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The Official Journal of the American Academy of Cosmetic Dentistry®

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The American Academy of Cosmetic Dentistry is dedicated to advancing excellence in the Art and Science of Cosmetic Dentistry and encouraging the highest standards of ethical conduct and responsible patient care.

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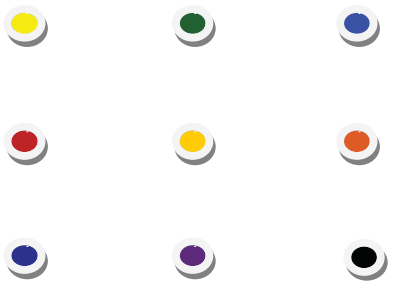
Editor's Message

Have You "Got Game"...*Outside* the Box?

Even when you think you have your life all mapped out, things happen that shape your destiny in ways you might never have imagined. ~Deepak Chopra

Try this exercise in thinking "outside the box." Below are nine dots. Can you draw four straight lines, connecting all nine dots without lifting your pen off the paper?

Don't look at the solution (page 14) until you've really stretched your imagination and given it a try.



"Outside the Box" exercise

Are you surprised by how simple this really is? It's an obvious solution—no tricks, but not the first thing we see.

How many times do we get stuck inside our own "box"—doing what we've always done, limiting ourselves from realizing our true potential? What else could we accomplish if we didn't stay in the comfort zone of our daily routine or "rut"? Yet, is it really wrong to stay within our comfort zone? Albert Einstein said, "*A happy man is too satisfied with the present to dwell too much on the future.*" Did Einstein mean that this is acceptable, or is it simply a statement about human nature? I believe it is the latter, and that we all too often find ourselves trapped by "analysis paralysis," or by the comforts of familiarity.

International industrialist Lakshmi Mittal advises people to "*Always think outside the box and embrace new opportunities, wherever they might be, however they might present themselves. Change can be uncomfortable, but brings new horizons.*"

In terms of change, I ask myself what I have personally accomplished in the year since the Academy's last Annual Scientific Session—how have I grown? Yes, I've taken my share of continuing education courses, and have learned about some great ways to make my practice better. But have I seen results, have I moved outside the box? I think so… but I feel that I could have done much better in terms of patient care, achieved more in productivity, and progressed further in my Accreditation journey than I actually have.

I believe that it is extremely important—even critical—to our success that we learn new things each and every day. But knowledge alone is not enough. Knowing what to do is one thing; actually bringing that knowledge to fruition in terms of *action* is something else. Until we do, nothing else really matters. It is essential to be able to apply those "pearls of knowledge" to everyday life and practice. To do this, we must possess "game"—a certain intangible attitude that enables us to know that we are the best and have the ability to perform.

I can think of many analogies for this; for example, in the arena of professional golf. Every player on the PGA Tour has the technical skills and the knowledge about what needs to be done. But only a very few "got game"—not just the necessary knowledge, but also the ability and the attitude to apply those skills—to "close," to win! Everyone knows that Tiger Woods is the greatest golfer in the world. But how many know that last year, Ernie Els had the second-best scoring average, just 1.5 strokes behind Woods? And Els was 1.5 strokes better than the *100th-next-best* player! The gap between the #1 and the #2 player was the same as that between #2 and #100! Does Woods have *that* much more skill than the other top players? I don't think so—I think he simply has more "game."

My challenge for 2008 is not only to learn more, but also to take my newfound knowledge outside the box of my usual rut, and learn to have more "game"!

In all things, may your expectations forever be exceeded.

Michael J. Koczarski, D.D.S.

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President's Message

Another Amazing Year at the AACD!

It seems like not so long ago we were gathered in Atlanta, attending the exceptional scientific sessions, seeing old friends (and meeting new ones), and celebrating the success of our incredible Academy. Our past presidents' highly acclaimed "Men in Black" performance will always be remembered, as well!

All of the AACD's exciting initiatives and developments are a product of the hard work and dedication of the Academy's extensive network of volunteer leaders, members, and staff. Without a doubt the success we experienced in the past year would not have been possible without all of your contributions.

AACD Past Presidents (see listing on page 40)

Highlights from 2007-2008 include the following:

- Welcoming new Executive Director Ed Simeone to the AACD team in Madison. Ed's wisdom, leadership, experience working with our Academy, and overall business acumen are already paying dividends. If you happen to call the home office or see Ed at the annual sessions, take a few minutes to speak with him and you will see what a valuable addition to the AACD he is.
- Securing Hollywood star Heather Locklear as the official Celebrity Spokesperson for our Give Back A Smile™ (GBAS) program. We are very appreciative that Ms. Locklear is generously willing to help us, pro bono, in our future efforts. With her help and worldwide appeal, we look forward to giving back even more smiles to those who need it the most.
- From our Media Tour in Manhattan with the beauty magazine giants last July to all the recent coverage in the dental press, the AACD continues to garner extensive media coverage for the organization, the Accreditation credential, and the GBAS program. Not every dental organization can say they are the go-to organization for the media. With GBAS spots on CNN and Fox News, and articles featuring Accreditation, AACD continues to fulfill its mission to be the premier resource for accurate, non-biased information for the profession and the public.
- We continue to foster strong alignments with our affiliates and our corporate members. Organizations such as the Academy of General Dentistry, the Academy of Implant Dentistry, the Greater New York Dental Meeting, and multiple dental publications continue to support the AACD's mission of "Excellence in Cosmetic Dentistry" to even greater audiences worldwide.
- From the expansion of our educational offerings into the digital world, to reaching out to our International members, the AACD is committed to its members. Keep watching AACD.com and the AACD E-Update for the online launch of AACD's debut E-Learning platform. It won't be long before you will be able to experience the AACD right from your practice or laboratory…. so stay tuned!

There is so much more…it is impossible to list all of the programs and successes we have experienced this year. It is important to acknowledge that the programs listed above—and too many more to count—would not have been possible without the contributions of the cohesive, well-oiled volunteer-staff machine the AACD is fortunate to have.

The people I have been able to work with are remarkable, dedicated individuals and it has been my honor and pleasure to serve as your President over the past year.

With Dr. Mickey Bernstein ready to step up to the plate, we are all in excellent hands! We can look forward to much more success and prosperity for AACD in the years to come.

Best Regards,

Laura Kelly
AACD President and Accredited Member

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– Dr. Mike Malone

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– H.R. Makarita, DDS, MAGD, FAACD

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About the Cover

Full face, before.

About the Cover

by H.R. Makarita, D.D.S., M.A.G.D., F.A.A.C.D.

When I first met Erica, she was ashamed of her dental condition, and afraid to smile. She had suffered from bulimia, which affects over seven million people in the United States, and her dentition showed the effects of this disease. She also was experiencing many symptoms of temporomandibular disorder (TMD), including chronic headaches, muscle soreness, clicking joints, neck pain, and ear congestion with tinnitus. In addition, she was an active bruxer.

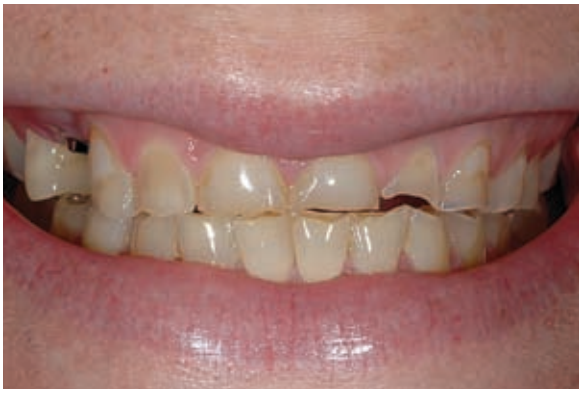
Erica was concerned that she looked much older than her 30 years, and that this was due to the collapse of the lower third of her face. I saw a sweet person who was very sad and truly needed my help.

Upon thorough examination, I discovered that Erica was missing a great deal of enamel and that her teeth were severely worn down, with generalized abfraction lesions and an obvious loss of vertical dimension. Her teeth also were very sensitive to temperature and sweets. Tooth #5 was missing and in its place was an osseo-integrated implant that was ready for restoration. It was clear that Erica was in need of a full-mouth reconstruction, with an increase in vertical dimension. This treatment would help her TMD symptoms, as well as greatly improve esthetics.

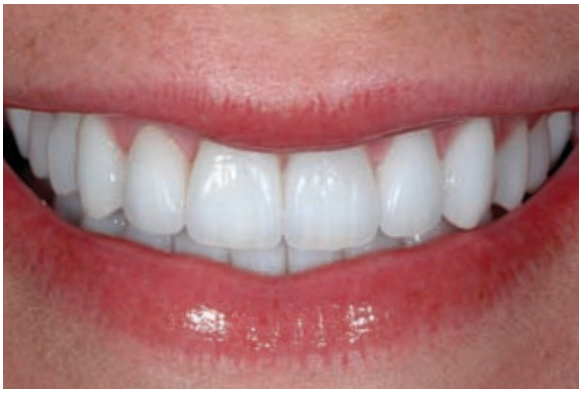
I used the K7 evaluation system and a Myomonitor muscle stimulator (Myotronics-Noromed; Kent, WA) to find and verify a comfortable new bite position. I then fabricated a removable orthotic appliance; Erica wore this for several months, to ensure her comfort and the elimination of symptoms.

