2006 Volunteer Heroes
Dedicated to Organized Dentistry
THE SMOKE NEVER CLEARS

The American Medical Association recently announced that it would no longer hold meetings or conventions at facilities that allow smoking. It is good to see that the AMA is putting its money where its mouth is.

We all know that there is incontrovertible evidence linking smoking to various physical system shutdowns. It is clear how deleterious smoking is to the teeth and supporting tissues, with direct causative links to oral cancer and periodontal disease. In fact, in treatment planning for implant restorations, there is such strong evidence linking smoking to implant failure that it is generally considered not good practice to place fixtures in patients who are heavy smokers, especially in “the esthetic zone.” Smoking contributes to infections after oral surgery. There is also recently reported evidence that cigarette smoke can destroy the antioxidants found in saliva, a process whose by-products might accelerate the development of oropharyngeal cancer.

In addition, secondhand smoke is known to affect the health and well-being of family members and fellow workers. There is direct evidence that smoking has a severe negative effect on the economy due to its impact and burden on the health care system, as well as lost work time.

Organized dentistry advocates for specific themes and causes that are worthy and important. A major problem is that “hot” programs that are beneficial and effective often end without follow-up plans. If an issue is addressed on a continuing basis, it becomes part of the normal routine. If not, awareness diminishes and important programs fall by the wayside. During the last decade, there was a strong antismoking program centered on patient education in the dental office. However, there has not been ongoing follow-up. We need to be vigilant in our efforts, no matter how small the impact, because some patients will continue to smoke, no matter what.

Typically, dentists are willing to donate their time for just causes. In order for people to embrace a cause, it must be continuously publicized. Such efforts are working—cigarette smoking among high school students has declined by 40 percent since 1990. These results show that patient education must continue.

Every practice should make patient education as high a priority as regular prophylaxis or oral cancer screenings. Antismoking education could easily be incorporated into the process of regular oral cancer exams. It should also be part of the treatment planning session so patients can better understand why certain procedures do not have a good prognosis when performed on those who smoke.

The American Dental Association and the Massachusetts Dental Society must put our money where our mouths are as our counterparts in the American Medical Association have done.
HAVE YOU EVER REVIEWED YOUR PAY STUB AND ENTERTAINED thoughts of an early retirement? Suppose you are age 55 and could take home 60 percent of your pay if you retired now. If you earn a high income, it may seem that would allow you to retire in reasonable comfort. However, before calling it quits, weigh all of the facts carefully to be sure an early retirement makes financial sense for you.

Here are eight rules you should consider if you’re thinking about taking an early retirement:

Rule 1. Weigh the differences between the benefits of retiring now and in the future. Retiring at age 55 with, hypothetically, 60 percent of your income may seem like a good deal at first. But if you wait until age 65 to retire, you will have gathered another 10 years of full earnings, along with any increases for promotions, merit raises, and inflation. This will provide you with more money to save for retirement and, ultimately, may boost your Social Security and pension benefits. Also, if you consider the difference in the percentages you will receive now and in 10 years—for example, 60 percent if you leave now versus 80 percent if you retire in 10 years—leaving now may not sound so good after all.

Rule 2. Remember to factor inflation into your decision. If you still think you can manage on 60 percent of your income, remember that inflation will erode your pension. Consider this: If you retire today and receive a pension income of $1,600 per month for life, in 20 years at a 4 percent rate of inflation you will have only the equivalent of $707 in today’s dollars.

Rule 3. Prepare for longevity. The longer you live, the more money you’ll need in retirement. Also, bear in mind that inflation can erode your financial resources over time. As life spans lengthen, an early retirement plan should include a budget to cushion the financial burden incurred by potentially more years spent in retirement.

Rule 4. Evaluate other retirement income resources. If you already have a sizable retirement nest egg, or if you expect to collect a pension from a previous employer, the size of the pension you could receive from your current employer may not be critical. If so, perhaps you could leave the working world behind, since you will have other funds on which to rely.

However, don’t make the mistake of expecting Social Security to provide most of your retirement income. In 2005, the Social Security Administration (SSA) projected that benefits will replace only 40 percent of the average worker’s preretirement income. Also, the future of Social Security is uncertain, and cutbacks in other government programs, such as Medicaid and Medicare, may require you to provide even more of your own funds.

Rule 5. Part-time work may make early retirement feasible. If you decide to leave your present company, are you banking on securing employment elsewhere to supplement your pension? The prospect of ongoing income may make it possible to consider an early retirement option even if it doesn’t pay a high percentage of your earnings. However, keep in mind that it may be difficult to find another equally high-paying position. Be certain of the earnings and longevity you can expect from your next job before depending on it for income until you permanently retire.

Rule 6. Be aware of the effects early retirement may have on Social Security. If you are under age 65 and continue working after you begin collecting Social Security benefits, you may have to “give back” a portion of your benefits. In other words, your Social Security benefits may be reduced once your earnings exceed a certain income cap.

You should also know that if you continue working after you begin collecting Social Security, a portion of your Social Security benefits might be taxed. The calculation to determine how much of your benefits will be included in your gross taxable income is somewhat complicated. For more information, contact the Social Security Administration.

Rule 7. Taking an early retirement may make sense if the specter of corporate downsizing looms. Is there a chance your company will lay you off if you do not elect to leave on your own? Many companies now lay off high earners as part of their cost-cutting measures. If your company is experiencing financial difficulties and “downsizing” appears imminent, you may get a better deal through early retirement than through the company’s severance package.

Rule 8. Understand the potential tax consequences of early retirement. If you opt for early retirement, in some cases you may incur a 10 percent federal income tax penalty for early withdrawals from a qualified plan. Keep in mind that withdrawals taken from an Individual Retirement Account (IRA) before age 59½ may also be subject to a penalty.

Early retirement may be a long-held dream and financially possible. But before calling it quits, analyze your situation carefully. You will have to live with the effects of your decision for the rest of your life. Take the time now to make sure it will still be a smart decision in the long run.
INSURANCE: IT’S ALL ABOUT CHOICE

For most things in life, we appreciate the need for advice from someone who is truly impartial. So with your insurance plans, where there are myriad options available, why should it be any different? Massachusetts Dental Society Insurance Services, Inc. (MDSIS), was founded in 1998 by the Massachusetts Dental Society (MDS) to help members with their insurance needs. The question isn’t “Why MDSIS?” but rather “Why anyone other than MDSIS?” The answer is simple: MDSIS saves you money.

MDSIS saves you money. The simplest of motives. With access to the industry’s best insurance plans and programs, MDSIS is well placed to find you a competitively priced product that meets your needs. From health to short-term disability to 125 plans, MDSIS will do the work for you.

MDSIS saves you time. Of course you could spend days, weeks, even months finding the best policies for you and your staff... but do you really have that time to spend? Let MDSIS use our experience and expertise to do the time-consuming “legwork” for you.

MDSIS ensures you have the right insurance coverage. Do you have enough insurance coverage if the worst should happen? Are you paying for insurance coverage that you don’t need? The experts at MDSIS will make sure that the policy you choose will be right for your needs.

MDSIS is on your side during a claim. Filing a claim can be a stressful process. Having an expert on your side—someone who knows the process and speaks the same “language” as an insurer—can make this process quicker and easier.

MDSIS is your insurance industry resource. From newsletter and journal articles, to district meetings and presidential visits, to Yankee Dental Congress presentations and Minuteman Lectures, to our continually updated Web site (www.mdsis.org), MDSIS is here for you. For the new Health Care Reform Law, look to MDSIS to provide the education and direction you need to help you prepare, understand, and thrive under this law.

MDSIS compares policies and provides alternatives. Although at first glance some insurance plans and policies may seem the same, after reviewing the technical language you may discover they are quite different. Because of the often-difficult-to-understand terminology, exceptions, enrollment guidelines, plan options, and eligibility requirements, it is frequently said that few purchases made by consumers are more confusing or require more careful study.

MDSIS provides a no-obligation benefits/insurance consultation and evaluation of your office. Do you want an expert to review your office’s current benefits and insurance structure? MDSIS will gladly provide this valuable service at no cost for all members. For example, an MDS dentist contacted MDSIS asking for a benefits/insurance consultation. We met with the dental staff and outlined a game plan to restructure the benefits and accompanying insurance. As a result, the benefits were enhanced with a health, short-term disability/long-term disability/life and 125 plan, a strategic policy was established, and money was saved. Utilizing MDSIS’s services saved this client more than $40,000. This peace-of-mind service can help you make sure that your benefits and insurance plans match your corporate objectives.

MDSIS has the experience. The collective experience of the MDSIS staff is 55 years and counting. We utilize our experience in all facets of the operation to add value to your operation. With more than 1,500 clients and growing, MDSIS has the experience that counts.

MDSIS was formed to help dentists and support organized dentistry. If you currently work with another broker, does it provide the services that MDSIS does? Does it promote and fund dental access initiatives such as the MDS Mobile Access to Care (MAC) van program, dental legislative agenda, and continuing education, or contribute to the MDS Foundation? All brokers receive commissions, but all of our after-expense commissions directly fund various dental industry initiatives.

We were formed by you, for you. Make us your broker today.
Contact MDSIS at (800) 821-6033 to learn how we can add value to your practice.

