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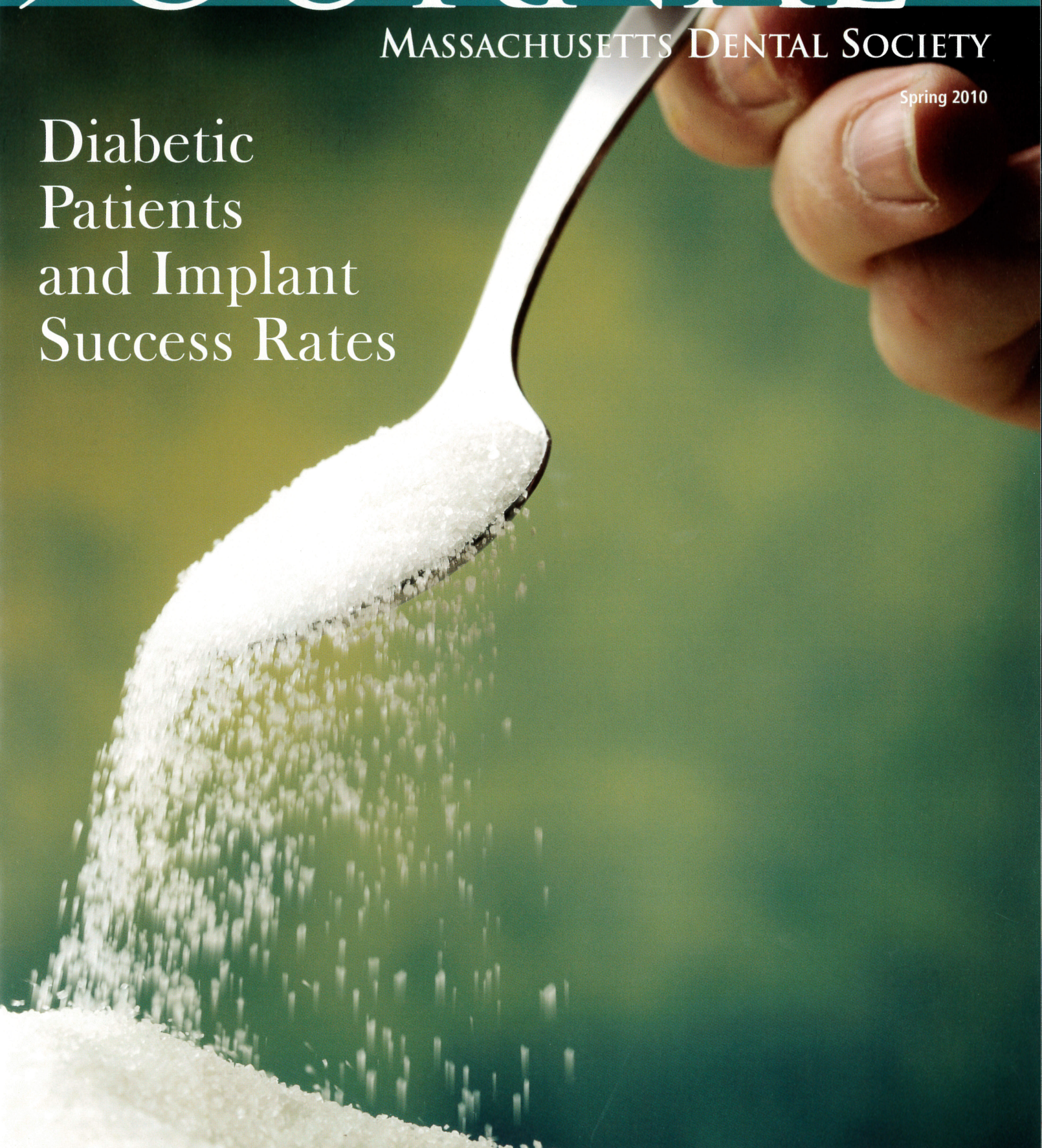
Diabetic Patients and Implant Success Rates



YOUR YANKEE DENTAL CONGRESS

As we write this, another Yankee Dental Congress (YDC) has successfully ended. Attendance was up. Innovations were tried and were mostly successful. Exhibitors were, in general, happy. Most importantly, dental professionals received a complete and well-rounded continuing education program.

Every year, a large core of volunteers devotes a substantial amount of personal and professional time to make sure YDC continues to improve. Special attention is paid to attendees' comments and criticisms in order to help Yankee best meet the needs of our members. Many of these suggestions are implemented. Every aspect of the meeting, new and old, is reassessed annually. New ideas are always welcomed.

YDC planners try to program a wide variety of interesting courses for dentists and staff. With good planning, a dental professional can complete all of the yearly BORID-required CE courses at this one conference. This not only saves valuable time, but is a very cost-effective way to fulfill your requirements. The Yankee Program Committees try to schedule courses that cover a wide spectrum of offerings, from practical hands-on programs to innovative and new research that has not yet been made available to practitioners. The best speakers available are invited to teach at YDC as speaker costs continue to increase and legislation limits the parameters that former course sponsors are allowed to underwrite some or all costs, especially to Massachusetts licensees.

There are always complaints about course tuitions. There is no simple, practical, fair way to bring you the high level of education that YDC offers without charging an extremely nominal fee for a number of offerings. Free courses are offered, and the committees—made up of members just like us—try to increase this number yearly, but are not able to do so in all areas of interest.

A conference is only as good as the volunteers who help to make it happen. The dentists, hygienists, and assistants who work at Yankee give of their time, their expertise, and their ideas. It may seem that you often see the same faces in the same volunteer locations. Thankfully, you do. Without this large cadre of dedicated members, some of whom have feet so cold that they're numb, the meeting wouldn't function.

As many volunteers as possible—those who are seen on the conference floor and those who work for two years to bring each Yankee to life—are needed in order to keep YDC vibrant and fresh. Constructive change comes most efficiently from within, so if you see areas where improvements are needed, make a constructive suggestion to a committee chair or your district trustee, and then volunteer and help make the entire experience better for everyone.

The Yankee Dental Congress is the work of humans. We are not a perfect species. The meeting that comes to you is the combined effort of a superb, committed professional staff, an ever-changing core of volunteer leaders, and you, the member attendees who recognize that despite its occasional blemish, YDC offers a superb core program and set of ancillary events to improve our professional and personal lives.

We hope you enjoy this issue of the Journal, which, in addition to our regular features, covers a wide range of knowledge philosophies and generations in dentistry. We salute the newest among us ("Ten Under 10," page 28), while also initiating the launch of a new series of feature articles recognizing the modern pioneers who laid the foundation for our profession ("A Leader in Prosthodontic Education: An Interview with David J. Baraban," page 16). ■

David B. Becker

Arthur I. Schwartz

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UNDERSTANDING PRINCIPAL-PROTECTED NOTES AND CDs

Let's say that you're beginning to think stocks are looking attractive again, but you're still wincing from the beating that equities took last year. What if someone told you that you might be able to earn returns similar to those of a stock index with an investment that protects your initial investment, regardless of what happens with the market?

The good news: investments that offer protection of principal and the potential for higher returns do exist. However, they require careful consideration before you invest to make sure you understand exactly what you're investing in, what the limitations of a specific investment are, and what could potentially go wrong.

Principal-Protected Notes and CDs

Principal-protected notes (PPNs) are debt instruments that are typically created by an investment bank. They are one example of a type of investment known as structured products. As the name implies, a PPN is designed to return the initial investment, plus a return based on some other asset, index, or market data. To do that, PPNs generally combine various types of investments. For example, a PPN might pair a zero-coupon bond to cover the principal with a derivative based on stock futures that determines your rate of return—if any—on that principal.

Principal-protected certificates of deposit (CDs) function much like PPNs, except that repayment of principal may be funded by a security that's covered by the same Federal Deposit Insurance Corporation (FDIC) insurance that governs other CDs.

In addition to the protection of principal, what makes PPNs so attractive to investors is that they frequently offer a coupon rate that's substantially higher than prevailing market rates. However, don't let that enticing figure be your sole consideration when evaluating a PPN.

For example, the creditworthiness of the issuer is key. A principal-protected note is essentially an unsecured debt owed by the investment bank that issued it (and which may not be the financial institution from which you purchase it). If the issuer goes under, investors are treated just as other unsecured creditors are, as holders of Lehman Brothers PPNs learned to their sorrow when that company filed for bankruptcy.

Test-Driving a Hybrid: Questions to Ask

What is the investment's term? Because there's no guarantee a principal-protected note or CD will be marketable if you try to sell it before its maturity date, it's best to invest in one that matches a predictable time horizon.

What underlying assets does it involve (i.e., options, futures, or other derivatives) and what risks do they involve? The derivative component of a principal-protected note or CD may be linked to interest rates, stock or bond indexes, an individual commodity or commodity index, or a currency or basket of currencies. Those investments and derivatives themselves involve risks that are quite different from those of a typical fixed-income security, and therefore may not be appropriate for all investors.

What interest rate does it pay? In general, the higher the interest rate, the more likely it is to be associated with volatile underlying assets, and the greater the uncertainty about your return—and indeed, whether your investment will earn anything at all.

Who issued it, and what underlies any guarantee of return or the safety of the principal? As mentioned previously, a PPN's guarantee is subject to the claims-paying ability of the issuer. If that institution is unable to repay its debt, the guarantee may be worthless.

Is there a limit on the return that a note offers? If your return is based on an index, find out if that return will be capped at a certain maximum if the index moves beyond a given level.

How is the derivative-based return calculated? For example, the return might be based on either the value of an index at maturity or on an average of prices over the term of the note.

Can the promised results be duplicated cost-effectively in a different way? Costs can be difficult to compare. Weigh them against the convenience of investing in a single note or CD rather than in separate bonds and/or derivatives. ■

GEORGE GONSER
Mr. Gonser is CEO of MDSIS–Spring Insurance Group.

THE STATE OF MASSACHUSETTS AND NATIONAL HEALTH CARE REFORM

When I originally penned this piece in early February, the idea of national health care reform was remote. Scott Brown, a little-known senator from Wrentham (my town of residence, by the way), had just sent a message to Washington and the country when, as the underdog, he resoundingly beat the clear front runner in an unprecedented victory for the U.S. Senate seat. His victory meant no more super majority, and with it, national health care reform was seemingly knocked off the tracks. Then how do we have a national Health Care Reform Law in place only a few weeks later? How and why did this happen? What is next nationally, and what are the ramifications for Massachusetts?

Despite a country concerned with adding an additional trillion-plus dollars of debt to an already-struggling economy, President Barack Obama and the Senate/House majority utilized the reconciliation process to get the law passed. You have to give President Obama credit for his tenacity—despite great opposition—to create a revised health care and insurance model for the country. But what now? Many of the components that were successful in Massachusetts are now components of the new Health Care Reform Law. In addition, a 40 percent excise tax on the Cadillac health plans would be eased in over the next few years with higher thresholds. The "donut hole" in the Medicare prescription drug plan will be reduced via a rebate and closed altogether before 2020. The dependent coverage limit would be raised to age 26 (or until dependents turn 27). There is a ban on pre-existing limits and conditions. All preventative services will be covered with no cost sharing. The law will provide small businesses with tens of billions of dollars in tax credits to support coverage, and remove the employer responsibility provisions for any small business that employs fewer than 50 employees. Finally, a state and/or federal insurance authority will be created to provide oversight on all insurance rate increases. There is a timeline for implementation, starting immediately through 2020, in the 2,000-plus-page law.

While there are many factions to blame for the current challenges in the health care/health insurance realm, the initial process pointed fingers only at the health insurance companies. You could argue that the insurance companies didn't do enough up to this point, which helped fuel efforts for the new law. That may be true, but the insurance company "demons" are not the only component requiring retooling. Providers, medical record keeping, fraud, mismanagement, and overall waste need to be targeted, as well. If not, the cost of care will continue to soar and, along with it, health insurance costs.

The magnitude of the national effort and the myriad changes has trickled down to Massachusetts. While reform elements have been in place for nearly five years, the cost of insurance has continued to skyrocket. This has led to an investigation of cooperatives (a form of association plans) that the MDS and MDSIS-Spring have worked on since 1998. A health insurance rate cap baseline of 150 percent over the federal medical trend on all health insurance plans was introduced by Governor Deval Patrick in February. This some would say politically motivated initiative has received considerable press throughout March and April as the state Division of Insurance and the carriers square off in a very public battle of artificial rate caps vs. the actual cost of care and insurance. H.4452 – An Act Relative to an Affordable Health Plan proposes to limit provider and insurers' costs and promises to cut premiums by up to 22 percent. It also introduces the Health Connector's Benefit Express, which professes to cut costs by up to $300 per person annually starting in 2010. With small businesses and consumers suffering under the weight of health insurance costs, all of the above proposals are and will be in play throughout 2010.

The Massachusetts Health Care Reform Law achieved increased access to insurance and a reduction in the overall number of uninsured. However, the cost of insurance was not addressed. Insurance renewals have risen at an annual double-digit clip since the law passed in 2006 (24 percent-plus for small businesses, on average, in 2010). Only recently have steps to curb costs risen to the forefront. True reform must involve all parties: providers, insurers, and yes, citizens. As consumers, we need to do our part, and that means no more running to the emergency room for primary care. We need to be better consumers within an efficient and lean—yet robust—health care insurance and delivery system.

The concept of status quo is out. The question is, can we truly achieve national health care reform? That answer is unclear at this point. However, if I were a betting man, I would expect significant changes are still to come here in Massachusetts and nationally. Please visit our Web site ***www.mdsis.org*** for up-to-the-minute updates on all things insurance. ■

A View from a Different Lens

A PHOTO ESSAY BY MARSHALL J. GOLDIN, DDS

Dr. Goldin retired from his Quincy periodontal practice in 2002 and currently spends a considerable amount of his time pursuing his love of photography by capturing events for local nonprofit organizations, schools, and colleges. His portfolio, which includes Babson College, St. Sebastian's School, the University of Pennsylvania, and the Wellesley Symphony Orchestra, can be viewed at ***www.mickeygoldin.com****.*

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At the request of the JOURNAL OF THE MASSACHUSETTS DENTAL SOCIETY, MDS member dentist and photographer Dr. Marshall "Mickey" Goldin of Wellesley spent a day at the Yankee Dental Congress 35 in January to capture the dentist's perspective of the Society's annual conference.

