qualified patient to be treated with medical cannabis. Initially, state regulations required that patients treated with medical cannabis have one of the following conditions:

- Chronic Pain
- Neuropathy / Radiculopathy
- Cancer
- PTSD (Post Traumatic Stress Disorder)
- Epilepsy
- Inflammatory Bowel Disease (IBD)
- Multiple Sclerosis (MS)
- Huntington's Disease and other Movement Disorders
- Migraine

This has recently expanded access to medical cannabis to all patients who may benefit as determined by provider's medical discretion. Certified medical providers recommend a specific medical cannabis formulation, specific THC:CBD ratio, and/or dose for each patient. The medical cannabis may only be obtained by patients at licensed dispensaries.

At the Dent Neurologic Institute, we offer medical cannabis for an array of neurologic disorders, including headache, multiple sclerosis, Parkinson's disease, neuropathies, concussion, brain tumor and trigeminal neuralgia.[13]

Our experience has been that, while medical cannabis efficacy varies between the various neurologic disorder being treated, patients tolerate medical cannabis well. Doses are titrated and monitored to provide clinical efficacy without impairment. In addition to symptomatic improvement in these disorders, we have found medical cannabis treatment results in dose reduction or discontinuation of opioid analgesics in patients with multiple sclerosis. Patients prescribed medical cannabis for migraines have reported improvement in migraine profile and common comorbidities, and there was a reduction in prescription medication, especially opioids. Side effects exist, with the majority being mild, and patients rarely reported symptoms of cognitive impairment.

Because of the above, patients presenting for dental care who are being treated with medical cannabis are not likely to be impaired because of their medical cannabis treatment. Unless the patient is obviously impaired, there should be no reason to limit or modify dental procedures, or non-pharmacologic dental treatments.

Drug-Drug Interactions in Dentistry

There is a paucity of clinical data regarding drug-drug interactions with cannabis because clinical research with cannabis is limited by the federal government, which continues to classify cannabis as a Schedule I controlled substance. The federal classification continues despite New York State's legalization of both medical and recreational cannabis. The Schedule I federal classification is defined as drugs with no currently accepted medical use and a high potential for abuse. Some examples of Schedule I drugs include heroin, lysergic acid diethylamide (LSD), marijuana (cannabis), 3,4-methylenedioxymethamphetamine (ecstasy), methaqualone and peyote. Clinical research involving Schedule I compounds requires federal certification that is beyond most clinical research facilities.[24]

There are, however, at least three known major mechanisms of drug interactions that involve ΔTHC and or CBD. These include:

1. Pharmacodynamic Interactions: medications with CNS depressant or anticholinergic activity.
2. Protein-binding displacement of highly protein-bound drugs by Δ9THC or CBD.
3. Overlap with cytochrome P450 hepatic isoenzymes or other drug metabolizing enzymes.

Cannabis and Medications with Anticholinergic Effects

Well-known effects of cannabis include temporary xerostomia and tachycardia. Relevant to dentistry, this anticholinergic-induced xerostomia can raise the risk of tooth decay, increasing the importance of good dental hygiene in frequent cannabis users. There is evidence this anticholinergic activity of cannabis contributes to Δ9THC-induced tachycardia and blood pressure elevations.[16] Therefore, the use of any medications with additional anticholinergic effects would be expected to make cardiovascular effects more severe.

In a 1976 study authored by Benowitz and Jones, cardiovascular responses to isoproterenol, atropine and/or propranolol were measured before and after ingesting Δ9THC capsules for 14 days. This study found significantly increased heart rates during Δ9THC ingestion after atropine +/- propranolol administration and noted that atropine at doses of 0.02 mg/kg and higher may induce hypertension in patients using Δ9THC. Dentists are cau-

tioned about the use of known anticholinergic medications in patients frequently using cannabis, including atropine, diphenhydramine, chlorpheniramine, promethazine doxylamine and hydroxyzine. There are, however, many other medications not commonly thought of as anticholinergic medications that produce anticholinergic effects, including furosemide, oxybutynin, trazadone, amitriptyline and carisoprodol.

Cannabis and Local Anesthetics

It is important that patients who are chronic users of cannabis, even while "not under the influence," never be treated with local anesthetics containing epinephrine. As described earlier, the pharmacokinetics of cannabis are such that concentrations of Δ9THC can linger for several days, long after the observable CNS effects have dissipated. These patients, when treated with an epinephrine-containing local anesthetic, can experience clinically serious tachycardia, peripheral vasodilatation and oxygen desaturation with elevated risk of cerebral or myocardial infarction.[17,18]

Cannabis and CNS Depressants used to Pre-Medicate Anxious Patients

Δ9THC has been shown to interact with CNS depressants to pharmacodynamically increase their CNS depressant effects.

The literature is replete with studies examining the interaction between Δ9THC and barbiturates and found additive pharmacodynamic effects.[17,55]

There is a similar exaggeration of the effects of benzodiazepines and cannabis. This is not unexpected since the molecular effects of Δ9THC in the brain are at least partially mediated at central nervous system benzodiazepine receptors. However, in addition to the pharmacodynamics synergism between Δ9THC and benzodiazepines, these compounds can interact, increasing CNS depression when there is completion for or inhibition of drug-metabolizing enzymes. Because of this, when benzodiazepines must be used in dental patients who are frequent users of cannabis, they should be used in the lowest possible doses, and those benzodiazepines that undergo the least hepatic iso enzymatic metabolism, such as lorazepam or oxazepam rather than diazepam.[19,20]

Cannabis and Opioids

Several studies have demonstrated that cannabis can have an opioid-sparing effect in populations of chronic pain patients.[21,22] This means that when cannabis is co-administered with opioids, many patients are able to reduce or discontinue opioid use. A study of 21 chronic pain patients taking morphine or oxycodone found that administration of vaporized cannabis did not significantly alter plasma opioid levels but resulted in significantly decreased pain.[?] This indicates a pharmacodynamic interaction between opioids and cannabis, resulting in significant pain reduction.

This opioid-sparing effect of cannabis, however, is only relevant in patients chronically using opiates, and who have developed a degree of tolerance to the CNS depressant effects of opiate. The use of opiates in dentistry is much more likely for the acute analgesic effects in opiate-naïve patients. In this setting, a patient also frequently using cannabis is much more likely to experience an enhanced CNS depression when opiates are prescribed, including respiratory depression. Hence, dentists should use caution or avoid use of opiates in patients who are chronic cannabis users.

Cannabis and NSAIDS

Nonsteroidal anti-inflammatory drugs (NSAIDS) are frequently used following dental procedures, including extractions and endodontic procedures. While the use of these analgesics in frequent cannabis users is much safer than the use of short-term opiates, the metabolism of many NSAIDS is affected by ΔTHC or CBD. There are important drug metabolism pathways inhibited by ΔTHC or CBD. Those most relevant to dentistry would include ibuprofen, naproxen, diclofenac and meloxicam. These medications produce effects in addition to analgesia, including inhibition of platelet aggregation and elevation of blood pressure. In each of these cases, if a dental patient is known to be a frequent user of medicinal or recreational cannabis, use of a lower dose should be considered to avoid bleeding complications and elevated blood pressure.[23]

Medications with Potential to Interact with Cannabis

CBD is known to inhibit several hepatic isoenzymes and UDP glucuronosyltransferase enzymes involved in the metabolism of many common pharmaceuticals. Both Δ9THC and CBD can either inhibit or compete for various hepatic isoenzymes.

Summary

Whether because of decriminalization/legalization of marijuana laws or the growing number of patients using medical cannabis, the dentist will be faced with understanding how cannabis might affect his/her practice. This includes evaluation of potentially cannabis-impaired patients presenting to the office, as well as how cannabis use by patients might affect medications commonly prescribed by dentists.

The author has declared no financial interests. Queries about this article can be sent to Dr. Gengo at fgengo@dentinstitute.com.

REFERENCES

1. ElShohly MA, Slade D. Chemical constituents of marijuana: the complex mixture of natural cannabinoids. Life Sciences 2005;78(5):539-548.
2. ElSohly MA, Radwan MM, Gul W, Chandra S, Galal A. Phytochemistry of cannabis sativa L. Phytocannabinoids 2017:1-36.
3. Russo EB. Taming THC: potential cannabis synergy and phytocannabinoid-terpenoid entourage effects. British Journal Pharmacology 2011;163(7):1344-1364.
4. Martin BR, Kallman MJ, Kaempf GF, Harris LS, Dewey WL, Razdan RK. Pharmacological potency of R- and S-3'-hydroxy-delta 9-tetrahydrocannabinol: additional structural requirement for cannabinoid activity. Pharmacol Biochem Behav 1984;21(1):61-65.
5. Grotenhermen F. Pharmacokinetics and pharmacodynamics of cannabinoids. Clin Pharmacokinet 2003;42(4):327-360.
6. Wall ME, Sadler BM, Brine D, et al. Metabolism, disposition, and kinetics of delta-9-tetrahydrocannabinol, in men and women. Clin Pharmacol Ther 1983;34(3):352–63A.
7. Huestis MA, Henningfield JE, Cone EJ. Blood cannabinoids: I. absorption of THC and formation of 11-OH-THC and THCCOOH during and after smoking marijuana. J Anal Toxicol 1992;16(5):276–82.
8. Marcotte TD, Umlauf A, Grelotti DJ, et al. Evaluation of field sobriety tests for identifying drivers under the influence of cannabis: a randomized clinical trial. JAMA Psychiatry 2023;80(9):914-923.
9. Transportation Safety Initiative (Rev.2018, February). Drug Recognition Expert Course Participant Manual. National Highway Traffic Safety Administration.
10. Gengo FM, Kirsch JM, Janofsky JS. A Critical Evaluation of the Scientific and Statistical Validity of the Drug Recognition Evaluation (DRE) Program. In Inside the Minds: Understanding DUI Scientific Evidence 2012 (pp. 139-170). Aspatore Books.
11. Aladeen TS, Mattle AG, Zelen K, Mesha M, Rainka MM, Geist T, Myers B, Mechtler L. Medical cannabis in the treatment of Parkinson's disease. Clinical Neuropharmacology 2023;46(3), 98–104.
12. Mechtler LL, Gengo FM, Bargnes VH. Cannabis and migraine: it's complicated. Curr Pain Headache Rep 2021 Feb 25;25(3):16.
13. Rainka MM, Aladeen TS, Mattle AG, Lewandowski E, Vanini D, McCormack K, Mechtler L. Multiple Sclerosis and use of medical cannabis: a retrospective review of a neurology outpatient population. Int J MS Care 2023 May-Jun;25(3):111-117.
14. Hart P, Mechtler L, Ralyea C, Bargnes V, Benyovszky A, Wang Y, & Kerling D. (2021). Medical Cannabis in the Treatment of Neuropathy (4596). Neurology, 96 (15_supplement), 4596.
15. Hendrick JR, Hendrick LG. Cannabis: what dental providers need to know. RDH, 2021, Dec 8.
16. Rechthand M, Bashirelahi N. What every dentist needs to know about cannabis. Gen Dent 2016;64(1):40-43.
17. Gengo FM, Mattle AG, Ralyea Jr CC. Cannabis – Drug Interactions: Implications for Medicinal Cannabis Use. In: Medicinal Usage of Cannabis and Cannabinoids. Martin, Patel, & Preedy. Academic Press. 2023 Jun 2. 297-317.
18. Hasanpoor A, Akaberi M, Kesharwani P, Sobhani Z, Sahebkar A. Drug interactions with cannabis sativa: Mechanisms and clinical implication. Toxicologie Analytique et Clinique. 2023 Nov 3.
19. Brown JD. Potential adverse drug events with tetrahydrocannabinol (THC) due to drug-drug interactions. J Clin Med 2020;9(4):919. Published 2020 Mar 27.
20. Greenblatt DJ, Shader RI, Divoll M, Harmatz JS. Benzodiazepines: a summary of pharmacokinetic properties. Br J Clin Pharmacol 1981;11 Suppl 1(Suppl 1):11S-16S.
21. Nielsen S, Sabioni P, Trigo JM, et al. Opioid-sparing effect of cannabinoids: a systematic review and meta-analysis. Neuropsychopharmacology 2017;42(9):1752-1765.
22. D I Abrams 1, P Couey, S B Shade, M E Kelly, N L Benowitz Cannabinoid-opioid interaction in chronic pain. Clin Pharmacol Ther. 2011 Dec;90(6):844-51.
23. Rongrong Jiang 1, Satoshi Yamaori 1, Yasuka Okamoto 1, Ikuo Yamamoto 2, Kazuhito Watanabe 1 3Cannabidiol Is a Potent Inhibitor of the Catalytic Activity of Cytochrome P450 2C19Drug Metabolism and PharmacokineticsVolume 28, Issue 4, 2013, Pages 332-338.

Fran M. Gengo, PharmD, FCP, is associate professor, University at Buffalo, departments of Pharmacy and Neurology, and chief science officer and director, Neuropharmacology Division, Dent Neurologic Institute, Amherst, NY.

An Unusual Presentation of Langerhans Cell Histiocytosis:

Case Report and Review of the Literature

Aaron E. Yancoskie, D.D.S.; Ghazeleh Peiravani, D.D.S.; Jordana S. Rothenberg, D.D.S.; Anthony S. Alessi, D.M.D., M.D.; Heather Z. Fugazy, D.D.S.

ABSTRACT

Langerhans cell histiocytosis (LCH) is a destructive process that may involve both hard and soft tissues. While rare, it has a predilection for the oral and maxillofacial region. LCH occurs across the age range yet is often diagnosed in the pediatric population. The dentigerous cyst (DC) is the most common developmental odontogenic cyst. It typically presents in young adult patients as a solitary lesion associated with impacted third molars. Here we present a case of LCH occurring in the wall of a DC in a 12-year-old male.