MDSIS—Experience the benefits.
On October 27, 2006, the MDS Foundation once again hosted a successful Wine and Food Tasting at the State Room in Boston to kick off the 2006–07 Annual Giving Campaign. Celebrity chefs from Azure, Ciao Bella, and Aura restaurants were on hand to serve their favorite recipes. Diabolique Infusions, a unique whole-foods-infused liquor company, poured tasty bourbon, rum, and tequila cocktails. All proceeds from this event benefited the MDS Foundation, which is dedicated to improving access to dental care for the underserved population of Massachusetts and enhancing educational opportunities for those who wish to pursue a career in dentistry.

In addition to the fine chefs who dedicated their time and food to make this evening possible, the MDS Foundation would like to express its gratitude to the following companies for their sponsorship: MDS Insurance Services, Inc., Gentle Dental Associates, Blue Cross Blue Shield of Massachusetts, Floral Reflections, and Identity, Inc.

Visit these fine establishments next time you’re in Boston:
- City Bar and Azure Restaurant, the Lenox Hotel, 61 Exeter Street
- Ciao Bella Restaurant, 240A Newbury Street, near the Prudential Center
- Aura Restaurant, the Seaport Hotel, One Seaport Lane

Don’t forget to make your annual contribution to the MDS Foundation. Donate online at www.mdsfoundation.org, through your MDS membership dues statement, or by contacting Tara Brady at (800) 342-8747, ext. 269. Your participation could make the difference in the lives of needy children and adults who cannot afford dental care.
Since 1996, the Massachusetts Dental Society has been honoring those member dentists who have dedicated their energy, skills, and time to the profession of organized dentistry. They are the “Volunteer Heroes”—those members who have gone above and beyond to help the MDS achieve its goals, inspire colleagues, and advance the profession.

This annual recognition is the Society’s way of saying “thank you” to those deserving members who give so much of themselves to organized dentistry.

On the following pages, you will meet the 2006 Volunteer Heroes and learn their thoughts on the impact volunteers have on the Society and the profession, what they have gained—both professionally and personally—from their volunteer experience and why the volunteer’s role in the profession is so important to the future of dentistry.
Richard S. Doff, DMD, MS

Why did you choose to join the MDS?

I joined the Massachusetts Dental Society because it was a requirement of my specialty group, the American Academy of Periodontology, to be a member of the American Dental Association and the state society. I learned about the MDS from the local study club, Parkway Dental Society, a number of whose members were active at the state level and went on to become MDS presidents. I started to understand that the Society was not a faceless organization but a group of my peers.

Why is involvement in organized dentistry important to you?

My involvement in organized dentistry has kept me connected, informed, and educated, while providing me with an opportunity for personal growth. At an early age, I learned from my father, who was in the construction trade, that being part of an organization of peers was important for representing your interests in discussions with groups with which you deal, which is in our case would be state and federal legislators and insurance companies.

Please describe the extent of your volunteer experience in dentistry.

My volunteer experience began at the Parkway Dental Society, where I served as secretary/treasurer, vice president, and president. I then asked Mike Swartz, who was also involved at the district level, how I could be more active. Mike recommended me as assistant district editor, in which capacity I had the privilege of working with Herb Schildte, who was editor. In 1987, Herb felt I was ready to take over as editor, a post I continue to hold today. Elsewhere, I have been involved at Yankee Dental Congress as a speaker, presiding chair, room coordinator, and member of numerous committees. I have been teaching in the graduate and undergraduate clinics at Tufts part-time for the past seven years.

How has your volunteer experience impacted you professionally and personally?

My volunteer experience has given me the opportunity to meet many people who would not ordinarily have met. It has fostered personal growth due to the responsibilities and necessary speaking engagements. I have also had the chance to work with and learn from PHYLLIS BAULE, the Metropolitan District Executive director, who is the “glue” for the district. The only downside has been the time spent away from my family. However, when I look at my children, Jeff, Ben and Amy, as adults today, they have turned out to be well-adjusted members of society, probably thanks to my wife, HILLY.

Bruce M. Field, DDS

Why did you choose to join the MDS?

I joined the Massachusetts Dental Society to interact with colleagues. Additionally, my participation allows me to keep abreast of issues that are important to the profession of dentistry.

Why is involvement in organized dentistry important to you?

Being involved in organized dentistry allows me to be a part of my profession over and above interacting with patients and staff.

Please describe the extent of your volunteer experience in dentistry.

I have been involved with various committees, and am currently chair of the Allied Dental Health Professional Committee, whose oversight includes aiding the expansion of our local community college’s dental hygiene and assisting education programs. I also served as president of the Worcester District Dental Society in 1998–1999.

How has your volunteer experience impacted you professionally and personally?

Being involved with organized dentistry has allowed me to meet my objectives of interacting with my colleagues. It gives me a satisfying feeling to know that I am supporting and contributing to our profession of dentistry.

What do you feel are the most important issues facing organized dentistry today?

Overall, I believe that maintaining the personal relationship of dentist to patient, which we in dentistry seem to enjoy more than some of our colleagues in related professions, is the most important issue.

What would you say to a fellow dentist to convince him or her to get more involved in organized dentistry?

I hope that the new dentists entering our profession recognize the value of sharing their professional experiences with their colleagues. Whether they are opening their own private practice or joining a new practice, the fulfilling value of meeting their fellow professionals as colleagues and not as competitors cannot be underestimated.
Laura B. Glicksman, MS, DMD

Why did you join the MDS?
I never occurred to me not to join the MDS. Part of being a professional is belonging to one's professional society.

Why is involvement in organized dentistry important to you?
Organized dentistry is the best way for my voice to be heard in shaping the future of dentistry as a profession as well as the environment in which we practice. Involvement in organized dentistry also keeps me connected with other dentists. As a specialist, I need to keep abreast of developments in other areas of dentistry, as well as my own, in order to provide my patients with the best interdisciplinary treatment. My contacts through the dental society provide a resource for information, as well as referrals.

Please describe the extent of your volunteer experience in dentistry.
In 2003–2006, I served as a member of the MDS Women’s Leadership Task Force; I am chair of that group for 2006–2007. The Women’s Leadership Task Force is charged with increasing the involvement of women and encouraging them to assume leadership roles within the Society. By increasing the number of women involved in organized dentistry, the MDS leadership will begin to be more reflective of the membership as we look to the future. I was also a delegate to the MDS House of Delegates for the Metropolitan District Dental Society in 2006. I like knowing that my opinion counts in the formation of MDS policy.

I am currently a participant in the MDS Leadership Institute, whose goal is to teach leadership skills to a new group of potential future MDS leaders. After the first session, I feel encouraged by the passion and enthusiasm of this group of dentists who see the future of organized dentistry as a priority.

As a dental student, I was a member of the “Smile Squad,” which educated local school-children about dental health and home care. We went into elementary school classes where some of the third grade students had little-to-no experience with dentists.

How has your volunteer experience impacted you professionally and personally?
My volunteer experience has impacted me professionally by introducing me to a large network of dentists with whom I may not have met otherwise. I also enjoy the satisfaction of working on projects that will impact the profession of dentistry and those for whom we care.

What do you feel are the most important issues facing organized dentistry today?
Access to care for underserved populations is an important issue facing dentistry. All children and adults in the state should have access to basic dental care. The MassDentists CARE and Mobile Access to Care (MAC) programs are so important for us to continue and expand.

Politically, the Society must continue to advocate for the interests of dentists. Our voice is more powerful as a whole than as individuals. Within organized dentistry, I believe it is important for all dentists to feel that they are being represented by the Society. As the face of the profession changes, our leadership needs to reflect that change. The MDS leadership must consist of men and women, as well as people of various ethnicities, in order to mirror the population of dentists practicing in the state.

What would you say to a fellow dentist to convince him or her to get more involved in organized dentistry?
It is very important to me that my voice be heard regarding issues that affect my practice, my staff, my patients, and me. Through my involvement in the MDS, I know that when I have something to say, I have a forum in which to say it.

Vincent J. Mariano, DMD

Why did you join the MDS?
I joined the Massachusetts Dental Society because many of my mentors encouraged me to be part of organized dentistry.

Why is involvement in organized dentistry important to you?
Organized dentistry provides an avenue for having the most impact on both the profession and the people we serve.

Please describe the extent of your volunteer experience in dentistry.
For the past 15 years, I have been chair of the Valley District Dental Society Education Committee. In 1998, I founded Dental Connections, the dental auxiliary continuing education program for the Valley District Dental Society—the most successful educational program for dental auxiliaries in the state. I have been assistant clinical professor of post-graduate prosthodontics at Tufts University School of Dental Medicine since 1993, and I am founder and president of the Tufts Prosthodontics Alumni Charitable Organization, Inc., a private, nonprofit organization dedicated to supporting the Tufts postgraduate prosthodontics program with its alumni worldwide.

How has your volunteer experience impacted you professionally and personally?
Whatever time and effort I have contributed to organized dentistry has been returned ten-fold in the friendships and knowledge I have acquired, and the business success I have achieved.

What do you feel are the most important issues facing organized dentistry today?
Dentistry—and dentists—must never lose sight of the fact that much of our past success as a profession has been based on honesty, integrity, and personal service to the public. This good public perception is being threatened today by unorthodox professional competition, insurance company dictates on treatment, and product manufacturers pushing the envelope of product and technology releases without adequate scientific support.