"The real insider tricks of photography," says Dr. Goldin, "are attention to detail and 'previsualization'—knowing what the end result is going to look like before you take the exposure. Just like practicing dentistry."

Please visit **www.yankeedental.com** for the latest updates on YDC 36.

Dental Implant Placement in Type II Diabetics: A Review of the Literature

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Abstract

Diabetes mellitus was once considered a contraindication to the use of dental implant therapy, as it has been associated with comorbidities, including increased susceptibility to infection, impaired wound healing, and periodontitis. Since dental implants and techniques for controlling diabetes have evolved, dental implant therapy has become increasingly common among patients with diabetes. The rising success of dental implants, along with the realized benefits of implant therapy, has shifted current trends to accommodate patients with controlled diabetes as good candidates for treatment.

The literature currently suggests that successful treatment results can be attained when placing implants on carefully selected patients with glycosylated hemoglobin levels (HbA1C) less than 8 percent and with possible prophylactic antibiotic administration. This review aims to compile and critically evaluate the current literature for placement of dental implants in patients with diabetes.

Introduction

Dental implant therapy has evolved into a predictable treatment modality offering long-term solutions to patients with total and partial edentulism. Today, success rates of 90 to 95 percent are observed in the general population.[1-3] Dental clinicians, however, must be cautious when providing treatment to individuals with existing systemic diseases such as diabetes. Diabetes mellitus is a heterogeneous group of metabolic disorders that result in hyperglycemia stemming from insufficiencies involving either decreased systemic insulin effect or lack of insulin production by pancreatic β-cells.

The Centers for Disease Control estimates that 23.6 million individuals (7.8 percent of the population) in the United States are affected by the disorder.[4] Of the patients with diabetes mellitus, 90 percent present with Type II and thus have a diminished sensitivity to insulin in peripheral tissues. If the high concentrations of extracellular glucose found in diabetes mellitus are allowed to persist, then glucose will covalently bond to macromolecules in the body. Over time, these bonds become irreversible and form advanced glycosylation end-products, which inhibit normal organ function by depositing in unwanted areas, leading to nephropathies, neuropathies, and retinopathies. Other pertinent comorbidities associated with diabetes include delayed wound healing and altered bone metabolism, as well as microvascular abnormalities.[5] Such issues associated with diabetes may complicate or contraindicate implant surgery.

Table 1. Recommended Values for Patients with Diabetes Mellitus[20]

Glycemic Control

- HbA1C < 7%
- Preprandial Plasma Glucose: 90–130 mg/dL
- Peak Postprandial Plasma Glucose: 180 mg/dL

Antibiotic Therapy

- Preoperative Regimen: Oral administration of 2 g amoxicillin one hour before surgical procedure
- Postoperative Regimen: Oral administration of 500 mg amoxicillin every 8 hours for 7–10 days

Additional Therapy

- Oral Rinse: Use 0.12% chlorhexidene rinse twice a day for two weeks

Findings

With the myriad complications associated with diabetes mellitus, it is somewhat surprising that implant placement in the cited literature was a highly predictable treatment option. Several clinical reports have suggested that the survival rates of implants in "well-controlled" diabetic patients may not be significantly compromised, with success rates ranging from 85.5 to 100 percent.[6-8] A retrospective analysis of 227 implants placed in 34 diabetic patients reported a survival rate of 94.3 percent prior to loading; however, a control group was not provided.[7] In a similar study, Fiorellini reported an overall success rate of 85.6 percent when 215 implants placed in 40 patients were evaluated at two clinical centers. When the success rate was analyzed by implant location, success rates for the maxilla and mandible were 85.5 percent and 85.7 percent, respectively.[9] Interestingly enough, implant failure rate for patients with diabetes was not significantly different from that of patients without diabetes in a large multicenter study. A success rate of 92.2 percent was found for 255 implants placed in Type II diabetics.[10] Similarly, another study found a 94.1 percent success rate in 782 patients with controlled diabetes with 38 implant-supported bridges.[8]

The results of two prospective studies reveal similar values in controlled diabetic patients. In a study by Peled et al., 41 patients with Type II diabetes received 141 implants for retention of overdentures. Success rates of 97.3 percent and 94.1 percent were found one and five years after loading, respectively.[11] Glucose levels for patients were self-reported in this study. It was also demonstrated that 178 implants placed in the mandibular symphysis area of 89 controlled Type II diabetic men revealed an overall survival rate of 88 percent from the point of prosthetic placement to five-year follow-up. Implant failure in this study was directly correlated to duration of Type II diabetes.[12] Although the majority of these studies reveals optimistic results, the application of these studies to clinical practice is limited, as there is a lack of specific information with regard to glycemic control.

The evolution of managing diabetes has focused upon determining HbA1C levels. HbA1C values have proven helpful in quantifying control of blood glucose in the four weeks preceding the test, in addition to providing information on disease prognosis and patient compliance with treatment protocols.[3] The American Diabetes Association recommends glycosylated hemoglobin levels of less than 7 percent in patients with Type II diabetes in order to be considered controlled.[13]

In accordance with these values, experimental studies that measured HbA1C levels demonstrated that implant stability, determined by osseointegration, was associated with well-controlled diabetics with levels of 6 to 8 percent. Oates et al. reported implant success rates with varying glycemic control.[14] Patients were categorized according to HbA1C levels as follows: 6 to 8 percent were considered well-controlled; 8.1 to 10 percent were considered moderately controlled; and greater than 10 percent were considered poorly controlled. In this study, 50 implants were placed in 35 subjects, including 25 Type II diabetics. All 50 implants were found to be clinically integrated at the time of abutment placement and restoration at least four months after implant placement. Not surprisingly, the greatest implant stability was found in the well-controlled group (those with HbA1C levels of 6 to 8 percent). The number of subjects in each range was not equal and HbA1C fluctuation from start to finish was not accounted for. Furthermore, insulin therapy, oral medication, and dietary values represent possible influences to implant therapy and would have been useful for comparison.

In addition to maintenance of glycemic control, the use of prophylactic antibiotics prior to surgery has been

proposed for the prevention of infection during and after implantation. It has also been reported that significantly fewer failures occurred in implant patients when pre-operative antibiotics were used.[15] Morris et al., found that the survival rate for implants placed with preoperative antibiotics was 4.5 percent higher than for implants placed without prophylactic antibiotic treatment.[10]

There is general agreement in advocating the use of antibiotics in medically compromised patients; however, there is not a set standard of antibiotic management during treatment. Antibiotics selected for prophylaxis should be bactericidal and of low toxicity (e.g., amoxicillin or penicillin).[16,17] The postoperative administration of 500 mg amoxicillin given orally every 8 hours and continued for 7–10 days has been a common regimen for patients with diabetes mellitus, as evidence has shown significant reductions in the failure of dental implants placed in the general population.[16] The first administration of antibiotic should be given preoperatively with a dose of 2 g amoxicillin taken one hour prior to treatment so that sufficient antibiotic tissue concentrations can be achieved during surgery.[16] In situations where the patient has an amoxicillin or penicillin allergy, clindamycin may be an alternative option.[17,18]

In addition to antibiotic prophylaxis, the use of 0.12% chlorhexidene mouthwash has shown a clear benefit by reducing the failure rates from 13.5 to 4.4 percent in Type II diabetics followed for three years.[10] Also, 0.12% chlorhexidene rinse used twice a day for two weeks has been a common routine and is associated with significant reduction of infectious complication following surgery.[19]

Discussion

Although diabetes was once a contraindication to implant placement, it has been proven that implants can be predictably placed in certain patients with the condition. Despite advances in glycemic maintenance, some patients are unable to maintain adequate metabolic control. It is for this reason that diabetes remains a relative contraindication for implant therapy and that patient selection utilizing the following criterion is crucial for maximizing the potential for successful placement. The most important factor promulgated by the literature is the determination and control of glucose levels. The most reliable way to obtain this information is by measuring the HbA1C levels, which optimally should be less than 7 percent and not exceed 8 percent. As most of the articles cited are retrospective studies, confounding parameters such as smoking prevent definitive protocols from being developed. For instance, rigorous testing of HbA1C levels before placement, during placement stages, and after the crown has been restored would allow studies to be more easily compared and lead to better treatment for diabetic patients receiving dental implants. More prospective studies, in particular randomized control trials, with precisely defined parameters in terms of HbA1C levels are needed to conclusively define protocols for implant placement in patients with a history of diabetes mellitus. Furthermore, the type of diabetes, age of onset, long-term HbA1C levels, and effects that these variables play have yet to be elucidated.

Conclusion

Based on the literature, successful treatment can be achieved when placing dental implants in diabetic patients, provided that certain measures are taken. Only patients that are in glycemic control should be considered for treatment, and these patients should be warned that they have a slightly greater chance of implant failure than those without diabetes. Proper antibiotic administration before and after the treatment seems to increase success rates, as well as prescribing 0.12% chlorhexidene rinse for use after the procedure. Although many of the effects of diabetes affecting implant osseointegration have not been uncovered, the vast majority of implant surgeries in these patients has been successful. With continued advancement in implant techniques and diabetic treatment, the future for implant placement in diabetics looks very promising. ■

References

1. Beikler T, Flemmig T. Implants in the medically compromised patient. Crit Rev Oral Biol Med. 2003;14(4):305-316.
2. Fugazzotto PA, Gulbransen HJ, Wheeler SL, Lindsay JA. The use of IMZ osseointegrated implants in partially and completely edentulous patients: success and failure rates of 2,023 implant cylinders up to 60+ months in function. Int J Oral Maxillofac Implants. 1993;8:617-621.
3. Blanchaert RH. Implants in the medically challenged patient. Dent Clin North Am. 1998;42(1):35-45.
4. Centers for Disease Control. National Diabetes Fact Sheet, 2007. Available from: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf
5. Amir G, Rosenmann E, Sherman Y, Greenfeld Z, Ne'eman Z, Cohen A.M. Osteoporosis in the Cohen diabetic rat: correlation between histomorphometric changes in bone and microangiopathy. Lab Investig. 2002;82(10): 1399-1405.
6. Abdulwassie H, Dhanrajani PJ. Diabetes mellitus and dental implants: a clinical study. Implant Dent. 2002;11:83-86.
7. Balshi TJ, Wolfinger GJ. Dental implants in diabetic patients: a retrospective study. Implant Dent. 1999;8:355–351.
8. Farzad P, Andersson L, Nyberg J. Dental implant treatment in diabetic patients. Implant Dent. 2002;11(3):262-267.
9. Fiorellini J, Chen P, Nevins M. A retrospective study of dental implants in diabetic patients. Int J Periodontics Restorative Dent. 2000 Aug;20(4):366-373.
10. Morris H, Ochi S, Winkler S. Implant survival in patients with type 2 diabetes: placement to 36 months. Ann Periodontol. 2000 Dec;5(1): 157-165.
11. Peled M, Ardekian L, Tagger-Green N, et al. Dental implants in patients with type 2 diabetes mellitus: a clinical study. Implant Dentistry. 2003;12(2):116-122.
12. Olson JW, Shernoff AF, Tarlow JL, Colwell JA, Scheetz JP, Bingham SF. Dental endosseous implant assessments in a type 2 diabetic population: a prospective study. Int J Oral Maxillofac Implants. 2000;15(6):811-818.
13. American Diabetes Association. Standards of medical care in diabetes. Diabetes Care. 2005 Jan;28(Suppl):s4-s36.
14. Oates TW, Dowell S, Robinson M, McMahan CA. Glycemic control and implant stabilization in type 2 diabetes mellitus. J Dental Res. 2009;88(4):367-371.
15. Dent C, Olson J, Farish S, et al. The influence of preoperative antibiotics on success of endosseous implants up to and including stage II surgery: a study of 2,641 implants. J Oral Maxillofac Surg. 1997;55(5 Suppl): 19-24.
16. Beikler T, Flemmig TF. Antimicrobials in implant dentistry. In: Antibiotic and antimicrobial use in dental practice. Newman M, van Winkelhoff A, editors. Chicago (IL): Quintessence Publishing; 2001. p. 195-211.
17. Garg A. Pharmacological agents used in implant dentistry. Implant Soc. 1992;3:1, 5-7, 16.
18. Peterson LJ. Antibiotic prophylaxis against wound infections in oral and maxillofacial surgery. J Oral Maxillofac Surg. 1990;48:617-620.
19. Lambert P, Morris H, Ochi S. The influence of 0.12% chlorhexidine digluconate rinses on the incidence of infectious complications and implant success. J Oral Maxillofac Surg. 1997;55:25-30.
20. Sacks D, Bruns D, Goldstein D, et al. Guidelines and recommendations for laboratory analysis in the diagnosis and management of diabetes mellitus. Clin Chem. 2002;48:436-472.

A Leader in Prosthodontic Education: An Interview with David J. Baraban

CHARLES B. MILLSTEIN, DMD, MPH
Dr. Millstein is the historian of the Massachusetts Dental Society, as well as an endodontist with a practice in Cambridge.

Editors' Note

The New England area is fortunate to have an unusually high number of exceptional teachers, researchers, and mentors in the field of dentistry.

From time to time, the JOURNAL OF THE MASSACHUSETTS DENTAL SOCIETY will publish articles detailing the contributions and profiles of these important figures. We begin in this issue with a Q&A with Dr. David Baraban, who was instrumental in the founding of the dental school at Boston University.

We invite you, our readers, to submit biographical articles for our consideration. Unfortunately, time and space constraints will not allow us to publish every article we receive. However, we are pleased to highlight some of the outstanding pioneers in dentistry from our area.

Boston has long been called the "Athens of America." Nowhere is this truer than in the field of dentistry. We hope you enjoy the celebration of the lives we document.

As a founder of the Goldman School of Graduate Dentistry at Boston University, David J. Baraban was one of a select group of inspired clinicians composed mainly of graduates of Harvard Dental School. Directed by Henry Goldman, the BU graduate school quickly became an international force in education and clinical research. In addition to the numerous prosthodontists trained by Dr. Baraban's department, he is remembered for the invention of the ParaPost System. Today, it remains a staple used by dentists to stabilize teeth that have been treated by root canal therapy.