The dentigerous cyst (DC), also known as the follicular cyst, is the most common developmental odontogenic cyst, representing up to approximately 25% of all gnathic cysts.[1-5] DCs typically present in the second to fourth decades, and demonstrate a modest predilection for men compared to women.[1-5]

Radiographically, DCs show a unilocular radiolucency associated with the crown of an impacted tooth, most commonly a mandibular 3rd molar.[1-5] The histopathological findings include a fibrovascular connective tissue wall with a non-keratinized epithelial lining.[1-5] In the absence of a substantial inflammatory infiltrate, the non-keratinized epithelial lining is thin and shows a flat interface with the connective tissue wall.[1-3]

The DC is often an incidental radiographic finding; however, the potential for significant expansion exists.[6] In such cases, clinical features may include displacement of the regional anatomy (e.g., teeth and the inferior alveolar nerve canal), cortical expansion, facial asymmetry and, uncommonly, paresthesia and pain.[1-3] In rare instances, cortical expansion and thinning may lead to elevated risk for pathologic fracture of the jaw.

Definitive management comprises complete excision.[2] Extremely rare cases of transformation to odontogenic tumors and squamous cell carcinoma have been reported.[1-5] However, no reports have documented a DC in association with Langerhans cell histiocytosis (LCH).

Case Report

A 12-year-old male with no known medical diagnoses presented to oral and maxillofacial surgery for evaluation of an impacted right maxillary canine. CBCT demonstrated a 2.9 x 2.0 cm well-circumscribed unilocular radiolucency in the anterior maxilla associated with tooth #6 (Figure 1). An incisional biopsy was performed. A general pathologist diagnosed the specimen as a developmental cyst, commenting on focal characteristics of Langerhans cell histiocytosis. The impacted canine was extracted, and the cyst enucleated under general anesthesia.

The gross specimen was submitted to oral and maxillofacial pathology. It consisted of multiple pieces of tan-

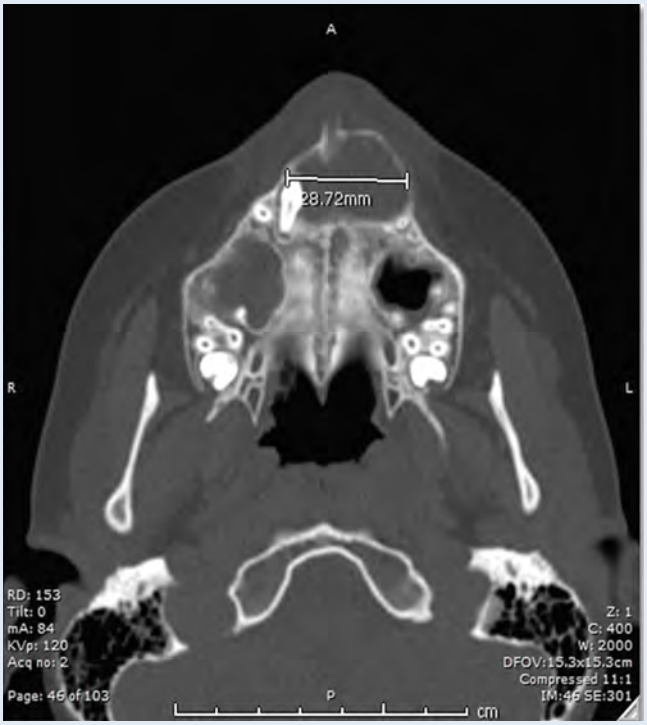


Figure 1. Axial section of CT image showing well-circumscribed radiolucency associated with impacted tooth #6 in anterior maxilla.

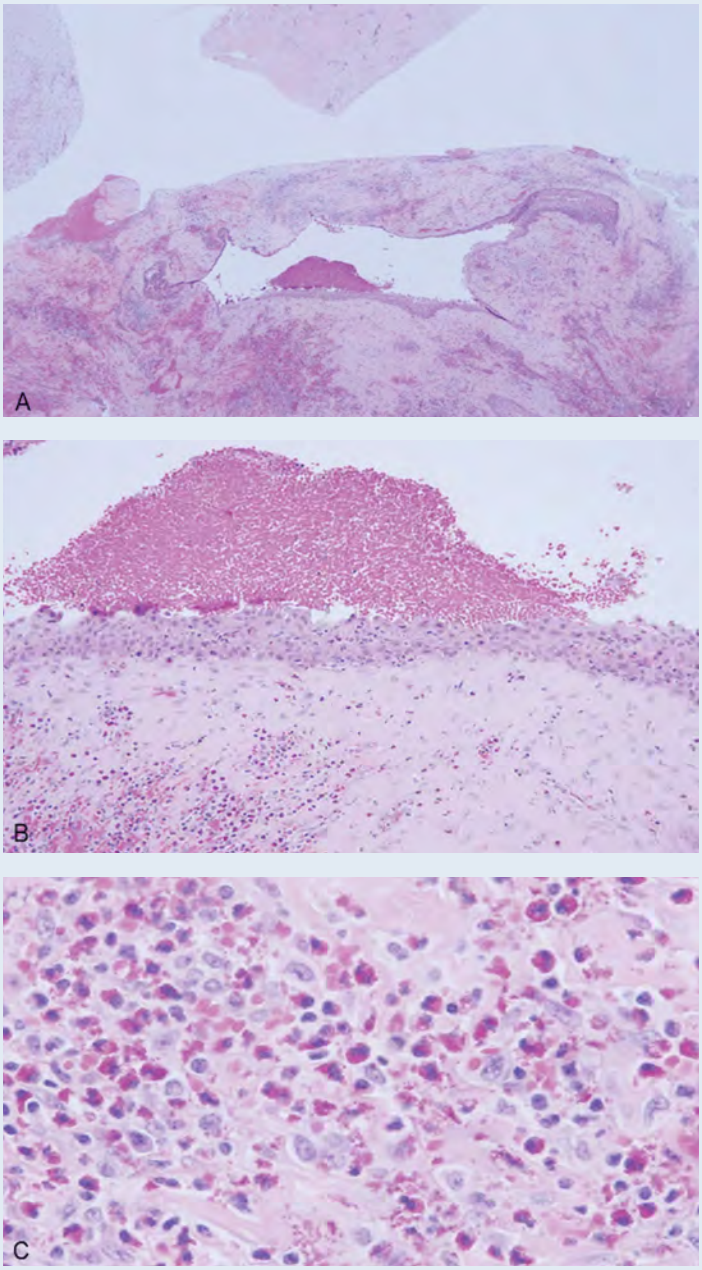


Figure 2. Microscopic features of DC and associated LCH: A) Cystic process and associated fibrovascular connective tissue wall possessing focally intense inflammatory infiltrate (H&E* x40); B) Cyst lining consisting of non-keratinizing stratified squamous epithelium with mixed inflammatory infiltrate in associated connective tissue wall (H&E* x200); C) Inflammatory infiltrate including histiocytic cells, plasma cells, lymphocytes, numerous eosinophils; histiocytic cells possess indented nuclei and delicate chromatin (H&E* x400). *Hematoxylin and eosin.

red soft and hard tissue measuring 3.5 x 2.5 x 2.0 cm in aggregate. Microscopic review showed a cystic lining of non-keratinized stratified squamous epithelium with an inflamed fibrovascular connective tissue wall (Figures 2A,B). The inflammatory infiltrate included plasma cells, lymphocytes, numerous eosinophils and a population of histiocytoid cells possessing a central depression (Figure 2C). The histiocytoid cells stained positively for antibodies directed against CD1a (Figure 3A) and S-100 (Figure 3B), confirming the diagnosis of LCH. Molecular analysis for *BRAFV600E* mutation was negative.

The patient was referred to pediatric hematology and oncology for management. Additional radiographic studies confirmed that disease was limited to the maxilla. Initial treatment included a six-week regimen of vinblastine and prednisone. Minimal response was observed, and further treatment comprised six cycles of clofarabine. Management was complicated by brief hospitalizations for a neutropenic fever and, later, an episode of herpes zoster of the right buttock. Following his second chemotherapeutic regimen, the patient has been free of disease for 36 months.

Discussion and Review of the Literature

LCH is a disease characterized by destruction of bone and soft tissue by infiltrates of dendritic-like cells positive for S-100, CD207, CD1a and histiocytic markers.[7] It is a rare disease that occurs in both the pediatric and adult populations. The incidence in childhood is approximately one case in 200,000 per year.[7] The rate in the adult population is suspected to be similar; however, epidemiological information is not well-documented in comparison to pediatric data.[7-8]

There has been a long-term debate as to whether LCH represents a reactive or neoplastic process. B-Raf proto-oncogene (BRAF) is located on chromosome 7 and encodes a

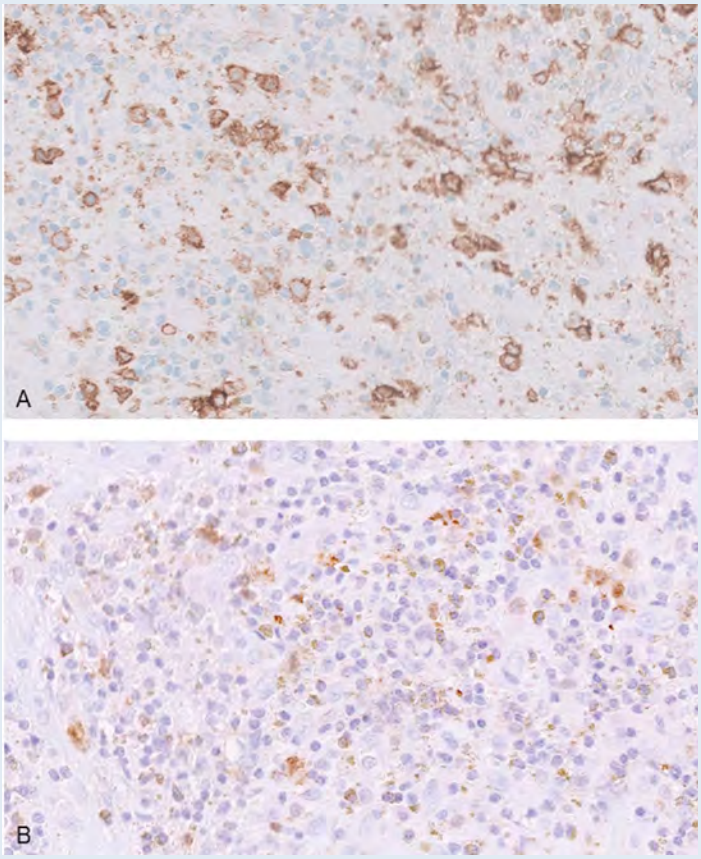


Figure 3. Immunohistochemical features of LCH: A) CD1a (Immunoperoxidase x400); B) S-100 protein (Immunoperoxidase x400).

protein involved in several cellular processes, including cell division and differentiation.[9] Mutations in this gene have been identified in melanoma, thyroid carcinoma, adenocarcinoma of the lung and hairy cell leukemia, as well as several other neoplastic processes.[9] The discovery of *BRAF* gene mutation in approximately 50% of cases and ERK pathway (a cell signaling pathway regulated by *BRAF* protein) activation in 100% of cases provides support that LCH indeed represents a true neoplasm.[9-10]

The clinical presentation demonstrates substantial heterogeneity, ranging from isolated unifocal lesions in soft or hard tissue to multiorgan involvement.[7-8] The bones of the skull are the most commonly involved osseous sites.[2,11,12] Clinical manifestations vary and may include pain, local swelling and loss of organ function.[2,8] Radiographic studies of bone involvement show single or multiple clearly circumscribed radiolucencies.[1] Involvement of the alveolar bone in dentate patients may produce a tooth "floating-in-air" appearance.[2] Histopathological findings include a proliferation of Langerhans-like cells, accompanied by lymphocytes, eosinophils, plasma cells and multinucleated giant cells in varying numbers.[7-8,10-11] The Langerhans-like cells possess indented nuclei and delicate chromatin,[13] yet cannot be distinguished from other histiocytic cells by standard light microscopy.[1-2] With appropriate clinical correlation, positive immunohistochemical staining for antibodies directed against S-100, CD1a and/or CD207 is specific for the diagnosis.[1-2,8,11,13]

Treatment of LCH ranges from observation, curettage or steroid injection for unifocal disease, to cytotoxic chemotherapeutics and targeted therapies for multi-focal and multi-system disease.[2,7-8,14]The prognosis for LCH depends upon the number and sites of involvement.[8] Prognosis is excellent for patients with disease involving only a single site, yet worsens with increased number of foci and organ systems.[1-2,8] Involvement of high-risk organs (liver, spleen and bone marrow) portend a poor prognosis.[7-8,11] Recurrence is reported in approximately one-third of all patients diagnosed with LCH.[8] The relative survival rate at five years for children is 90% and 70% for adults.[8]

While this is the first reported case of LCH occurring in the wall of a DC, LCH occurring in the wall of a periapical inflammatory cyst has been described in the literature. Rawal and colleagues presented a case of LCH associated with a periapical inflammatory cyst in a 42-year-old female. This patient presented with pain localized to the residual roots of tooth #19.[15] A 1.25 cm, well-circumscribed, unilocular radiolucency possessing a sclerotic border was identified around the apex of the roots. Similar to the case presented here, microscopic examination showed a cystic lining and an associated connective tissue wall possessing the typical LCH histopathogical findings, including CD1a positive histiocytoid cells. The patient was treated with curettage and demonstrated an absence of recurrence two years postoperatively.[15]

Concomitance of LCH with other neoplastic entities has been documented.[8] However, DCs are not considered neoplastic, but are thought to represent a reactive process,[1-6] in which expansion and growth are driven by fluid movement.[2] Select odontogenic cysts, including odontogenic keratocysts and calcifying odontogenic cysts, are known to harbor mutations, raising the question of whether they should be considered neoplasms.[5,16-17] However, underlying genetic aberrations have yet to be identified in DCs. It is probably the case that these two events, development of a DC and LCH, occurred as distinct processes.