How has the practice of dentistry changed since you began your career?
Continuing education today is not just necessary but critical to a successful career. Ninety percent of what I do today is different than in 1984, when I had my training at Tufts.

What would you say to a fellow dentist to convince him or her to get more involved in organized dentistry?
I would say to them that there is no better place than organized dentistry to open your world to so many personal and professional opportunities capable of changing your life and the lives of others.

“[W]e must never lose sight of the fact that much of our past success as a profession has been based on honesty, integrity, and personal service to the public.”
John Pietrasik, DDS

Why did you choose to join the MDS?

I joined the MDS immediately after becoming an associate in my Chelmsford practice. At the time, I was mainly interested in the educational opportunities and the prospect of being a member of a group that would advocate for dentists in the community, legislature, and insurance industry. When I began practicing, my partner, Dr. Ron Chaput, was very active in the Society. His involvement demonstrated to me the advantages of being part of an organization that works to maintain and improve the quality of the dental profession.

How has your volunteer experience impacted you professionally and personally?

Volunteering gives me a sense of personal satisfaction, but there is nothing more rewarding than working with a group of dedicated individuals on a particular project and watching it come to fruition. Most of all, being a volunteer has been fun. Being involved with YDC for the past 20 years has given me the opportunity to meet and work with some wonderful people, many of whom have become good friends. On a professional level, being involved with educational programs has helped me stay current on new materials, technology, and processes. What do you feel are the most important issues facing organized dentistry today?

One challenge we face is educating our new dentists about the value of membership and the importance of volunteerism. This process needs to begin in dental school. The continued effectiveness of our organization and the ability to provide adequate and quality programs will be diminished if we see a decline in membership and volunteers. We must continue to work and leadership by your fellow colleagues, which is just another part of being a consummate professional.

What do you feel are the most important issues facing organized dentistry today?

How has your volunteer experience impacted you professionally and personally?

What would you say to a fellow dentist to convince him/her to get more involved in organized dentistry?

Isolation in your own world of private practice will only further distance you from your colleagues. There is no better way to feel good about yourself than through the rewards of membership in organized dentistry. My career would have been less fulfilling had I not been influenced by my own professional mentors, who were always involved in organized dentistry.

Roger J. Wise, DDS

Why did you choose to join the MDS?

When I joined in 1973, the North Shore District Dental Society was extremely well organized and membership was an absolutely essential component of being a dental professional.

Why is involvement in organized dentistry important to you?

As a specialist, failure to participate in organized dentistry would distance you from the hand that feeds you.

Please describe the extent of your volunteer experience in dentistry.

Almost every procedure I perform and material I use has changed since I graduated in 1966. Multidisciplinary care now demands that all dental specialists be able to work and leadership by your fellow colleagues, which is just another part of being a consummate professional.

What do you feel are the most important issues facing organized dentistry today?

Organized dentistry must stay committed to embracing change yet protecting our autonomy as individual practitioners. Having autonomy was perhaps what attracted many of us to a career in dentistry. Today, corporations are involved with continuing education programs, research at dental schools, and large regional dental meetings by offering significant financial support. Dental practitioners must continually read journals to avoid overzealous or premature product endorsements and/or use without sufficient evidence or proper technique.

How has the practice of dentistry changed since you began your career?

Completely. Computers, implants, tissue engineering, and restorative materials have enhanced patient expectations and extended our treatment horizons beyond anything imaginable 30 years ago. Multidisciplinary care now demands that all dental specialists be able to communicate and work together. Today’s dental graduates must be smarter and more talented than ever before in the history of our profession.

What would you say to a fellow dentist to convince him/her to get more involved in organized dentistry?

Isolation in your own world of private practice will only further distance you from your colleagues. There is no better way to feel good about yourself than through the rewards of membership in organized dentistry. My career would have been less fulfilling had I not been influenced by my own professional mentors, who were always involved in organized dentistry.
Year in Review—2006

Four Guest Board Members selected to attend Board of Trustees’ meetings.

Networking event held for women dentists.

Jerry Seinfeld performs at YDC 31.

MDS appoints Task Force on Bioterrorism. Dr. Andrea Richman named chair.

MDS introduces Dental Alert forensic identification program on Society’s Web site.

Council on Communications produces new statewide TV campaign.

MDS and WCVB-TV (Channel 5 in Boston) collaborate on Give Dentistry a Try™ television campaign.

Women’s Leadership Task Force holds first all-day seminar.

MDS and Lexi-Comp, Inc. as information technology provider.

Lands’ End begins business relationship with MDS Business Services program.

MDS sponsors “Smiling Cow” in Jimmy Fund’s CowParade fundraiser.

MDS Insurance Services, Inc., (MDSIS) recognized by Harvard Pilgrim Health Care as one of the “Elite” insurance brokers. MDS was also honored with a Gold Partner Award presented by HR Concepts and was recognized by the American Dental Association for its Direct Reimbursement program.

MDS endorses Lexi-Comp, Inc. as information technology provider.

MDS endorses AmeriVault for online data back-up services and recovery.

AmeriVault® Excellence in Data Protection

MDS endorses AmeriVault for online data back-up services and recovery.

6th Annual MDS Foundation golf tournament held at Walpole Country Club.

MDS Foundation approves $233,000 in grants to six dental hygiene and assisting schools.

MDS Foundation holds 3rd Annual Wine and Food Tasting event.

MDS supports ADA’s 20th Annual New Dentist Conference held in Boston.

MDS Foundation approves $233,000 in grants to six dental hygiene and assisting schools.

MDS sponsors “Smiling Cow” in Jimmy Fund’s CowParade fundraiser.

MDS endorses AmeriVault for online data back-up services and recovery.

AmeriVault® Excellence in Data Protection
Management of Asymptomatic Wisdom Teeth

THOMAS B. DODSON, DMD, MPH
Dr. Dodson is a visiting oral and maxillofacial surgeon at Massachusetts General Hospital (MGH) in Boston and director of the Center for Applied Clinical Investigation at MGH, as well as an associate professor of oral and maxillofacial surgery at Harvard School of Dental Medicine.

Author’s note: The preparation of this manuscript was funded in part by the Center for Applied Clinical Investigation and Education and Research Fund of the department of oral and maxillofacial surgery at Massachusetts General Hospital. The author would like to recognize the American Association of Oral and Maxillofacial Surgeons and the Oral and Maxillofacial Surgery (OMS) Foundation Alliance for their foresight and ambition in funding and supporting the Third Molar Clinical Trials that generated the publications cited in this article.

Introduction

D iction-making for symptomatic third molars (M3s) is generally straightforward. A challenging decision that oral and maxillofacial surgeons face daily is managing asymptomatic M3s. For the purposes of this discussion, asymptomatic M3s can be impacted or erupted. The M3s are asymptomatic by history, physical examination, and radiographic examination. Specifically, the patient has no report of pain, cheek biting, foul odor or taste in the region, or the like. On physical examination, the M3 is erupted, functional, and hygienic, or it is not visible and not in communication with the oral cavity—i.e., the M3 cannot be detected by probing the gingival sulcus with a periodontal probe. On radiographic examination, the only positive finding is the presence of one or more M3s (see Figure 1).

Common sense dictates that the absence of symptoms does not equal absence of pathology. The purpose of this article is to review the literature to find evidence supporting (or refuting) a strategy for operative intervention for asymptomatic M3s. Rephrased as a question, this article’s purpose is to answer the following: “Among patients with asymptomatic M3s, when is it prudent to remove M3s electively as opposed to monitoring them?” There currently exists no perfect answer to this question addressing all clinical situations and patient parameters. There is, however, a growing body of data facilitating management recommendations for asymptomatic M3s.

To date, five studies offer management insight into the asymptomatic M3. The specific aims of this article are to (1) review cross-sectional and longitudinal periodontal outcomes for asymptomatic M3s that are visible or can be probed through the sulcus with a periodontal probe; (2) review caries experience of asymptomatic M3s; (3) review evidence of periodontal outcomes of asymptomatic M3s that are not visible and cannot be probed; (3) highlight outcomes in terms of the periodontal health of the adjacent second molar (M2) following M3 extraction; and (4) review caries experience of asymptomatic M3s erupted to the occlusal plane.

Clinical Situation 1: Asymptomatic visible or nonvisible M3s that can be probed. Using a cross-sectional study design, Blakley et al. enrolled a sample with four asymptomatic M3s and adjacent M2s. This sample was followed over time to assess changes in periodontal health and caries experience. The other studies cited in this review are based on this original study cohort. The subjects were between the ages of 14 and 45. Probing depths (PDs) were recorded at six sites per tooth, including the M3s. The primary variable of interest was the presence or absence of periodontal disease around the M2 or M3. Periodontal disease was defined as being present if any site around the M3 or distal of the M2 had PDs >4 mm.

In brief, the sample was composed of 329 subjects (48 percent male, 79 percent white) with a median age of 25 years. At baseline, periodontal disease was evident in 25 percent (n = 82) of the subjects with asymptomatic M3s. Risk factors for periodontal disease were subject age, tooth location, and eruption status. Subjects older than 25 years were two times more likely to have periodontal disease than subjects younger than 25. Mandibular M3s were five times more likely to have periodontal disease than maxillary M3s that erupted to the occlusal plane were five times more likely to have periodontal disease than M3s below the occlusal plane.