Dr. David Baraban passed away on March 17, 2007. In the following transcribed interview that took place at BU on August 10, 2004, Dr. Baraban looks back on the school's founding.

Q: David, tell us what periodontics was like 50 years ago.

A: The clinic at the Beth Israel Hospital (BI) is where the story begins. At that time, there were two chairs and dental care was limited basically to oral surgery. When Henry Goldman came back from the service, and with the advent of his book on periodontics, treatment for people afflicted with periodontal disease began. At that point, Henry began giving three-day courses on periodontics, bringing in the individuals who had been away in service during World War II and training them to treat periodontal disease in a very moderate way with scaling and curettage. The only surgical procedure that was really in vogue in those days was the gingivectomy.

Dr. Henry M. Goldman, founder and former dean of the dental school at BU.

I first became acquainted with Henry when I was a student of his at Harvard. He was an instructor in oral pathology who had graduated about six or seven years before I did. Henry was Kurt Thoma's right-hand man. Thoma was the father and professor of oral pathology at Harvard. One day, I met Henry on Beacon Street in Brookline—our offices were near one another—and I inquired as to how things were going. Henry asked if I would be interested in coming to a weekly night session at one of four dental offices with people who were involved in reviewing and identifying oral pathology cases. So Leo Talkov, Max Jacobs, Sam Levine, Julius Levine, and I would meet and diagnose slides with Henry. I learned a lot of valuable information relative to oral pathology, and it was a good experience.

Henry now found that the profession desired more and more information on periodontics, so he expanded his course from three days to a week and then, ultimately, to two weeks. He incorporated the adjunctive therapy, known as splinting, that was done by the restorative dentist. This would also involve the fabrication of removable partial dentures in such a way as to be less injurious to the periodontal structures.

At that time, D. Walter Cohen was our first resident in periodontics at the BI. When he left, he went back to the University of Pennsylvania, where he established the department of periodontics at the School of Dentistry. Shortly after that, Henry and Walter got together and thought there should be a two-year postdoctoral program in which students would spend one year at

Sketches depicting the architect's concept of the dental school (left and right) and a photo of the groundbreaking recall the construction of the Goldman School of Graduate Dentistry at Boston University.

the University of Pennsylvania for didactic study and then would come to the BI to do their clinical work. Unfortunately, Henry could not give a degree, but only a certificate, from the BI. At the University of Pennsylvania Graduate School of Medicine, a student could earn a master's degree or a certificate. In order to accommodate this new program, the clinic at the BI expanded from two to 10 chairs. The students did a great deal of good dentistry and received a good education.

I used to pick up Henry in the morning to take him to the office several times in the course of a week or a month, and one day he said to me, "What would you think if I told you that we could have a dental school at Boston University?" And knowing the miracles that Henry could accomplish, I said, "Anything you say, Henry, I will believe." He told me that he knew that BU had a charter for a medical school and a dental school, but only the former was utilized. He approached Dr. Harold C. Case, president of Boston University, and Dr. Chester Kiefer, head of the Medical Center. The Board of Trustees acted on his request and said that if it didn't cost the university any money, he could have his dental school. In 1957, the medical school created a department of stomatology.

The university offered him two tenement buildings on East Newton Street for class work and the basement of the Talbot Building for clinical work. The clinic was used for periodontics, endodontics, and prosthetics. There weren't enough chairs to accommodate all the students, so some had to be sent elsewhere. Students in prosthetics went to Dr. Leo Talkov, Dr. Lloyd Warshauer, or me. The benefits were great as we got very good assistants and the students got a fine education working under our tutelage. Orthodontics, which was chaired by Dr. Herbert Margolis, had its own beautiful clinic on the second floor of Talbot, and it was almost a school unto itself.

I was asked to be chairman of the continuing education department and tried to run a program wherein we would service all branches of dentistry. It was impossible to hold these classes at the school because there were no facilities for extra classes; we didn't have enough room as it was for full-time students. So it was necessary for me to find space wherever I could, which would be either in hotels, at the George Sherman Building, or at other teaching facilities where they had an amphitheater. We could then program our lectures there and make the students comfortable. It was, at times, a very vexing situation, because we had to beg, borrow, and steal to do it. But the programs were well received.

Q: Let's go back to the University of Pennsylvania and a couple of those conferences they had in the Poconos. I think what was very important was the variety of skilled academicians and clinicians who got together, the way they gave the courses, and how they bonded. Do you want to spend a minute on that?

A: Sure. Those were the best meetings I think that I ever attended in all of dentistry. They were sponsored by the University of Pennsylvania and were held at the Skytop Lodge in the Poconos, and later in the Inn at Buck Hill Falls. Lectures were given in the morning, the afternoon was free, and then presentations were made again for two hours in the evening after dinner. Those who wanted to play golf in the afternoon could, but most of us would surround a clinician, and we had the opportunity to glean firsthand information. It was a wonderful way of meeting your colleagues who had the same interests. And we became almost like a fraternity.

Prior to the founding of the school, the BI staff would get together twice a year with the staffs of Columbia University and the University of Pennsylvania. And we would meet in convenient places where we had the opportunity to be like a study club and make firm friendships with colleagues. I treasure those moments and the people with whom I was involved.

Q: Who were some of those people?

A: There were prosthodontists such as Morton Amsterdam from the University of Pennsylvania, Will Gordon from Chicago, and Herbert Bartelstone from Columbia University. Periodontists were represented by Robert Gottsegen and Saul Schluger from Columbia, and D. Walter Cohen and Leonard Abrams from the University of Pennsylvania. We had some illustrious men who came out of the BI-Penn program, all of whom we're very proud. They also became active and outstanding leaders in their respective fields.

Q: Was a group from Chicago there?

A: The group from Chicago, including Balint Orban, Harry Sicher, and Peter Weinmann, attended the Poconos meetings and we'd see each other at the national meetings. When speakers were sought in particular fields, we could recommend each other. Prosthetics, as you know, was fraught with controversy. There were those who felt that

Dr. Zhimon Jacobson (left), Dr. David Baraban (center), and Dr. Spencer Frankl (right) pose with the parents of dental school alumni Dr. David Gassiriro, at an alumni event in the 1980s.

you couldn't do any restorative dentistry unless you were a gnathologist. Others didn't understand why splinting of teeth was necessary. In addition, there was the controversy over partial coverage versus full coverage. Also, people in areas where caries were not rampant couldn't understand the need for full coverage. We would have all been very happy if we could have done all our restorations with just inlay-onlays rather than having to resort to full-coverage restorations.

Q: How did you learn your crown-and bridge-splinting therapy?

A: Henry really was the start of it. He was quite innovative and inspirational. He was a tiger who got on your back and made you do things. He realized that, even though there were mobile teeth, not all had to be removed. It would depend on the degree of mobility. If there were firm teeth present, with the proper periodontal therapy and treatment of occlusion, the teeth could be joined to one another and healing could take place. It was like splinting the broken ends of bone.

Henry would say, "I want you to join these three together," but I had never done it before, and there were no courses in those days. Even though Leo Talkov and I didn't practice together, we learned how to splint teeth. And then gradually, Henry would have us splint more and more teeth. And we did full-arch splints and lining up of multiple abutments, which were not widely practiced in those days. Then we had to deal with the important subject of the occlusion. There were very few men around who could do this. Dr. Ernest Granger was one of the leaders and founders of the field of gnathology. Dr. Clyde Schuyler was another well-known authority on occlusion. We had to seek out our training on a weekly or bi-weekly basis. We also learned by searching literature and through study groups.

Q: Who was Morris Feder?

A: Feder was the laboratory man in Philadelphia who became my "alter ego" and to whom I'm forever indebted. He was an extraordinarily talented technician who knew occlusion better than most dentists. He became a full-time teacher of occlusion at the University of Pennsylvania. He taught me many techniques, which made me feel more comfortable by knowing that I could carry out my cases in association with a man of his skills.

Q: What did it mean professionally to be recognized as a boarded prosthodontist?

A: In 1958, the prosthetic board finally decided to include crown and bridge as a part of their test. Up until then, it was strictly full and removable partial dentures. Henry approached both Leo and myself and said, "I think it would be a good idea if you got your boards." Leo and I said, "Okay." But Leo had some personal problems that took away from the time that was necessary to study. It did take me a full year or more of preparation, both in covering the literature and learning the laboratory skills so that I could then take the board.

At that time, the board was given for a full week only once a year. The applicant had to submit a case study that showed how he did it from beginning to end. This included diagnosis, treatment planning, and the technique that was required to carry the case to fruition. Then you had to make two opposing bridges of at least six units that included the entire laboratory and clinical work to be completed within five days. In addition, there was a written exam and six oral exams. It was a very tough board at that time, and thank God, I passed it the first time. Even if I had not passed it, the information that I acquired during that period of study was enough reward. People say, "Well, what do the boards do for you?" It isn't what the boards do for you; it's what you do for the boards. It means that you are recognized by your peers as a specialist in your field. And it has meaning in academia because most schools require that to be a leader in prosthetic education in a university, you must have boards to substantiate your qualifications.

Q: Please speak briefly about the founding staff of the Graduate School of Dentistry in 1958.

A: The initial staff included Dr. Herbert Margolis, chair of orthodontics; Dr. Bernard Chaikin, chair of periodontics; Dr. Kurt Thoma, chair of oral pathology and oral surgery; Dr. Leo Talkov, chair of prosthetics; Dr. Herbert Schilder, chair of endodontics, who was also on the founding board; Dr. Joseph Barron, department of maxillofacial prosthesis; Dr. Chester Landy, department of full denture prosthetics; and I was head of continuing education.

Q: How did Henry run the board meetings?

A: In those days, we used to have our board meetings almost once a month at the faculty club dining room in the George Sherman Union. Henry was very adamant that, even though the students had already had basic sciences during their undergraduate days, they again review these courses. There was an uproar at first among many of the students, who couldn't see the value of knowing basic sciences the way Henry thought they should know them. They said, "We'd rather spend more time in clinic." And Henry lost his patience and said, "I'm not training tradespeople. I'm training professionals and they'll take the basic sciences." It certainly stood them in good stead. We still get the same complaints from students because, if you let the students dictate what the course content is to be, they're not going to get a full education. They have to have trust in their teachers, who are responsible for their getting a good dental education.

Q: Was Henry a good periodontist?

A: Oh, he was excellent. Henry could do more in an hour than most peri-

odontists could do in two. He didn't waste time. He had good hands. And he had a good mind. He was always innovative and looking for better ways of doing things. He was among the first to recognize the overuse of gingivectomy as a means of pocket elimination. If the depth of the pocket was such that the surgery wound up removing all of the attached gingiva, the clinician ended up with unattached mucous membrane and healing would not take place. This negative potential transformed the practice of periodontics from that being excisive to almost a plastic surgery technique. Thus the attached gingival portion of these tissues was preserved, and if there wasn't enough attached gingiva to guarantee protection for the attachment apparatus, grafts could be taken from the palate or sliding flaps could be employed. Henry was among the forerunners of this particular type of therapy. Today, although techniques may be more refined, it is still the basic therapy that we use.

Q: Give us an example of how Henry raised money.

A: Henry was a miracle worker. He raised about $13 million on his own just to get the initial building. We built the first building here. It was a basement, with three floors. Henry was smart enough to envision that they might have to add to it later on, and he built it so that they could then add four more floors to it, which we ultimately did. But one of the first fundraising efforts that Henry performed was at the Belmont Country Club, where he was a member. He invited about 50 well-heeled members to attend an informational type of presentation so they'd know what Henry was trying to do at Boston University.

Henry named me to be chair of fundraising, but I wasn't a very good one. I didn't have to be because Henry was tops. We made a presentation to that group of men and he raised quite a bit of money from them. A number of them were patients, and Henry was most generous by doing their periodontal therapy without charging. Many of them were not happy because they felt that they could well afford to pay Henry and that they would give money to the school anyway.

Q: Tell us about the major benefactors and the dedication of the school.

A: The same philanthropists in the city gave to everything. Henry had a knack of knowing how to touch their pocketbooks, and he was able to raise the money. I will never forget the dedication of the building. There's a plaque downstairs in the lobby that lists the donors to the building fund. We all gathered here on a Sunday afternoon and got a tour. And there were refreshments served on the first floor where the cafeteria is. We were thrilled. The government became a benefactor, something it had never done for a graduate school of dentistry. As a matter of fact, we were the only one in the world to receive this aid.

Dr. David Baraban (right) posing with the late Dr. Spencer Frankl, past dean of the dental school at BU, at an Alumni Gala in 2005.

Q: How did Henry oversee the growth of the school?

A: Initially, he lectured extensively overseas. Subsequently, he sent Herb Schilder, Gerald Kramer—a periodontist—and me to do this work. This attracted students and dentists from other countries to come take extended courses at the school. It became an internationally known institution and remains so today.

Q: How did the undergraduate school come into being?

A: As far as the fundraising from the government, Henry felt that the only way he could get additional funds was if he established an undergraduate school also. So it was with that idea in mind that he instituted this additional school. By expanding the staffs and adding four floors to the current building, we now have a seven-story school. He had initially planned for the maximum of 45 undergraduate students. The class that was just accepted in 2004 numbered 175. So the school has certainly grown in number and size, as well as in stature. Dr. Spencer Frankl [longtime dean at the Henry M. Goldman School of Dental Medicine who passed away in October 2007] calls this "the dental school without walls," because we're all over the campus and New England.

Q: And then Henry retired, and died a number of years later, but his legacy lives on.

A: I'm sure that it gives his family a great thrill to see that Henry's name is added to the name of the school. We're very proud to have been associated both with him and with the school. I owe Henry a tremendous amount for helping me to develop in my chosen field. ■

Maximizing Treatment Outcomes with Removable Partial Prosthesis Through the Inclusion of Implants and Locator® Attachments

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Introduction

First introduced to retain hybrid prostheses in edentulous arches, osseointegrating implants provided a means by which to offer patients previously undreamed-of treatment outcomes. Whether being utilized to support the aforementioned full-arch hybrid prostheses or to retain full dentures or various fixed prosthetic applications, osseointegrating implants are an ever-increasing part of clinical practice.