A wide diversity of diseases may present with unilocular radiolucencies associated with impacted teeth. It is critical that these specimens be submitted for microscopic review, as some proportion will represent aggressive entities.

Queries about this article can be sent to Dr. Yancoskie at aaron.yancoskie@touro.edu.

REFERENCES

1. Wenig BM, Childers ELB, Richardson MS, Seethala RR, Thompson LDR. Atlas of Nontumor Pathology: Non-neoplastic disease of the head and neck. Fascicle 11, 1st series. Washington, DC: American Registry of Pathology, Armed Forces Institute of Pathology; 2017.
2. Neville BW, Damm DD, Allen CM, Chi AC. Oral and Maxillofacial Pathology. 4th ed. St. Louis: Elsevier; 2016.
3. Robinson RA. Diagnosing the most common odontogenic cystic and osseous lesions of the jaws for the practicing pathologist. Mod Pathol 2017;30:S96-103.
4. Zhang LL, Yang R, Zhang L, Li W, MacDonald-Jankowski D, Poh CF. Dentigerous cyst: a retrospective clinicopathological analysis of 2082 dentigerous cysts in British Columbia, Canada. Int J Oral Maxillofac Surg 2010;39:878–82.
5. EA Bilodeau, BM Collins. Odontogenic cysts and neoplasms. Surgical Pathology Clinics 2017;10:177-222.
6. Farah CS, Savage NW. Pericoronal radiolucencies and the significance of early detection. Aust Dent J 2002;47:262-265.
7. Allen CE, Beverley PCL, Collin M, Diamond EL, Egeler RM, Ginhoux F, Glass C, Minkov M, Rollins BJ, van Halteren A. The coming of age of Langerhans cell histiocytosis. Nat Immunol 2020;21:1-7.
8. Rodriguz-Galinodo C, Allen CE. Langerhans cell histiocytosis. Blood 2020; 135(16):1319-1331.
9. Gene [Internet]. Bethesda (MD): National Library of Medicine (US), National Center for Biotechnology Information; [1988] – . Gene ID: 673, Homo sapiens B-Raf proto-oncogene (BRAF); [cited 2022 Sept 21]. Available from: https://www.ncbi.nlm.nih.gov/gene/673.
10. Badalian-Very G, Vergilio JA, Degar BA, MacConaill LE, Brandner B, Calicchio ML, Kuo FC, Ligon AH, Stevenson KE, Kehoe SM, Garraway LA, Hahn WC, Meyerson M, Fleming MD, Rollins BJ. Recurrent BRAF mutations in Langerhans cell histiocytosis. Blood 2010;116(11):1919-23.
11. Felstead AM, Main BG, Thomas SJ, Hughes CW. Recurrent Langerhans cell histiocytosis of the mandible. Br J Oral Maxillofac Surg 2013;51:254-265.
12. Bedran NC, Carlos R, Benevenuto de Andrade BA, Bueno APS, Romanach MJ, Milito CB. Clinicopathological and immunohistochemical study of head and neck Langerhans cell histiocytosis from Latin America. Head Neck Pathol 2017;12:431-39.
13. Sholl LM, Hornick JL, Pinkus JK, Pinkus GS, Padera RF. Immunohistochemical analysis of Langerin in Langerhans cell histiocytosis and pulmonary inflammatory and infectious diseases. Am J Surg Pathol 2007;31:947–952.
14. Kobayashi M, Tojo A. Langerhans cell histiocytosis in adults: advances in pathophysiology and treatment. Cancer Sci 2018;109(12):3707-3713.
15. Rawal YB, Anderson KM, Mincer HH, Rawal SY, Tortorich AL. Langerhans cell histiocytosis in a periapical cyst: a wolf in a sheep's clothing? J Tenn Dent Assoc 2008 Fall;88(4):26-8; quiz 29-30.
16. Sekine S, Sato S, Takata T, Fukuda Y, Ishida T, Kishino M, Shibata T, Kanai Y, Hirohashi S. Beta-catenin mutations are frequent in calcifying odontogenic cysts, but rare in ameloblastomas. Am J Pathol 2003;163(5):1707-12.
17. Yukimori A, Oikawa Y, Morita K, Nguyen CTK, Harada H, Yamaguch S, Kayamori K, Yamaguchi A, Ikeda T, Sakamoto K. Genetic basis of calcifying cystic odontogenic tumors. PLoS One 2017;12(6):e0180224.


Dr. Yancoskie


Dr. Peiravani


Dr. Rothenberg


Dr. Alessi


Dr. Fugazy

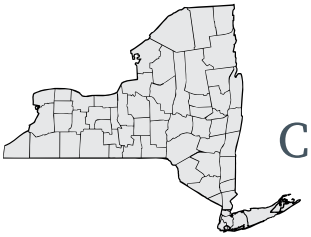
Aaron E. Yancoskie, D.D.S., is an attending pathologist, Westchester Medical Center Department of Pathology and Laboratory Medicine, and assistant dean for academic affairs and associate professor of dental Medicine, Touro College of Dental Medicine at New York Medical College, Hawthorne, NY.

Ghazeleh Peiravani, D.D.S., is in private practice in Houston, TX.

Jordana S. Rothenberg, D.D.S., is in private practice in Freeport, NY.

Anthony S. Alessi, D.M.D., M.D., is an attending surgeon, Westchester Medical Center and assistant professor New York Medical College, Department of Dental Medicine, Valhalla, NY.

Heather Z. Fugazy, D.D.S., is an attending surgeon, Phelps Memorial Hospital and assistant professor, New York Medical College Department of Dental Medicine, NY, NY.



Component NEWS

FIFTH DISTRICT

Congratulations, Amaus Dental Services

Janice Pliszczak, D.D.S., M.S., M.B.A.

Amaus Dental Services, an outreach program of the Catholic Diocese of Syracuse, celebrated the milestone of providing one million dollars of free dental care at a reception on May 3. The clinic opened in 2014 and hit the million-dollar mark just before Christmas 2023.

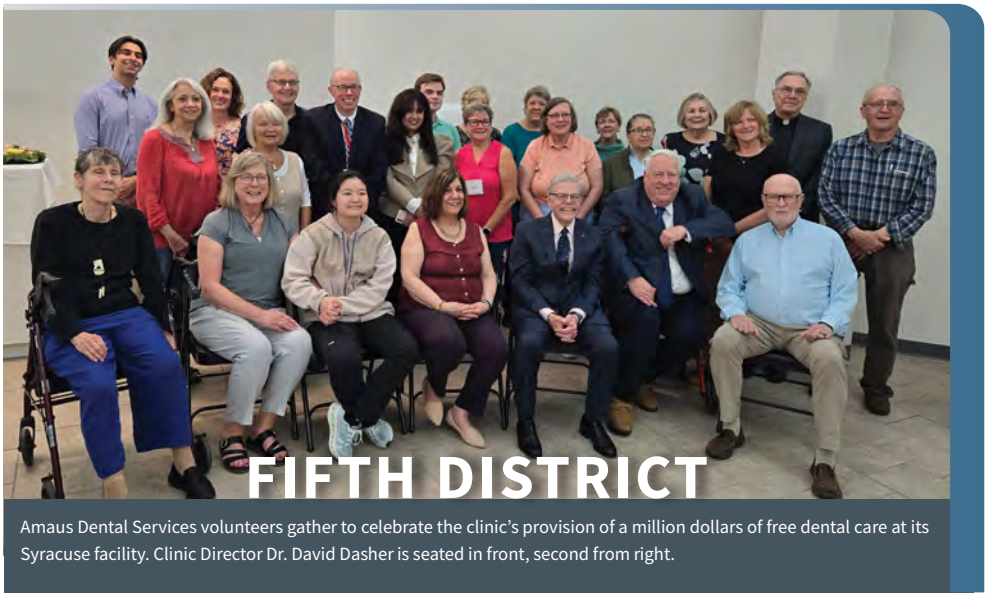
The clinic started with one operatory of used equipment and has grown to a three-operatory clinic with state-of-the-art technology, including electronic dental records, digital X-rays and a sterilization center. Adult patients, all seen by appointment, receive a variety of care, including hygiene, X-rays, direct restorative procedures, simple extractions and limited endodontics.

The clinic is run by volunteers, including seven dentists, three hygienists, four assistants and six administrative assistants. There are also a number of predental students who volunteer as dental assistants. To date, 17 of these students have been accepted to a number of dental schools.

Central New York Dental Conference (CNYDC)

The CNYDC will take place at the On-Center in Syracuse on Thursday and Friday, Sept. 12-13. It will feature a dental marketplace and courses for the entire dental team. Offerings on Thursday evening will be mandated courses in infection control and child abuse. On Friday, Dr. Jason H. Goodchild will present "Local Anesthesia: 6 Common Myths" in the morning and "Medical Emergencies in the Dental Office" in the afternoon. Dr. John Gammichia will present a full-day course entitled "Holy $&@?...I Didn't Know You Could Do That with Composite!"

Conference information can be found at cnydc.org.



FIFTH DISTRICT

Amaus Dental Services volunteers gather to celebrate the clinic's provision of a million dollars of free dental care at its Syracuse facility. Clinic Director Dr. David Dasher is seated in front, second from right.

NASSAU COUNTY

How Our Year Has Gone So Far

Eugene Porcelli, D.D.S., Executive Director

It's been a busy year here at the Nassau County Dental Society. We kicked off 2024 with our **President's Gala and Officer Installation** on Jan. 13 at the Crest Hollow Country Club in Woodbury. An elegant and fun night was had by all!

On Jan. 22, we had our first of six **Resident/New Dentist Seminars**, all geared to helping young dentists succeed in practice and their careers. We have one per month scheduled for January through June. Each seminar includes socializing and dinner in addition to the two-hour lecture.

Feb. 2 was our **Give Kids A Smile** event at the Cradle of Aviation Museum in Garden City. We saw over 1,000 children, providing them with dental exams, fluoride treatments, sealants, oral hygiene and nutritional counseling, as well as an eye screening. Children identified with acute dental needs were followed up with to provide treatment. Over the last 21 years, our event has grown into one of the largest GKAS events in the country. To date, we have seen over 18,000 children.

March 4 brought our first **General Membership Meeting** of the year, with dinner and a lecture by Drs. David Jurman and Andrew Pacinelli on the

NASSAU COUNTY

Past President David Miller congratulates 2024 President Douglas Schildhaus on his installation.

"Evolution of Full Arch Rehabilitation with Immediate Load." That was followed two days later by an **Oral Cancer Screening** for the public at the Nassau Coliseum, home of the Long Island Nets basketball team. Eleven volunteers screened attendees prior to the game that evening. Volunteers were treated with free tickets to the game, and we received a custom NCDS Jersey.

April 2-3 was the **Greater Long Island Dental Meeting**, cohosted by the Nassau and Suffolk County Dental societies. Over 1,000 people attended the day-and-a-half event. Thirty-six courses were offered, and over 80 exhibitors were present. Then, on April 18, we had a strictly social event for our young dentists that included axe throwing and human foosball. Over 30 people attended to enjoy dinner and fun competition and camaraderie.

May 13 saw another **General Membership Meeting**, featuring Dr. Gordon Barfield on the timely topic of "The A.I. Impact: How Artificial Intelligence is Changing Dentistry." Then, on May 23, we had a webinar geared toward our young dentists on **"Managing Student Debt: What to Do and What Not to Do."** Because it was an important topic, we made it available to young dentist members across the state free of charge.

And Where it's Going

In May, June and July, attention has been and will be focused on the NYSDA HOD and the changeover from Aptify to Salesforce/Fontiva. But, we have great events scheduled for the fall. First, on Sunday, Sept. 15, we have our **"Walk for Oral Cancer Awareness 2024"** at Bethpage State Park in Farmingdale. It's a 5K walk/run to raise funds for free oral cancer screenings for the public and for oral cancer research. There will be raffles, a DJ, free oral cancer screenings, and all the participants will receive a T-shirt.

Then on Friday, Sept. 27, we will present an all-day blockbuster course, cohosted by the Suffolk County Dental Society, with the nationally renowned speaker Dr. Roger Levin. His topic will

Dr. Miller administers oath of office to, from left, President-Elect Elyse Patrella, Vice President Maureen Tredwell, Secretary Kathy Noorozi-Leibowitz, Treasurer Howard Baylarian.

Volunteers apply sealants to children who turned out for Give Kids A Smile event at Cradle of Aviation Museum.

Long Island Nets fans benefited from oral cancer screenings provided by NCDS volunteers at Nassau Coliseum. Volunteers are posed behind team cheerleaders.

Nassau County *cont.*

be **"The Successful 21st Century Practice—Why Some Practices are Highly Successful and Others are Not!"**

Registration for both these events can be made on our website: www.nassaudental.org.

BRONX COUNTY

Officers Installed

Don Safferstein, D.D.S.

On June 11, the Bronx County Dental Society installed its new officers. They are: Dr. Jerica Cook, president; Dr. Jemima Louis, president elect; Dr. Kiri Tewari, secretary; and Dr. Don Safferstein, treasurer.

The installation was followed by a lecture given by Dr. Lawrence Holtzman and sponsored by Nobel Biocare. Dr. Holtzman's presentation was entitled "Office Based Oral Surgery."

Dinner and a Lecture

Plan to take advantage of the following upcoming lectures.