In this sample of young subjects with asymptomatic M3s, there was a surprisingly high frequency of periodontal disease. This finding begs the question, “What happens to the periodontal status of these teeth over time?” Do the PDs improve, stabilize, or deteriorate? If the PDs improve, extraction of asymptomatic M3s may be indicated.

In another study, White et al. followed the sample described above for at least 4 years. The primary variable was the periodontal health at baseline in the M3 region. Subjects whose M3s could not be probed were excluded from analyses. At baseline, 25 percent of M3s were >4 mm, even if the patient reports no symptoms, extraction of the M3 may be indicated to improve periodontal health. Some may argue that M3 extraction would have no effect or could worsen the preexisting periodontal disease, especially on the distal aspect of the adjacent M2. What data are present, however, to suggest that M3 extraction may improve the periodontal health?

Richardson and Dodson completed an evidence-based review of periodontal outcomes after removal of mandibular M3s. The results of their review suggest that in most cases (>90 percent), when there is evidence of preexisting periodontal disease—i.e., PDs >4 mm—the periodontal health on the distal of the adjacent M2 is stable or improves, as evidenced by PDs improving at least 2 mm. Conversely, in the setting of PDs <4 mm, PDs deteriorate in 48 percent of the cases after M3 extraction.

Clinical Situation 2: M3s that are not visible and cannot be probed. About 20 percent of the sample had M3s that could not be probed at baseline and were excluded from the initial analyses. What were the outcomes of that group? Phillips et al. recently submitted an article for publication addressing that question. From the original sample described above, 146 subjects with 369 M3s that could not be probed were followed for at least 24 months after the baseline examination. During the follow-up period, 35 percent of the M3s converted from teeth that could not be probed at baseline to teeth that could be probed at follow-up. Additionally, 19 percent of the M3s had periodontal disease present at follow-up as evidenced by PDs >4 mm. The anatomic position of M3s is not static over time, even in subjects over 25 years of age. Asymptomatic impacted M3s that cannot be probed need to be monitored over time for changes in position and periodontal health.

Findings of this review suggest that in cases where the PDs in the M3 region are >4 mm, even if the patient reports no symptoms, extraction of the M3 may be indicated to improve periodontal health. Some may argue that M3 extraction would have no effect or could worsen the preexisting periodontal disease, especially on the distal aspect of the adjacent M2. What data are present, however, to suggest that M3 extraction may improve the periodontal health?

Clinical Situation 3: M3s erupted to the occlusal plane. Asymptomatic M3s are at risk for caries. Sugars et al. reported on the incidence of occlusal dental caries in M3s based on the study sample described above. The sample was composed of 211 subjects with more than one M3 erupted to the occlusal plane and followed for at least 24 months. At the baseline examination, 29 percent

Figure 1. In this panoramic radiograph, no bony abnormalities are noted in the maxilla or mandible and there are no significant radiographic findings associated with the M3s.
Subjects with caries on the first or second molar
at baseline were also more likely to develop occlusal caries
on the M3 at follow-up.

of subjects had at least one M3 with occlusal caries. At the end of follow-up, 33 percent of the subjects had evidence of caries in the M3s. Mandibular teeth were affected more than maxillary teeth. Younger subjects (less than 25 years of age) were more likely to develop caries at follow-up. Subjects with caries on the first or second molar at baseline were also more likely to develop occlusal caries on the M3 at follow-up.

Conclusion
The overall purpose of this article was to answer the question “For patients with asymptomatic M3s, when is it prudent to extract the M3s or monitor the M3s?” Based on the evidence summarized in this article, my current recommendations to clinicians and patients regarding the management of asymptomatic M3s are summarized below.

Always use a periodontal probe when evaluating patients with M3s to measure PDs in the M3 region, including the distal of the adjacent M2. If PDs are >4 mm in the M3 region or the M3 can be probed through the gingival sulcus, it is generally better to remove the tooth. If the tooth is erupted and there are caries on the first or second molar, M3 removal is again advised.

If the tooth is impacted and cannot be probed, offer patients the choice of monitoring or elective M3 removal to prevent future problems. If patients opt for the former, have them return on an annual basis to review their history and complete a physical and radiographic examination to assess symptoms and determine if the M3 can be probed or has PDs >4 mm.

References

At Tom’s of Maine, we believe you don’t have to sacrifice effectiveness when you use natural ingredients—and we have over 35 years of experience to prove it.

• Our Anticavity Fluoride Toothpaste is the first natural toothpaste for adults and for children to carry the American Dental Association Seal of Acceptance
• Our Anticavity Fluoride Toothpaste is the first natural toothpaste for children to carry the American Dental Association Seal of Acceptance

“The ADA Council on Dental Affairs’ Acceptance of Tom’s of Maine’s Natural Anticavity Fluoride Toothpaste is based on the belief that the product is effective in helping to prevent and reduce dental decay, when used as directed.”
What Every Dentist Should Know About Malignant Hyperthermia

AMIR NAIMI, DDS
KALPAKAM SHASTRI, DMD
MORT ROSENBERG, DMD

Dr. Naimi is a resident in oral and maxillofacial surgery and Dr. Shastri is an assistant professor of oral and maxillofacial surgery at Tufts University School of Dental Medicine. Dr. Rosenberg is a professor of oral and maxillofacial surgery at Tufts University School of Dental Medicine and an associate professor of anesthesiology at Tufts University School of Medicine.

Malignant hyperthermia (MH) is a rare but potentially lethal hypermetabolic disorder of skeletal muscle that was first described in 1960 by Denborough. 1 Susceptibility to this trait is triggered by exposure to inhalation anesthetics and succinylcholine, a depolarizing skeletal muscle relaxant, used during surgery. Since its initial identification, MH has been studied extensively, resulting in identification of its triggering agents, preventive measures, and treatment. A brief overview of the pathophysiology of MH and a discussion regarding the safe use of local anesthetics in MH-susceptible individuals for dental procedures are discussed here.

Case Report
A 54-year-old female presented for evaluation regarding the extraction of an erupted tooth, #30, with significant pericoronitis and interproximal pain in the area. In 1984, during a routine surgery under general anesthesia, the patient’s son had an episode of MH. Subsequently, the patient and her four children were tested with positive results for MH susceptibility. The recommendations from her physician at that time read: “The results are positive . . . that you are susceptible to malignant hyperthermia . . . The only time this would present a problem would be in the dentist’s office with general or local anesthesia of the amide type. Should you require local anesthesia, you may receive drugs of the ester type [Pontocain or Novocain].” 2

Preoperative signs were recorded, 3% mepipvacaine was administered for an inferior alveolar nerve block and infiltration, and tooth #30 was extracted. The patient tolerated the procedure well, was discharged in stable condition, and has had an uneventful recovery.

Pathophysiology
MH is characterized as an autosomal-dominant disorder affecting the regulatory proteins of skeletal muscles on ryanodine receptors. 3 When exposed to triggering agents, these mutations cause a massive influx of calcium from the sarcoplasmic reticulum into the myoplasm, resulting in sustained muscle contractions. 4 This, in turn, results in manifestations of a hypermetabolic state evidenced by tachycardia, tachypnea, hypercapnia, and general muscle rigidity. The ultimate sequelae of MH, if untreated, are progressive changes secondary to accumulation of cell death products, electrolyte abnormalities, and coagulopathies leading to death.

Even with recognition and treatment, a mortality rate of 5–10 percent has been reported. 5 This point emphasizes the importance of prevention by a thorough knowledge of triggering agents and muscle rigidity screening methods. With the advent of new molecular genetic testing, it has been estimated that one in 2,000 of the population may be genetically predisposed to MH. Clinically, however, the incidence appears to be one in 15,000 children and one in 60,000 adults receiving triggering agents. 5

Over the years, diseases have been identified that seem to have an association with MH, especially those of neuromuscular origin (see Table 1).

Table 1: Diseases with Association with Malignant Hyperthermia

<table>
<thead>
<tr>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central core disease</td>
</tr>
<tr>
<td>Duchenne Muscular Dystrophy</td>
</tr>
<tr>
<td>King-DeNborough Syndrome</td>
</tr>
<tr>
<td>Other myopathies</td>
</tr>
<tr>
<td>Becker Muscular Dystrophy</td>
</tr>
<tr>
<td>Periodic paralysis</td>
</tr>
<tr>
<td>Myotonic Congenita</td>
</tr>
</tbody>
</table>

Triggers
Potential inhalation anesthetics such as halothane, sevoflurane, desflurane, isoflurane, and succinylcholine are known to cause MH in susceptible individuals. Triggering anesthetic agents and those that are recognized to be safe are listed in Table 2.