Some anterior crown lengthening was required, for which I used a hard/soft tissue laser (Waterlase, Biolase Technology; Irvine, CA). All anterior and bicuspid teeth were restored with Authentic pressable ceramic (Jensen Industries; North Haven, CT) shade Om2 body/Om3 cervical, and the molars were restored with Noritake CZR pressable ceramic (Zahn Dental, Henry Schein; Melville, NY) over zirconia copings. The implant at #5 was restored with a custom abutment with Creation porcelain (Jensen). The teeth were temporized with Luxatemp (Zenith/DMG; Englewood, NJ), shade B1. A cutback technique was used, and opaque modifiers were added for vitality and a natural appearance. The restorations were cemented with Variolink veneer cement (Ivoclar Vivadent; Amherst, NY), except for the molars, which were cemented with Multilink cement (Ivoclar Vivadent).

This smile transformation involved many facets of modern dentistry [a more detailed clinical account of this case will appear in a future issue of the Journal], and was one of the most rewarding and challenging cases I have ever had the pleasure of treating. The change in Erica's outward personality began as soon the provisional restorations were placed. It was a pleasure to see her smile, and become happy and confident. Perhaps all of us can learn to look for symptoms of bulimia in our patients and try to intervene in a positive way. By doing so, we might be able to prevent someone from experiencing physical and emotional pain.



Before



After

About the Photo Shoot

To celebrate Erica's new smile, she and her boyfriend accompanied me on a trip to Egypt to scuba dive in the Red Sea and see the pyramids. While she was swimming in our hotel's pool, the lighting seemed perfect so I grabbed my camera. During one of our dives, Erica kept taking her regulator out and smiling from ear to ear; it was then that I felt she was truly happy with her new smile, as she was showing it off even while she was underwater!

I used a Nikon D200 camera with an 18-200 mm Nikkor lens (Nikon Inc.; Melville, NY) for all the outdoor photos. I used two Nikon SB-R200 wireless remote speedlights at the end of the lens, with two more hand-held lights. All photos were shot at manual setting, and I was guided by the histogram provided by the camera for exposure information. For underwater shots, I used the Nikon D200 (with Subal housing) with a 10-mm lens and two strobes for lighting.

Erica's Statement

Throughout my early 20s I suffered from bulimia. It is a difficult disease to heal from; not only do you have to learn to love yourself, but you also must learn to accept love from a world from which you have deliberately excluded yourself.

Dr. Makarita changed my life. For years I had been extremely hesitant to leave the house alone because I was worried that someone would engage me in conversation, and I envisioned their disgust if I were to accidentally smile or show my teeth. I discontinued my college education because I was fearful of showing my teeth during class discussions; in fact, I withdrew from any activity that might cause me to show my teeth.

Soon after my full-mouth rehabilitation, my boyfriend and I joined Dr. Makarita on a trip to Egypt. It was while posing for photos at the pyramids that I realized how long it had been since I had allowed myself to smile (I literally had to massage my cheeks to relieve the muscle fatigue)! The more photos we took, the more attention we drew. Other people actually started photographing us during the photo shoot, and one even asked if I was a movie star!

A smile is much like life itself, in that you never fully appreciate it until you are faced with losing it. I am forever grateful to modern dentistry and to Dr. Makarita for restoring my confidence and, with that, the course of my life. I soon will be returning to school to obtain a degree in dental hygiene so that I can play a small part in passing on this gift to someone else.

The world seems a nurturing, bright, and loving place when you are able to receive it with a smile. I now have the confidence to enjoy life rather than simply to survive it.

Acknowledgments

Dr. Makarita thanks his ceramist, Duckee Lee (Protech Dental Studio; Sterling, VA) for his passion, creativity, and attention to detail in creating such a beautiful smile; and Dr. Greg Lutke (Dallas Dental Solutions; Plano, TX), for his guidance and help in understanding portrait photography. Finally, special thanks go to Erica for her courage in seeking treatment and in discussing her history so that she might help others who suffer from bulimia.

Dentistry, cover photograph, clinical, and portrait photography: H.R. Makarita, D.D.S., M.A.G.D., F.A.A.C.D.; Oakton, VA; fixasmile.com. Ceramic artistry: Duckee Lee, C.D.T., Protech Dental Studio, Sterling, VA; protechdentalstudio.com.

See more of the photo shoot on page 15.

❖

AN INTERVIEW WITH CHRIS HOLDEN

by Michael J. Koczarski, D.D.S.
Seattle, WA
www.aacd.com

Chris Holden
Armonk, NY
www.heraeus-kulzer.com

The Journal of Cosmetic Dentistry is pleased to offer the seventh in a series of interviews with leaders in the dental industry, including clinicians, manufacturers, and educators. Here, *Journal* Editor Dr. Mike Koczarski (MK) talks with Chris Holden (CH), president of Hereaus Kulzer.

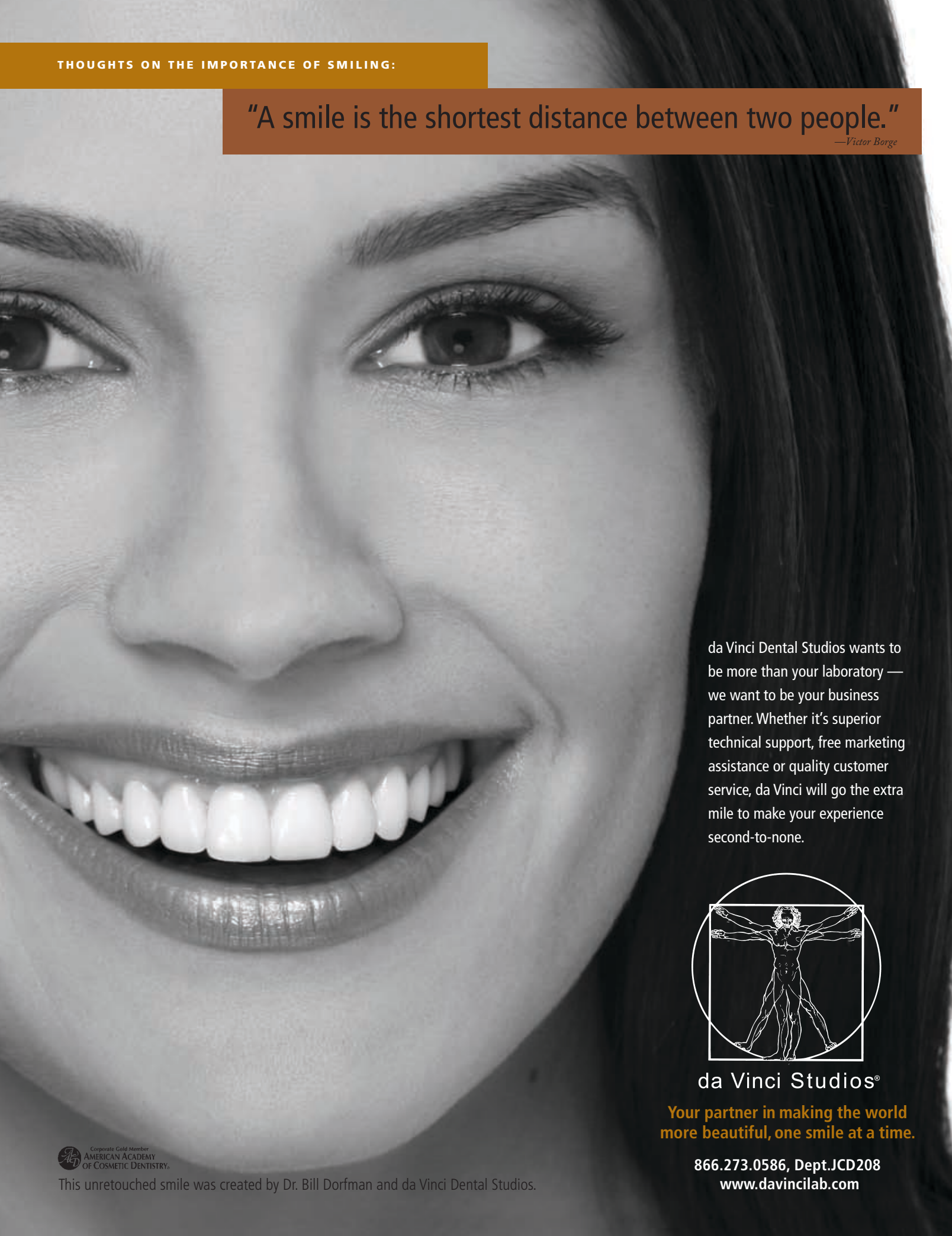
MK: *Chris, can you tell the* Journal's *readers something about Heraeus that they might not know?*

CH: Heraeus is a highly diversified, $15 billion company with more than 11,000 employees worldwide. The company mobilizes its resources so that it can transform lives and fulfill its mission to serve the healthcare industry through innovative product solutions, technologies, and partnerships.

Heraeus is a leading source for esthetically advanced dental solutions that improve chair-side productivity and effectiveness while facilitating the highest esthetic results. Our goal is to empower dental professionals to provide patients with the most natural-looking restorations, while respecting a healthy and conservative approach to clinical dentistry. Synergistic brands such as Venus®, iBond®, Flexitime®, Gluma®, and Ivory® offer exceptional tools for cosmetic, direct, and indirect restorative care.