- **Sept. 10:** Dr. Jeffrey Hoos (sponsored by Kuraray Dental), "If You Can Do Composites Correctly, You Can Do Full-Mouth Reconstruction."
- **Nov. 12:** Dr. Dennis Bohlin, "Making a Difference: Substance Misuse and Your Patients."

All BCDS dinner lectures are presented free for dental residents at Bronx County hospitals.

THIRD DISTRICT

Staying the Strategic Course

Paula Tancredi, Executive Director

The Third District Dental Society has been following its strategic plan with great success. Members have been leading, hosting and attending new initiatives to raise awareness, increase involvement and improve inclusion.

Awareness

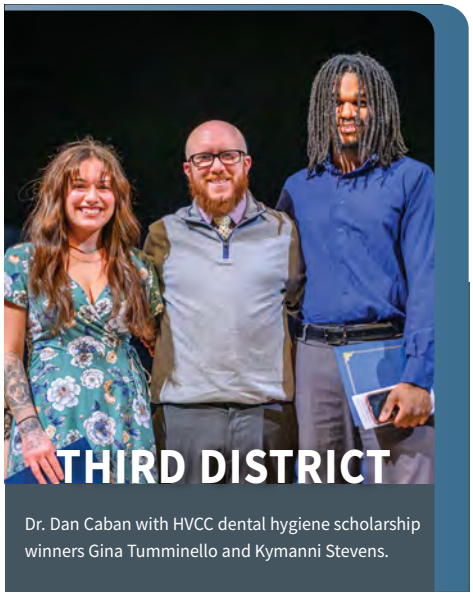
Capital Region Living magazine helped significantly with awareness just by recognizing the best dental practice and orthodontic office in the Capital Region. All of the "Besties" are members of the Third District Dental Society.

And the Third District gained a seat at the NYSDA House of Delegates. This year's attendees included Trustee Dr. Steven Essig, newly elected Trustee Dr. Geoffrey Gamache, District President Dr. Kendra Zappia, delegates Dr. Reed Ference and Dr. Michael Maloney, and Alternate Delegate Dr. Seth Farren.

Involvement

By being involved with the community, the Third District raises awareness. Networking among members and within the community is an important benefit of membership. Third District members partner as mentors and volunteers and enjoy attending events with one another.

Dr. Dan Caban was on hand at Hudson Valley Community College for presentation of dental hygiene pins to the Class of 2024. The Third District Dental Society donates the pins and offers scholarships to students. This year's first-year scholarship recipients were Gina Tumminello and Kymanni Stevens.



Dr. Dan Caban with HVCC dental hygiene scholarship winners Gina Tumminello and Kymanni Stevens.

Volunteers from the Third District joined Jeff McMinn, associate professor of the HVCC Dental Hygiene Program and his students on May 5 for the Special Olympics Special Smiles Screening event. It was held at Shenendehowa High School (High School East) and despite the rain, it was all smiles!

This year's Spring Social was held at The Bunker in North Greenbush. This is an annual gathering for members. The dentists had a great time getting their golf games ready!

Inclusion

Especially in the upstate districts, demographics tend to dictate where many, or sometimes all, events are

President Kendra Zappia, right, and practice partner and sister, Morgan Fryer, of Zappia and Fryer, voted number-one dental practice by readers of Capital Region Living Magazine.

Spring Social at The Bunker helped prepare participants for golf season.

NYS Mandated Infection Control
For Dentists and Dental Hygienists

The NYS Dental Foundation has launched a new digital format for mandated training that can be completed individually or as a group, at your own pace.

- Complete the order form.
- Share the links with your Team.
- Discover the newest protocols and best practices.
- Each team member completes a post-test and course evaluation.
- Receive your CE certificate.
- Approved by the New York State Education Department.
- Earn 3 home study CE credits.

NYSDA Members $100
Dental Hygienists $50
Dental Assistants $50
Nonmembers $150

About the Course

Infection Control in Dentistry:
A Practical Approach

Presented by Dr. Alyssa Tzetzo

Course objectives include reinforcing material to provide a safe working environment for dental health care personnel and their patients, reviewing seven core elements of NYS infection-control training while incorporating OSHA regulations and CDC recommendations, and discussing current infection-control practices.

Questions?

CE@nysdental.org

518-689-2727

To purchase the course, click here or scan the code.

NYSDF
New York State Dental Foundation
IMPROVING THE ORAL HEALTH OF ALL NEW YORKERS

Third District *cont.*

held. In the Third District, the majority of dentists practice in the Capital Region, yet the district extends over 70 miles south, down the New York State Thruway through the Catskill Mountains. So, we are making an effort to ensure that our members in the "southern tier" are included.

So far, we have held two Networking in New Paltz events; a Dental Practice Transition seminar in Saugerties, sponsored by Henry Schein; and Dr. Mario Catalano is breathing new life into the Ulster-Greene Study Club. The Study Club sponsored a continuing education course in Kingston on June 13.

NEW YORK COUNTY

Weight Loss Drugs Focus of April Lecture

Andrew S. Deutch, D.D.S.

The society's General Membership Meeting on April 29 featured Sarah Barenbaum, M.D., delving into the science behind today's popular weight loss drugs. Dr. Barenbaum specializes in the care of patients with obesity and weight-related medical complications. She discussed obesity as a chronic disease that is the underlining cause of multiple comorbidities and explored treatment goals and available anti-obesity medications, including the newest generation of weight-loss drugs, which are revolutionizing how weight loss is addressed and viewed.

Also addressing the meeting was NYCDS Secretary Egidio Farone, a member of the Board of the New York State Dental Foundation, who urged members to get involved with the foundation, as it is committed to improving the oral health of all New Yorkers and

On hand to celebrate Asian American Pacific Islander Month are, from left: President-Elect Vera Tang; Jarrett Mathews, Bank of America; NYSDA Vice President Maurice Edwards; panelist Ace Watanasuparp; President Suchie Chawla; panelist Minerva Patel; Past President Mina Kim; Chinese American Dental Association President Darryl Wu; NYSDA Executive Director Greg Hill; NYSDA DEI Task Force Chair Ioanna Mentzelopoulou.

President Suchi Chawla, far left, with members of New Dentist Wellness Subcommittee, from left, Shariss Ostrager Yassmin Parsaei, Treasurer Jaskaren Randhawa, Haemin Choin, Manisha Goswami, Jacqueline Dikansky.

Dr. Sara Barenbaum, left, presenter at April General Membership Meeting, with President Suchie Chawla and Secretary Egidio Farone.

supporting outreach to communities in need. Dr. Dennis Bohlin, longtime member of NYSDA's Committee on Substance Abuse and Well-Being, was on hand as well to encourage members, or someone they know, who may be struggling to reach out to him. He stressed the confidential, caring and safe nature of the committee's work.

Celebrating Asian American Pacific Islander Excellence

In honor of Asian American Pacific Islander (AAPI) Month, NYCDS, NYSDA and the Asian American Dental Society (AADS) hosted a special program on May 7 to celebrate Asian American Pacific Islander excellence. The celebration highlighted the many successes of the AAPI community and issued a call to action for the next generation to break down even more barriers.

NYCDS President Suchie Chawla welcomed members and reflected on her own journey as the daughter of Asian immigrant parents. NYSDA's Diversity, Equity and Inclusion Task Force Chair Ioanna Mentzelopoulou led an enlightening panel discussion featuring two inspiring Asian American panelists, Dr. Minerva Patel and businessman and entrepreneur Ace Watanasuparp. The event included a wonderful selection of dishes that reflected the diversity of Asian American and Pacific Islanders cuisine.

New Dentists Level-up Their Investing Knowledge

The New Dentist Committee held a program focused on "Money Matters: Strategies to Retire When and How You Want" in late March. Planning for retirement when one is just starting out professionally may seem like a paradox, but according to financial advisor Mitchell Brill with Altium Wealth Management, if you get things "right" during the accumulation years, then living your best life in retirement is feasible. There is so much involved when it comes to managing finances and investing, but this program was able to shed some light on a complex subject.

NEW YORK COUNTY

Dr. Dennis Bohlin, left, NYSDA Committee on Substance Abuse and Well-being, and Greater New York Dental Meeting Chair John Young Jr.

Members Attend Evening Focused on Health & Wellness

The New Dentist Wellness Subcommittee, spearheaded by Dr. Haemin Chin, organized a special event on May 1, a "Health & Wellness Fair: Optimizing Your Nutrition with Your Busy Schedule." It offered members and their staffs the opportunity to learn about different approaches to achieving health and wellness. The event was a celebration and exploration of healthy eating and living and featured several vendors who provided healthy dishes and a panel discussion by health-focused professionals with diverse viewpoints.

The fair was a change of pace and provided food for thought, body and mind!

Mark Your Calendars!

New York County & Second District Dental Societies Meeting Dates:
November 29th – December 4th
Exhibit Dates:
December 1st – December 4th
Jacob K. Javits Convention Center
11th Ave between 34th & 39th Street

Continuing Education

A special program to help grow your practice is scheduled for Aug. 7 via Zoom at no cost. The two-hour program, "Social Marketologist: Master Social Media & Video," will be led by Miral Sampat, a best-selling author, marketing strategist, social media coach and more.

The ADA is transitioning to a new database system. We anticipate opening registration again in mid-July. Be sure to visit www.nycdentalsociety.org in August to register for any of the great courses listed below. New courses are added regularly, so check our website frequently.

- **Aug. 7 6-8 p.m.:** "Social Marketologist: Master Social Media & Video," by Miral Sampat (Free; Zoom).
- **Sept. 11 9:30 a.m.-12:30 p.m.:** Lecture 1: "Diagnosis & Increased Treatment Acceptance," by Dr. Steven Katz.
- **Sept 11 1:30-4:30 p.m.:** Lecture 2: "They Didn't Teach Us That in Dental School," by Dr. Steven Katz.
- **Sept. 18 9:30 a.m.-4:30 p.m.:** "Innovations in Aesthetic Dentistry," by Dr. Michael Ghalili, D.M.D., M.S.D.
- **Sept. 25 6:30-9:30 p.m.:** Mandatory Prescriber DEA Education Renewal, by Dr. Gottlieb, D.D.S.
- **Oct. 10 9 a.m.-1 p.m.:** Infection Control for the Dental Practice, by Dr. Peter A. Mychajliw, D.D.S.
- **Oct. 18 9:30 a.m.-12:30 p.m.:** Lecture 1: "Workflows for Conservative Cosmetic Dentistry," by Dr. Priya Tirumalasetty, D.D.S.
- **Oct. 18 1:30-4:30 p.m.:** Lecture 2: "Smile Design Simplified," by Dr. Priya Tirumalasetty, D.D.S.
- **Oct. 23 7-9 p.m.:** OSHA-Mandated Update for Dentists and Staff, by Dr. Peter A. Mychajliw.

SEVENTH DISTRICT

And Implants Make Three

Becky Herman, Executive Director

Monroe County Dental Society offered the third event in a three-evening series March 14 with Dr. James Soltys presenting "Implant Failures: I thought these implants would be easier."

Seventh District *cont.*

Members Volunteer for GKAS Event

Seventh District members volunteered their time March 9 for the Give Kids A Smile (GKAS) event hosted by Monroe Community College (MCC) Dental Studies Program. Dentists gathered in a morning huddle with MCC dental hygiene students and instructors before sharing their expertise and knowledge to care for children in the community.

Thank you to Drs. Oriana Ly-Mapes, Peter Rivoli, Marci Mendola-Pitcher, Eduardo Torrado, John Pier Sullivan, Jay Skolnick and Ken Ronzo.

Careers Program Concludes with Dental School Tour

The Monroe County Dental Society (MCDS) Careers in Dentistry Program ended for the season with a field trip to the University at Buffalo School of Dental Medicine on April 5. Over 20 area high school and college students, along with program cochairs, Drs. Taylor Squires and Katie Strong, met with UB dental students and faculty to learn about the dental program and tour the school.

All in Fun

It was a fun night of networking and bowling when nearly 60 new dentists and residents got together April 11 at Radio Social. They were joined by sponsors CARR, Davie Kaplan, GRB, J&L Dental, Vision Financial and Walsh Duffield.

Seventh District Welcomes NYSDA President-Elect

Dr. Prabha Krishnan, NYSDA President-Elect, attended the Seventh District Dental Society Board of Directors meeting May 6 at the district office. Dr. Krishnan spoke to the Board about

On hand to witness induction of Dr. Eli Eliav into Pierre Fauchard Academy are, from left, Drs. Christopher Calnon, Fauchard Chair Jay Skolnick, Sean McLaren, Theresa Casper-Klock, Dr. Eliav, Michael Keating, William Calnon, Ronald Bellohusen, Willliam Hurtt.

New dentists and residents get together for evening of networking and bowling at Radio Social.

Business Chair Dr. James Roland, left, with Dr. Joseph Quevedo, presenter at May CE program.

the importance of projecting a unified voice and shared her commitment to "strive to ensure every dentist has a pathway to success and every patient access to care they deserve."

Seventh District Hosts Evening CE

The district hosted two evening CE events this spring. Dentists and staff gathered at Locust Hill Country Club on April 24 for a presentation by Dr. Robert Lang Jr. on "Digital Dentistry." Thank you to our sponsors Crane Dental Lab, Davie Kaplan, DDSmatch, GRB, Jim Kasper & Associates, M&T Bank, Patterson Dental, Straumann, Vision Financial and Walsh Duffield.

Dr. Joseph Quevedo presented "Managing Dental Trauma: Diagnosis and Treatment of Traumatic Injuries of the Dentition" on May 22 at the RIT Inn and Conference Center. Sponsors included BMG-CPA, DDSmatch, GRB, Urgent Dental Care, Vision Financial and Walsh Duffield.