Table 2: Agents Identified as Triggering Agents for MH and Safe Agents Without Any Additional Risks in MH-Susceptible Individuals

<table>
<thead>
<tr>
<th>Triggering Agents</th>
<th>Safe Agents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Succinylcholine</td>
<td>Local anesthetics, Propofol, Ketamine, Nitrous oxide, Barbiturates, Non-depolarizing muscle relaxants, Narcotics</td>
</tr>
<tr>
<td>Halothane</td>
<td></td>
</tr>
<tr>
<td>Isoflurane</td>
<td></td>
</tr>
<tr>
<td>Desflurane</td>
<td></td>
</tr>
<tr>
<td>Sevoflurane</td>
<td></td>
</tr>
</tbody>
</table>

Differential Diagnosis
Although many health care profession- als mistakenly believe that the earliest sign of MH is a rapid and sustained rise in body temperature, it actually is a relatively late symptom. This hyperthermia is usually preceded by unexplained tachyarrhythmias and unexplained hypercarbia and tachypnea. 6 Phlethrocytosis, thyrotoxicosis, and hyperkalemia associated with some variants of muscular dystrophy could also resemble MH. Another condition that mimics MH clinically is nonneurologic malignant syndrome that is encountered rarely in individuals on seizure and antipsychotic medications. 7 Signs and symptoms of MH are listed in Table 3.

Table 3: Signs and Symptoms Associated with MH

<table>
<thead>
<tr>
<th>Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tachycardia</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
<tr>
<td>Muscle rigidity (especially masseter muscle)</td>
</tr>
<tr>
<td>Hypokalemia</td>
</tr>
<tr>
<td>Hypocalcemia</td>
</tr>
<tr>
<td>Hypothyroidism</td>
</tr>
</tbody>
</table>

Treatment
The best outcomes in MH are achieved by determining a thorough preoperative medical history, including familial problems associated with anesthesia. Proper intraoperative monitoring when using potential triggering agents, early diagnosis, and immediate treatment are essential in the care of the anesthetized patient. The immediate availability and administration of sodium dantrolene, a mild skeletal muscle relaxant, is life saving in the treatment of a suspected MH episode. 8 Table 4 provides an overview of treatment of an acute MH episode.

Table 4: Treatment Overview

1. Recognize an impending MH episode.
2. Stop procedure and administration of triggering agents, and call 911.
3. Ventilate with 100% oxygen at high flows >8 L/minute.
4. Establish definitive airway by endotracheal intubation.
5. Administer an initial intravenous dose of dantrolene at 2.5 mg/kg.
6. Monitor and treat metabolic acidosis, electrolyte abnormalities, and potential dysrhythmias.

MH-susceptible individuals are disproportionately affected compared to the general population. 4,5 This involves a minor surgical procedure for harvesting muscle—usually from the thighs—and exposing this muscle to caffeine and halothane while measuring the contractions. There are less invasive and more reliable molecular genetic tests being developed that may further improve MH screening efforts. 9

Treating MH-Susceptible Patients in the Dental Office
In the past, MH-susceptible patients were often refused dental care under local anesthesia in the dental office. This was due to lack of familiarity with the condition and adherence to the old warnings that amide local anesthetics could potentially trigger an MH episode. Both the medical and the dental literature have confirmed that there is no evidence linking MH and the administering of commonly used amide local anesthetics. 9 Therefore, it is generally accepted to routinely administer amide local anesthetics in MH-susceptible individuals, as we did in the case presented here. We decided not to use epinephrine to avoid the possibility of an increase in the heart rate. If the need for general anesthesia is indicated and the use of inhalational agents is contemplated, the immediate availability of sodium dantrolene and proper monitoring must be employed.

One other source of concern is the fact that stress may also trigger an MH-type response in susceptible individuals. There have been a few reports of individual presenting with signs and symptoms
of MH following intense physical activity. Further testing on these individuals has demonstrated that they do in fact have the MH mutation. To date, however, there are no reports of emotional stress and anxiety seen in patients undergoing minor surgical procedures and dental work causing an MH crisis. Therefore, there are no specific recommendations regarding stress reduction in individuals at risk for MH as compared to the normal population.

Conclusion
Malignant hyperthermia is a genetically inherited, potentially lethal clinical syndrome. Therefore, it is imperative for dental practitioners to understand the pathophysiology behind the disease and its clinical presentation. It is also very important to have a thorough knowledge of the drugs to be avoided as triggering agents and those that can be safely administered to susceptible individuals.

References

It is imperative for dental practitioners to understand the pathophysiology behind malignant hyperthermia and its clinical presentation.


Introducing Premier Banking for Dentists...

Rockland Trust recognizes that dentists have unique banking and financial needs. That is why we created Premier Banking for Dentists—offering you the full range of financial services along with the high level of personal service you need to help your practice succeed. We’ll work with you to create a business plan and line of credit, time banking services for your new and existing patients, and provide dedicated Business Advisors who understand the specific financial needs of your industry. To learn more stop by any one of our 30 convenient branch locations or visit us on the web at www.RocklandTrust.com/Dentists or contact Bill Mowen, Vice President, Business Banking, (631) 992-5204 to schedule a confidential appointment.

trytty
The goals of dentistry have undergone subtle changes over the years. We can perform certain procedures today that were earlier unavailable to the profession. However, availability is not necessarily indication. The following are areas of consideration:

Conservation of Hard Tooth Structure
The wisdom of tooth conservation is likely the same today as it has been for the last century. Natural tooth enamel is ideal from the standpoint of strength of the entire tooth. A restorative material might be nearly as good as tooth enamel, but to use a restorative material, it is necessary to reduce tooth structure, thus reducing the overall strength. It follows that the less tooth structure removed to accommodate the restorative material, the greater the tooth.

Comment
Since the advent of the need for esthetic dentistry, there has been a tendency to remove significant tooth structure to attain the desired cosmetic results. This has resulted in a number of procedures done on your teeth that you are recommending to your patient? 

Conservation of Periodontal Structures
The height of the soft tissue on the tooth with a sufficient band of attached gingiva is optimum. Loss of alveolar bone from periodontal inflammation is considered pathologic.

Comment
Removal of healthy alveolar bone to facilitate restoration resistance and retention is a reasonable and appropriate procedure, but only when necessary. The use of slots, grooves, and pins to gain resistance and retention is well documented in the literature and can prevent elective surgical bone loss.1 Crown extension procedures may be reasonable and appropriate to achieve esthetics and resolve loss of biologic zone problems. Again, the patient should be informed of the risk-reward of the proposed procedure.

Crown-Root Ratio
The more tooth structure in the bone and the less tooth structure out of bone results in the most ideal ratio. In optimum health, the anterior teeth radiographically have approximately a 50 percent crown-root ratio, with greater root structure within the bone in posterior teeth. This is a remarkable natural physiological phenomenon to compensate for the significantly greater forces that are applied to the posterior teeth.

Comment
The prudence of altering this naturally occurring physiological ratio needs to be constantly evaluated.

Crown-Root Ratio
The more tooth structure in the bone and the less tooth structure out of bone results in the most ideal ratio. In optimum health, the anterior teeth radiographically have approximately a 50 percent crown-root ratio, with greater root structure within the bone in posterior teeth. This is a remarkable natural physiological phenomenon to compensate for the significantly greater forces that are applied to the posterior teeth.

Comment
The prudence of altering this naturally occurring physiological ratio needs to be constantly evaluated.

Gingival Crevice Health
Little has changed over the years with regard to this subject. Keeping dentin and enamel in intimate contact with soft tissue provides the most favorable environment for optimum periodontal health. Exquisitely accurate and fine dentistry can be placed in the crevice with minimal alteration of soft tissue health. However, this is accomplished in a minority of restorations. Supragingival margins are considered less insulting to the soft tissues than subgingival margins.

Comment
Currently, there is a strong tendency to use the full crown as the restoration of choice. In the more posterior teeth, although an aesthetic compromise, cast gold has been shown to be ideal from the standpoint of strength, longevity, and tooth conservation.1 The need for posterior esthetics can also be attained with partialcoverage bonded porcelain and possibly a satisfactory resin. It is understood that subgingival margins are required in those cases where the patient demands esthetics. The patient should be informed of the available choices and risks of various modes of treatment.

Conservation of Periodontal Structures
The height of the soft tissue on the tooth with a sufficient band of attached gingiva is optimum. Loss of alveolar bone from periodontal inflammation is considered pathologic.

Comment
Removal of healthy alveolar bone to facilitate restoration resistance and retention is a reasonable and appropriate procedure, but only when necessary. The use of slots, grooves, and pins to gain resistance and retention is well documented in the literature and can prevent elective surgical bone loss.1 Crown extension procedures may be reasonable and appropriate to achieve esthetics and resolve loss of biologic zone problems. Again, the patient should be informed of the risk-reward of the proposed procedure.

Crown-Root Ratio
The more tooth structure in the bone and the less tooth structure out of bone results in the most ideal ratio. In optimum health, the anterior teeth radiographically have approximately a 50 percent crown-root ratio, with greater root structure within the bone in posterior teeth. This is a remarkable natural physiological phenomenon to compensate for the significantly greater forces that are applied to the posterior teeth.

Comment
The prudence of altering this naturally occurring physiological ratio needs to be constantly evaluated.

You weren’t born with data backup
At least you were born with one set of backup teeth. Unfortunately, backup for your critical business and patient data requires a bit more thought and planning. AmeriVault automates your data backup and offsite storage so you can focus on your practice and your patients.

Secure Online Backup
> Total Automation
> Tape-free offsite storage
> Immediate online restore
> Only requires Internet
> HIPAA compliant

Contact AmeriVault
Receive special Massachusetts Dental Society pricing by calling 800.774.0235 or by visiting us online at amervault.com/massidental

Dentistry has progressed significantly over the past 40 years. Some procedures have increased our ability to restore and esthetically improve our patients’ oral condition. There is a tendency to increase the number of procedures to attain certain preferred goals, sometimes at the expense of healthy hard and soft oral tissues. The patients deserve to be advised of alternative therapies to accomplish their goals with minimal alteration of their healthy oral tissues. Would you have the same procedures done on your teeth that you are recommending to your patient?