One aspect of osseointegrating implant utilization, which is still significantly underutilized, is that of implant placement in anticipation of retaining removable partial prostheses. Osseointegrating implants offer numerous advantages to patients who are being treatment planned for new removable partial prostheses or who have well-fitting removable partial prostheses already in place that are not adequately stable. These advantages include the following:

- Increased prosthetic retention
- The ability to eliminate clasping of natural teeth
- Lessening of the clasping forces on natural teeth when such clasps cannot be wholly eliminated
- Reduction or elimination of destructive lever arm forces on the underlying alveolar bone
- Slowing or elimination of progressive bone resorption beneath the removable partial prosthesis
- Improved esthetics through clasp elimination
- Improved patient comfort
- Improved patient function

The following cases illustrate the employment of osseointegrating implants in conjunction with removable partial prostheses and help highlight the many advantages such a treatment approach offers.

Figure 1. Single implants have been placed in each maxillary posterior area, and restored with Locator attachments.

Clinical Case I

A 54-year-old female presents, missing all maxillary posterior teeth and requiring a new maxillary removable partial prosthesis to replace missing teeth. (See Figure 1.) Treatment options include the following:

- Fabrication of a conventional bilateral distal extension removable partial prosthesis that clasps the remaining anterior teeth;
- Placement of crowns on the maxillary cuspids and fabrication of a bilateral distal extension removable partial prosthesis;
- Fabrication of a six-unit maxillary anterior fixed splint and a bilateral distal extension semi-precision removable partial prosthesis;
- Sinus augmentation therapy and placement of two to three implants in each maxillary posterior sextant, followed by fixed-prosthetic reconstruction;

- Placement of one implant in each posterior edentulous area and fabrication of an implant-retained removable partial prosthesis.

The advantages and disadvantages of each treatment approach are listed in Table 1.

Utilization of a conventional removable partial prosthesis would result in significant forces being placed upon the clasped cuspids. In addition, as functional forces were applied and the removable prosthesis was torqued distally, resorption of the edentulous ridge would begin to occur. As this resorption increased, displacement of the prosthesis under function would be more pronounced, significantly increasing the forces applied to the clasped cuspids. The net result of treatment would be eventual loss of the remaining maxillary teeth and the need for fabrication of a full denture.

Placement of single crowns on the maxillary cuspids and fabrication of a semi-precision bilateral distal extension removable partial prosthesis would offer little advantage over the aforementioned option. While it is true that the initial stability of the attachments would help delay initiation of bone resorption in the edentulous areas, the eventual result of this course of the therapy would be identical to that listed above, leading to the need for a full denture.

A popular treatment option has been to splint the remaining six anterior teeth with full-coverage restorations and to fabricate a bilateral distal extension semi-precision removable partial prosthesis. Such an approach helps ameliorate the forces placed on the cuspids, while providing greater stability to the removable prosthesis in an effort to minimize bone resorption in the edentulous areas upon force application. While such an approach offers significant functional and stability advantages over the two aforementioned treatment options, a number of disadvantages present themselves. The increased cost of therapy is highly significant. In addition, continual relining of the removable partial prosthesis will have to be carried out, as some bone resorption will still occur in the edentulous area.

TABLE 1: Treatment Options for Maxillae Missing All Posterior Teeth

Treatment Option	Advantages	Disadvantages
Conventional bilateral distal extension removable partial prosthesis that clasps the remaining anterior teeth	Least expensive therapy	Significant torquing forces on clasped teeth Resorption of edentulous ridges continues
Crowns on the maxillary cuspids and a bilateral distal extension removable partial prosthesis	Greater retention of the removable partial prosthesis Less torquing force on edentulous areas initially	Greater cost of therapy Significant forces placed upon bicuspids Resorption of edentulous ridges continues, although initially delayed
Six-unit maxillary anterior fixed splint and a bilateral distal extension semi-precision removable partial prosthesis	Greater stability of the removable partial prosthesis Forces placed on teeth are distributed throughout the anterior segment	Greater cost of therapy Bone loss in edentulous area continues, although at a slower pace than in the above options
Sinus augmentation therapy and placement of two to three implants in each maxillary posterior sextant, followed by fixed-prosthetic reconstruction	Offers the greatest stability	Highest cost of therapy
One implant in each posterior edentulous area and fabrication of Locator-retained removable partial prosthesis	Excellent stability of the removable prosthesis No torquing forces are placed upon dentulous areas, thus preventing continued bone loss	Greater cost of therapy than the first option

The option that involved sinus augmentation, implant placement, and fixed reconstruction was not considered due to financial concerns.

If fixed reconstructive therapy is not to be contemplated, the most ideal treatment option is placement of individual implants in each posterior sextant, and utilization of Locator attachments (manufactured by Zest Anchors) to help support and retain a removable partial prosthesis. No remaining natural teeth need to be clasped. In addition, force transmission to the alveolar bone in the edentulous areas is controlled, thus limiting or wholly eliminating bone resorption in these areas over time. The financial ramifications of such a treatment approach are not daunting. The cost of this therapeutic option is significantly less than that of splinting the six anterior teeth and fabricating a semi-precision removable partial prosthesis. Finally, the therapy is easy to perform and may be employed either with an existing removable partial prosthesis that is in acceptable condition or in conjunction with fabrication of a new removable partial prosthesis.

Figure 2. The underside of the removable partial prosthesis secures to the Locator attachments with female housings. Note the elimination of clasps on the natural teeth.

Figure 3. A patient presents with individual implants in each mandibular posterior region. The implants have been restored with Locator attachments.

Figure 4. The removable partial prosthesis is in place, secured to the Locator attachments with female housings. Note the absence of clasps on the natural teeth.

Figure 5. A frontal view demonstrates the improved esthetics achieved by eliminating the clasps from the removable prosthesis.

A removable partial prosthesis was fabricated, which included attachments for utilization in conjunction with Locator attachments. (See Figure 2.) The patient has functioned uneventfully for seven years. The only therapy required has been changing the Locator rings in the prosthesis as they have worn.

Clinical Case II

A 67-year-old female presented who was missing the mandibular molars in one quadrant and the mandibular molars and premolars in the other quadrant. Previously constructed mandibular removable partial prostheses were not satisfactory to the patient with regard to comfort and function.

A single implant was placed in each posterior sextant. Following osseointegration of the implants, Locator attachments were inserted. (See Figure 3.) The removable partial prosthesis was retained by the Locator abutments without the use of any clasps on the remaining teeth. (See Figure 4.) Utilization of such an approach offers significant advantages to the patient, as previously enumerated. A frontal view demonstrates the esthetics of the removable partial prosthesis, which did not require clasps. (See Figure 5.)

Clinical Case III

A 65-year-old female presented who was missing all teeth in her mandibular anterior and mandibular left posterior sextants. Following subsequent loss of the mandibular left cuspid, fabrication of a removable partial prosthesis that would satisfy the patient's functional requirements was impractical. In addition, utilization of the remaining teeth in the mandibular right quadrant to a retained removable prosthesis would undoubtedly have led to their premature loss. A single implant was placed in the mandibular left first bicuspid region, and restored with a Locator abutment. A view of the underside of the new removable partial prosthesis demonstrates the female portion of the Locator attachment in place. (See Figure 6.) Figure 7 is a frontal clinical view of the removable prosthesis in place. Once again, patient comfort and function have been dramatically improved, and the prognoses of the remaining teeth in the mandibular right quadrant have been enhanced.

Figure 6. An implant has been placed in the mandibular right quadrant and restored with a Locator attachment. The underside of the removable prosthesis, which clasps the natural teeth in the mandibular left quadrant, demonstrates a female housing to secure it to the Locator attachment.

Figure 7. A frontal view demonstrates the removable prosthesis in place.

Conclusion

Utilization of implants and Locator attachments in conjunction with removable partial prostheses offers a number of functional and financial advantages to patients. Stability, comfort, function, and esthetics are improved dramatically in both the short and long terms. It is incumbent upon us all to employ such therapies when indicated, so as to afford these advantages to our patients.

Disclaimer

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Do You Consider Complementary and Alternative Medicine in Your Medical History Review?

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Abstract

Complementary and alternative medicine (CAM) represents a group of diverse medical and health care systems, practices, and products that are not considered to be part of conventional medicine. Nevertheless, 83 million adults and 8.5 million children used these products and services in 2007 alone, spending almost $34 billion out-of-pocket for many products that have not been proven and, in fact, may be contraindicated. A review is used to raise awareness and concern among dental practitioners as they consider new and current patient medical histories.

Biofeedback, acupuncture, herbal medication, massage, bioelectromagnetic therapy, meditation, and music therapy are examples of CAM treatments. Complementary medicines include herbal remedies, homeopathic medicines, and essential oils. There has been an increase in the use of herbal medicines in the United States over the last few decades, as there is a public belief that these medicines are safe because they are made from natural sources.[1] However, some of these products have associated adverse effects, including toxicity and drug interactions. For the most part, "alternate products" are chemicals, which are generally unregulated regarding source, purity, and potency. Advertisements for these items carry (typically in a reduced font size) the following disclaimer, "These [advertising] statements have not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease." The National Center for Complementary and Alternative Medicine of the National Institutes of Medicine is involved with research projects to determine the safety and efficacy of CAM treatments.[2]

Given the fact that dentists and physicians are providing care to significant numbers of individuals who may be using CAM, there has been an increase in the articles and reviews in the professions' publications regarding the effectiveness, safety, and interactive potential of CAM with standard dental and medical services, including:

- Efforts to educate the dental professional on self-administered, over-the-counter remedies that are easily available to the general public and the beneficial or potentially harmful course of these remedies.[3]
- The fact that significant gaps in the scientific knowledge base limit the accuracy with which dental professionals can guide their patients regarding CAM approaches used to treat chronic facial pain.[4,5]
- The potential for herbal remedies and homeopathic products to cause adverse drug reactions or drug interactions, and the possibility for confusion to arise when used with conventional medicines.[6]
- A warning to health care professionals and consumers to be aware of the potential for adverse interactions with these herbs, especially among patients whose disease is not responding to treatments as expected.[7]
- An admonition that physicians and dentists must become informed practitioners so that they can provide appropriate and meaningful advice to patients concerning the benefits and limitations of CAM.[8]

The 2009 report from the National Center for Health Statistics provides an update on the number of individuals who used CAM services in 2007, including number of visits and expenditures.[9] In the 10 years since the last national survey on the use of CAM services in 1997, there has been an almost 50 percent decrease in the number of visits by adults, from 628.8 million (3,176 visits per 1,000 adults) to 354.2 million (1,592 visits per 1,000 adults).[10] In the earlier period between 1990 and 1997, CAM use and expenditures grew substantially, primarily as a reflection of an increase in the proportion of the population seeking alternative therapies, rather than increased visits per patient.[10]

Between 1997 and 2007, the two CAM practitioner groups that had the largest reduction in visits were practitioners of energy-healing therapies and relaxation techniques. Approximately twice as many individuals bought a self-help book or other materials to learn relaxation techniques rather than visiting a CAM practitioner (6.4 million vs. 3.1 million), suggesting that relaxation techniques are used primarily as self-care. Despite the general decrease in visits, visits to acupuncturists—a progressively more regulated and professionalized CAM provider group—increased by 300 percent, reaching 17.6 million visits.

Despite the decrease in the number of individuals and their visits for CAM services, it is estimated that in 2007:

- 83 million adults (38.3 percent of all individuals 18 years and older) and 8.5 million children (11.8 percent of all individuals under 18 years of age) reported use of CAM.
- Almost one-half (49.2 percent) of the visits to CAM practitioners and almost one-third (32.7 percent) of all out-of-pocket costs for these visits were for chiropractic or osteopathic manipulation.
- $33.9 billion was spent out-of-pocket for CAM practitioners and the purchase of CAM prod-

Table 1. Percentage of persons 18 years and over who reported a visit to a practitioner for selected CAM therapies during the past 12 months and percent of out-of-pocket costs by type of therapy in 2007.[9]

(All numbers in thousands)

	TOTAL PERSONS		TOTAL VISITS		OUT-OF-POCKET COSTS	
	NUMBER	PERCENT	NUMBER	PERCENT	AMOUNT	PERCENT
TOTAL	**38,150**	**100%**	**354,200**	**100%**	**$11,938,600**	**100%**
Alternative medical systems	**4,960**	**13.1%**	**27,700**	**7.8%**	**$1,292,500**	**11.7%**
Acupuncture	3,100	8.2%	17,600	5.0%	$827,300	6.9%
Ayurveda*	210	0.6%**	1,100	N/A	$18,800	0.2%**
Homeopathic treatment	860	2.3%	3,400	1.0%	$167,400	1.4%
Naturopathy	730	1.9%	3,200	0.9%	$275,900	2.3%
Traditional healers	810	2.1%	2,400	0.7%	$103,100	0.9%**
Biologically based therapies	**1,830**	**4.8%**	**9,600**	**2.7%**	**$630,500**	**5.3%**
Chelation therapy	110	0.3%**	430	0.1%**	$32,000	0.3%**
Nonvitamin, nonmineral, and natural products	1,490	3.9%	8,270	2.3%	$566,600	4.7%
Diet-based therapies	270	0.7%	900	0.3%**	$32,000	N/A
Manipulative and body-based therapies	**33,040**	**86.7%**	**276,900**	**78.2%**	**$8,629,500**	**72.3%**
Chiropractic or osteopathic manipulation	18,740	49.2%	151,200	42.7%	$3,901,900	32.7%
Massage	18,070	47.4%	95,300	26.9%	$4,175,100	35.0%
Movement therapy	3,150	8.3%	30,350	8.6%	$552,400	4.6%
Mind-body therapies	**3,820**	**10.2%**	**32,800**	**9.3%**	**$864,600**	**7.2%**
Biofeedback	362	1.0%	2,000	0.6%	$83,500	N/A
Relaxation techniques	3,130	8.3%	28,900	8.2%	$707,200	5.9%
Hypnosis	560	1.5%	1,930	0.5%	$73,850	0.6%
Energy-healing therapy	**1,220**	**3.2%**	**7,200**	**2.0%**	**$421,600**	**3.5%****

*A system of traditional medicine native to India
**Standard error does not meet standards of reliability
Note: Numbers have been rounded.

ucts, classes, and material. This equates to 1.5 percent of total health care expenditures in the United States and 11.2 percent of out-of-pocket health care expenditures.[9]

- 38.1 million adults made approximately 354.2 million visits to CAM practitioners with estimated out-of-pocket costs of $11.9 billion. About three-quarters of both visits to CAM practitioners and total out-of-pocket costs spent on CAM practitioners was associated with manipulative and body-based therapies (see Table 1).
- On average, adults spent $122 per person for visits to CAM providers, including more than $29 out-of-pocket per visit.