Advocacy Activities

The Empire Dental Political Action Committee sponsored two events in May. Seventh District members met with Sen. Samra Brouk in Rochester on May 10 to discuss legislative issues impacting dentistry and the Rochester community. On May 17, members met at the home of Dr. Theresa Casper-Klock and Mr. Vincent Klock with State Sen. Rachel May to share information about the challenges facing dentists and their patients.

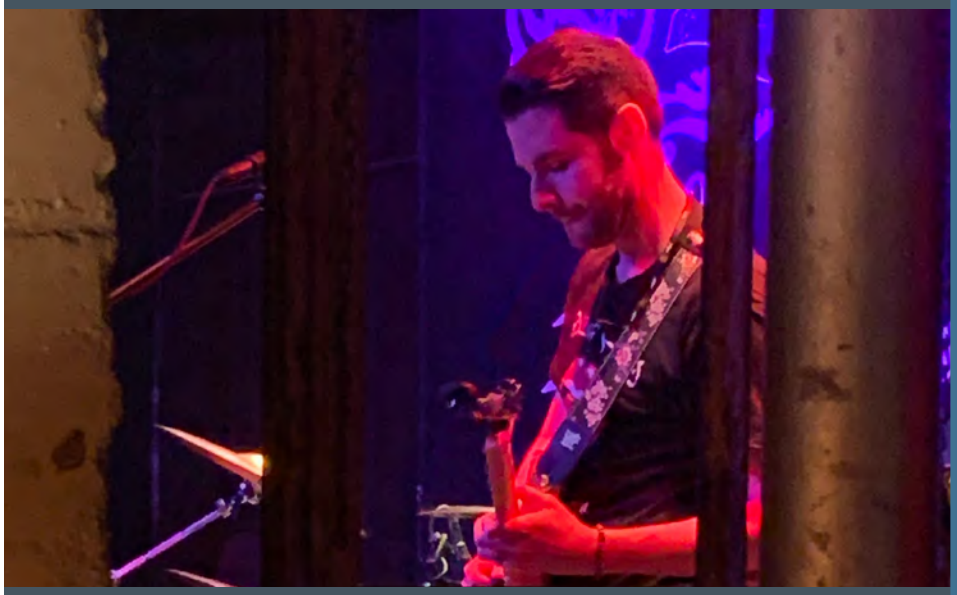
Dentists Make Music at Social

Dr. Vincent Marino (drums) and Dr. Taylor Squires (guitar and vocals) are members of a Rochester cover band, Glass Cannon, established in 2022. Glass Cannon delivered a high-energy, rock and pop performance on May 23 at Iron Smoke Distillery, where members of the Seventh District Dental Society gathered for an All-Member Social to support their friends and colleagues.

Monroe County Presents Awards

Monroe County Dental Society President Taylor Squires and Executive Di-

Dental hygiene graduate Matthew Tresoline displays excellence award he received from Monroe County Dental Society. Presenters include, from left, Seventh District Executive Director Becky Herman, Monroe County President Dr. Taylor Squires, Dr. Jay Skolnick.



Dr. Taylor Squires performing at Iron Smoke Distillery as part of Rochester cover band Glass Cannon.

SEVENTH DISTRICT

Seen at NYSDA House of Delegates meeting are, from left, Drs. Michael Keating, David Ramjattansingh, Rosemeire Santos-Teachout, William Hurtt, Theresa Casper-Klock, Christopher Calnon, Sean McLaren, Executive Director Becky Herman, Stephen Burgart.

Seventh District *cont.*

rector Becky Herman presented awards for Excellence in Total Patient Care to dental hygiene graduate Matthew Tresoline and dental assistant graduate Kristian Ange during the Monroe Community College Dental Studies Program Pinning Ceremony May 29. The graduates received a certificate and monetary award.

Dr. Eliav Inducted into Pierre Fauchard Academy

Congratulations to Dr. Eli Eliav, Seventh District member, director of the Eastman Institute for Oral Health and vice dean for oral health, School of Medicine and Dentistry, University of Rochester, on his induction into the Pierre Fauchard Academy, an international dental honor organization that recognizes leaders and future leaders of the profession.

Several Seventh District current and past Board members and EIOH faculty and staff were in attendance during the ceremony, held May 31 during the NYSDA House of Delegates meeting at Turning Stone.

Seen at House of Delegates Meeting

The Seventh District was represented at this year's New York State Dental Association House of Delegates meeting May 31-June 2 at Turning Stone Resort & Casino by Drs. Michael Keating, David Ramjattansingh, Rosemeire Santos-Teachout, William Hurtt, Theresa Casper-Klock, Christopher Calnon, Sean McLaren, Executive Director, Becky Herman and Stephen Burgart.

Thank you to our delegates who gave their time and wisdom for the betterment of dentistry in New York State.

SECOND DISTRICT

Speed Networking

Alyson Buchalter, D.M.D.

On Sunday, May 19, the SDDS New Dentist Committee hosted its first "Love Is Blind but Dentistry is NOT" speed networking event—a fun twist on the eponymous Netflix show. The goal was to bring "seasoned" dentists together with members of the SDDS new dentist community and dental residents. Practice sale and associate opportunities were discussed in a one-on-one forum. MLMIC gave a timely presentation and sponsored a sumptuous breakfast.

By all accounts, it was a fun and profitable event for all, with several follow-up meetings already planned. Good luck to everyone who took part. A special thank you to Drs. Theressa Eliscar, Stephanie Sager, Aia Shalan and Matthew Sciascia from the New Dentist Committee for making this happen.

NYSDA HOD

The Second District Dental Society is always proud of its delegates and alternate delegates to the NYSDA House, and this year was no exception. Our caucus was a diverse group. It included dentists of various ages and career stages, men and women, as well as several ethnic and cultural groups. Our delegation of 18 dentists included two SDDS past presidents, three RCDS past presidents and seven new dentists! Caucus members were very effective when they approached the microphones to address the Reference Committee and the entire HOD. Their comments undoubtedly influenced the deliberations of delegates from across the state.

As always, the SDDS wants to thank our fearless leader, President Tricia Quartey-Sagaille, our NYSDA Trustee John Demas and the rest of our great caucus: Drs. Paul Teplitsky, Valerie Venterina, Christen Carute, Kirstin Wolfe, Theressa Eliscar, Alyson Buchalter, Sandra Scibetta, Joseph Merola, Cherry Libramonte, Aia Shalan, Bryan Pieroni, Emma J. Guzman, Jose Santa-

Who's Who of past presidents, from left, Drs. Raymond Flagiello, Philip Buccigrossi, Richard Oshrain, Alyson Buchalter, Tricia Quartey-Sagaille, Babak Bina, Mitchell Mindlin, Stuart Segelnick, John Cavallaro Jr.

Speed networking organizers are, from left, Drs. Stephanie Sager, Aia Shalan, Theressa Eliscar, Matthew Sciascia.

SDDS Delegates, Alternate Delegates and staff gather at Turning Stone Resort for NYSDA House of Delegates meeting.

Second District *cont.*

na, Mitchell Mindlin, Stephanie Sager and Thema Hepburn for all the hard work and time each gave to our society and members. You made difficult but decisive decisions while making it look easy and, at times, fun.

In addition, the SDDS caucus proudly occupied multiple tables at the NYSDA Foundation Luncheon, proving once again SDDS generosity has no bounds. A special thank you to Mr. Bernard Hackett and Ms. Christine Terrio for keeping us all well-informed, on time and well fed!

ADA Lobby Day

SDDS was proudly represented by Drs. John Demas and Alyson Buchalter at this year's ADA Dentist and Student Lobby Day, April 7-9, in Washington, DC. This year's event had the added bonus of coinciding with the solar eclipse. The duo returned immensely excited by the advocacy efforts of the ADA on behalf of our members.

Drs. John Demas and Alyson Buchalter visit Washington Monument during break in ADA Dentist and Student Lobby Day activities.

Dr. Demas and Dr. Buchalter visited the offices of senators Schumer and Gillibrand, as well as several members of the House of Representatives in their districts. The ADA prepared them well to lobby on Capitol Hill on the many issues of import to ADA members. They brought back excitement and pride over the experience, reminding our members of one of the very important ways the ADA is working for us.

Residency Visits

Toward the end of each academic year, SDDS leaders spend time at all 13 general practice residency programs within our borders to remind the young women and men about to embark on their dental careers of how important organized dentistry is to their future. We stress how strong our combined voices are for advocacy, resources, networking and more. SDDS supplied the lunch and asked for a bit of their time in return, as well as their future contact information.

Thank you, Drs. Tricia Quartey-Sagaille, Saad Butt, John Demas, James Sconzo, Theressa Eliscar-Hewett, Mitchell Mindlin, Christen Carute, Cherry Libramonte and Stephanie Sager. They canvassed Brooklyn and Staten Island to help ensure graduating residents do not forget the SDDS and the benefits of membership.

Former President's Dinner

On May 9, the SDDS held its annual dinner to honor the men and women who have served our society as president. Joining the group for the first time was our current president, Dr. Tricia S. Quartey-Sagaille. Somehow, Dr. Quartey-Sagaille managed to avoid the usual hazing and ribbing as the newest member of the group, perhaps a testament to the great admiration and respect she has earned. A fun night was had by all.

SDDS Loan Forgiveness Program

Once again, the SDDS Board of Trustees has approved 20 $10,000 grants for the 2024 SDDS Student Loan Forgiveness Program. For the lucky but well-deserving recipients, the grant was delivered directly to their loan administrators. Congratulations to Drs. Chloe Andres, Benjamin Babaev, Claire Droumbakis, Ezekiel Dwek, Aram Ghafarian, Mark Goodenoug, Margo Harary, Thema Hepburn, Magda Jeznach, Karen Lee, Alan Meskin, Hasey Muchnicki, Maxine Navi, Gabriella Niyazov, Youstina Robil, Sejndi Rusi, Vahid Saeidi, Stephanie Sager, Aia Shalan and Mariam Vonderheide.

These newest members of the SDDS have already shown interest in being active in organized dentistry. We have seen many of them join SDDS committees, NYSDA councils and participate at the NYSDA HOD. The SDDS is proud to be able to help reduce the heavy burden so many young dentists face due to their student loan debt.

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 the appropriate fees: $35/dentists; $25/hygienists. Nonmember fees are: $65/dentists; $45/hygienists. 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.

Managing Perforating Internal Root Resorption Nonsurgically—Page 22-31

1. Root resorption is defined as loss of dental hard tissues as a result of clastic activities.
   ❑ T or ❑ F
2. The primary theory for what initiates internal root resorption (IRR) is multinucleate giant cells located in the granulation tissue that forms in response to infected coronal pulp tissue.
   ❑ T or ❑ F
3. IRR always produces symptoms.
   ❑ T or ❑ F
4. IRR requires the apical portion of the pulp to retain vital tissue in order to continue.
   ❑ T or ❑ F

Continued on following page

❑ *Enclosed is a check for the full amount. Members' fees are $35/dentists; $25/hygienists. Nonmember fees are $65/dentists; $45 hygienists. (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 _____

Email _____

ADA # _____

License # _____

NYSDA Member? ❑ yes or ❑ no

Local/State Dental Society _____

5. Usually, IRR is not first observed at a routine radiographic examination.
❑ T or ❑ F
6. The authors state that all-size lesions can have successful outcomes when planned and treated properly.
❑ T or ❑ F
7. The exact cause of IRR has been determined.
❑ T or ❑ F
8. When the pulp becomes completely necrotic the resorption process will halt.
❑ T or ❑ F
9. The most common treatment for IRR discussed in the literature is use of MTA.
❑ T or ❑ F
10. The use of CBCT (cone-beam computed tomography) in the diagnostic planning phase is critically important in visualizing the full extent of the lesion.
❑ T or ❑ F

Clinical Pharmacology of Cannabis Relevant to Dentistry—Page 32-37

1. The two main cannabinoids are Δ9THC and CBD.
❑ T or ❑ F
2. The pharmacologic activity of non-cannabinoid phytochemicals is well known.
❑ T or ❑ F
3. Δ9THC is the cannabinoid with the most central nervous activity.
❑ T or ❑ F
4. 11-hydroxy-THC is the cannabinoid metabolite that has relevant psychopharmacologic activity.
❑ T or ❑ F
5. Cannabis preparations when taken orally have a much slower onset of action and much longer duration of action.
❑ T or ❑ F
6. Impairment from cannabis is easy to detect.
❑ T or ❑ F
7. There has been no consensus regarding a "per se" cannabis blood concentration associated with impairment intoxication.
❑ T or ❑ F
8. It is important that patients who are chronic users of cannabis, even while "not under the influence," never be treated with local anesthetics containing epinephrine.
❑ T or ❑ F
9. Several studies have demonstrated that cannabis can have an opioid-sparing effect in populations of chronic pain patients.
❑ T or ❑ F
10. ΔTHC or CBD can inhibit drug metabolism pathways, including ibuprofen.
❑ T or ❑ F

An Unusual Presentation of Langerhans Cell Histiocytosis: Case Report and Review of the Literature—Page 38-41

1. Langerhans cell histiocytosis (LCH) is a destructive process that may involve only soft tissue.
❑ T or ❑ F
2. LCH occurs across all age ranges.
❑ T or ❑ F
3. The dentigerous cyst (DC) is an uncommon developmental odontogenic cyst.
❑ T or ❑ F
4. Radiographically, DCs show a unilocular radiolucency.
❑ T or ❑ F
5. DCs may lead to elevated risk of pathological fracture of the jaw.
❑ T or ❑ F
6. LCH does not normally destroy bone.
❑ T or ❑ F
7. There has been long-term debate as to whether LCH represents a reactive or neoplastic process.
❑ T or ❑ F
8. The prognosis for LCH depends on the number of sites involved.
❑ T or ❑ F
9. DCs are considered neoplastic.
❑ T or ❑ F
10. Unilocular radiolucencies associated with impacted teeth should be submitted for microscopic review, as some proportion will represent aggressive entities.
❑ T or ❑ F

To complete the questionnaire online, scan QR code above

CLASSIFIED
INFORMATION

Online Rates for 60-day posting of 150 words or less — can include photos/images online: Members: $200. Non-Members: $300. Corporate/Business Ads: $400. Classifieds will also appear in print during months when Journal is mailed: Jan and July.