References
Bisphosphonates (BPs) have been in clinical use for performing bone imaging, treating different metabolic bone diseases, and managing osteolysis and the hypercalcemia associated with some cancers since the late 1960s. Although these agents are extremely effective at treating these conditions, recent publications have noted a possible sequela of treatment with BPs is bisphosphonate-related osteonecrosis (BRON) of the jaws. In the past few years, a great deal of attention has been paid to recognition and management of different issues surrounding patients being treated with bisphosphonates by many health care providers, including dentists and dental specialists. This article will review some of the basic principles behind bisphosphonate therapy and its side effects, and summarize the manage- ment guidelines used in BP therapy. We will also report one of the 11 cases that we have identified and man- aged in our clinic in the past five years.

**Background**

BPs are chemically similar to the endogenous mineralization regulator pyrophosphate (PPi), but they have a more stable internal affinity of BPs for calcium is what delivers them, with great efficacy. This great affinity of BPs for calcium is what delivers them, with great efficacy, to sites of active bone remodeling where bone minerals are exposed. After delivery to the bone, BPs are sequestered in the matrix crystals of the bone and, over time, are released back into the plasma. Due to this slow release, the elimination half-life of BPs is significantly extended, ranging from hundreds of hours to years. Based on their chemical structures, BPs have different antiresorptive properties and are used in different clinical settings. (See Table 1.) Specifically, the presence of a nitrogen atom in one of the side chains of the BP molecule greatly increases in potency by up to a thousandfold.

Regardless of potency, all BPs more or less exert their antiresorptive effects by direct and indirect effects on the osteoclasts. The non-receptor-mediated effects of BPs on osteoclasts are various therapeutic agents that differ in the degree of osteoclast suppression. A more thorough understanding of the mechanisms involved in the action of BPs on osteoclasts and the interactions of BPs with other cells of bone turnover is essential in understanding the pathogenesis of ONJ.

**Case Report**

We are reporting the case of a 67-year-old male who was referred to our clinic in April 2003 for evaluation of exposed bone in the posterior left mandible. The only symptom he com- plained of was minor discomfort upon palpation of the exposed area. This patient was diagnosed with multiple myeloma in 1998 and had been treated with an autologous stem cell trans- plant in 1999 along with chemotherapy. He did not have any other significant medical problems or any other contributory history. At the time of our initial evaluation, he was receiving intravenous zoledronic acid for treatment of osteolytic lesions associated with multiple myeloma. For the previous four and a half years, he had been on pamidronate for the same condition. Additionally, the patient was receiving thalidomide and prophylactic penicillin. He had also been treated with oral dexamethasone in the past but was not receiving any glucocorticoids at the time of our evaluation.

On exam the patient had a 3x5 cm lesion with the appear- ance of dense sclerotic bone on the lingual aspect of the left mandible. In May 2003, under general anesthesia, the lesion was excised and the exposed area was debrided. There was no evidence of soft tissue breakdown or osteomyelitis. The surgical area was left to heal by secondary intention further emphasizes this point. Another integral part of prevention is that there is no best way to manage some of these BP therapy-related jaw lesions. The American Association of Oral and Maxillofacial Surgeons recently published a position paper setting forth some guidelines for management and a staging protocol for BRON. These recommendations are based on limited available clinical data, and long-term prospective data on definitive management of BRON is lacking.

**Discussion**

There are several articles, case reports, and literature reviews in the dental, medical oncology, and pharmaceutical databases regarding bisphosphonate-related osteonecrosis of the jaws. The consensus is that there is no best way to manage some of these BP therapy-related jaw lesions. The American Association of Oral and Maxillofacial Surgeons recently published a position paper setting forth some guidelines for management and a staging protocol for BRON. These recommendations are based on limited available clinical data, and long-term prospective data on definitive management of BRON is lacking. A clinico-pathologic correlation of osteolysis with the BP molecule greatly increases in potency by up to a thousandfold.

Regardless of potency, all BPs more or less exert their antiresorptive effects by direct and indirect effects on the osteoclasts. The non-receptor-mediated effects of BPs on osteoclasts are various therapeutic agents that differ in the degree of osteoclast suppression. A more thorough understanding of the mechanisms involved in the action of BPs on osteoclasts and the interactions of BPs with other cells of bone turnover is essential in understanding the pathogenesis of ONJ.

**Table 1: Antiresorptive Potencies and Clinical Uses of Various Bisphosphonates**

<table>
<thead>
<tr>
<th>Agent</th>
<th>Potency</th>
<th>Route of administration</th>
<th>Therapeutic use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Etidronate</td>
<td>10</td>
<td>PO, IV</td>
<td>PG, PD, HAN</td>
</tr>
<tr>
<td>Tiludronate</td>
<td>100</td>
<td>PO</td>
<td>PD</td>
</tr>
<tr>
<td>Pamidronate</td>
<td>100</td>
<td>IV, PO, MD</td>
<td>PD, HAN, O</td>
</tr>
<tr>
<td>Alendronate</td>
<td>1,000</td>
<td>PO, IV</td>
<td>PD, O, MD</td>
</tr>
<tr>
<td>Risedronate</td>
<td>1,000-10,000</td>
<td>PO</td>
<td>PD, O</td>
</tr>
<tr>
<td>Ibandronate</td>
<td>1,000-10,000</td>
<td>PO</td>
<td>0</td>
</tr>
<tr>
<td>Zoledronic acid</td>
<td>&gt;10,000</td>
<td>IV, HAN</td>
<td>PD: Paget’s disease; HAN: hypercalcaemia associated with neoplasm; O: osteoporosis; MD: male osteoporosis.</td>
</tr>
</tbody>
</table>

**Table 2: Conditions and Risk Factors with Bisphosphonate-Associated ONJ**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Risk Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma</td>
<td>Tobacco use</td>
</tr>
<tr>
<td>Female sex</td>
<td>Prior infection</td>
</tr>
<tr>
<td>Anemia</td>
<td>Advanced age</td>
</tr>
<tr>
<td>Coagulopathy</td>
<td>Edentulous region</td>
</tr>
<tr>
<td>Surgical dental procedures</td>
<td>Combination chemo</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>Blood dyscrasia</td>
</tr>
<tr>
<td>Metastatic disease</td>
<td></td>
</tr>
</tbody>
</table>

For the next two years, the patient received multiple conser- vative recontouring procedures for the sharp bony edges under local anesthesia and was placed on systemic antibiotics and oral antimicrobial rinses. In February 2005, another attempt was made to debride the area more thoroughly under general anesthesia and close the soft tissues primarily. Once again, initially the defect appeared to be healing well, but eventually there was a recurrence of the exposed necrotic bone. Most of the remaining few anterior teeth on the right side exfoliated over the course of this case, creating another area of exposed necrotic hard tissue. On his follow-up, in addition to the two areas of exposed bone, the patient also had evidence of a cutaneous fistula along the left body of the mandible with no active discharge. Our plan for the patient at this point is to continue providing conservative palliative recontourings and treating active infections with systemic antibiotics.
drug-free interval precedes elective oral surgical procedures.12 This observation is based on a small patient population and future findings may change the recommendations. Discontinuing IV BPs seems to have no short-term benefits; however, if systemic conditions allow it, the discontinuation may prevent new areas of BRON from developing.21 Any modification in the BP therapy should be consulted with the treating physicians, taking into account coexisting risk factors and the overall systemic status of the patient.

**Treatment of BRON**
The management of already-existing ONJ should be on a case-by-case basis, focusing on initial aggressive treatment of infections, then palliative measures, and finally attempts to optimize healing. Most of the aggressive surgical treatments, such as large resections in order to expose seemingly vascular bone and subsequent primary closure of the soft tissues, have been unsuccessful.11,13 Conservative debridement with a palliative goal, systemic antibiotics in the face of active infection, and antiresorptive rinses for optimizing oral hygiene seem to be the most effective treatment modalities. A staging system and treatment modality for each stage of clinical disease as developed by the AAO’s task force is presented in Table 3. Cessation administration of oral BPs for six to 12 months seems to improve the clinical symptoms, and has been reported to result in spontaneous recovery of some BRON cases. Similar clinical improvement and a stabilizing effect on active lesions has been reported by pain and erythema in the region of the exposed bone with or without drainage.

**Conclusion**
Bisphosphonates are potent antiresorptive medications that are used widely these days to treat a variety of metabolic and neoplastic bone diseases. Osteonecrosis of the jaws is a rather recent clinical entity that has been identified as being possibly linked to the use of BPs. The exact incidence of BRON is hard to establish due to limited prospective studies. Based on current clinical experience, the use of BRON associated with IV BPs occurs at a much higher frequency with a range of 0.8 percent to 12 percent.21 A manufacturer of alendronate has estimated the frequency of BRON linked to this drug to be 0.71/100,000 persons years of exposure. Based on the prescription database from Australia, the incidence of BRON associated with a weekly regimen of alendronate is estimated to be 0.01 percent to 0.04 percent, and 0.09 percent to 0.34 percent after 24 weeks.22,23

Since the dental professional may be the first provider to note the presence of BRON or the potential for its development, it is imperative to have a thorough and up-to-date knowledge of the subject. Every effort should be made by medical and dental providers to prevent BRON lesions. In addition, close follow-up and early referral are also vital to the ultimate prognosis.