MK: *Heraeus has a dual platform for its "Transforming Lives" initiative. Why is corporate social responsibility so important to the company?*

CH: We believe that every successful company has a responsibility to use its resources to make a positive impact on the world. While profits are important, they are not an end; rather, they are a *means*



THOUGHTS ON THE IMPORTANCE OF SMILING:

"A smile is the shortest distance between two people."
—*Victor Borge*

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This unretouched smile was created by Dr. Bill Dorfman and da Vinci Dental Studios.

to an end. The National Dental Network has named Heraeus as a "philanthropic leader" in the dental industry. Heraeus is a proud underwriter of the National Children's Oral Health Foundation, to which we will donate a percentage of Venus Temp C&B material revenues; we also are a Corporate Sponsor-Bronze level of the AACD Charitable Foundation. Last year, Heraeus also issued educational grants to several dental schools. These grants enable dental faculty and students to receive live-patient, accredited instruction via satellite directly from some of the world's leading clinicians.

MK: *Heraeus is considered one of the most esthetic-minded companies in the industry. How do you see new technology intersecting with clinical requirements?*

CH: We believe that technology in this area will change dramatically over the next few years, with more biomimetic-like technologies that integrate biologically with the patient. The excitement surrounding new technologies is greater today than it has ever been.

MK: *Heraeus' "Venus Smile" concept is more than just a product-driven esthetic solution—it includes a range of services designed to help transform a practice from capitation to a more fee-for-service environment. How do you think dentists in general will accept this offering?*

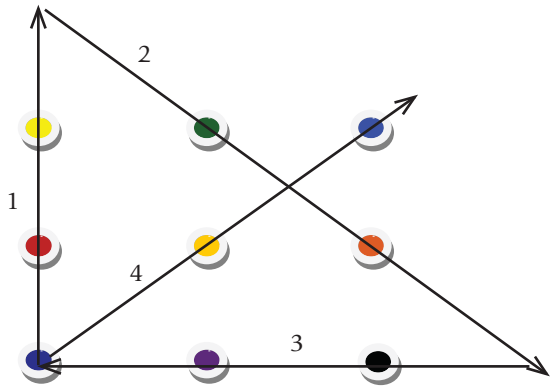
CH: We developed the Venus Smile concept in response to professionals' collective need for a more complete cosmetic, restorative practice management and treatment system. The Venus brand is a full line of completely integrated premium esthetic products, services, and tools designed to make dentists' work easier; and to garner more referrals, generate better revenues, and help build practices in a way not previously possible. Venus is a highly evolved, robust, and intelligent brand that transcends traditional product boundaries by offering a unique combination of product and business solutions—all under one "roof."

The Venus evolution is about product plus services. Venus brings together the best from four distinct areas in the product-to-market chain: Research and development, education, marketing, and finance. This unique and comprehensive set of innovations and service offerings transforms the fundamental business model and ushers in a new generation of rich customer experiences.

As we make the transformation from a product to a product-plus-services environment, we will increase opportunities for our dentist partners and raise the level of value that we deliver to our customers.

MK: *Can you give our readers any other Heraeus "previews" for 2008?*

CH: We are doubling our sales team this year and changing our business model with the launch of Venus Smile Center laboratories, coupled with the launch of six to eight new technologies over the next 12 months. We also plan to expand our "Green Challenge" initiative (by using recycled paper and non-toxic inks in our literature and packaging; and utilizing hybrid vehicles for our sales force), thus continuing our mission in the area of resource conservation.

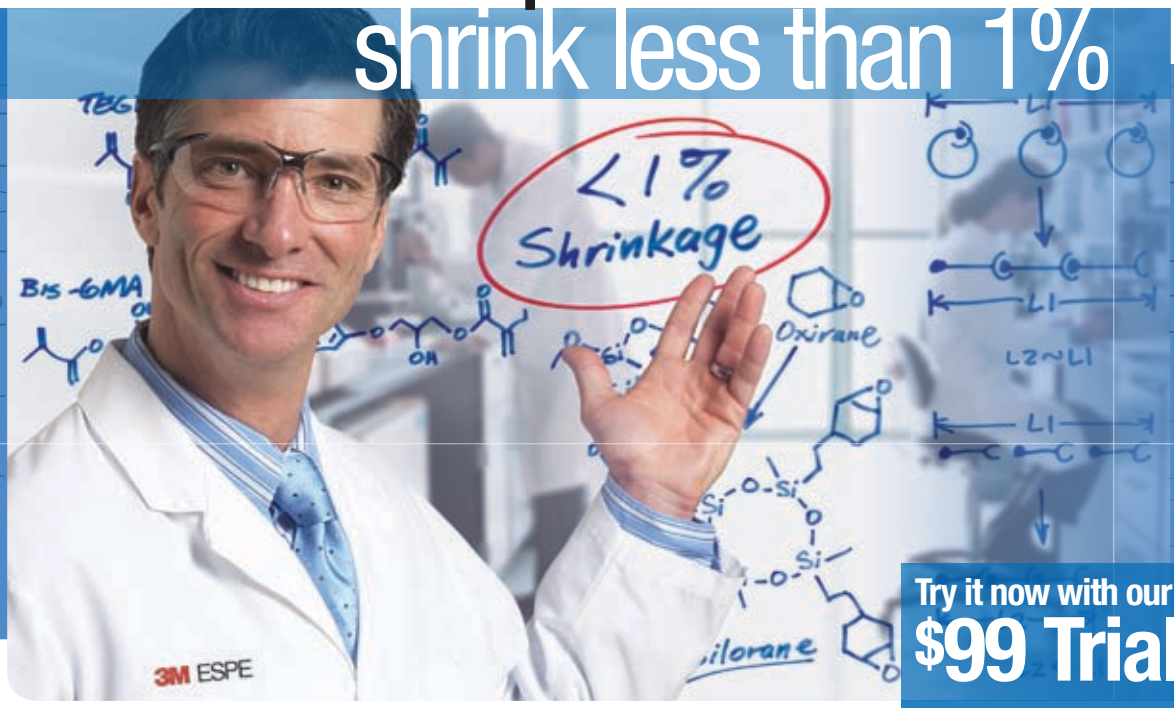


Solution: "Outside the Box" exercise (cont'd from page 6)

About the Cover Photo Shoot

A smile is much like life itself, in that you never fully appreciate it until you are faced with losing it. ~ Erica

The first composite to shrink less than 1%



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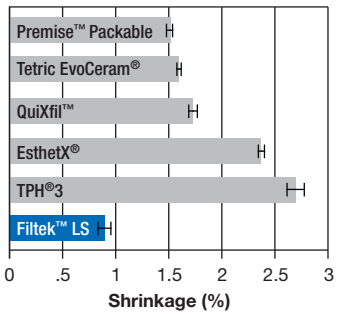

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[1] Results using bonded-disc method. Source: 3M ESPE internal data
[2] Compared to methacrylate composites. Source: University of Amsterdam (ACTA)

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Excellence in Cosmetic Dentistry AACD 24th Annual Scientific Session in New Orleans

2008

In This Section:

Conflict in the Dental Office: An Interview with Mary O'Neill

by Hugh Flax, D.D.S.
Atlanta, GA
www.flaxdental.com

Mary O'Neill, M.A., M.F.T.
Woodacre, CA
www.maryoneill.com

The goal of this section is to provide insights into the thoughts and perspectives of premier educators, including executive coaches. In this issue, AACD Conference Advisory Co-Chair Dr. Hugh Flax (HF) interviews personal and executive coach Mary O'Neill (MO). Ms. O'Neill is scheduled to present at the AACD's 24th Annual Scientific Session in New Orleans on May 8th. For more information regarding AACD's conference, log onto www.aacd.com.

HF: ***How is conflict created in the dental office?***

MO: Given the stress and pressure of the work day, the complexity of the tasks, the fast pace, and the close proximity in which people work with one another, conflict is a given. When you add different ages, backgrounds, responsibilities, perceptions and experiences—along with varying degrees of emotional intelligence—you have a recipe for conflict! This is true for any work group…or family. In fact, I don't think that the "dental family" is that different from a lot of other families. Conflict makes them weary, most don't like it, and very few know how to deal with it effectively.

In my work with dental practices, it is common to hear doctors say "*I wish they'd just get over it*" or "*I just don't want to deal with it*" or "*I wish I could just do dentistry!*" Whenever I share this feedback with my audiences we always have a good laugh because everyone can relate to these feelings. Yet, at the same time, we all know that most people don't "just get over it."

The truth is you have to have a system in place for resolving conflict. You have to train people to use the system, and (if you're not a "people person" or if communication is not your strength) you may have to delegate the task so there is a "point person" for your group. In any case, conflict resolution is a leadership imperative.

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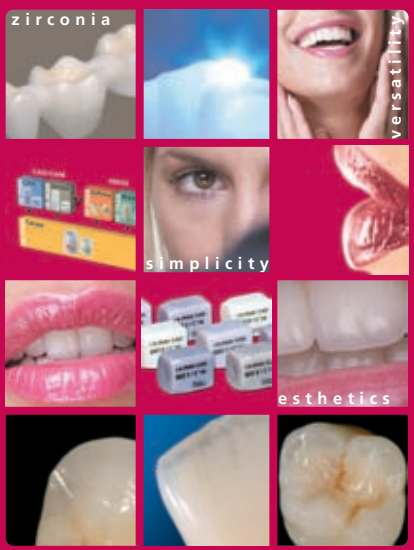

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Below are some typical examples of dental office conflicts I have dealt with in recent months. Many of these issues are clinical, some are administrative, and many are behavioral. All of these issues, if left unchecked, can spoil relationships and impede productivity.