FOR SALE

MID-HUDSON VALLEY: Thriving, fee-for-service orthodontic practice located in picturesque mid-Hudson Valley. 2023 collections over $2.1M with seller (solo practitioner) seeing patients about 100 days per year. Eleven total chairs in 4,500 square feet of clinical space. Real estate available for sale. Contact mattk@mcgillhillgroup.com for more information.

HUDSON VALLEY: General dental practice for sale with 25-year legacy. Robust patient base of 2,200 active patients and 30-35 new patients monthly primarily through referrals. Spacious, freestanding building features 6 fully equipped ops. Strong reputation for quality dental care despite minimal advertising. Highly profitable with 4-day week generating $1.04M collections and $430K EBITDA. Benefits from proximity to major cities while retaining charm of Hudson Valley. Real estate also available, enhancing investment appeal. For more information or to explore acquisition opportunities, please contact Professional Transition Strategies by email: bailey@professionaltransition.com; or call (719) 694-8320. Ref #NY40324.

STATEN ISLAND: Well-established solo general practice for sale by owner. Family-oriented practice grossing over $500K+ on 4.5-day week. Four rooms, 3 full operatories. FFS/PPO with Softdent/Visix. Full staff, part-time hygienist, strong recall system. Attractive, freestanding medical building on high visibility road within established residential neighborhood. Present owner will stay on as PT associate for smooth transition. Asking $350K with offers considered. Email Jack at: jfpjrdds27@gmail.com.

BROOKLYN: Boro Park dental condo for sale. Stop paying rent. 4-op dental condo with or without PT general practice. Good for specialists as very few in area. Great location, very busy area near all. Good for dentist starting out; be busy right away, or as second office with many potential patients in area. Purchase includes half ownership of entire building with rent-paying tenants. Very few properties available in area making great future investment. Owner flexible. Can stay on, or not, as needed or desired. Contact to discuss: dds7723@gmail.com.

NEW YORK METRO AREA: Well-established practice in prime NYC area. Beautiful office and great lease available in Woodside, Queens. Very negotiable. Current dentist unwell and looking to retire. Will stay on for short transition period if needed. Please contact to discuss. Email: hjameradds@gmail.com; or call (347) 453-9581.

UPSTATE/NORTHERN NY: Turnkey practice for sale in beautiful Upstate/Northern NY. Established dental practice in operation since 1988. Gross revenue exceeds $1M annually. Located approximately 1 hour north of Syracuse and close proximity to beautiful Thousand Islands area. Surrounding communities with great school districts include gorgeous Clayton (22 miles), Sackets Harbor (10 miles), Dexter (8 miles), Fort Drum (13 miles), along with Canadian border approximately 30 miles away. Practice has 9 operatories with digital X-ray, CBCT, 3D printing and Cerec. Practice can support 1—2 dentists with established patient caseload. Real estate also available. For more information, please contact Sean Hudson by phone: (585) 690-6858; or email: sean@hudsontransitions.com.

MIDTOWN MANHATTAN: Medical condo for purchase or lease. Located in prestigious Madison Medical Building located at Madison Ave. and 33rd Street. Condo of 1,250 square feet includes 3 large treatment rooms, spacious waiting room and front office, great subway and bus access, 24-hour doorman, central air and heat in unit controlled by tenant. Call for details: Jonathan Stravitz at (212) 252-8799.

GREATER ALBANY AREA: Premier general dental practice serving greater Albany community for nearly 20 years with focus on exceptional patient care and staff satisfaction. Located in modern, newly constructed medical office. Boasts five state-of-the-art operatories; expandable to seven. Poised for growth with 2,200 active patients and 10-15 new patients monthly. 100% FFS with $1.5M collections and EBITDA of $360K. Excellent opportunity for expansion by extending operating hours beyond current 4-day week. Real estate available. Albany's blend of urban and natural settings, along with rich cultural scene and affordability, makes ideal location for both professional and personal fulfillment. For more information, contact Professional Transition Strategies by email: bailey@professionaltransition.com; or call: (719) 694-8320. Reference #NY22124.

BRONX: Long-established general dental practice for sale in Kingsbridge area. Located in high-visibility building with significant foot traffic. Medicaid/Insurance /Private. 100% digital and paperless office with digital X-rays and practice software. 2-op practice with 1,100 square feet at $1,500/month. Parking available for dentist. Open Monday-Thursday from 10 to 4, creating lots of potential to grow practice. 2022 gross collections $399K. Asking $350K. Contact to discuss: Victor Henriquez at (347) 749-2049; or email: eribaez@hotmail.com.

ORANGE COUNTY: Established 32-year general practice for sale. Grossing $340K on 4-day week. 1,500 square feet; located in professional office building with plenty of parking. 100% insurance and private pay; no capitation. All phases of dentistry except ortho; some specialties referred. Four fully equipped ops with 5th room plumbed and wired, currently used for storage. Excellent opportunity; room for expansion and plenty of room for 2 dentists and 2 hygienists. Priced to sell. Inquiries to: dentistatwork57@gmail.com.

UPPER WEST SIDE: General dental practice for sale. 40-year practice in excellent location with 2 ops. All FFS; no insurance contracts. Referring out all endo, most perio and surgery. Low overhead. 2023 gross $290K. Priced to sell at $100K. Flexible terms. Seller can stay one year to work for new buyer. Excellent potential for the right person. Text: (917) 612-0042; or email: exceldent5@verizon.net.

CENTRAL NEW YORK: Established oral surgery practice now available for acquisition. Serving community for nearly two decades. Current owner open to various transition options. Located in Southern Tier region near Syracuse and Ithaca. Four well-equipped operatories with potential for expansion. Recently remodeled in spacious, freestanding building with real estate also available. In 2023, practice conducted 730 limited exams within FFS framework, generating collections of $1.245M and EBITDA over $185K. Operating just four days/week with minimal advertising presents significant growth opportunity. Central New York offers mix of cultural, recreational and economic benefits, low cost of living and strong school systems. Interested in learning more? Contact Professional Transition Strategies. Email: bailey@professionaltransition.com; or call: (719) 694-8320. Reference #NY42424.

BUFFALO: General dental practice for sale. Located in culturally rich and architecturally significant city of Buffalo. Opportunity includes two strategically situated practices, each with four operatories, totaling eight. Practice boasts over 2,000 active patients, with an influx of 32 new patients monthly, reflecting its strong community trust and reputation. Key financial highlights include collections of $1.9 million and EBITDA of $430K. Operational model accommodates both an owner-doctor and associate, fostering collaborative environment. Seeking partnership with either individual dentist or dental group that shares patient-first philosophy. Buffalo offers vibrant lifestyle with its cultural scenes, educational institutions and outdoor attractions. For more information and to review prospectus, contact Professional Transition Strategies. Email Bailey Jones at bailey@professionaltrasition.com; or call (719) 694-8320. Reference #NY122023.

SOUTHERN TIER: General dental practice for sale. Located in picturesque Southern Tier region of New York State, well-established general dental practice boasting over 30 years of exceptional patient care and community service. 100% FFS. Excellent investment opportunity, featuring 7 operatories (one plumbed but unequipped), allowing for immediate expansion and customization. Strong patient base of 3,350 active individuals, with 20-25 new patients monthly. Four-day workweek presenting significant growth potential by extending hours or services. Strategically positioned near major cities like Rochester, Syracuse and Scranton benefiting from low competition and proximity to vibrant community known for cultural richness and outdoor activities. Recent remodeling enhances real estate value, making an attractive purchase. Collections $1.6M and EBITDA nearly $300K. Prosperous venture for those aiming to continue legacy of success. For further details, contact Professional Transition Strategies by emailing Bailey Jones email: bailey@professionaltransition.com; or calling (719) 694-8320, referencing #NY21424. Unique chance to invest in thriving dental practice within community that offers affordable, quality lifestyle.

EASTERN LONG ISLAND: Well-established PPO/FFS dental practice/charts sale. In practice for 17 years with over 779 active patients and averages 10-15 new patients monthly. For details contact Transition Sales Consultant Chris Regnier at (631) 766-4501; or email: chris.regnier@henryschein.com. #NY3437.

TOMPKINS COUNTY: Well-established, high-quality general practice available to transition to new owner, or seller can stay as part of team. Located in Ithaca suburb, this beautiful standalone, 15-year-old building of 2,544 square feet has five ops, digital X-rays, utilizes Eaglesoft software and completely paperless. Revenue over $700K. One FT and one PT Hygienist. Real estate also available. Growing patient base, practice draws increasing number of new patients, with strong mixture of FFS. Great opportunity with doctor willing to stay on as part-time associate. For details contact Dental Practice Transitions Consultant Michael Damon by email: mike.damon@henryschein.com; or call (315) 430-9224. #NY3071.

ORANGE COUNTY: Family-oriented practice in desirable location experiencing explosive retail and residential growth, with completion and early success of Legoland. Well-established practice has served dental needs of area for past 30 years. Housed in 1,500-square-foot building with mixed tenants. Four fully equipped treatment rooms featuring contemporary up-to-date equipment, including intraoral camera, imaging scanner, Picasso laser unit and utilizes Dentrix and Dexis. Diagnostic, preventive and restorative-driven practice, with strong hygiene program. For details contact Dental Practice Transitions Consultant Chris Regnier at (631)766-4501; or email: chris.regnier@henryschein.com. #NY3257.

ERIE COUNTY: Located on busy road, surrounded by established residential population and beautiful town. 3-operatory digital practice well-positioned for future growth with $307K gross revenue. Crown & 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 Dental Practice Transitions Consultant Brian Whalen at (716) 913-2632; or email: brian.whalen@henryschein.com. #NY1648.

JEFFERSON COUNTY: Great opportunity. Long-established, profitable practice is must-see. Located minutes from downtown Watertown. Well-equipped 4-operatory practice sits on busy road, with great curbside appeal. Large private parking lot. Practice fully digital with pano X-ray and utilizes Eaglesoft. Revenue $730K with one FT Hygienist. Doctor only works 3 days/week (20 hours max). Seller refers out all endo, ortho and oral surgery. Practice positioned for growth. Primarily FFS, with 2,000 active patients. 2-story building also for sale with vacant apartments upstairs. Contact Dental Practice Transitions Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3385.

ONTARIO COUNTY: Long-established, highly productive practice with 2022 revenue of $1.4M. Nestled in backdrop of beautiful Finger Lakes wine-making country. Fully computerized, fully digital office with 7 well-equipped treatment rooms. Utilizes Dentrix Ascend PMS; Planmeca CBCT and digital impression systems added in recent years. 3,500 active patients and combination of insurance and FFS. Strong hygiene program. Well-trained team available for transition. Contact Dental Practice Transitions Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3395.

SUFFOLK COUNYY: Well-established general practice located in professional building that overlooks beautiful park and plenty of parking. Three fully equipped treatment rooms and open 4.5 days/week. Highly profitable, with collections over $570K. Collections based on 50% FFS and 50% PPO insurance. Seller open to transition options. For details contact Transition Sales Consultant Chris Regnier at (631) 766-4501; or email: chris.regnier@henryschein.com. #NY3470.

UPSTATE NY: Long-established practice in diverse community halfway between Binghamton and Syracuse; situated just minutes from area hospital and college on busy 2-lane road with excellent street visibility. Three operatories in 3,000 square feet and room to expand. Real estate also available. Building includes 2,000-square-foot rental apartment upstairs for great passive income. Three full-time employees, including one full-time Hygienist. 75% FFS and 25% PPO. Refers out all endo, ortho and oral surgery, offering great upside for new owner. 2022 gross collections $358K. Highly motivated seller. Contact Transition Sales Consultant Mike Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3488.

ONEIDA COUNTY: Bright, immaculate, all-digital, 100% FFS practice, with great curb appeal. Highly desirable location, with convenient access to highways. $900K+ revenue on 4-day workweek. Seller in practice for 30 years and committed to aiding in very successful transition. Four well-equipped operatories and Dentrix, all in efficiently designed 1,100-square-foot space. Thriving general practice averages 30+ new patients per month. Excellent turnkey opportunity. Contact Transitions Sale Consultant Mike Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3513.

SENECA COUNTY: Charming practice in heart of Finger Lakes region; 45-minute drive to both Rochester and Syracuse city centers. Digital practice offering 3 equipped ops, with 2022 revenue of $653K on 3 clinical days/week. Softdent, 2D pano and diode laser. 1,700-square-foot practice offers comprehensive dental care in welcoming environment. Full-time Hygienist and full administrative staff, all with excellent systems and training in place. 50% FFS. Refers out specialties. Real estate also available. Schedule to see this wonderful opportunity today. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3572.

MANHATTAN: Great opportunity to own private, well-established practice in elegant boutique residential apartment building with commercial street-front-level entrance in desirable area, close to Lexington Ave. 2 treatment rooms in 600 square feet, including intraoral camera, scanner, laser and digital X-ray in nicely renovated modern office. Collections in 2022 were $409K, driven by 60% PPO, 40% FFS and active patient base, with strong new patients per month. Great startup for younger doctor looking for successful Manhattan focal point. Contact Transition Sales Consultant Rikesh Patel by phone: (845) 551-0731; or email: rikesh.patel@henryschein.com. #NY3596.