While the 2007 study did not review the use of prescription medications along with CAM remedies, the earlier study reported that in 1997, an estimated 15 million adults (18.4 percent of all prescription users) took prescription medications concurrently with herbal remedies and/or high-dose vitamins.[10]

Taking a Medical History

Medical histories in dental and medical offices generally are filled out by patients in the waiting room as they await their turn to see the doctor. "Do you take herbal supplements, vitamins, or natural products?" or some variation of this question is usually asked in relation to complementary and alternative medicine. But does it cover the full range of CAM products and services? Hardly. Should we be concerned when 83 million adults (38.3 percent of all individuals 18 years and older) and 8.5 million children (11.8 percent of youngsters under 18 years) reported use of CAM? Most assuredly.

The fact is that many patients may not consider alternative medical systems, manipulative and body-based therapeutics, or the mind-body therapies and energy-health therapies as being related to dental care, so they may not report them. Some may even be reluctant to admit their actions for fear of being ridiculed that they have ventured beyond the pale of accepted remedies. The reality is that the dentist needs to be informed regarding any herbal and over-the-counter products used by his or her patient that may impact the delivery of safe and effective dental treatment.[1] ■

References

1. Little JW. Complementary and alternative medicine: impact on dentistry. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2004;98(2):137-145.
2. The National Center for Complementary and Alternative Medicine of the National Institutes of Medicine. Available from: http://nccam.nih.gov/research. Accessed 2009 Aug 25.
3. Ocasio NA, Solomowitz BH, Sher MR. Natural remedies recommended for the management of oral health. NYSDJ. 1999;65(6):22-24.
4. Myers CD, White BA, Heft MW. A review of complementary and alternative medicine use for treating chronic facial pain. JADA. 2002;133(9):1189-1196.
5. Myers CD. Complementary and alternative medicine for persistent facial pain. Dent Clin North Am. 2007;51(1):263-274.
6. Woodward KN. The potential impact of the use of homeopathic and herbal remedies on monitoring the safety of prescription products. Hum Exp Toxicol. 2005;24(5):219-233.
7. Sparreboom A, Cox MC, Acharya MR, Figg WD. Herbal remedies in the United States: potential adverse interactions with anticancer agents. J Clin Oncol. 2004;15;22(12):2489-2503.
8. Mamtani R, Cimino A. A primer of complementary and alternative medicine and its relevance in the treatment of mental health problems. Psychiatr Q. 2002;73(4):367-381.
9. Nahin RL, Barnes PM, Stussman BJ, Bloom B. Cost of complementary and alternative medicine (CAM) and frequency of visits to CAM practitioners: United States, 2007. Nat Hlth Stat Rep. 2009;18:1-15.
10. Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997. JAMA. 1998;280:1569-1575.

2010 TEN UNDER 10

For the last five years, the Journal of the Massachusetts Dental Society has been working with the MDS Standing Committee on the New Dentist to shine a spotlight on the "Ten Under 10"—10 MDS member dentists who have been in the profession for 10 years or less. On the following pages, you will meet the 2010 Ten Under 10 honorees and learn more about their thoughts on organized dentistry, challenges they faced when they started out, how they balance their professional and personal lives, and more.

To qualify for selection for the Ten Under 10, dentists must have graduated from dental school in the past 10 years, be current MDS members, and have made a significant contribution to the profession, their community, or organized dentistry—or all of the above. A call for nominations was sent to MDS member dentists in the fall and solicited on the MDS Web site and weekly *Membership Matters* enewsletter. Nominations were reviewed and final selections were chosen by the MDS Standing Committee on the New Dentist in December.

Congratulations to the 2010 Ten Under 10—the future of the Massachusetts Dental Society.

Heidi Birnbaum Aaronson, DMD

Current Residence: **Burlington**
Hometown: **Newton**
Office Location: **Wellesley**
Specialty: **General Dentistry**
Dental Education: **Tufts University School of Dental Medicine**

What do you like about being a dentist?
I love the wide range of procedures I get to do as a general dentist. On a typical day, I may see a 2-year-old child for his first dental visit, complete a root canal on a middle-aged patient, fit a high school athlete for a mouthguard, or restore an elderly woman's front tooth so she can feel comfortable smiling again. On a personal level, I love working alongside my father in the dental practice he started more than 35 years ago. We've both learned a lot from each other, and it has been incredibly meaningful, after years of looking over his shoulder, to be able to work side-by-side.

What's the biggest challenge you've faced in your career thus far?
Starting out as a new dentist in an economic recession has been difficult. While things are slowly improving, it has been a challenge to fill my schedule on a daily basis. For now, I'm only in the office three days a week, and I volunteer as a clinical instructor at Tufts University School of Dental Medicine. Because my schedule is so unpredictable and due to having so many holes in my workday, we have not been able to hire a dental assistant, so I work solo for most procedures. I've talked with other new dentists who are facing similar challenges, so I know it's not uncommon, but it's still frustrating to have so many openings in my schedule.

You've been very active in dental charity work, most notably with organizing Tooth Day at Fenway Park. What led you to launch that program?
Giving back to the community has always been important to me. Early in my second year of dental school, I was watching a Red Sox game and noticed one of the players chewing tobacco. I was taking an oral pathology class at the time, and seeing the ramifications of chewing tobacco made me think about what I could do to educate more people, especially the kids who look up to professional athletes, on why chewing tobacco is so dangerous. I contacted Dr. Charles Steinberg, who was vice president of public affairs for the Red Sox. Dr. Steinberg is also a dentist, and with his help, I was able to organize the first Tooth Day at Fenway Park in July 2006.

The goal for Tooth Day at Fenway is to educate the public regarding the dangers of chewing tobacco and to offer free oral cancer screenings to fans before game time. TUSDM donated toothbrushes and toothpaste that are handed out to fans, in addition to brochures on oral cancer and the dangers of smokeless tobacco. We set up an oral cancer screening station and were surprised by the number of fans who had suspicious lesions they had "been meaning to get checked out but never got around to." We even screened some Fenway Park employees in whose mouths we found several premalignant lesions.

The success of the first Tooth Day led the Red Sox front office to add the event to the Red Sox season calendar year after year. Every year, we are able to add new technologies, which allow us to improve our screening success. I was even asked to throw out the ceremonial first pitch before the game for Tooth Day 2007. ■

George K. Etre, DDS

Current Residence: **East Sandwich**
Hometown: **Zahle, Lebanon**
Office Locations: **Hyannis, Harwich, and Falmouth**
Specialty: **Endodontics**
Dental Education: **New York University College of Dentistry (DDS and Certificate in Endodontics); Lutheran Medical Center (AEGD)**

Why did you choose dentistry as a career?
My grandfather, who passed away before I was born, was a dentist. Hearing the stories of how he was able to help people is what made me want to become a dentist.

What's the biggest challenge you've faced in your career thus far?
How to maintain a successful and profitable practice, while at the same time helping patients who are facing economic hardships, is probably the biggest challenge I've faced.

You've been very active in the MDS, particularly the Cape Cod District Dental Society (CCDDS). What made you become a participant in the Society and the CCDDS, and where do you see your future in organized dentistry?
Organized dentistry is extremely important. Our profession wouldn't be where it is today without organized dentistry. The mentorship of my partners—Drs. Bob Kittredge, Gabriel Tagher, and Kevin Choi—is what got me involved in organized dentistry. Very quickly, I realized how important organized dentistry is and how crucial it is for dentists to become more involved, especially in these times of economic and political uncertainty.

What impact do you think the local district dental society has on organized dentistry?
Organized dentistry at the district level is extremely important because it is the building block for the state and national organizations. I urge every dentist to become involved. Not only because the future of our profession depends on it, but also because of the gratifying experience gained by doing volunteer work and contributing to the profession.

You are married to a practicing dentist. How do you balance work and family?
My family is the most important thing in my life. I thank God for giving me the opportunity to be in a profession that allows me to enjoy my family and spend as much time as possible with my wife and daughter, while at the same time enjoying going to work on a daily basis. ■

Matthew R. Fantasia, DMD, FAGD

Current Residence: **Wellesley**
Hometown: **Winchester**
Office Location: **Wellesley**
Specialty: **General Dentistry**
Dental Education: **Tufts University School of Dental Medicine; U.S. Army (AEGD-1 Program)**

What do you like about being a dentist?
What I enjoy most are the day-to-day interactions with patients. I enjoy being a part of their health care team and educating them about their oral health in order to better serve their dental needs. My goal when choosing this profession was to try to make dental care as positive an experience as possible for patients.

What's the biggest challenge you've faced in your career thus far?
Transitioning from military dentistry to practicing in a private practice setting was a big adjustment. The dentistry was the same, but patient management/treatment planning was quite different. In private practice, providers are able to base treatment-planning decisions on a continued, ongoing relationship of care with patients, whereas military dentistry requires immediate, definitive care because many patients may soon find themselves in areas of the world without access to dental care.

You were in the U.S. Army AEGD Program. How does working in the armed services sector differ from the private sector?
In the military, there were other duties and responsibilities besides simply practicing dentistry day-to-day in the clinic. Although I gained a tremendous amount of experience practicing in the Army, I had to modify my treatment planning and patient management skills, given the transient nature of my patient population. The biggest drawback to practicing in the military was the inability to follow cases over an extended period of time to learn from treatment-planning decisions made as a young provider.

You are active in the Yankee Dental Congress. What made you become involved in YDC and why do you think it's important that members volunteer for the conference?
My partner was involved in YDC in a leadership capacity when I joined his practice. I started out helping with the Hands-On Committee and have been involved ever since. I enjoy being involved and meeting new colleagues. It's important for younger dentists to get involved in order to keep improving YDC and maintaining the level of excellence achieved by our predecessors; the responsibility of planning and executing this terrific meeting should not fall on the shoulders of the same core group of people year after year. It's very rewarding and I'd encourage members to get involved at some level.

With the extent of your volunteering commitments, how do you balance your personal and professional lives?
I believe this balance is crucial to a long, sustained dental career. My time with my family is the most important aspect of my life and is always a priority for me. I am lucky to practice and live in the same community, which makes my commute minimal and allows me to attend my children's school functions. I keep myself available for after-hours emergencies and patient issues. I believe patients gain comfort in knowing that they can reach me at all times. I believe it's our obligation to our patients to provide the highest level of service, even if it impacts our family from time to time. ■

Paul S. Gamber Jr., DMD

Current Residence: **Wenham**
Hometown: **Meriden, CT**
Office Location: **Danvers**
Specialty: **General Dentistry**
Dental Education: **Tufts University School of Dental Medicine**

Why did you choose dentistry as a career?
Dentistry was a second career for me. I began my professional life as an insurance claims adjuster. What I loved about handling claims was reviewing a person's injuries, the treatment rendered, and the appropriateness of the treatment in determining a benefit. I was introduced to an oral surgeon in South Portland, who I shadowed for a week, and became "hooked" on dentistry. I began my career thinking I would become an oral surgeon, but after being introduced to all the disciplines, I decided that prosthodontics was a perfect fit because it allows me to express the artistic abilities that I have always enjoyed. Who knew whittling a piece of wood as a kid would have an impact on my chosen profession?

What's the biggest challenge you've faced in your career thus far?
Balancing time is the biggest challenge, whether it is time devoted to work vs. family, or to patient treatment vs. practice management. After graduation, I accepted an associate position with Dr. Jeffrey Dornbush, a prosthodontist in Marblehead, knowing that I was going to learn a lot. This required a lot of time beyond patient treatment, whether it was reviewing cases in the office or attending a large number of CE courses.

Then, when I bought my practice, I felt the need to be there as much as possible to develop the patient care and practice management aspects of the business. Although I am a general dentist, I have a passion for and focus my practice strictly on prosthodontics. I am committed to continuing education, so I devote a large amount of time and resources to my continued development and that of my team. Also, managing the business side of dentistry is difficult to balance with the time spent on patient care. You have to surround yourself with good people in both areas—you need a good team and you need a good team of professionals who can take care of the business side of things.

You were a member of the Council on Dental Practice from 2005 to 2009. What was the biggest takeaway from your involvement?
My biggest takeaway is the stake the MDS has in furthering the success of the profession and the selflessness of the people who commit a good amount of their time for the benefit of dentists throughout the state. The council took up issues and projects that help the dentist on a daily basis, including creation of a "Dental Office Policies and Procedures Checklist" for members to use as a reminder for maintaining equipment, license renewals, CE requirements, employee training, and business insurance.

You are a national lecturer for 3M and 3i. Do you see yourself pursuing a future in dental education?
Lecturing is actually one of my biggest fears! However, I like the challenge, and I love educating people about things that I have a passion for. I would love to be involved in dental education; however, the issue there is that the time you take to teach takes time away from your practice or your family. My practice and family are both "young" at this point. Hopefully, I will be given the opportunity to teach in the future. I'd love to teach at Tufts, which I see as giving back to the university that gave me my opportunity. ■

Robert J. Gauthier Jr., DMD

Current Residence: **Berlin**
Hometown: **Marlborough**
Office Location: **Northborough**
Specialty: **General Dentistry**
Dental Education: **University of Pittsburgh School of Dental Medicine**

What do you like about being a dentist?
I love dentistry. I see much of what I do as artistry. Restorative and cosmetic dentistry is much like "micro-sculpture," if you will. This allows me to express myself artistically every day, and that makes going to the office enjoyable.

What's the biggest challenge you've faced in your career thus far?
My biggest challenge has been learning to manage my dental team and patients. People all have different personalities, and I have had to learn how to be effective in getting the desired outcomes for specific situations. Whether getting a team member on board with a new treatment or office procedure, or having a patient understand and accept treatment, I have to be cognizant of that individual's personality type and specific needs. These skills have been the hardest for me to attain, but I believe that I've gotten much better with time and practice.