- bad attitudes that bring others down
- regular use of angry tone of voice or hostile body language
- negative judgments of other team members
- personality clashes
- jumping to conclusions, catastrophizing, whining, complaining
- chronic lateness
- poor impulse control
- inflexibility
- favoritism
- illegible laboratory scripts
- blaming others (including lab staff) for mistakes
- improperly done handoffs
- improperly or inadequately updated treatment plans
- resistance to new software programs
- unequal distribution of workload
- inconsistent use of numbers with probing
- lack of thoroughness with treatment exams
- lack of leadership
- lack of team work
- lack of feedback, reviews
- lack of communication, trust, respect
- lack of follow through
- lack of training.

Does this sound familiar? The list goes on and on—the point is that conflict is inevitable and it is not going away.

But that might actually be good news, because conflict is normal and healthy. Frankly, I'd be worried if a doctor told me that there was no conflict at all among his or her team members because—in my opinion—no conflict can equate to no growth. One of my favorite quotes by Kenneth Kay, author of *Workplace Wars and How to End Them*, is: *"Conflict is only the discovery that things aren't working as well as they could be…resolving conflict is continual improvement of the team process and work flow."*

So the first thing I say to clients who tell me there is conflict is "*Good!*" because I then know that their practice is alive and "flowing." The next question is "*How are you going to work with it?*" because conflict is not the problem. The real issue is how wisely, skillfully, and quickly people choose to deal with it. Knowing how to effectively communicate about conflict is key.

Unfortunately, most of us don't feel as comfortable with our communication skills as we might like. Therefore, we often choose to avoid difficult situations rather than confront them. And we all know what happens when we do that.

HF: ***What are the advantages when a dental team begins to confront and resolve problems?***

MO: The greatest advantage of confronting an issue (provided it is done thoughtfully, carefully, and skillfully) is that the lines of communication reopen. That in itself is a huge relief for most people, even if it means that they have to step out of their comfort zone to do it.

There is nothing worse than having two people who have to work side by side angry at each other. The tension is palpable. Not only do other team members pick up on it, but the patients do, too—especially if they're sitting in the waiting room or lying in the chair and overhear curt or snide remarks, or angry voices. This certainly does not create a great new patient experience. In addition, this kind of behavior often offends even the most loyal, long-term patients, who may feel protective of certain team members.

Finding the courage to speak up and broach the subject is the best first step anyone can take…and it is not easy. Many people tell me they haven't a clue what to say to someone they're upset with; this likely is because most of us were not raised in families where effective communication was modeled. So, even as adults working in a professional environment, we still don't know what to do to work things out peaceably. However, if we don't do something

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about conflict, relationships are ruined, production is thrown off, and goals go unmet.

So, there are tangible incentives for moving beyond our disagreements. We not only restore harmony, but the practice production and profitability improve as well, along with our spirits.

HF: ***What are some of the tools that you use to manage conflict and resolve problems?***

MO: My clients typically want the exact verbiage to use when addressing conflict. They will often write down, word-for-word, what I suggest they say. I encourage the use of note cards and even "scripts" if necessary, and recommend rehearsing several times before talking to someone. During my presentations, I will often use role-playing to help clients practice their communication skills.

We practice confronting (or clarifying) the situation by starting the conversation with something like, "*You may not be aware of this, but I'm sensing that something might be bothering you,*" or "*There is something on my mind that I'd like to share with you. Are you willing to talk with me about this?*" (Incidentally, by asking if someone is "willing," you are getting their permission; and, if they say "yes," they are much more likely to engage and hear you out.) Then we practice by following with some kind of positive intention such as, "*I really value our relationship and hope we can work things out.*" This often helps the other person to feel less guarded about having the conversation.

If a great deal of time has passed or there is concern that someone might be uncooperative, I urge team members to say something like, "*I've hesitated to bring this up before, because I honestly didn't know how or where to begin,*" or "*I was concerned about possibly upsetting you,*" or "*I wasn't sure if you'd be willing to talk with me about it.*" This way they're being upfront about their fears, which actually decreases the chances these things might happen. Also, explaining that the goal is to "gain more clarity" about the situation helps others relax, because this makes it more about what one person needs, and lessens the fear that the other person will be attacked or blamed.

I always emphasize the importance of timing. Many discussions escalate into confrontations when people are emotionally charged or upset. It is far better to wait (a day or two at most; otherwise, the "story" gets distorted) than to say something you may really regret. Another of my favorite conflict-related quotes is by American author Ambrose Bierce (1842-1914): "*Speak when you're angry and you'll make the best speech you will ever regret!*"

If both parties are willing, I recommend setting aside time after work or, if possible, going out to lunch to talk about the situation. The problem-solving conflict resolution model I use emphasizes avoidance of the word "*you*" and the use of "absolutes" such as "*you always*" or "*you never.*" Instead, I suggest that individuals learn to acknowledge their unmet needs and feelings and find a way to talk about them that won't increase hostility.

I also strongly urge people to consider the unmet needs and feelings of the other person involved in the conflict. I use a conflict resolution worksheet to help team members process this information. As much as we may not enjoy having to do this (because we're often attached to being right and blaming others for our upset), if we really want to resolve the conflict, we have to be willing to understand the other person's point of view and listen without interrupting. If you appear to be concerned only about yourself, the other person will tune you out. Author Steven Covey has said, "*Most of us listen to reply, not to understand,*" and I agree with him. Think about your last conflict—did you listen to understand, or were you mostly impatient to get your thoughts across, as most of us are?

These two steps—broaching the subject and then finding a way to talk about it calmly—are usually enough to work things out.

HF: ***What do you mean when you say, "Resolving conflict***

is simple, is just isn't always easy"?

MO: Actually, the steps for resolving conflict really are easy: You stop. You create a space in time to reflect on what's happening to you (what needs are going unmet, and how you feel about the situation). Essentially, you are seeking first to understand yourself; then, if the other person is willing, you also get the opportunity to understand their point of view.

If you both do this from a "centered" state, you will most likely remedy the problem or clear up any misunderstandings. The real challenge is that most of us are not centered when we're conflicted, because any kind of perceived threat (and that can simply be someone giving us "the look") often triggers the fight/flight response in us. So, instead of talking about things, we often want to head for the hills or punch someone in the nose! Really, the toughest task is learning to calm ourselves down so we can think clearly.

When we've cooled down, we can ask ourselves questions such as, *"What is my intention here?" "Do I want to prove that I'm right and they're wrong?"* or *"Am I trying to preserve this relationship or destroy it?"* Answers to these questions should help to guide your behavior. You may very well discover that a conceptual shift in your own thinking and behavior has to occur in order to restore peace.

That's why I say that conflict resolution is simple, yet it isn't always easy. I am essentially asking people to bridge the gap between their humanity and their profession and commit to becoming peacemakers. Remaking ourselves in this way isn't an easy process. Yet I know it can be done.

With practice, patience, and the right intention, conflict resolution does get easier. In my work as a psychotherapist and as a trainer and coach to the "dental family," I have personally seen hundreds of relationships improve and dental practices thrive, as a result of hard work and a commitment to personal and professional development.

We have dozens of opportunities every single day to "get things right"; I call these "groundhog moments." Bill Murray's character in the film "Groundhog Day," Phil, is stuck in a particular day until he gets things right. Phil has to learn to communicate more honestly, sincerely, and effectively before he can move on. Just imagine if that were the case in your practice!

HF: ***What will attendees learn at your workshop at the AACD's Annual Scientific Session on May 8th in New Orleans?***

MO: I will go into much more depth about what I have discussed here, and will teach a simple four-step method for resolving conflict. I'll also walk people through this system so they will know how to motivate team members to address conflicts, utilizing my conflict resolution worksheet. They'll learn ways to communicate more effectively about conflict, how to deal with difficult emotions, and how to cool down when conflict heats up.

I will also be conducting some role-playing exercises, so I'll be looking for a few volunteers!

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Welcome to New Orleans!

Preparing for Your New Orleans Experience

Be sure to bring these "essential items" to get the most out of your conference experience!

- Excitement for learning—AACD's Annual Scientific Session offers the most innovative, comprehensive educational experience in the profession!
- Your Smile—Our social events create opportunities for you to network with like-minded dental professionals.
- Appetite—Gumbo, Shrimp Etouffee, Oysters Rockefeller…need we say more?
- Spirit of adventure—Laissez les Bons Temps Rouler!

Here are just a few of the highlights you can experience during the conference:

Membership meeting

Tuesday, May 6

Voter Registration 5:00-5:30 p.m., Meeting 5:30-7:00 p.m.

This new, open forum provides an outstanding opportunity for the AACD's leaders to hear from members. Your input is extremely important, so please join us!

Opening Reception

Tuesday, May 6, 7:00-10:00 p.m.

Red. Hot. Spicy. Blue. Soulful. These are the sights, sounds, tastes, and feel of New Orleans. The Opening Reception will treat your senses as you experience all that is N'Awlins. Don't miss it!





Orientation for New Members and First-Time Attendees

Wednesday, May 7, 6:45-7:45 a.m.

Join your colleagues for breakfast as AACD leaders and staff provide an in-depth overview of *Excellence in Cosmetic Dentistry* 2008, from the educational program to the must-attend social and networking events. The orientation will help you determine how to reach your education goals while getting the most out of your conference experience.