ST. LAWRENCE COUNTY: Highly profitable, $550K+ revenue, all digital practice on just 3 day/week schedule. Located in scenic St. Lawrence County, along Canadian border. 5 well-equipped treatment rooms. Approximately 2,500-square-foot practice space with building available for sale. Large property with ability to expand footprint. Eaglesoft PM and iCat 3D. Refers out all Endo and Ortho. 1,200 active patients, with strong new patient flow. FFS practice with 1 in-network insurance. Doctor willing to stay on for 12 months to assist with transition. Priced to move. For more information, contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3632

WESTCHESTER: Holistic general dental practice for sale. 4 ops in spacious 1,800-square-foot suite in medical building. FFS office on pace to gross over $1.7M in 2023. Cone beam CT, Dentrix software, Trios scanner, as well as digital X-rays, computers, TVs in every operatory. Open only 4 days/week. Amazing opportunity to purchase profitable practice with huge growth potential in wonderful community. For details contact Transitions Sales Consultant Chris Regnier at (631) 766-4501; or email: chris.regnier@henryschein.com. #NY3641.

SOUTHERN ERIE COUNTY: Fantastic opportunity to grow in 3-op digital practice treating 1,100 active patients 3.5 days/week. Well-established patient base of mixed PPO and FFS. Real estate with apartment also available. Plenty of off-street parking. Low overhead and skilled team make great opportunity for profit and lifestyle. Contact Transition Sales Consultant Brian Whalen at (716) 913-2632; or email: Brian.Whalen@henryschein.com. #NY3661.

WESTERN NEW YORK: 5-op practice with 4,700 active patients and averaging 40 new patients per month. Well-established growing practice with loyal patient base. 86% insurance and 14% FFS. Fully digital pan, sensors, intraoral cameras and paperless charting, all integrated with Eaglesoft software. Building with off-street parking and additional rental units also for sale or lease. Outstanding staff and established patient base make this wonderful opportunity. Contact Transition Sales Consultant Brian Whalen at (716) 913-2632; or email: Brian.Whalen@henryschein.com. #NY3665.

SOUTHERN TIER: Long-established, stable, 8-op FFS practice. No in-network insurance. Located on main road, this standalone building offers great visibility and curb appeal. 2,620-square-foot, 100% digital practice utilizes computers throughout with Softdent, Carestream sensors and CS8100 panoramic X-ray. Well-trained, experienced team of professionals, including 4 full-time hygienists expected to transition with practice. Open 5 days per week with 4,100 active patients and healthy new patient flow. Doctor willing to stay on for up to 12 months to assist with transition. Priced to move. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3679.

CAPITAL REGION: Attractive 2,100-square-foot practice in professional building on busy main road. 5 well-equipped treatment rooms and 6th plumbed in long-established practice. Located in desirable, affluent community, with one of area's top school districts. Affordable rent with assignable lease. 100% digital, paperless and utilizes Eaglesoft. Doctor refers out all endo, implants, perio, ortho and some extractions. Primarily PPO. Schedule showing today, as seller looking to sell and transition quickly. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3691.

WESTERN NEW YORK: Fantastic opportunity to own well-established, thriving general practice in beautiful area. 5-ops, fully digital, paperless, supported by Eaglesoft software, with room to expand if desired. Strong hygiene team treats patients with care and has excellent recall. Sensors, scanner, laser, air, electric handpieces, CAD/CAM technology, Carivue detection and more. 60% PPO, 40% FFS, with 2,300 active patients. Real estate available. Turnkey opportunity. Contact Transition Sales Consultant Brian Whalen at (716) 913-2632; or email: Brian.Whalen@henryschein.com. #NY3695.

NASSAU COUNTY: 4-treatment-room practice based on 60% PPO insurance and 40% FFS. 1,100-square-foot office available for rent or purchase. Tremendous room for growth as doctor refers out endo, ortho, implants and oral surgery cases. Contact Transition Sales Consultant Chris Regnier at (631) 766-4501; or email: chris.regnier@henryschein.com. #NY3698.

JEFFERSON COUNTY: Well-established, spacious, 3,500-square-foot practice in beautiful, historic building housing 7 equipped treatment rooms, with 8th plumbed. Practice utilizes Dentrix PM software. FFS/PPO; only in-network with 2 insurances. Strong hygiene program, with dedicated team ready to stay on. All specialties referred out. Revenue $837K and positioned for continued growth. Stunning property also for sale includes 4 fully occupied residential apartment units. Doctor looking to stay on for extended period. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3719.

NEW YORK CITY: High-tech dental practice with CBCT, two scanners, two lasers and A-Dec dental chairs. Three equipped treatment rooms and 4th plumbed. Located in co-op that is also available for purchase. Collections consistently over $1.1M. Open 5 days/week. Contact Transition Sales Consultant Chris Regnier at (631) 766-4501; or email: chris.regnier@henryschein.com. #NY3722.

SUFFOLK COUNTY: Well-established, 1,500-square-foot practice averaging 45 new patients monthly. Three ops with one additional plumbed needing only dental chair/unit. Dentrix, Dexis and digital Pan. On heavily trafficked main road, with great visibility in standalone building shared with medical urgent care. Medicaid/PPO and FFS patients. Nicely appointed and excellent opportunity for growth. A must-see opportunity. Contact Transition Sales Consultant Chris Regnier at (631) 766-4501; or email: chris.regnier@henryschein.com. #NY3746.

WESTERN NEW YORK: Fantastic opportunity to own well-established, thriving practice in beautiful area. Well-established practice is growing and has loyal patient base made up of 86% insurance and 14% FFS. Fully digital Pan, sensors, i/o cameras and paperless charting all integrated with Eaglesoft. Building with off-street parking and additional rental units also for sale or lease. Outstanding staff and established patient base make this wonderful opportunity for new owner's future. Contact Practice Transition Consultant Brian Whalen at (716) 913-2632; or email: brian.whalen@henryschein.com. #NY3665.

JEFFERSON COUNTY: Well-established, spacious, 3,500-square-foot practice in beautiful historic building housing 7 equipped ops with 8th op plumbed. Utilizes Dentrix software. FFS/PPO; only in network with 2 insurances. Strong hygiene program with dedicated team ready to stay on. All specialties referred out. Revenue $837K and positioned for continued growth. Stunning property also for sale includes 4 fully occupied residential apartment units. Doctor looking to stay for extended period. Contact Practice Transition Consultant Brian Whalen at (716) 913-2632; or email: brian.whalen@henryschein.com. #NY3719.

NEW YORK CITY: State-of-the-art dental practice nestled in Upper East Side, one of NYC's most desirable neighborhoods, a stone's throw from iconic Central Park. Grossing $1.8M with seven meticulously designed operatories. Cutting-edge technology includes 3D imaging and Dentrix. Mostly FFS with some PPO insurance accepted. Open 4 days/week. 3,920 square feet located in professional building with plenty of room for growth. Contact Rikesh Patel by phone: (845) 551-0731; or email: rikesh.patel@henryschein.com. #NY3759.

CAPITAL REGION: Turn-key opportunity for well-established dental practice located in growing and desirable area conveniently located to downtown Albany, Saratoga and Schenectady, with revenue of $800K. Attractive, efficient 2,505-square-foot space with 5 fully equipped treatment rooms. Standalone building offers excellent visibility on busy two-lane main road also available for purchase. Digital office using Dentrix with pano X-ray, upgradable to 3D. Four dedicated full-time employees and three part-timers willing to stay after transition. Doctor refers out most specialties on 39-hour week. Must-see opportunity for any interested buyer looking to acquire successful, primarily FFS dental practice. Contact Transition Sales Consultant Michael Damon by phone: (315) 430-9224; or email: mike.damon@henryschein.com. #NY3942

ORANGE COUNTY: Attractive, boutique practice in efficiently designed 1,800-square-foot space located in well-maintained professional building. Offers great curbside appeal and visibility. Area voted one of best cities to live in US and located about 60 miles from NYC. Affordable lease. Long-established family practice offers 4 well-equipped treatment rooms. Digital, paperless practice utilizes PracticeWorks. Excellent opportunity to grow as doctor refers out all specialties on short, 3-day workweek. 100% FFS. Schedule showing today as seller looking to sell/transition quickly. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3925

CAPITAL REGION: Attractive, 1,400-square-foot facility located in professional building complex on high-traffic main road with great visibility. Affordable lease for renovated space. Long-established family practice offers four (4) well-equipped treatment rooms with bright and airy surroundings. Located in desirable community with one of area's top school districts. Softdent PM with digital sensors. Excellent opportunity to grow as doctor refers out molar endo, implants, perio and some extractions. Room for expanded clinic to grow to 6 ops. Practice open 3.5 days/week with 5.5 hygiene days. 60% PPO and 40% FFS. Schedule showing today as seller looking to sell/transition quickly. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3921

INDEX TO ADVERTISERS

NORTHERN NEW YORK: High-grossing, high-tech 7-op operatory general dentistry practice located in standalone building. Located near Canadian border. Beautiful practice offers great visibility and curb appeal. 3,000 square feet, 100% digital practice utilizes Eaglesoft with CBCT and CEREC. Highly trained, experienced team of professionals awaits, including 3 full-time hygienists expected to transition with practice. Open 4 days/week with 3,300 active patients and healthy new patient flow. Doctor willing to stay to assist with transition. Great turnkey opportunity. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3673.

MANHATTAN: Unique opportunity to acquire state-of-the-art 3-op general practice strategically located near iconic Central Park. Established insurance-based practice, providing accessibility in high-traffic area, boasts strong financials and solid foundation for immediate growth. Collections in 2023 were $946k with over 900 patients. Practice fully operational, allowing smooth transition for new owner to step in and continue success. Contact Rikesh Patel at (845) 551-0731; or email: rikesh.patel@henryschein.com. #NY3889.

HOWARD BEACH: Lucrative opportunity awaits in heart of Howard Beach. Well-established dental practice for sale featuring four fully equipped operatories and proven track record of success. With 2023 collections over $430K, practice poised for growth and presents excellent opportunity for new owner to step in and build upon its solid foundation. Office currently 50% PPO, 40% FFS and 10% Medicaid. Contact Transition Consultant Rikesh Patel at (845) 551-0731; or email: rikesh.patel@henryschein.com. #NY3792.

ST. LAWRENCE COUNTY: Explore unique opportunity with well-established practice nestled in scenic St. Lawrence County. Spacious 2,756-square-foot office offers outstanding work-life balance in area known for family-friendly environment and access to great outdoors. $1M annual revenue and exclusively FFS. Affordable, leased space with 6 ops is well-equipped with updated A-dec equipment and cabinetry. 100% digital, paperless office utilizing Eaglesoft, Schick sensors and Schick pano X-ray. Dedicated and well-trained team ready to support your professional vision. Seller highly motivated to facilitate smooth transition. Rare opportunity to acquire successful practice with solid foundation, committed team and potential for growth. Schedule visit today. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3546.

ONONDAGA COUNTY: Seize the opportunity to own well-established GP practice with rich 40-year history. 5-ops, spacious 2,751-square-foot office located in high-traffic area with ample parking lot. Advanced technologies, including imaging system, i/o camera, digital X-ray, digital pan and Softdent. Well-balanced revenue mix with 60% FFS and 40% PPO. Dedicated team willing to stay on with 7 hygiene days and 4-day week. Located 7 miles from Micron Technologies, future site of largest semiconductor plant in NYS. Excellent growth opportunity. Don't miss out on incredible chance to own your own practice and real estate. Schedule viewing today. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY3786.

OSWEGO: General practice for sale. High-visibility, established practice with convenient access to I-81. Growing community located less than 10 miles from future Micron SemiConductor plant, which will be one of country's largest. $1.1M revenue on just 28-hour week. 5 well-equipped operatories with recent addition of new hygiene room. 100% digital practice with newly added Pano X-ray and iTero scanner. Refers out all specialties. Mix of FFS/PPO. Don't miss out on this growing practice with seller committed to very successful transition. Schedule visit today. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com #NY4023.

ST. LAWRENCE COUNTY: Well-established, highly profitable, 100% FFS general practice with just 52% overhead. Turnkey. Annual revenue $750K+ on 4-day week. Standalone building with large parking lot located right on main road with excellent visibility. Building also available for sale with approximately 3,000 square feet of dedicated dental space. Room to double practice size based on recent clinic vacancy on other half of building. 4 fully equipped treatment rooms in 100% digital practice with Sirona Pan/Ceph imaging. Refers out some endo and oral surgery. Doctor willing to stay for extended period of time. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com #NY4019.

MONROE COUNTY: Looking for well-established, standalone GP practice with wonderful curb appeal? Here it is. Conveniently located in front of Wegmans Plaza, 1,400-square-foot dental space with commercial renters downstairs available for sale or lease. Located in one of Rochester's fastest growing suburbs. Digital practice offers four fully equipped treatment rooms and 4-day week with 6 days of hygiene. Primarily PPO with FFS. Motivated seller refers out all specialties. Don't miss out. Contact Transition Sales Consultant Michael Damon at (315) 430-9224; or email: mike.damon@henryschein.com. #NY4035.

FOR RENT

MIDTOWN MANHATTAN: Beautiful, brand new, state-of-the-art office with 1-2 spacious operatories for rent. Brand new A-Dec chairs and A-Dec cabinets. Office has new CBCT; very conveniently located in Midtown at 53rd Street and Madison Ave. Available Monday through Saturday; rent as few or as many days as needed. All ops have large windows and lots of sunlight. Perfect for GP or specialist. Please contact if you're interested in learning more: jpastagia@gmail.com.