**The Future**
Some authorities believe that BP-associated ONJ is only beginning to show its potential as a serious pathological entity. What is even more disconcerting is the fact that other areas of the body could be affected by similar processes. There is one case reported in the literature of BP-associated osteonecrosis of the auricular canal after treatment with zoledronate.24 Further research efforts and more clinical data are needed to formulate universal treatment guidelines that ensure positive long-term outcomes for patients with BP-associated ONJ.

**References**

**Table 3: Staging and Treatment Strategies**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Treatment Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>Exposed/necrotic bone in patients who are asymptomatic and have no evidence of infection</td>
<td>Antibacterial mouth rinse, antimicrobial mouth rinse for optimizing oral hygiene seem to have no short-term benefits; however, if systemic conditions allow it, the discontinuation may prevent new areas of BRON from developing.21 Any modification in the BP therapy should be consulted with the treating physicians, taking into account coexisting risk factors and the overall systemic status of the patient.</td>
</tr>
</tbody>
</table>

**Take Advantage of the MDS Discount!**
Based on the combined buying power of its membership, the MDS has secured a variety of business discounts for members to take advantage of. Be sure to ask for your “MDS discount.” A full list of MDS business services is available at www.massdental.org.
A Clinico-Pathologic Correlation

MARIO LUCCA, DMD
KALPAKAM SHASTRI, DMD
MICHAEL KAHN, DDS
MARIA PAPAGEORGE, DMD, MS

Dr. Luca is a first-year resident in oral and maxillofacial surgery. Dr. Shastri is an attending maxillofacial surgeon, Dr. Kahn is chair of the department of oral and maxillofacial pathology, and Dr. Papageorge is a professor and chair of oral and maxillofacial surgery at Tufts University School of Dental Medicine.

EDITOR’S NOTE: This article was originally published in the Fall 2006 issue of the Journal of the Massachusetts Dental Society (Vol. 55/No. 3, pages 36–38). Due to an editorial error, the authors’ names were listed incorrectly. The Journal apologizes for this error.

A 37-year-old male was referred to the oral and maxillofacial surgery department at Tufts University School of Dental Medicine with a firm swelling in the right preauricular region. The swelling was first noted over 10 years prior to his presentation, with no reported history of facial trauma. The patient complained of periodic discomfort in this area exacerbated by cold weather, but no functional limitations were present. His condition had been previously addressed overseas in both 1996 and in 2005 with computed tomography (CT) and a needle biopsy. Separate CT scans obtained in 1996 and 2005 revealed multiple opacifications in and around his right temporomandibular joint (TMJ), and in 1996 a preauricular biopsy was consistent with parotid gland tissue, a finding not uncommon with biopsy of some TMJ pathologies. The patient’s past medical history was without significance; he reported taking no medications and had no known drug allergies. His social history was positive for light recreational use of alcohol and tobacco.

Clinical examination revealed a palpable, nontender fullness in the right preauricular area. The patient exhibited an adequate 42 mm of jaw opening with slight deviation to the right. Good right and left lateral excursions were noted, a stable occlusion was exhibited, and there appeared to be no tenderness or spasm of the muscles of mastication. Neurological findings were within normal limits with no report of cranial nerve (CN) 7 deficit, hearing loss, or tinnitus on his affected side. Computed tomography revealed multiple radiopaque areas in the right TMJ (see Figure 1). A comparison review of the CTs obtained in 1996 and 2005 revealed multiple opacifications in and around his right temporomandibular joint (TMJ), and in 1996 a preauricular biopsy was consistent with parotid gland tissue, a finding not uncommon with biopsy of some TMJ pathologies. The patient’s past medical history was without significance; he reported taking no medications and had no known drug allergies. His social history was positive for light recreational use of alcohol and tobacco.

A comparison review of the CTs obtained in 1996 and 2005 revealed multiple opacifications in and around his right temporomandibular joint (TMJ), and in 1996 a preauricular biopsy was consistent with parotid gland tissue, a finding not uncommon with biopsy of some TMJ pathologies.1 The patient’s past medical history was without significance; he reported taking no medications and had no known drug allergies. His social history was positive for light recreational use of alcohol and tobacco.

The treatment recommended was a right open joint surgical procedure with exploration of the right TMJ and biopsy of representative areas, performed under general anesthesia. Intraoperatively, free-floating calcified lesions were noted but limited to the superior joint space in anterior, lateral, posterior, and medial locations (see Figure 2). All accessible calcifications were removed (see Figure 3) along with the synovial lining of the TMJ. The meniscus appeared normal and was left in place. The inferior joint space was not violated. The patient tolerated the procedure well and had an uneventful postoperative course.

Differential Diagnosis

Synovial chondromatosis
Chondromatosis (pseudogout)
Synovial chondrosarcoma
Degenerative joint disease

Histological Findings

Histological examination of specimens submitted from the right TMJ revealed fragments of metaplastic cartilage in apposition with mature lamellar vital bone. The cartilage exhibited chondrocytes located in groups and surrounded by an acellular matrix of hyaline cartilage with no free chondroid fragments (see Figure 4).

Diagnosis

Synovial chondromatosis

Discussion

Synovial chondromatosis (chondrometaplasia) is a benign progressive joint disorder of unknown origin. It is marked by the proliferation of cartilaginous nodules within the connective tissue of a joint’s synovial membrane.1 According to Koyama, the disorder was first described by Auhassen in 1933 and is exceeding the incidence in the temporomandibular joint (Figure 5). Twenty-year review of the English literature documented only 51 cases of TMJ-affected chondromatosis.4,5

In regard to this disease’s incidence, this patient is particular. Synovial chondromatosis of the TMJ is a disorder with an age and gender predilection that favors middle-aged females.6 At a ratio of 4:1, this statistic specific to synovial chondromatosis of the TMJ deviates from disease incidence with other joints that carry a 2:1 male predominance.7 Synovial chondromatosis can be asymptomatic but can often present with paresthesia, swelling, facial asymmetry, pain, crepitus, and limited joint function.2,5 But Koyama reminds us that many other types of loose bodies or fragments in the joint space can result from disorders including, but not limited to, intracapsular fracture, avascular necrosis, and degenerative joint diseases such as osteoarthritis and rheumatoid arthritis.8 None of these entities were representative of the patient.

Osteoarthritis of the TMJ accounts for 10 percent of TMJ-associated pain. Osteoarthritis is a chronic degenerative and destructive inflammatory joint disorder marked by progressive aching, pain, crepitus, and joint stiffness, which is often most severe in the morning. The disorder can present with pain in the muscles of mastication. Radiographically, osteoarthritis of the TMJ presents in a variety of ways that can include a diminishing joint space, exostoses, osteolysis, subchondral cyst, synovial membrane thickening, and/or multiple chondral bodies appreciated in the joint space.4

Rheumatoid arthritis (RA) is also a chronic degenerative inflammatory joint disorder. However, rheumatoid arthritis is characterized by articular destruction that is significantly more than men, at a ratio of 3:1. Signs and symptoms indicative of RA are progressive and are relapsing and remitting. The joint is affected by swelling, stiffness, pain, ankylosis, and deformity. TMJ appears in 40 percent of patients with RA, is bilateral, and can result in malocclusion and micrognathia from severe destruction of the condylar heads. Approximately 80 percent of patients with RA demonstrate diagnostic markers for the autoimmune rheumatic factor and 30 percent manifest antinuclear body.9

Synovial chondromatosis is similar in its physical appearance to chondrocalcinosis (pseudogout). Chondrocalcinosis is characterized by the precipitation of calcium pyrophosphate dehydrate crystals into the joint space. These crystals appear similar to the cartilaginous foci seen in synovial chondromatosis.10 However, this TMJ involvement in this entity is similarly rare, but this diagnosis is distinguished...
from synovial chondromatosis histologically and by its particle composition.

The histological appearance of synovial chondromatosis is characterized by cartilaginous nodules included within the synovium and sometimes freestanding in the joint space. Calcification and ossification are not uncommon features. In addition, the cartilage can sometimes assume areas of cellular atypia and hyperchromatic features suggestive of chondrosarcoma. It is important to note that synovial chondromatosis does not exhibit malignant behavior; malignant transformation has never been reported with this disorder.1

However, chondrosarcoma is a critical inclusion in the differential diagnosis. Koyama states that “multiple and short interval recurrences” might present a possibility of a synovial chondrosarcoma (as opposed to chondrometaplasia) that should be carefully investigated.2 Chondrosarcoma is a malignant tumor of cartilaginous origin. Chondrosarcoma has no gender predilection and commonly is first diagnosed in patients during the fourth to fifth decade of life. Chondrosarcoma rarely occurs in the jaws, but when present, it most commonly affects the maxilla.2 The presentation of this malignancy rarely involves a complaint of pain. Signs and symptoms can include nasal and sinus congestion, epistaxis, and visual disturbance, with loosening of the teeth another common finding.3

The signature radiographic features of chondrosarcoma often manifest a mixed radiopaque-radiolucent entity with ill-defined borders. Chondrosarcoma is distinguished from chondrometaplasia clinically and radiographically, where chondrosarcoma is characteristically accompanied by severe bone destruction, trismus, and abnormal joint function.2 However, this is not to suggest that synovial chondromatosis can not also exhibit locally destructive behavior. Mupparapu reports a case of glenoid fossa perforation with extension of chondrometaplasia into the middle cranial fossa.2 Cranial extension is a rare but serious development. Careful diagnostics with computed tomography and magnetic resonance imaging, combined with close long-term follow-up, is useful to rule out this occurrence.