You are a current participant in the MDS Leadership Institute. What drew you to the program and what do you think you are getting out of it?
I was drawn to the Leadership Institute to attain and prepare myself for my upcoming role as chair of the Worcester District Dental Society. The curriculum of the Leadership Institute has been great. It has given me good leadership tools and has also taken me out of my comfort zone at times. The Public Speaking Workshop was one of those times. The feedback, both positive and negative, that I received from the speech coach has given me more confidence in the realm of public speaking. These skills will serve me in all aspects of my professional and personal life for years to come.

You are currently vice chair and chair-elect of the Worcester District Dental Society. What has been your biggest challenge as vice chair?
The biggest challenge I have faced has been getting younger dentists to get active in the Society.

What impact do you think the local district dental society has on organized dentistry?
I believe that the district is the basis for the state and national levels of organized dentistry. Without the districts, what would be the point of the Massachusetts Dental Society or the American Dental Association? The district is where the proverbial "rubber hits the road." The district is where many of the benefits of membership are realized. The district is why I got involved in the MDS. It's where I find my connection to the profession. My district colleagues are my neighbors, friends, and fellow dentists. ■

Norman E. Lee, DMD

Current Residence: **Jamaica Plain**
Hometown: **Boston**
Office Location: **Wilbraham**
Specialty: **Periodontology**
Dental Education: **Tufts School of Dental Medicine (DMD and Advanced Certificate in Periodontics)**

Why did you choose dentistry as a career?
It combines the things that I love—art, medicine, and surgery—in a technically difficult field. Dentistry also allows me the reward of making an immediate and positive impact on someone's everyday life.

What's the biggest challenge you've faced in your career thus far?
Endeavoring to start and manage a new practice is by far the most difficult challenge of my professional career. It is quite challenging to be an effective leader. A great leader stands by his or her principles and ethics rather than taking the easy way out. I remember a mentor of mine telling me, "It is not the things you do when people are watching; rather, it is the things that you do when no one is watching." This statement is something that I take with me every day.

You've been active on the MDS Council on Membership. How would you describe your experience on that council?
Serving on the Council on Membership has been an enriching experience that provides me with a new insight into organized dentistry. We need to encourage young dentists to take more active leadership roles. It has encouraged me to reach out and develop relationships to bridge the gap between younger and older dentists at different stages of their professional development.

You participated in the development of the MDS Guest Board Member Program. Why do you think a program such as that is important?
Being part of a group that fosters leadership in the profession of dentistry is important. In a mentoring role, we can best learn how to organize and how to lead with a strong voice in our profession.

When you're not working, what do you do with your free time?
I enjoy challenges such as long-distance road biking (including the annual 150-mile Harpoon Brewery B2B ride), mountaineering on Mount Washington, and I have recently taken on marathon running—perhaps a triathlon is in my future? ■

Sam A. Merabi, DMD, MPH

Current Residence: **Worcester**
Hometown: **Bala Cynwyd, PA**
Office Location: **Leominster**
Specialties: **General Dentistry and International Public Health Dentistry**
Dental Education: **Tufts University School of Dental Medicine and Harvard School of Public Health**

What do you like about being a dentist?
I enjoy engaging with the public and addressing oral health concerns with exciting new technology and evidence-based prevention strategies. Finding natural fluoride in well water in Malawi was just as exciting as the first time I used a laser in treatment.

What's the biggest challenge you've faced in your career thus far?
My biggest challenge is balancing a clinical practice locally with an international dental public health career. I have to keep all of that in mind when writing my grants and scheduling patients. The end result is fulfilling, and I think I have been able to keep things well organized.

You've been very active in community health. Why did you decide to become involved in that sector?
The community is where health can first be addressed in macroscopic terms. Taking a step back from the mouth, you see the patient; take a second step back, you have the family; and then take one more step back, you have the community and its relationship to everything we are trying to do as providers. I especially gravitate to new immigrants, as they remind me of when my family and I first moved to the United States from Iran when I was a small boy.

What inspired you to organize multiple trips to Africa to provide dental care there? Is this something you plan to continue in the future?
I always considered myself a "world citizen" and was inspired to work in Africa since I organized a trip to Zambia in dental school. Afterward, I studied international health when I got my MPH at Harvard. Working with Raising Malawi, Partners in Health, and Harvard School of Dental Medicine has been a dream. I plan to continue to be as effective as possible in the field of international oral health development and see where it takes me through my career.

When you're not working, what do you do with your free time?
I love home renovation and hiking with the dogs. ■

Medha Singh, DDS

Current Residence: **Newton**
Hometown: **New Delhi, India**
Office Location: **Boston**
Specialty: **Periodontics**
Dental Education: **Government Dental College, India (DDS); Tufts University School of Dental Medicine (DMD, Certificate of Advanced Education in Periodontics, and Master of Science)**

Why did you choose dentistry as a career?
My parents are physicians, and I grew up in an environment where medical profession-related discussion and activities were present in everyday life. Going with my parents to their workplace was always exciting to me. These early experiences developed my interest in the medical profession. During high school, as I thought of career options that could afford me a balance in professional and personal life, dentistry became more appealing to me than medicine as I thought it could better provide me with that balance.

What's the biggest challenge you've faced in your career thus far?
The biggest challenge that I faced was moving from India to the United States after completing my dental training in India. Moving to a new environment and being thousand of miles away from my parents, siblings, and friends was really tough and challenging.

You are very involved in dental education and are currently enrolled in the Faculty Track DMD Program at TUSDM. What led you to become involved in the education side of dentistry, and where do you see your future in dental education?
I grew up in India in a family that places a high value on education; my relatives on both sides of my parents' families are highly educated. My grandfather, who grew up in a village in British colonial India, studied law in the top-ranked college in the country and then went on to become governor of a state in India. This environment fed me with a highly inspiring outlook on life and the crucial role higher education plays. As a result, I developed my commitment to higher education. Working with various faculties at Tufts only stoked my drive further. I enjoy academics because it allows me to combine my clinical and research interests, and I just love teaching. For the future, I envision myself achieving tenure track with a focus on teaching and clinical research, and at the same time practicing periodontics.

You are a board member of the nongovernmental organization Chaupal, which provides free medical and dental care in a village in India. How did you become involved with this organization?
Chaupal, which in Hindi language stands for a place of gathering in a village, is a not-for-profit organization based in India. My father is the founder and president of Chaupal. About 70 percent of the people in India live in rural areas with minimal access to medical and dental care. Being a physician himself, my father decided to start this not-for-profit organization. My siblings and I assisted him in planning and launching this organization. Every week, he and his team of 15 doctors—each a specialist in their own field—organize medical camps in the villages of National Capital Region in India. I visit India every year during my vacation and work with him and his team of doctors in these camps. Currently, I am working on expanding opportunities for my colleagues and friends here in the States to be able to participate and contribute to Chaupal's mission. ■

Parul Taneja, DMD, MS

Current Residence: **Boston**
Hometown: **New Delhi, India**
Office Locations: **Chelsea, Waltham, and Lynn**
Specialty: **Orthodontics**
Dental Education: **Manipal University, Karnataka, India (BDS); Boston University Henry M. Goldman School of Dental Medicine (DMD); and University of Oklahoma (Certificate in Orthodontics and MS in Oral Biology)**

What do you like about being a dentist?
The one thing that makes being an orthodontist unequivocally likeable is the patient demographic, which ranges from 8 to 18 years (in spite of the recent increase in adults), as they function like a time machine that prevents you from becoming obsolete. They keep you informed about everything new, from trends to social opinions, and in the process, they minimize the much-dreaded generation gap. The confidence that a radiant smile instills in a person very often transforms his or her perspective on life. Besides all the fun mechanics, being instrumental in this transformation is what makes me want to go to work.

What's the biggest challenge you've faced in your career thus far?
One experience that is indelible was finding patients for the licensure exam—something I faced both in India and the United States. I remember looking for decay for an ideal Class II preparation in dozens and dozens of mouths. I looked in automobile garages, in schools, at Morse Fishing and Co. on Washington Street in Boston, at Supercuts on Boylston Street. This remains, to date, to be the content of some vivid nightmares of mine.

You opened your own practice four years after graduating from dental school. What can you tell us about that experience?
Opening a practice was thrilling. It involved a lot of lists for tasks like getting workers' compensation insurance and ordering equipment. It was a liberating experience for personal expression. We chose everything, from the X-ray equipment to the color of the Post-it notes on the front desk—although micromanaging to that degree may not be recommended. The most challenging part of the process was establishing efficient systems that would ensure smooth running of the practice.

What advice would you give to other dentists considering opening their own practices?
Opening a practice is not for the fainthearted. It is an exciting and sometimes trying process that requires a significant investment financially and timewise. It is important to hire experts as needed. For example, there is no substitute for a good lawyer who will examine contracts in order to protect your present and future interests. Hiring intelligently is vital to the success of any venture.

Does being married to a dentist help you find a balance between your professional and personal lives?
A good balance requires a couple to share the same priorities personally and support each other's growth professionally. For two dentists, it is no different. It does have the fringe benefit of our being able to cover for one another if one person is unwell or has a study club. We have a toddler, so at the moment, attending meetings is a big juggling act for us. We share babysitting duties and sometimes one of us has to sacrifice listening to a favorite speaker. ■

Miguel Vidal, DMD

Current Residence: **Boston**
Hometown: **Miami, FL**
Office Locations: **Boston and Winchester**
Specialty: **Prosthodontics**
Dental Education: **University of Pennsylvania and University of North Carolina**

Why did you choose dentistry as a career?
My initial attraction to dentistry was due in great part to my family ties to the profession. While in college, I fractured my jaw pitching in a baseball game. After recovering from that trauma, I realized dentistry had what I was looking for in a profession, and here I am today.

What's the biggest challenge you've faced in your career thus far?
The fact that I am not from New England and did not attend any of the local schools for my training was an obstacle. As a specialist, I needed to work hard to earn the trust of the referring doctors and establish new relationships. On the positive side, I have formed some great friendships as a result of this experience.

In addition to maintaining a private practice in Winchester, you are the staff prosthodontist at Massachusetts General Hospital. What are the challenges of working in these two different environments?
For me, it offers the best of both worlds. I have the office in Boston at a world-renowned institution where I treat patients who present with varying degrees of difficulty. The office in Winchester is a well-established restorative practice with a fantastic staff that takes great pride in caring for each patient. Being able to delegate responsibilities has eased the burden of not being in one physical location the entire week. It's not a situation for everyone, but I would not trade it.

You are a national lecturer on prosthodontics and implant dentistry and hold a faculty position at Harvard School of Dental Medicine. Do you see yourself continuing to pursue a career in dental education?
I very much enjoy the education aspect, and it is something that I hope to continue. Through my position at MGH, I am involved with the Harvard-Wide General Practice Residency Program from a clinical and didactic standpoint. My role has evolved over the years to where currently I oversee the implant training for the dental residents. I was fortunate to have mentors who were very approachable and giving of their time. I feel it is my responsibility to do the same.

Between your lecturing and teaching commitments, as well as maintaining a practice, how do you find a balance between your professional and personal lives?
This is something that I think we all find challenging. There never seems to be enough time during the week to accomplish everything. It takes an enormous amount of time and energy to grow a practice. Work does not stop for me after I have seen the last patient for the day. Having a great support team, especially with a young family, makes things more manageable. I am very fortunate to have support from my wife. Since she is also in the dental field, she understands what is involved from a time-commitment standpoint. We have worked hard on coordinating our work schedules and maximizing quality time at home. ■

A Clinico-Pathologic Correlation

Figure 1. Clinical photomicrograph of palatal mass on initial presentation.

MARIO LUCCA, DMD
LYNN SOLOMON, DDS, MS
KALPAKAM SHASTRI, DDS, FFDRCSI

Dr. Lucca is a senior resident in the department of oral and maxillofacial surgery, Dr. Solomon is an associate professor of oral and maxillofacial pathology, and Dr. Shastri is an assistant professor in the department of oral and maxillofacial surgery at Tufts University School of Dental Medicine.

History

A 73-year-old African American male was referred from an outside medical facility to the department of oral and maxillofacial surgery at Tufts University School of Dental Medicine. He presented with a large, painless mass on his left hard palate. The patient was unaware of the lesion's existence and duration, and he was in no distress. He denied having experienced recent weight loss, numbness, dental pain, trauma, or nosebleeds. His past medical history was significant for hypertension and poorly controlled, noninsulin-dependent diabetes. He reported no known drug allergies and was a nonsmoker. He did not drink alcohol or use any recreational substances.

Clinical examination revealed a round, sessile nodule measuring approximately 2.5 cm in diameter, located left of the midline on the hard palate (see Figure 1). The lesion was surfaced by a smooth white mucosa with a focal erythematous ulceration, measuring about 1.0 cm in diameter. The area was partially covered by a yellow pseudo-membrane. The nodule was firm on palpation, non-tender, non-mobile, and non-fluctuant. There were no clinically apparent nasal, sinus, or neurologic symptoms. His occlusion was stable and his oral hygiene was poor. Extraoral examination showed no clinical evidence of lymphadenopathy.

Differential Diagnosis

Pleomorphic adenoma
Squamous cell carcinoma
Mucoepidermoid carcinoma
Lymphoma
Adenoid cystic carcinoma

Categories to be considered in the differential diagnosis are comprehensive and include variations of anatomy and inflammatory processes. These could include odontogenic infection (especially deep fungal variants originating in the paranasal sinuses) and necrotizing sialometaplasia.

The clinical features in our case indicated that this process could be a neoplasm, although the ulceration seemed to be secondary to trauma from enlargement of the palate, and not necessarily a central feature of the lesion. Neoplasms to be considered are pathology of salivary origin (benign or malignant), epithelial origin (such as squamous cell carcinoma), or connective tissue origin, such as lymphoma or Schwannoma.

Salivary neoplasms are at the top of the list and pleomorphic adenomas account for about 50 percent of all intraoral minor salivary tumors.[1] Monomorphic adenomas occur and include basal cell adenoma, canalicular adenoma, oncocytoma, and myoepithelioma.