The Journal of Cosmetic Dentistry Reception

Friday, May 9, 12:30-1:30 p.m.

Join fellow authors, editorial reviewers, and advertisers for a special reception to celebrate your integral part in the success of *The Journal of Cosmetic Dentistry* (*JCD*).

If you are interested in contributing to the *JCD*, you are invited to attend the "Sharing Your Wealth—Writing for *The Journal of Cosmetic Dentistry*" workshop on Friday, May 9, 9:30 a.m.-12:30 p.m., immediately preceding the *JCD* reception. If you are unable to attend the workshop, stop by the reception for more information on how you can get involved with the *JCD*.

AACD Charitable Foundation's *Celebration of Smiles* Event

Thursday, May 8, 8:00-11:00 p.m.

Celebrate the Spirit of Generosity at this special event featuring Jim Belushi and the Sacred Hearts Band. We will celebrate the lives revitalized by the AACDCF's Give Back A Smile™ program. Tickets can be purchased at registration until Thursday, May 8, at 6:00 p.m.

General Sessions

Dave Barry • Wednesday, May 7, 8:00-9:15 a.m.

The Pulitzer Prize-winning humorist offers his wacky point of view on relationships, work, current events, kids, technology, and life in general.

Kevin Carroll • Thursday, May 8, 8:00-9:15 a.m.

The author of *Rules of The Red Rubber Ball* and founder of The Katalyst Consultancy nurtures the inner spirit and inspires new ways of thinking.

Hurricane on the Bayou

Friday, May 9, 8:00-9:15 a.m.

This powerful presentation focuses on four musicians before, during, and after the unprecedented devastation of Hurricane Katrina.

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Questions? Call the AACD Executive Office at 800-543-9220.

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Give Back A Smile™

The AACD Charitable Foundation's Give Back A Smile™ (GBAS) program restores the smiles of domestic violence survivors at no cost. We have received many success stories and thanks from GBAS volunteers and recipients. This section shares the triumphs of the GBAS program.

In This Section:

Give Back A Smile™ Introduces Domestic Violence Intervention and Prevention Training

by Lynn A. Jones, D.D.S.
Chair, AACD Charitable Foundation
Bellevue, WA
www.aacd.com

The AACD Charitable Foundation (AACDCF), through its Give Back A Smile™ (GBAS) program, has been restoring smiles in order to help restore lives for the past nine years (Figs 1-3). We know that long after the scars and bruises from domestic violence have healed, the damage to the teeth still lingers, reminding the survivor of his or her painful past. Unfortunately, noticeably injured or missing teeth are disfigurements that detract from the survivor's confidence, interfere with employment opportunities, and can negatively affect social interactions.

Survivors often have very poor self-esteem and may be ashamed or prone to accepting the blame for their own injuries.

To date, the AACDCF has restored more than 600 smiles and provided more than five million dollars' worth of services to survivors of domestic violence.[1] Now it is time to do something more. We might even be able to prevent serious injuries or homicides by learning to identify signs of domestic violence in our patients and knowing how to effectively intervene. We might be able to help victims of domestic violence to become survivors.

The AACDCF has partnered with Dr. Barbara Gerbert, a professor at the University of California, San Francisco, School of Dentistry and a premier researcher on the subject of domestic violence; and with Dentsply International, to provide training to dentists and staff to effectively help the victims recognize and protect themselves from the danger of domestic violence. With the Ask, Validate, Document, and Refer (AVDR) training developed by Dr. Gerbert (and presented on DVD by Dentsply International Vice-President for Clinical Education Dr. Linda Niessen), dentists and staff members

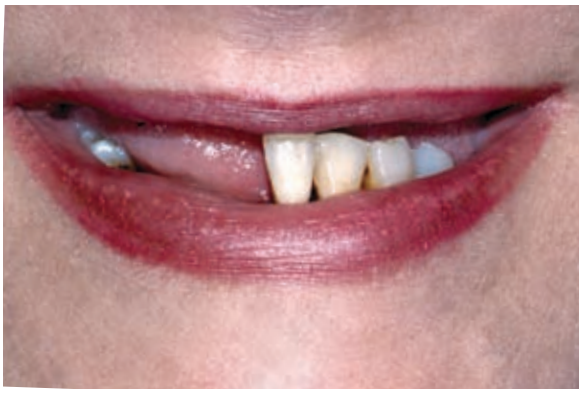

Figure 1: Give Back a Smile patient. Before; 1:2 full smile.

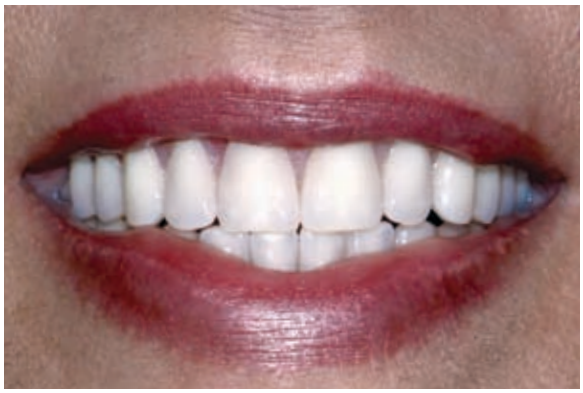

Figure 2: After; 1:2 full smile.

will gain a deeper understanding of domestic violence victims' fears and motivations. This understanding will help them to validate those who have been abused, and to encourage them to seek outside intervention for their own safety.

Collateral materials including a training guide, documentation forms, and a free interactive DVD will be available later this Spring.

It should be noted that the survivors we see are the "lucky" ones. According to the U.S. Department of Justice, 30% of all female homicides are the result of domestic violence.[2] Furthermore, 20-30% of all women in the United States have experienced an assault leading to injury from an intimate partner at some time in their lives.[3] Especially disheartening is that these homicide rates tend to go up after the violent relationship has been terminated.[4]

Other sobering statistics on domestic violence include the following:

- On average, more than three women in the United States are murdered by their husbands or boyfriends every day. In 2000, 1,247 women were killed by an intimate partner. Also in that year, 440 men were killed by an intimate partner.[2]
- Pregnant and recently pregnant women are more likely to be victims of homicide than to die of any other cause.[5]
- In a national survey of more than 6,000 American families, 50% of the men who frequently assaulted their wives also frequently abused their children.[6]
- Intimate partner violence is not only a crime against women. In 2001, women accounted for 85% of the victims of intimate partner violence (588,490 total) and men comprised 15% of the victims (103,220 total).[2]

Because 94% of all injuries from domestic violence occur around the head and face,[7] dentists are likely to be among the first to be able to identify signs of domestic violence in their patients. Dentists therefore are in a prime position to intervene and potentially prevent life-threatening injuries.

Survivors often have very poor self-esteem and may be ashamed or prone to accepting the blame for their own injuries. They often are afraid to talk about the injuries for fear of retaliation from a violent partner, and may try to cover up what happened. Discussing the issue of domestic violence with a patient obviously is a very sensitive matter and, if not handled carefully, may further alienate or endanger the survivor. Yet we, as dentists, can help survivors through intervention and prevention by simply identifying the signs of domestic violence and encouraging our patients to talk about the problem. By validating their basic human right to not be hurt by another, we have "opened the door" for them to get help. And by providing resources such as domestic violence hotline numbers, we may provide essential information for them to get necessary assistance. We may even save a life.

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Figure 3: After; full-face smile.

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by Matthew D. LaNeve, D.D.S.
Gibsonia, PA
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A Patient's Emotional Transformation

Many dentists look for ways to "give back"; our participation in Rotary Clubs and other civic organizations, faith-based groups, and charitable organizations can be very rewarding. However, I truly believe that nothing can compare to the satisfaction we get when we are part of a Give Back a Smile™ (GBAS) case.

Introduction

I began working with domestic violence survivors shortly after starting my practice in 1992. When the AACD created the GBAS program, I signed up as a provider and had the great pleasure of meeting "Erica."

Erica had been abused both mentally and physically for years until she was able to leave her husband and fight to see him put in prison. Erica was trying desperately to put her life back together for herself and her children. With the help of The Hope Center, a local shelter; and the AACD Charitable Foundation, Erica was referred to our office.

Erica presented with numerous problems that were not limited just to the smile zone.

First Appointment

When we first consulted with Erica, she was extremely nervous and emotional, and could not talk about her dental problems without crying. She said, "*Every time I look in a mirror or see myself in photos all it does is remind me of the abuse.*" Erica presented with numerous problems that were not limited just to the smile zone: Multiple broken teeth, missing teeth, abscesses, decay, collapsed bite, and failing restorations. Without knowing Erica's background, many dentists would feel that this was a case of simple neglect. However, a big

part of domestic violence is about control, and Erica had not even been allowed to go grocery shopping, let alone visit a dentist. The only care she had had in years was an emergency trip to the hospital after having been punched and kicked in the face so brutally that her teeth had been driven through her lip.

Listen First, Treat Second

As with all GBAS cases, the first appointment consists of an evaluation to determine whether the patient meets the program's dental criteria. Once we decide to accept a case, as dentists we want to jump right in and rebuild that smile. However, survivors of violence often need our compassionate ears as much as they need our skilled hands.

At this point, although Erica desperately wanted her smile back, she wasn't about to let down her guard so quickly; she could not even come to any of the initial appointments without someone at her side. My staff and I spent hours at each appointment talking with her… and listening to her. My staff is always terrific at interacting with patients, but it was obvious that Erica was truly special to them.