Conclusion
Surgery to remove loose bodies in synovial chondromatosis is the treatment of choice and delivers a good prognosis with low recurrence rates. Synovectomy and meniscectomy may be indicated if recurrence occurs and/or if the disk can not be fully repaired.2

The patient has recovered well during his postoperative course. He has resumed over 40 mm of jaw opening and exhibits good lateral excursion of his mandible. Continued clinical and radiographic assessment has been recommended for this patient.

References
EDWIN J. RILEY, DMD

Dr. Riley, a prosthodontist with a private practice in Boston, is assistant clinical professor in the department of restorative dentistry at Harvard School of Dental Medicine.

MANDIBULAR CERAMIC LAMINATE VENEER

CERAMIC LAMINATE VENEERS PROVIDE A CONSERVATIVE, PREDICTABLE, AND DURABLE OPTION WHEN MANDIBULAR INCISAL EDGES NEED TO BE RESTORED.

The patient is a 42-year-old female who presented for restoration of fractured teeth #24 and 25. The teeth had been previously restored with limited success using composite resin bonding (see Figure 1).

The teeth were prepared for ceramic laminate veneers allowing a minimum of 1.0 mm clearance in centric occlusion and lateral excursions while preserving as much enamel as possible. The labial cervical reduction was less than 0.3 mm (see Figure 2). Feldspathic porcelain veneers were fabricated using the platinum foil technique. This technique allows veneers of 0.2 mm to 0.3 mm labial thickness. The restorations were etched and bonded with a dual-cure low-viscosity cement (see Figure 3).

Figure 1. Teeth #24 and 25 had previously been restored using composite resin bonding.

Figure 2. A labial cervical reduction of less than 0.3 mm was prepared.

Figure 3. The ceramic laminate restorations were etched and bonded with a dual-cure low-viscosity cement.

About Clinical Case Study

A clinical case study is defined as a written and visual assessment of a clinical case wherein the author presents before-and-after radiographs and/or photographs as a means to discuss the diagnosis, treatment plan, and actual treatment of a particular situation. The purpose of this study is to encourage JOURNAL readers to contribute a clinical response to the cases presented. It is our hope that many practitioners will contribute their ideas and treatment approaches, with the end result being a means for communication and learning.

Please address your correspondence to Clinical Case Study, JOURNAL OF THE MASSACHUSETTS DENTAL SOCIETY, Two Willow Street, Suite 200, Southborough, MA 01745. Responses may be published in a future issue of the JOURNAL.
GEOGRAPHIC STOMATITIS, A BENIGN CONDITION SIMILAR TO geographic tongue, most frequently presents on the buccal and labial mucosa and the soft palate. Clinically, geographic stomatitis is characterized by a central area of erythema surrounded by a yellow-white circuitous border, characteristics very similar to those seen in geographic tongue. In patients with geographic stomatitis, the tongue may also be affected. These lesions “migrate” by healing in one area, only to reappear in a different location.

Like geographic tongue, geographic stomatitis is typically asymptomatic; however, occasionally patients may describe a burning sensation of the affected areas, particularly when consuming spicy foods. Very rarely, discomfort may be significant enough to require management with topical steroids such as 0.05% Lidex gel for two to three days.

Geographic stomatitis may bear a superficial resemblance to lichen planus, erythematous candidiasis, and erythroplakia and is therefore often considered in the differential diagnosis. While the features of geographic stomatitis are generally sufficiently distinctive for clinical diagnosis, when in doubt it is reasonable to err on the side of caution and biopsy the lesion with submission for histopathologic analysis. Once identified, geographic stomatitis does not require any treatment.

VIKKI NOONAN, DMD, DMSC
GEORGE GALLAGHER, DMD, DMSC
SADRU KABANI, DMD, MS

Dr. Noonan is assistant professor of oral and maxillofacial pathology, Dr. Gallagher is professor of oral and maxillofacial pathology, and Dr. Kabani is professor and director of oral and maxillofacial pathology at Boston University School of Dental Medicine.

GEOGRAPHIC STOMATITIS

Figure 1. Lesions of the buccal mucosa and mandibular vestibule show well-demarcated erythematous lesions surrounded by a yellow-white border.

Figure 2. Lateral tongue of the same patient shows a solitary discrete lesion with features of geographic tongue.

AFFORDABLE CONSCIOUS SEDATION MONITORING

- Competitive pricing
- Free lifetime loaner program
- Multi-year warranty

Bob Foley (800) 200-2256 fosurg@tiac.net
Marty D. (414) 719-5999 marty.dzelzkalns@csiusa.com

CRITICARE SYSTEMS, INC. www.csiusa.com
Contemporary Fixed Prosthetics, Fourth Edition
STEPHEN F. ROSENSTIEL, MARTIN F. LAND, JUNHEI FUJIMOTO
Mosby Elsevier

Although this title is not a definitive text on the rapidly evolving field of aesthetic dentistry, the volume successfully provides tips and hints toward improving everyday practice. With an emphasis on the fact that a good clinical outcome often comes down to trust and understanding between dentist and patient, the book presents many hints to achieve this goal.

QuintEssentials 22: Fixed Prosthodontics in Dental Practice
MICHAEL O’SULLIVAN
Quintessence Publishing

The practice of fixed prosthodontics has undergone many changes in recent years, with significant developments in dental materials and principles of adhesion, but tooth preparation is still guided by the need to preserve tooth tissue, generate space for restorative material, and reshape the tooth to a cylindrical form with a defined finish line.

From patient assessment through completed restorations, the book uses precise text and clear illustrations, as well as up-to-date knowledge of current techniques and materials, to achieve this goal.

In a few short hours, the reader will be able to complete a course in the current thinking on fixed prosthodontics in dental practice.
LEANNE POTTS, POP CULTURE COLUMNIST FOR THE Albuquerque Journal, called me. “I’ve been noticing that these days everyone wants straight, white teeth,” she said. “In fact, I understand that more than 130 products for whitening teeth alone have come to market in the last five years. How is it that a perfect smile has become such a social imperative?”

“Hmm,” I said. “Lots of people ask me to make their smiles prettier, but no one has ever asked me where the urge comes from.”

“Smiles must be some kind of social signal, right?” Potts continued. “Here’s what I mean. In Pirates of the Caribbean, I noticed right away that the good guys have good teeth, the bad guys have bad teeth, and the ambiguous guys have, well, interesting, ambiguous teeth. What’s that all about?”

I told her it starts with this: In America, we want beautiful teeth because they are possible. (The rest of the world believes all Americans have beautiful teeth.) Supply creates demand. Dentists have the technology and materials to make mouths look better than ever. Also, corporate strategists are busy saturating the market with ads for bleaching.

But the dental industry depends on deeper impulses, as well. We want nice teeth because they create psychological meaning. We have a strong cultural bias toward good teeth. For one thing, there’s the primeval, biological thing. Assertive, influential animals show their teeth. A healthy dentition suggests vigor, virility, and youth.

What’s more, we like to think teeth reflect personality. So, in Pirates of the Caribbean, evil pirate Captain Barbossa (played by Geoffrey Rush) snarls his lines through a thicket of rotting stumps. Good-guy pirate Will Turner (Orlando Bloom) smiles blinding flashes of arctic white. Charmingly ambiguous Captain Jack Sparrow (Johnny Depp), who could go either way, shows off a campy mouthful of gold that Depp’s own dentist reportedly designed.

Will Turner’s strong, straight teeth, moviegoers immediately intuit, are an outward sign of his noble character. The notion of such physical markers revealing psychic conditions runs deep in literature. James Joyce lamented, “My mouth is full of decayed teeth and my soul of decayed ambitions.” Graham Greene’s dissolute protagonist in The Power and the Glory possesses teeth that crumble with his fortunes. Writers often invoke false teeth to reflect deceitful personalities, as in Evelyn Waugh’s description of the “grinning dentures” of a traveling salesman in Brideshead Revisited.

Great teeth, of course, connote success. Until relatively recently, for instance, only the rich could afford dental care. “Teeth were clearly, or apparently, connected to rank—which was bad news for the lower classes,” observed Martin Amis in Experience. So movie audiences immediately expect plucky, upwardly mobile Will Turner to rise into high society and marry the governor’s daughter.

Since the beginning of the film industry, when the early movie studio honchos routinely sent their contract actors out for a dental makeover, the envious, emulating masses have not failed to notice movie stars’ enchanting choppers. Thus, Will Turner has great teeth, finally, because Orlando Bloom has great teeth.

Who knew? Each veneer, each composite a dentist bonds into place burnishes not only a tooth but an image, a personality, if you will.

Every person, the saying goes, has in him or her a continent of undiscovered character, and “blessed are they who act as the Columbus to their own souls.” Clearly, more and more such inner explorers—as well as a few pirates—are sailing straight to the dentist.