The malignant tumors suspected are mucoepidermoid carcinoma, polymorphous low-grade adenocarcinoma, adenoid cystic carcinoma, acinic cell carcinoma, and adenocarcinoma. Squamous cell carcinoma must be respected as a strong possibility because of the clinical presentation of a painless mass with ulceration. The incidence of squamous cell carcinoma in the palate is exceptionally rare and comprises 2 percent of all

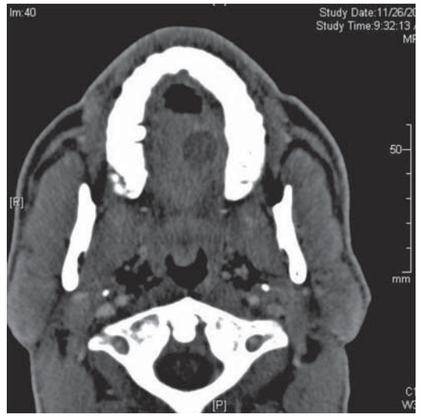

Figure 2. Contrast CT axial window of hypodensity in left maxilla.

malignancies, and only 10 percent of malignancies of the head and neck.[2]

Lymphomas should be part of the differential diagnosis as they are the most common nonepithelial malignancies of the palate. Metastases to the oral cavity and palate are also a possibility, although rare.

Inflammatory processes such as odontogenic infection and necrotizing sialometaplasia were low on the differential because of a lack of associated history or symptoms. Lymphomas would include Hodgkin's and non-Hodgkin's varieties, but ulceration of the overlying mucosa is not a common presentation.

Other lesions to be considered are tumors of neural origin such as Schwannoma and neurofibroma. Leiomyoma and histiocytoma are also possible and have been reported.

A computed tomography (CT) scan revealed a sharply demarcated, heterogenous, rim-enhancing hypodensity in the left palate measuring 1.3 x 2.0 x 2.5 cm (see Figure 2). CT imaging revealed no abnormal findings in the cervical lymph node distribution. The patient underwent an incisional biopsy under local anesthesia. The specimen was fixed in formalin and submitted to Tufts Oral Pathology Services for histologic examination.

Histologic Findings

Microscopic examination of H&E-stained tissue sections showed a section of palatal mucosa surfaced by parakeratinized stratified squamous epithelium. The fibrovascular connective tissue contained a proliferation of epithelial cells arranged in broad sheets, anastamosing cords and individual islands, strands, and nests in a stroma that varied from densely collagenous to hyalinized and myxoid. Focal aggregates of chronic inflammatory cells were present at one tumor margin. The tumor did not appear encapsulated, and the neoplastic proliferation extended to all margins of the incisional biopsy specimen (see Figure 3). The epithelium formed tubular structures and ductlike spaces with a fibrillar hyalinized and myxomatous background (see Figure 4). The neoplastic epithelial cells were varied in their form with ductal, keratinizing squamous and plasmacytoid cell types, but nuclear features were uniformly bland (see Figure 5).

Diagnosis

Pleomorphic adenoma

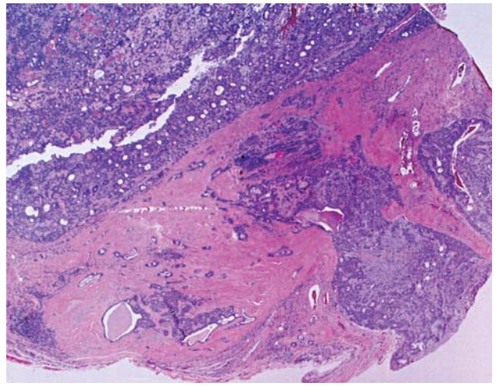

Figure 3. The architectural diversity, which gives the pleomorphic adenoma its alternate eponym of "benign mixed tumor," is evident in this low-power view. (Original magnification: 2x.)

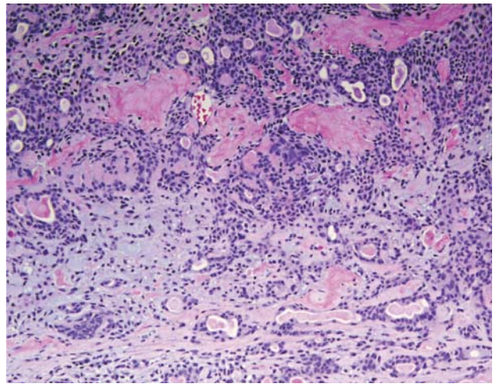

Figure 4. Medium-power view shows anastamosing glandular epithelium and myoepithelial cells arranged intrabeculae, nests, and islands distributed over areas of fibrillar hyalinized and myxoid stroma. (Original magnification: 10x.)

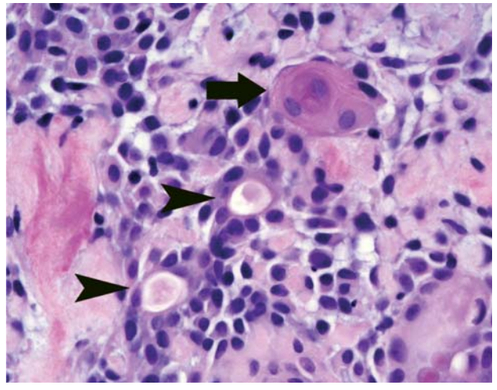

Figure 5. This high-power photomicrograph demonstrates an area of ductal differentiation containing a wispy mucoid luminal product (arrowheads) and an area of keratinization (arrow). Deposits of amorphous eosinophilic hyaline separate the neoplastic plasmacytoid epithelial cells. (Original magnification: 40x.)

Discussion

Palatal mass can be a result of a multiple of conditions. Any nonhealing ulceration must include squamous cell carcinoma in the differential diagnosis.[1] Malignant disease must always be excluded with diligent investigation by biopsy and imaging. The incidence of minor salivary gland tumors is about 2 to 5 percent.[3] The occurrence of malignant neoplasms within that group is significant and can vary from 50 to 80 percent. Pleomorphic adenoma is the most common benign neoplasm of the palate.[4]

Clinical features that need attention in formulating a differential diagnosis include the presence or lack of intact mucosa, induration, nerve paresthesia or anesthesia, pain, fluctuance, and dental history.

Dental pain preceding a soft fluctuant mass may indicate an odontogenic process. Dental treatment preceding the development of a large ulcerative lesion could be a very important factor that adds necrotizing sialometaplasia to the differential diagnosis. Whenever there is paresthesia or anesthesia as a symptom, neoplasia must be ruled out. Radiographic features such as erosion of bone may indicate a malignant process.

Incisional biopsy is very important in lesions that are thought to be malignant, because different malignant salivary gland neoplasms require different treatments. Neoplasms such as polymorphous low-grade adenocarcinomas or low-grade mucoepidermoid carcinomas are often treated with bone-sparing excisions. High-grade mucoepidermoid carcinoma or adenoid cystic carcinoma requires maxillectomy with oncologic margins.[5]

Pleomorphic adenoma is the most common salivary gland neoplasm and represents 33 to 44 percent of all minor salivary gland tumors. Most commonly, it occurs between the ages of 30 and 60 years.[1] The palate accounts for 50 percent of intraoral pleomorphic adenoma occurrences.[1,4] Other intraoral sites include the lips, buccal mucosa, and tongue. Pleomorphic adenoma is also known as benign mixed tumor and, as such, has a wide range of histological patterns.[4]

The typical histological pattern is a combination of glandular epithelium and myoepithelial cells within a mesenchymal stroma.[1] The patient's histological presentation was typical for these classic findings (see Figures 3–5). Ductlike and cystlike structures are not uncommon, and mucoid, hyaline, adipose, cartilage, and osteoid and bone may all be present.[1]

Similarly, the patient did not deviate from the typical clinical presentation of pleomorphic adenoma with a dome-shaped, painless, para-midline, palatal mass. Surface ulceration is not unusual and is most often secondary to trauma.[1]

Pleomorphic adenoma is treated by surgical excision through mucosa involving periosteum.[1] The cure rate is 95 percent, with a lower recurrence rate for tumors of minor salivary glands.[1] Malignant change to carcinoma ex pleomorphic adenoma occurs, but is rare. Mucoepidermoid carcinoma is among the most common salivary gland malignancies.[5-7] Mucoepidermoid carcinoma should always be considered in the differential diagnosis of a palatal tumor.

Treatment

A wide local excision of the palatal lesion was performed. Intraoperatively, the lesion was dissected from the surrounding bony palate with ease. A large palatal defect resulted from removal of the mass, and the wound was packed with iodoform gauze and covered with a palatal splint to facilitate healing and minimize discomfort (see Figures 6–8). This patient recovered well from surgery and his postoperative course has been uneventful. He continues to be followed in our clinic.

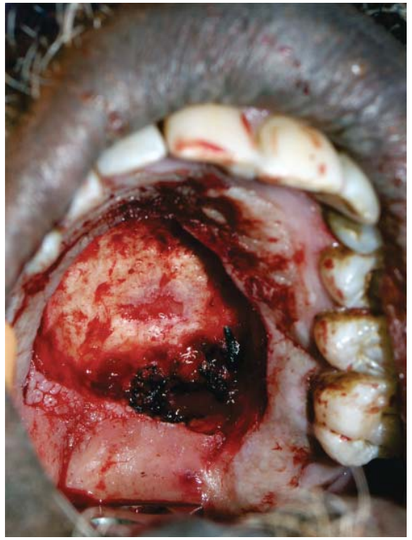

Figure 6. Intraoperative photomicrograph of surgical defect after removal of the lesion.

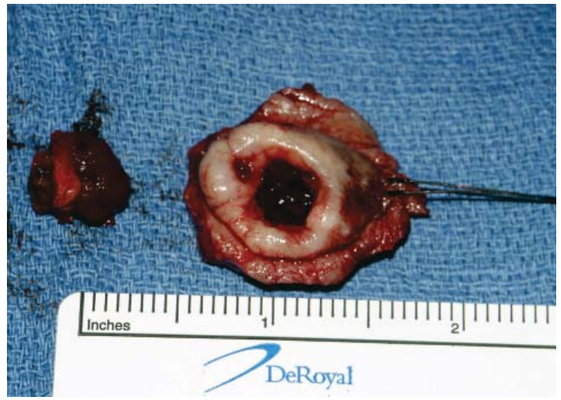

Figure 7. Intraoperative photomicrograph of pathologic specimen.

Figure 8. Intraoperative photomicrograph of acrylic palatal splint secured over wound with wires.

Conclusion

This case represents a classic example of pleomorphic adenoma of the hard palate. Successful treatment begins with appropriate referral and a biopsy-proven diagnosis. Computed tomography aids in evaluating the extent of the lesion and guiding the surgical strategy. With adequate excision, recurrence of pleomorphic adenoma is rare. ■

References

1. Neville BW, Damm DD, Allen CM, Bouquot JE. Oral and maxillofacial pathology. 3rd ed. Philadelphia (PA): W.B. Saunders Company; 2009.
2. Binahmed A, Nason R. Treatment outcomes in squamous cell carcinoma of the maxillary alveolus and palate: a population-based study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2008;105:750-754.
3. MacIntosh RB. Minor salivary gland tumors: types, incidence and management. Philadelphia (PA): W.B. Saunders Company; 1995. p. 573-589.
4. Auclair PL, Ellis GL, Gnepp DR. Surgical pathology of the salivary glands. Philadelphia (PA): W.B. Saunders Company; 1991.
5. Carlson E, Schimmele S. The management of minor salivary gland tumors of the oral cavity. Atlas Oral Maxillofac Surg Clin North Am. 1998;6(1):78-79.
6. Bagheri S, Dam V, Kademani D. Clinical review of oral and maxillofacial surgery. New York (NY): Mosby; 2008.
7. Yih WY, Kratochvil FJ, Stewart JCB. Intraoral minor salivary gland neoplasms: review of 213 cases. J Oral Maxillofac Surg. 2005;63:805-810.

Parameters for Frequency of Dental Radiographs

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Diagnostic dental radiography is a critical component of dentistry, and when used in conjunction with a clinical evaluation, it can be an important tool in oral diagnosis and treatment planning. The need to conduct a radiographic examination is determined by relevant history and clinical findings. Since radiation is potentially hazardous, no dose is a safe dose as far as stochastic effects are concerned. Therefore, when deciding whether or not to conduct a radiographic examination, the benefits of the outcome to the patient should outweigh any health risks involved. Radiographs should not be taken unless there is an expectation of obtaining evidence of diseases that will affect the management of the patient.

In 2004, the American Dental Association and the U.S. Department of Health and Human Services published guidelines for determining the type and frequency of dental radiographs.[1] The guidelines recommend:

- Obtaining radiographs only after a clinical examination has been performed
- Prescribing only those radiographs that directly benefit the patient
- Using the least amount of radiation necessary to generate a diagnostic radiograph

The guidelines detail the selection criteria (such as the patient's age, medical and dental history, and physical signs) that could prompt the need for radiographs. Prescription of radiographs should be made on an individual basis dictated by the patient's clinical needs. The patients are classified by stage of dental development, by whether they are a new or recall patient, and by the estimation of their risk of caries and periodontal disease. Clinical judgment should be used for those patients not included in the guidelines but who require radiographs for diagnosis and treatment planning.