Treatment

Over the next few months we were able to complete many procedures. With the help of endodontist Dr. Patrick Dahlkemper and oral surgeon Dr. Robert Petcash, Erica received extractions, four root canals, initial periodontal treatment, soft tissue recontouring for ovate pontics and gingival symmetry, whitening, 14 crown and bridge units, and a lower esthetic partial denture.

When Erica first saw her temporaries in the mirror she joyfully exclaimed, *"This is the first time in years I've smiled and not been reminded of the abuse!"*

When Erica left the office that day, we had no idea what was about to happen.

Emotional Change

Over the course of the last few appointments, we noticed Erica becoming more confident and outgoing, even to the point where she was coming to our office by herself. She would discuss her children, and the future she wanted for them and herself. I couldn't believe how someone with such a tragic past could be so positive about the future. Her strength was remarkable.

Survivors of violence often need our compassionate ears as much as they need our skilled hands.

Media Coverage

Shortly after her temporary appointment, we received a phone call from a local television news station telling us that Erica had contacted them about her story, and could they interview me as well? The reporter said that Erica was so overwhelmed by the generosity of the AACD and the GBAS program that she wanted to get the word out to as many people as possible. A week later, the reporter interviewed Erica and me and, a few weeks after that, the station filmed the final placement of Erica's smile. Everything went great and Erica's new smile was as beautiful as she was!

A Doctor's Gift

To be able to not only watch, but also be part of someone's transformation is a gift in itself. Erica's inner strength over the six-month period of her treatment grew right before our eyes; she changed from someone who could not talk without tears, to a confident woman who could set up and give interviews on TV. Every dentist should have the opportunity to experience this with a patient. I encourage every AACD member to get involved and "give back a smile"—your life will be better for it.

Why No Photographs

Erica's story doesn't end with her new smile. We do have photographs of her case, but couldn't use them for this article without a new consent form. We couldn't get Erica to sign because we have no idea where she is. The day we placed her new smile, Erica told us that her husband had been released from jail and she needed to take her kids away. She didn't know where she was going but knew she needed to start a new life elsewhere. Places like The Hope Center have access to an incredible underground network that can help move a family out of harm's way faster than you can imagine.

We haven't been able to find Erica, and I suppose that's the point. We hope it means that she is safe and doing well.

Acknowledgments

Dr. LaNeve thanks his staff for their compassion and dedication, MicroDental Laboratories (Dublin, CA) for fabricating the final restorations, Drs. Dahlkemper and Petcash for their support, The Hope Center, and WPXI 11 news reporter Karen Wells.

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In This Section:

Questions From Senior Dental Students

by Simona Cuevas, D.D.S.
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Question

What are the factors that need to be communicated to the laboratory technician in order to obtain a predictable desired result in an esthetic case?

Answer

Clear communication between dentist and technician is the most important step in the outcome of a desired esthetic restorative case. It is imperative that the clinician and technician work as a team to ensure the predictability of the final result.

Prior to beginning treatment, it is extremely important that the dentist have a very clear vision of what he or she expects the outcome of the case to be.

In the treatment of anterior esthetic cases, where significant changes in the tooth position often are desired, diagnostic wax-ups or mock-ups are required. As many dentists do not have the desire or time to complete this task, it is delegated to the laboratory technician.

This is where the communication dialogue begins. It is imperative, even at this early stage, that the dentist give the technician clear and adequate guidance regarding the exact plan of the "esthetic transformation."

Included should be diagnostic models with facebow and bite records, intra- and extraoral photographs, and pictures depicting the desired esthetic outcome (sometimes supplied by the patients themselves). Specific notes or prescriptions should also be very detailed, not only from a visual point of view (e.g., rounded edges, flat facial surfaces), but also from a mathematical standpoint (e.g., lengthen centrals by 3 mm incisally and widen by 1 mm).

Once this step is finished, the completed diagnostic wax-up can be used for a variety of purposes, including intraoral mock-ups, preparation reduction guide, and provisional guide fabrication.

A thorough diagnostic phase allows treatment to begin with all parties in agreement, and the blueprint for the final restoration is therefore established. A model of the provisional restorations, accompanied by the photographs, should be included with the final impression.

A clear translation of the desired shade is sometimes difficult to accomplish. It can be done with good photographs with points of reference (i.e., commercial

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shade tabs or custom shade tabs that both the dentist and the laboratory technician have), photographs of the stumps with points of reference, and detailed drawings depicting the desired shade/translucency. Also, to try to eliminate discrepancies in photographs and viewing due to different lighting conditions, a digital analysis device (e.g., Vita Easy Shade [Vident; Brea, CA]) can be used. This device uses an intraoral colorimeter or spectrophotometer, and has been shown to provide accurate and repeatable shade determination.

Although this device offers accurate overall color accuracy, it does not necessarily represent areas of translucency or internal characterization. Common techniques such as those mentioned here still can be used to convey this information.

In conclusion, the more information provided to the laboratory technician, the better chance there is to achieve a beautiful esthetic restoration.

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Question

With the large variety of crown and bridge cements available today, what are the cement categories that are indicated for the different crown and bridge materials used?

Answer

In today's dental arsenal we find many different types of cements, which each have different indications for use:

- Zinc phosphate cements are used for cementation of cast alloy inlays/onlays, metal-ceramic crowns, and high-strength ceramic inlays/onlays.
- Polycarboxylate cements are used for long-term temporary cementation, cast alloy inlay/onlay cementation, metal-ceramic crowns, and fixed partial denture (FPD) cementation.
- Glass-ionomer cements are used for endodontic post cementation, cast alloy inlay/onlay cementation, metal-ceramic crowns, and FPD cementation; as well as for metal-free crowns and FPD cementation with good mechanical retention.
- Resin cements are used for endodontic post cementation, porcelain laminate veneer bonding, leucite-reinforced and lithium disilicate crowns and FPD cementation, alumina and zirconia crowns, and FPD bonding with less mechanical retention (MDP-based and 4-META-based).
- Self-adhesive resin cements are used for endodontic post cementation, multiple metal-free ceramic crown bonding, and cementation of metal-free FPDs.

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AACD Past Presidents as seen on page 8

Back row from left to right: George Freedman, D.D.S., Marty Zase, D.M.D., Nicholas Davis, D.D.S., Mike Malone, D.D.S., Arthur Chal, D.D.S., Jack Kammer, D.D.S. (Founder), Laura Kelly, Jeff Morley, D.D.S. (Co-Founder), Dean Lodding, D.D.S., Wynn Okuda, D.M.D., Lawrence Addleson, D.D.S., and Ken Glick, D.D.S.

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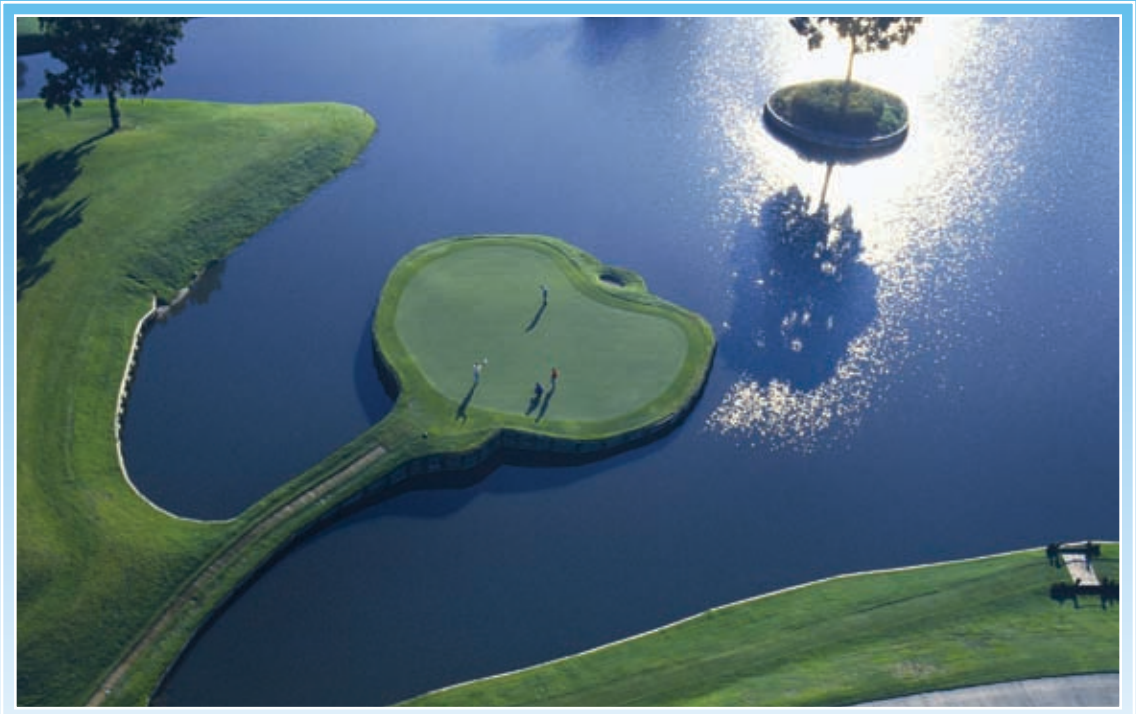

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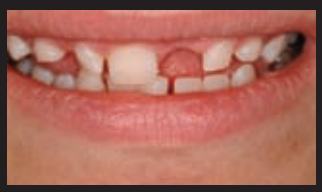
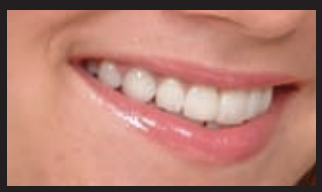
BOOTH #314

CASE IN POINT This patient presented with #9 lost in a car accident and deciduous teeth remaining. To bring back her smile, implants were placed in positions #6, #7, #9 and #11, with Lava crowns over Zirconia abutments. To complete the restoration, porcelain veneers were placed on #5, #8, #10 and #12.