MIDTOWN MANHATTAN: Newly decorated office with windowed operatory for rent FT/PT. Pelton Crane equipment, massage chair, front desk space available; shared private office, concierge; congenial environment. Best location on 46th Street, between Madison Avenue and 5th Avenue. Please call or email: (212) 371-1999; karenjtj@aol.com.

MIDTOWN MANHATTAN: Space for rent in great location. 1-2 operatories available full time or part time. Renovated, sunny, windows, with private office in 24-hour doorman building. Reasonable. Call or email for details: (212) 581-5360; or email: kghalili@gmail.com.

MIDTOWN MANHATTAN: Madison Avenue. Dental ops for rent part time. State-of-the-art office with FFS practice has 1-2 operatories available part time. Beautiful, new, large-windowed dental operatories with Pelton Crane equipment, massage chairs and 2 TVs at 12 o'clock and overhead. Pano/CT/Ceph available. Shared front desk area and shared private office. Best location—53rd Street and Madison Ave. Please send inquiries by email: lilya.alayeva@dentalserenity.us; or text only to: (646) 637-6350.

MANHATTAN: Lincoln Center/Columbus Circle. Dental office space to share. Clean, modern and renovated 3-op office in fine Art Deco building. Looking to rent one or two rooms. Afternoons on Monday-Thursday and all day Friday-Saturday available. Up-to-date equipment with Pan but no CT scan (CT scan available close by). Must have your own practice software, sensors and staff. No brokers, please. One day or two half days $475. Contact: service@drbeshar.com.

MANHATTAN: Reasonable, 5-op turnkey dental office for rent/lease in Mid 40's and Madison Avenue. Approximately 2,000-square-foot office with up to 10-year lease available. Doorman building with 24/7 use of dental office. Front desk space, private office, lab area, sterilization section, built-in Nitrous in all ops and windows in 4 of 5 ops. Located one block from Grand Central entrance. Various rental options available. Please call (516) 578-5039.

SERVICES

INTRAORAL X-RAY SENSOR REPAIR/SALES: American Sensor Tech. We repair broken sensors. Save thousands in replacement costs. Specializing in Kodak/Carestream, and major brands. We also buy/sell sensors. American SensorTech (919) 229-0483. Online at: www.repairsensor.com.

OPPORTUNITIES AVAILABLE

HUDSON: Seeking full-time dentist to join caring, warm, friendly and busy multi-discipline practice. Seeking motivated, personable general dentist for full-time position. Monday-Thursday 8:30 - 5:00; Friday 8:00 - 4:00. Daily minimum vs. draw 35% of collections less lab fees. Experience preferable. Candidates must be positive, motivated team players. Position available for immediate start. Call/email for more information, or forward resume for consideration. Phone: (518) 671-6002; or email: drbarry@aol.com.

WESTCHESTER COUNTY: Private practice in Pound Ridge, NY, seeks associate dentist. 4 days per week plus Saturdays. Candidate must have excellent communication skills and be comfortable in private practice environment. Please submit resume and references to: admin@poundridgecosmeticdentistry.com.

BAY RIDGE, BROOKLYN: Seeking part-time general dentist associate with experience. Must possess excellent clinical plus communication skills. Proficiency in all aspects of general dentistry. Must be team player and self-starter. State-of-the-art facility. Must be able to work Saturdays and Thursdays. Please call (347) 487-4888; or email: Studiodntl@gmail.com.

INDIANA: Dental Residency Director. Be part of first dental residency in Indiana. Federally Qualified Health Center (FQHC) committed to providing accessible, high-quality healthcare services to individuals and families. We improve health outcomes and promote wellness and create collaborative, supportive work environment where employees make meaningful impact. **Why Northwest Indiana?** Unique blend of urban amenities and natural beauty makes attractive place to live and work. Northwest Indiana provides something for everyone. **Why HealthLinc?** Work alongside dedicated professionals who share common goal of providing health equity and addressing healthcare disparities. Team-oriented culture fosters professional growth and development, with ongoing training and support. **Why this role?** Shape future dentists by directly influencing new dentists and their professional development, ethics and clinical skills; develop program and refine residency curriculum to integrate innovative practices, address evolving trends and ensure program meets high standards; in training residents you indirectly contribute to improvement of patient care; help address gaps in dental care accessibility; chance to nurture and inspire the next generation of dentists, and contribute to advancement of profession and improvement of dental care quality. Join our HealthLinc family and enjoy work that matters. For more info, contact Jennifer Wright by email: jwright@healthlincchc.org; or call (219) 299-8405.

EAST GREENBUSH: General dentist position available. Dr. Craig Alexander offers cosmetic dentistry services to East Greenbush and tri-city areas. Located 15 minutes south of Albany and 2 hours north of Manhattan. Offering everything from restorative treatment to dentures and implants. Growing team prides itself in providing gracious, comprehensive, state-of-the-art dentistry. Excited to partner with motivated, team player ready to take skillset to next level. Looking for growth opportunity? We encourage you to apply today. **What We Offer:** FFS office offering highest earning potential; opportunity to master technique, learn new skills and partner with incredible mentor. Competitive package of $900 per day or 32% of collections, whichever greater; 5% earned equity stake and no financial buy-in; stable and consistent FT schedule Mon-Thurs, 8:00 - 5:00; $10K signing bonus; $3K annual Continuing Education stipend; 3% SIMPLE IRA match; 100% lab fees covered for preferred labs. **What You Will Bring:** Confidence and drive to lead team to success; friendliness with team members and be practice leader; responsibility & ambition; care and compassion. **Qualifications:** DMD or DDS from accredited dental school or ready to graduate with DMD or DDS; must have or be applying for NY license that is active and in good standing or be eligible to obtain NY license; must pass extensive licensure and criminal background check. Find out more details by going to Freedom Dental Partners website (www.freedomdentalpartners.com) and head to our careers page. Reach out to recruiting@freedomdentalpartners.com for any additional questions.

NORWICH: Seeking general dentist. Freedom Dental Partners is cooperative of over 300 entrepreneurial dentists nationwide and fastest growing group in dentistry. We're disrupting dental industry to put power back in hands of dentists. If you desire career autonomy, lifestyle freedom and the wealth you deserve from your hard work, this opportunity for you. Office served community over 30 years and believes high-quality, comfortable and convenient service are paramount and treats every patient with compassion and attention. Using latest techniques we minimize pain, procedure time and recovery time. Norwich is wonderful, small town with lots to discover. Cozy, small town living while not too far from Syracuse and Albany. Half-hour drive to quiet, quaint and family-oriented Bowman Lake State Park. **What You Will Bring:** DMD or DDS from accredited dental school; valid NY dental license (or in process of obtaining) in good standing; ability to maintain state required insurance coverage; DEA license; 2+ years of GP experience. **What you Will Receive:**32% of collections in busy, profitable, 100% FFS office; signing bonus; continuing education annual allowance; clinical and business support mentorship; 10% earned equity stake with no financial buy-in needed, and time off. **Why You Will Love Working With Us:** Opportunity to reach highest earning potential while doing what you love, master technique, learn new skills and partner with incredible mentor; provide care to variety of FFS patients; busy and consistent FT schedule with no weekends; flexibility for 4- 5-day work week; incredible patient base and busy hygiene schedule; mentorship, collaboration and support. If you are General Dentist (DDS/DMD) driven for success, proven leader, passionate about caring for patients and looking for chance to join thriving practice, this opportunity will catapult your career to next level. Qualified candidates must have NY license that is active and in good standing and must be able to pass extensive criminal background check. Find out more details by going to Freedom Dental Partners website (www.freedomdentalpartners.com) and head to our careers page. Reach out to recruiting@freedomdentalpartners.com for any additional questions.

Teresa Carmel, left, recipient; Kathryn Rothas, 3rd District, right, presenter.

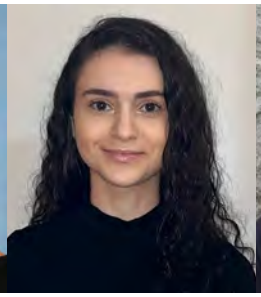
Maria Benny

Kathleen Bocash

Emily Bogden, recipient; Jay Skolnick, 7th District, presenter.

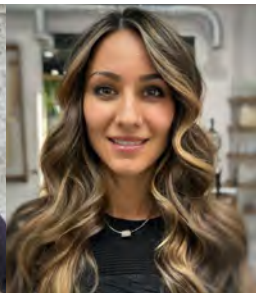
Johnna Intorcia

Zoryana Vykhovanska



Marina Babaisakova

McKenna Kiesel



Adelya Mutigullina

New York State Dental Foundation *Presents Albert H. Stevenson Award*

THE NEW YORK STATE DENTAL FOUNDATION recognizes an outstanding graduating student from each of the state's dental hygiene schools with the presentation of the Albert H. Stevenson Award. This award is given to a graduating student who displays the leadership qualities and enthusiasm that Dr. Stevenson gave to the field of oral hygiene. Dr. Stevenson proudly communicated the importance of the oral hygiene field and advocated to have dental hygiene recognized as a licensed profession. The profession as it stands today is due, in part, to Dr. Stevenson's tireless dedication.

This year, the Foundation was able to include a $500 award to accompany the certificate for each student, many of whom have families they are supporting while juggling responsibilities of work and school. These monetary awards were made possible in part by generous contributions made in memory of Lisa D'Agostino, a certified dental assistant who, sadly, died in May of 2023.

Lisa D'Agostino

"Lisa always had a passion for dentistry," said her mother, Kathy D'Agostino. "She began her journey as part of her high school internship and worked in a dental office starting in ninth grade, an experience that only helped her love of dentistry to grow even more. Unfortunately, Lisa's illnesses prevented her from achieving her life goal of becoming a dental hygienist, but we know she is smiling down, pleased that she was able to help others fulfill a dream she once had."

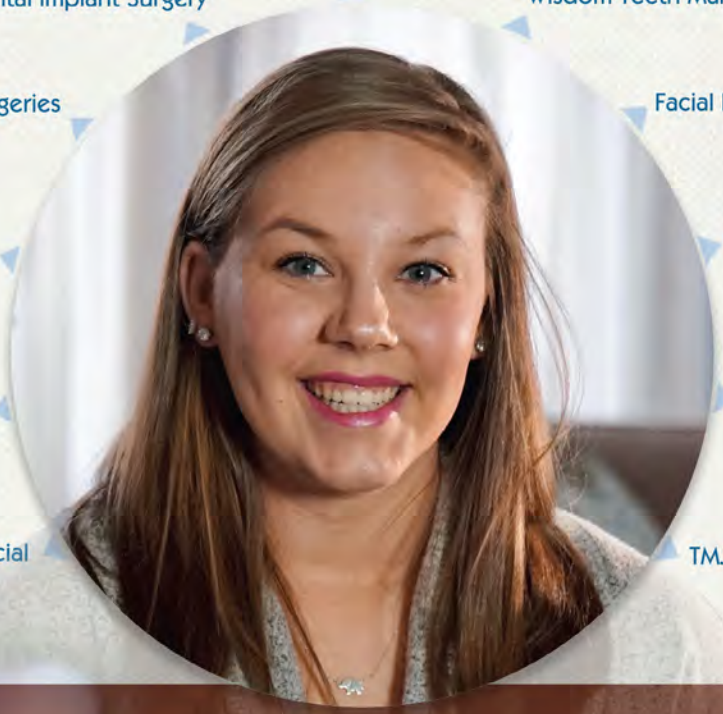
The Foundation is grateful to Lisa's parents, Kathy and Chuck D'Agostino, as well as the many donors who paid tribute to her memory through their special gifts.

The 2024 recipients of the Foundation's Albert H. Stevenson Award are: Zoryana Vykhovanska, New York City College of Technology; Teresa Carmel, Hudson Valley Community College; McKenna Kiesel, Broome Community College; Emily Bogden, Monroe Community College; Johnna Intorcia, Erie Community College; Kathleen Bocash, Orange County Community College; Maria Benny, Hostos Community College of the City University of New York; Marina Babaisakova, State University of New York at Farmingdale; Adelya Mutigullina, NYU College of Dentistry.

Corrective Jaw Surgery

NYSS OMS
New York State Society of Oral & Maxillofacial Surgeons

- Anesthesia
- Dental Implant Surgery
- Wisdom Teeth Management
- Extractions and Other Oral Surgeries
- Facial Injury / Trauma Surgery
- Oral, Head and Neck Pathology
- Corrective Jaw Surgery
- Obstructive Sleep Apnea (OSA)
- Facial Cosmetic Surgery
- Cleft Lip/Palate and Craniofacial Surgery
- TMJ and Facial Pain



When should you consult an OMS for corrective jaw surgery?

When a jaw-related problem cannot be resolved through orthodontia alone, the patient should be referred to an oral and maxillofacial surgeon (OMS). OMSs are uniquely qualified and trained to determine the appropriate procedure for each case and to work with the orthodontist and restorative dentist to assure a successful outcome. Visit MyOMS.org for more information.

AAOMS

Oral and maxillofacial surgeons:
The experts in face, mouth and jaw surgery®

MyOMS.org

MLMIC features some of the most competitive dental premiums in the state.

MLMIC offers dentists and oral surgeons a new premium pricing plan that enables policyholders to have their policy reflect their individual practice characteristics. Coverage you can trust along with concierge-level service and exclusive New York-focused extras. The only professional liability carrier for dentists that is endorsed by NYSDA.

Get a quote today and learn more about MLMIC discounts

Visit MLMIC.com/NY,
e-mail dental@mlmic.com
or call (800) 416-1241.

MLMIC
MLMIC Insurance Company
a Berkshire Hathaway company