The following table is adapted from the ADA/U.S. Department of Health and Human Services Guidelines for Prescribing Dental Radiographs.The recommendations in these guidelines are not mandates, but serve as an aid in radiographic selection based on clinical evaluation and judgment. ■

Table 1. Guidelines for Prescribing Dental Radiographs

Dental development stage	New patient	Recall patient	
Child with primary dentition	Selected periapical/occlusal views and/or posterior bitewings if proximal surfaces cannot be visualized or probed. Patients without evidence of disease and with open proximal contacts may not require radiographs at this time.	**With clinical caries or at increased risk for caries:** Posterior bitewings at 6-to-12-month intervals if proximal surfaces cannot be examined visually or with a probe. **With no clinical caries and not at increased risk for caries:** Posterior bitewings at 12-to-24-month intervals if proximal surfaces cannot be examined visually or with a probe.	**With periodontal disease:** Clinical judgment as to the need for and type of radiographs for evaluation of periodontal disease. Selected bitewing and/or periapical images in the areas where periodontal disease (other than nonspecific gingivitis) can be identified clinically.
Child with transitional dentition	Posterior bitewings with panoramic exam or posterior bitewings and selected periapicals.		
Adolescent with permanent dentition	Posterior bitewings with panoramic exam or posterior bitewings and selected periapicals. A full-mouth survey is preferred when the patient has clinical evidence of generalized dental disease or a history of extensive dental treatment.	**With clinical caries or at increased risk of caries:** Posterior bitewings at 6-to-12-month intervals if proximal surfaces cannot be examined visually or with a probe. **With no clinical caries and not at increased risk for caries:** Posterior bitewings at 18-to-36-month intervals.	
Adult, dentate or partially edentulous	Posterior bitewings with panoramic exam or posterior bitewings and selected periapicals. A full-mouth survey is preferred when the patient has clinical evidence of generalized dental disease or a history of extensive dental treatment.	**With clinical caries or at increased risk of caries:** Posterior bitewings at 6-to-18-month intervals. **With no clinical caries and not at increased risk for caries:** Posterior bitewings at 24-to-36-month intervals.	
Adult, edentulous	Radiographs based on clinical signs and symptoms	N/A	

Source: Adapted from the ADA/U.S. Department of Health and Human Services Guidelines for Prescribing Dental Radiographs.[1]

Reference

1. American Dental Association, U.S. Department of Health and Human Services. The selection of patients for dental radiographic examinations. Revised ed. Chicago (IL): ADA; 2004.

PATHOLOGY SNAPSHOT

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SADRU KABANI, DMD, MS
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ENAMEL HYPOPLASIA

Enamel defects caused by acquired (rather than hereditary) factors differ largely based on the timing of the insult to ameloblastic activity during tooth formation; the cause of the insult is less important, with many different stimuli provoking similar enamel defects. One commonly encountered acquired alteration of enamel results from systemic influences in early childhood, often arising secondary to an illness associated with an exanthematous fever.

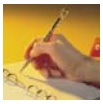
This "chronologic" enamel hypoplasia typically presents as a horizontal band of deficient enamel affecting all teeth undergoing development in a bilateral and symmetric distribution. For example, if a systemic insult occurs at 2 years of age, a row of horizontal pitting or diminished enamel may present on the crowns of teeth undergoing formation at this time—namely, the central incisors, lateral incisors, tips of the canines, and first molars. A recently described pattern of enamel hypoplasia has been noted to affect the molars and incisors specifically.

Figure 1. Bilaterally symmetric pattern of chronologic enamel hypoplasia. The maxillary central incisors have been previously restored.

Although several etiological factors have been linked to this presentation, systemic illness within the first two years of life is often described.[1,2] Enamel hypoplasia of an isolated tooth may also occur and is typically the result of either trauma or periapical inflammatory disease involving the overlying deciduous predecessor (Turner's tooth). As most defects in the enamel arising secondary to environmental influences are esthetic rather than functional concerns, following diagnosis-appropriate restorative procedures can be considered, as needed. ■

References

1. Weerheijm KL. Molar incisor hypomineralisation (MIH). Eur J Paediatr Dent. 2003;4:114-120.
2. Whatling R, Fearne JM. Molar incisor hypomineralization: a study of aetiological factors in a group of U.K. children. Int J Paediatr Dent. 2008;18:155-162.

MELISSA CARMAN, MANAGING EDITOR

Highlighting key events taking place in dental education in Massachusetts.

Boston University

Dean Jeffrey W. Hutter, DMD, MEd, has been appointed chair of the American Dental Association Advisory Committee on Evidence-Based Dentistry (EBD). The purpose of the committee, which was formed in 2001, is to ensure that the entire spectrum of research, dental practice, and education is taken into account as the ADA moves forward on any activity related to EBD. Dean Hutter served as chair of this committee from 2001 to 2007.

"I am very pleased to once again be appointed to this role," says Dean Hutter. "Evidence-based dentistry plays a crucial role in all aspects of dental medicine, and I take the responsibility of advocating for EBD within the ADA very seriously."

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Dr. George Huang, herbert schilder professor in endodontics and director of the Postdoctoral Program in Endodontics, announced that his research team has, for the first time, successfully reprogrammed dental stem cells in humans.

"Our team found for the first time that we can reprogram dental stem cells into human embryonic-like cells called induced pluripotent stem [iPS] cells, which may be an unlimited source of cells for tissue regeneration," says Dr. Huang.

Until now, researchers have been successful in easily creating iPS cells from various cells in mice, but not in humans, so this is a breakthrough. All three types of human dental stem cells that the team tested are easier to reprogram than fibroblasts, which previously seemed to be the best way to make human iPS cells.

In related research, Dr. Huang successfully regenerated two major human tooth components—dental pulp and dentin—for the first time in a mouse experimental model. The mouse was used to supply nutrition for human tissue regeneration. Using tissue engineering, researchers saw empty root canal space fill with pulplike tissue with ample blood supplies. Dentinlike tissue regrew on the dentinal wall.

The two studies—"iPS Cells Reprogrammed from Mesenchymal-like Stem/Progenitor Cells of Dental Tissue Origin" and "Stem/Progenitor Cell–mediated De Novo Regeneration of Dental Pulp with Newly Deposited Continuous Layer of Dentin in an In Vivo Model"—appeared in *Stem Cells and Development* and *Tissue Engineering*.

Dr. Philip Stashenko (right)

Forsyth Institute

The ADEA Gies Foundation honored the Forsyth Institute with the Outstanding Achievement for a Dental Institution Award at the William J. Gies Awards, which were held on February 27, 2010, in Washington, DC, in conjunction with the 2010 ADEA Annual Session & Exhibition.

The William J. Gies Awards for Vision, Innovation, and Achievement recognize contributions to and support of global oral health and education initiatives.

"It is an honor to be recognized by the ADEA Gies Foundation in our Centennial year," says Dr. Philip Stashenko, president and chief executive officer of the Forsyth Institute. "This award is a tribute to the remarkable contributions that the Forsyth scientific staff has made over many decades. Our scientists have been responsible for many of the seminal discoveries in oral and craniofacial science and for training many of today's leaders in dental research and education."

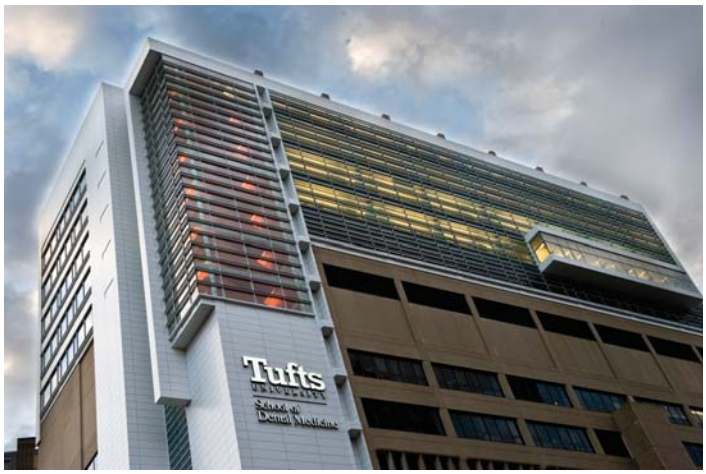


Photo Credit: Alonso Nichols of Tufts University

Tufts University

November 20, 2009, marked the grand opening of the new space at Tufts University School of Dental Medicine (TUSDM) at One Kneeland Street in Boston. More than 750 alumni, students, donors, and friends gathered for a speaking program and open house to celebrate the completion of the largest philanthropic initiative in the school's history.

The extensive construction project was completed in November. The $66 million project added five additional floors to an existing 10-story building in Boston's Chinatown. The expansion features 73 state-of-the-art operatories in the new postdoctoral clinics enhanced with views of the Boston skyline, a 109-chair Simulation Learning Center, 75-seat Rachel's Amphitheater, research clinics, and continuing education and administrative suites.

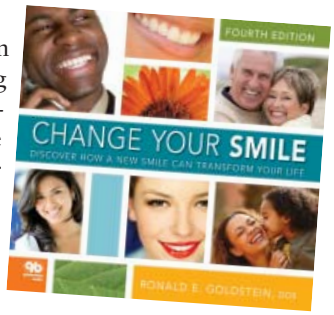
Amazingly, the building remained open throughout the 22-month construction period. The school now has an additional 95,500 square feet, which provides much-needed space for education and for the care of TUSDM's more than 20,000 patients each year. ■

NORMAN BECKER, DDS, EDITOR EMERITUS

Change Your Smile: Discover How a New Smile Can Transform Your Life—4th Edition

RONALD E. GOLDSTEIN

Quintessence Publishing



This softcover book serves us in a dual capacity: in our waiting area as a wonderful source of information for patients about the importance of a smile and on our desks as an update about cosmetic dentistry for the clinician. The dual audiences are served well. The author addresses practitioners by covering new materials and techniques, while advising patients to educate themselves on what they want and what their options are for improving their smiles and then communicating that information to their dentist.

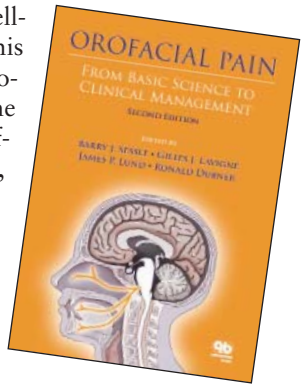
The text emphasizes more than just the cosmetic or oral changes, and includes tips for patients on ways to improve their health and beauty routines as an approach to achieving a brighter smile.

Colorful text and photographs will surely attract the interest of the waiting patients. In addition, the publisher has priced the book low enough ($29.50) so that it can easily become an additional aid for explaining possible future treatment when consulting and diagnosing a case.

Orofacial Pain: From Basic Science to Clinical Management—2nd Edition

BARRY J. SESSLE, GILLES J. LAVIGNE, JAMES P. LUND, RONALD DUBNER

Quintessence Publishing



The editors of *Orofacial Pain* have called upon internationally well-regarded contributors to create this text. As clinicians, we know how orofacial pain can affect more than just the physical life of our patients—it also affects their emotional, psychological, and social lives.

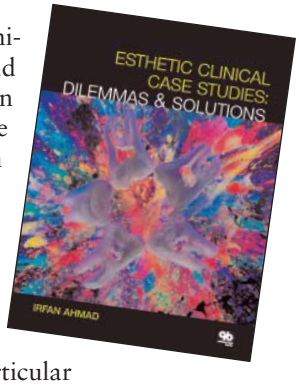
This book aims to raise the practitioner's awareness of new developments in the diagnosis and management of orofacial pain conditions. Topics covered include the neurological, genetic, and molecular process advances involved in diagnosing orofacial pain.

The audience for this text is primarily dental students and practicing clinicians, as well as neuroscience graduate students and medical residents faced with providing care to patients with orofacial pain. The authors provide a comprehensible guide that will help in the diagnosis and management of orofacial pain conditions.

Esthetic Clinical Case Studies: Dilemmas & Solutions

IRFAN AHMAD

Quintessence Publishing



Using case studies of specific clinical challenges, Dr. Irfan Ahmad demonstrates how these dilemmas can be transformed into solutions, while emphasizing that the treatment plan for a given disorder is neither right nor wrong; it is simply one method of achieving the desired outcome. In fact, one sentence summarizes the purpose of this text: "It is hoped that presenting different options, and the reasons for pursuing a particular option, will stimulate discussion and help with the thought process during this crucial and vital stage of any therapy."

The chapters describe evidence-based treatment approaches using case studies with one or more dental esthetic dilemmas and the thought processes used in arriving at solutions acceptable to both the clinician and the patient. The book uses vivid and clear photography to help demonstrate and further explain these processes. ■

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Dr. Schonbrun practices oral and maxillofacial surgery with Connecticut Valley Oral Surgery Associates in western Massachusetts.

CUSPID'S LAST STAND

On the first day of dental school, our class was seated in a large amphitheater and greeted by the dean. We listened to him attentively as he spoke poetically about tooth preservation and exhorted us to become professional stewards of the dentate. In an instant, I became a true believer. That is, until I got to the clinic where the instructor intoned, not quite so poetically, "Gentlemen, start your turbines!" and I soon realized that the concept of tooth preservation was largely a matter of how good a whittler you were.

The dean's well-intended message of preserving teeth was spoken with such earnestness, like Lincoln's preservation of the Union or the Sierra Club's preservation of the wilderness, that I doubt anyone listening in that hall that day left the room without at least rummaging about his mouth with his tongue checking out the merchandise. Being a rather impressionable group of students, the mantra of "Save that tooth"—much like the football chant "Hold that line"—could be heard throughout the day during the various clinical rotations. The exception, of course, being oral surgery, where the students stood over their patients with forceps in hand and head bowed, offering apologies for *not* saving a tooth, made unconvincingly through gritted teeth.

Saving teeth is important. I am a firm believer in it. Or rather, I am a believer in saving firm teeth. Loose teeth can be saved, too—usually in a jar of formalin. When idealism rubs up against pragmatism, the concept of expendability is realized. Just think about Revolutionary War patriot Nathan Hale. Might his life have been spared if only he had offered, "I have but one tooth to give for my country"? Knowing his British captors' aversion to all things dental, this, too, may have been a futile plea for mercy. I can only hope that poor Nathan would have at least proffered up a loose tooth, preferably a third molar.

In today's world of technodentistry and with the horizon of regenerative tissue replacement looming ever nearer, the classic notion of tooth preservation has evolved enough to allow for some wiggle room. Sure, loose teeth can be preserved through various high-tech interventions of the periodontium, but for how long? Pulpally "disadvantaged" teeth are now being wagered for their potential longevity after endo treatment. The notion of tooth expendability is not so heretical anymore. We have other ways of replacing them. Implants, for instance, are good if not better substitutes in some cases, and primary teeth can be collected in cryogenic banks for future tooth replacement. You know, it is conceivable that toothbrushes and dental floss may eventually become viewed as antiquated vestiges of an unenlightened time to ward off evil bugs. Soon we will gain superiority over those bugs in an epic pharmacological struggle, *nano y nano*.

I do sense that my mantra is fast becoming lost in a cacophony of technological breakthroughs. That's progress for you. But it can grow wearisome. As Ogden Nash once noted, "It may have been alright once, but it has gone on too long." I say, resignedly, better it continue. ■