Dentistry by Ned Windmiller, DDS.
Accredited AACD Member

"I wanted to be the best I could be in cosmetic dentistry. Accreditation gave me the motivation and direction to get there."

~ AACD Accredited Member
Dr. Michael Sesemann, Omaha, Nebraska

Accreditation Essentials

In This Section:

Introduction to Accreditation Essentials

by Susan Hollar, D.D.S.
Arlington, TX
www.susanhollar.com

Several months ago, I completed an oil painting on a large canvas; the subject was an enormous pastel Iris. At the beginning of the process, my art teacher had suggested that I first sketch the Iris in pencil on the canvas. The sketch was then highlighted with oil paint to give me "guidelines" to follow as I began to apply layers of paint. She also taught me to mix various colors of paint to create the same chroma, hue, and value as the digital image that served as our subject. Then, she demonstrated various brush strokes that evolved into a texture that reflected the light in just the right places, as well as highlights of the brightest areas on the image.

Similarly, the dentist applies both skill and knowledge to bonding cases, especially those that involve blending with the existing natural dentition, such as Case Type IV restorations. We first design the outline form by either adding wax to models, or by temporarily placing composite on the teeth (this is analogous to sketching on the canvas). We then form a matrix to duplicate our outline form, which is comparable to the darker gray lines on the canvas, in order to duplicate the shapes that exist in nature. Then layers of composite are carefully added to create the effects of translucency, value, hue, and chroma (much as I did with the thin pastel Iris petals). Next, the dentist adds highlights, followed by the creation of the surface texture.

Whether the art form is painting, sculpture, or composite bonding, the principles are similar. Composite bonding is a unique opportunity for dentists to learn about pertinent artistic modalities such as translucency, chroma, surface texture, and highlights.

There are three beautiful examples of the art of cosmetic bonding in this issue of the Journal. Dr. David Chan and Dr. W. Johnston Rowe each present a case involving a fractured central incisor restored with bonding; and Dr. John Roberts shares a restored diastema closure case. Also be sure to read Dr. Scott Finlay's "Accreditation Success Story," in which he highlights the great importance of mentoring and support throughout the Accreditation journey.

All artistic endeavors have certain basic principles in common. Therefore, dentists are able to apply the same basics to the evaluation of their porcelain work, and are better able to relate to the challenges their ceramists face. The Accreditation cases presented here are beautiful expressions of skill and creativity that have taught the candidates volumes about the art of dentistry.

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Accreditation Clinical Case Report, Case Type IV: Anterior Direct Resin Restoration

by David K. Chan, D.M.D.
Vancouver, WA
www.nwsmiledesigns.com

Introduction

The goal of esthetic and restorative dentistry is the replacement of lost or damaged tooth structures with synthetic materials that possess biological, physical, and functional properties that are similar to those of natural teeth.

The characteristics of beautiful composite restorations often are described as though one were describing a work of art. "*Blends of colors*," "*tooth shaping*," and "*polishing*" are some of the artistic expressions cosmetic dentists use to describe their masterpieces.

Contemporary composite systems offer a multitude of shades, translucencies, opacities, and effects that, together with placement techniques, make it possible to create restorations that faithfully mimic the polychromatic and optical variations that exist in natural teeth.[1-3] This evolution of materials, techniques, and concepts allows clinicians to treat a wide range of problems in everyday practice by utilizing direct composite resin restorations in a reliable, predictable, and conservative way.[4]

Clinical examination revealed that #9 had suffered a large Class IV fracture.

Patient History and Diagnosis

The patient was a healthy 9-year-old male who had been involved in a playground accident one week earlier. He presented with a traumatic Class IV fracture of tooth #9 (Fig 1). The patient's parents wanted a conservative restorative treatment option to restore the fractured tooth to its original appearance.

Clinical examination revealed that #9 had suffered a large Class IV fracture, involving approximately 35-40% of the mesial-incisal corner (Fig 2). The fracture line extended into the dentin but did not involve the pulp.

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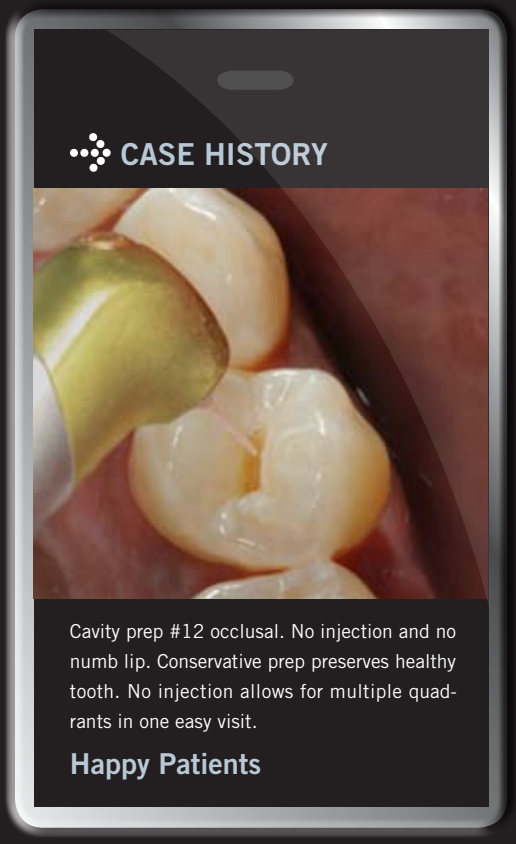

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Figure 1: Before; the patient presented with a large fracture in his left central incisor (1:10, full-face view). After; 1:10, full-face view.

The patient reported that the fractured tooth had been "sore to touch" for a few days but was now sensitive only to cold. Radiographic and vitality assessments indicated no pulpal involvement or pathology. The patient's periodontal health was good and no additional fractures were observed in the adjacent dentition. It was also determined that tooth #9 likely was not fully erupted, which in turn would influence treatment options (Fig 3).

Treatment Plan

Treatment options were discussed in detail with the patient and his parents. Due to the patient's age, the desire to conserve tooth structure, and the fact that #9 might not be fully erupted, the treatment selected was restoration with a Class IV composite.

Because the fracture in #9 was quite large (Figs 4 & 5), it was essential to plan ahead for the shape of the final restoration, to avoid compromising the spatial orientation of the composite layers. Study models were taken and used to construct a diagnostic wax-up of #9.

A high-viscosity putty index was made from the diagnostic wax-up to aid in assessing the volume of composite material needed for the restoration. By incorporating this technique, an appreciation of the spatial relationship can be achieved throughout the restorative process.

Preparation of #9 was kept to a minimum, as the treatment was mostly an additive procedure.

A preoperative shade map was made and photographs were taken prior to the restorative appointment, to avoid elevated value shifts of the teeth due to desiccation. The photographic documentation also aided in areas to duplicate hypocalcification areas with composite tints (Fig 5).

The Esthet•X composite system, along with Filtek Supreme, shade WE, were the composite materials chosen for this case. The body enamel shade of A2 was selected and verified to match by light-curing a small sample over the fractured tooth.

Armamentarium

- Reflection vinyl polysiloxane impression material (Patterson Dental; St. Paul, MN)
- 2% lidocaine, 1:100,000 epinephrine (Septodont; New Castle, DE)
- E1195 diamond round tapered bur (Brasseler; Savannah, GA)
- P11.007 fine diamond mosquito bur (Brasseler)
- Ultrapak cord, #00 (Ultradent; South Jordan, UT)
- Mylar matrix strips (Palmero Health Care; Stratford, CT)
- Gel Etchant 37.5% phosphoric acid (Kerr Corp.; Orange, CA)
- Adper Single Bond 2 adhesive (3M ESPE; St. Paul, MN)
- Microbrush (Microbrush International; Grafton, WI)
- Filtek Supreme composite; shades WE, CT (3M ESPE)
- Esthet•X composite system; shades A2, A2O (Dentsply Caulk; Milford, DE)

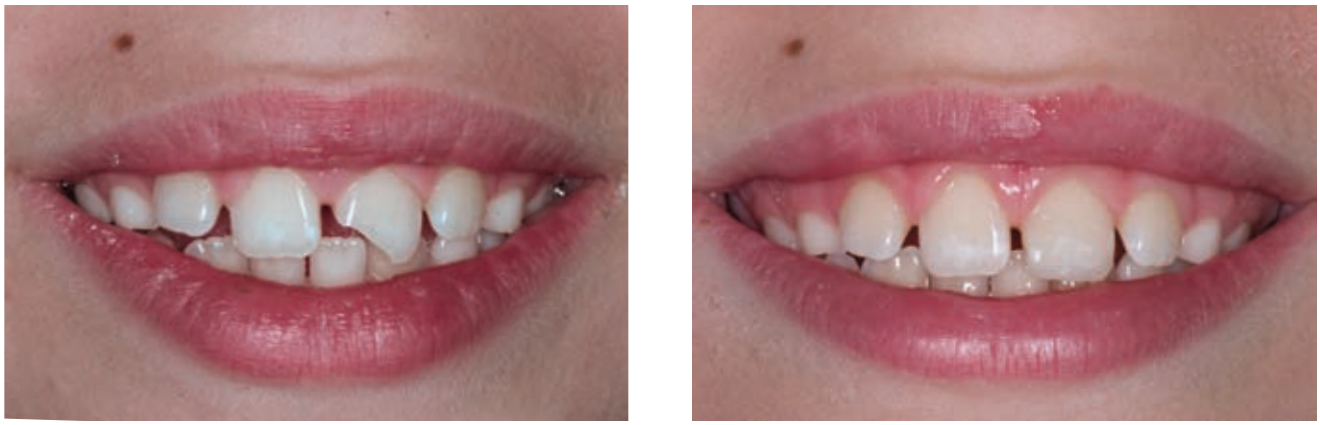

Figure 2: Before; unretracted smile, 1:2 view. After; unretracted smile, 1:2 view.

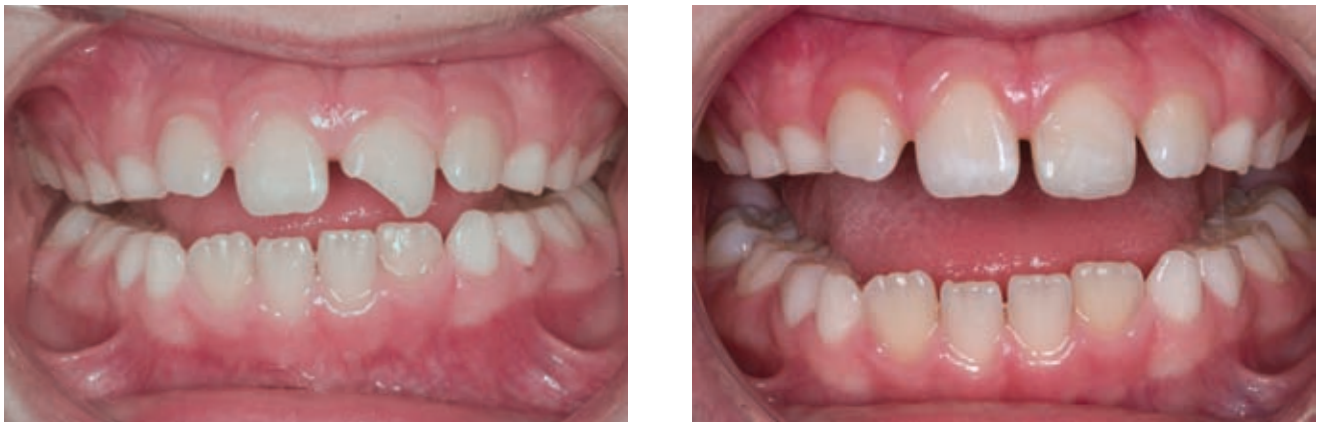

Figure 3: Before; retracted smile, 1:2 view. After; retracted smile, 1:2 view.

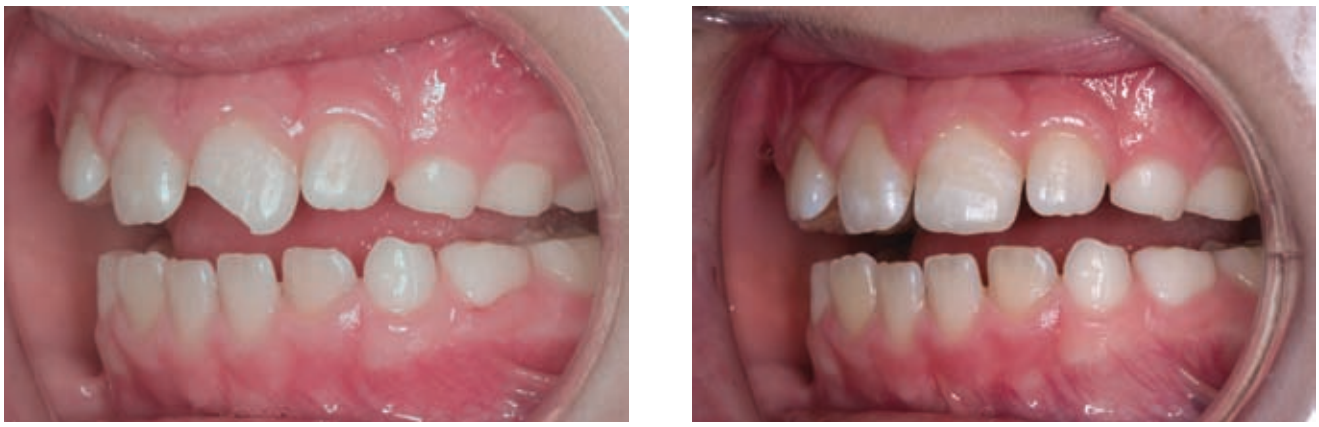

Figure 4: Before; retracted left lateral, 1:2 view. After; retracted left lateral, 1:2 view.

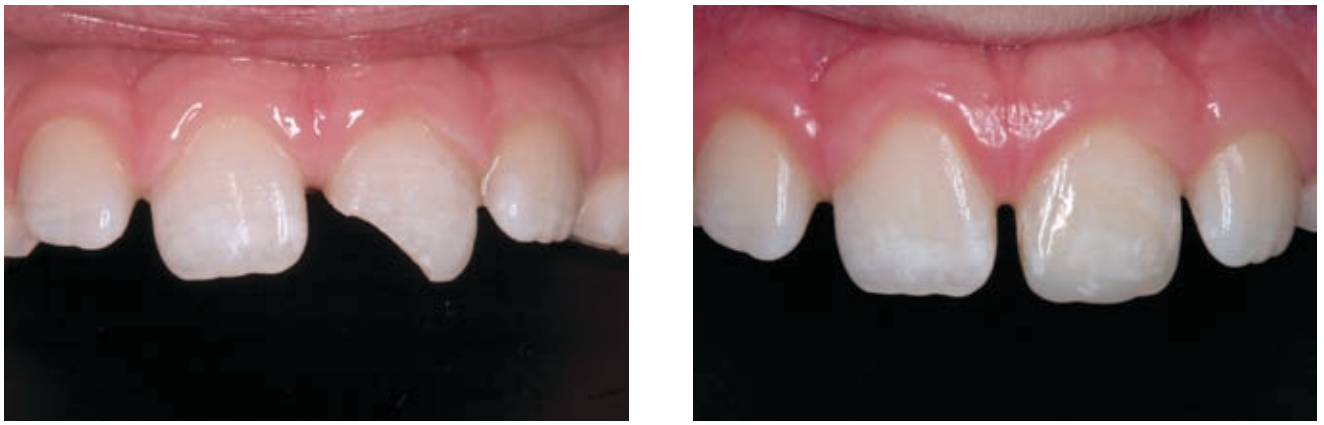

Figure 5: The contralateral tooth served as a shade map for the final restoration. Before; retracted, 1:1 view. After; retracted, 1:1 view, final restored tooth #9.

- Pink Opaque tint (Cosmedent; Chicago, IL)
- #11 artist brush (Cosmedent)
- Kolor + Plus tints; shades white, lavender (Kerr)
- Oxyguard (Bisco; Schaumburg, IL)
- Optilux 501 curing light (Kerr/Demetron; Orange, CA)
- Sof-Lex pop-on polishing discs (3M ESPE)
- Bard-Parker blade #12 (Becton Dickinson; Franklin Lakes, NJ)
- Brownie points (Shofu Dental Corp.; San Marcos, CA)
- Preppies pumice paste (Whip Mix Corp.; Louisville, KY)
- Prophy cup (Dentsply)
- Enamelize composite polishing paste (Cosmedent)
- FlexiBuff pop-on discs (Cosmedent)

Treatment

Preparation

On the day of the restoration appointment, the patient was given a prophylaxis and the shade was selected using the Esthet•X shade guide. Tooth #9 was anesthetized with one carpule of 2% lidocaine, 1:100,000 epinephrine. Preparation of #9 was kept to a minimum, as the treatment was mostly an additive procedure.

Class IV direct composite restorations are an excellent treatment choice for clinicians who are faced with restoring incisal edge fractures of anterior teeth.

A medium-grit diamond bur was used to create a scalloped 1- to 1.5-mm 45° bevel in the enamel. To facilitate transitioning of the enamel shade composite into the remaining tooth structure, a second bevel of 2 to 3 mm was made with a fine-grit diamond around the entire margin.[5] This preparation design would allow the restoration to bond to as much enamel as possible, as well as to attain an imperceptible margin.

Composite Technique

After preparation, the tooth was cleaned with pumice slurry, rinsed, and dried. Retraction cord #00 was placed in the sulcus of #9, along with clear Mylar strips separating and protecting the adjacent teeth. A 37.5% phosphoric acid-etch gel was applied to the dentin for 15 seconds, and on the enamel of the entire tooth for 20 seconds. The gel was then rinsed off with water and lightly blown dry with air. Several coats of bonding agent were applied following manufacturer instructions prior to being light-cured for 20 seconds.

Using the putty index, a thin layer of lingual composite was placed and light-polymerized using the WE shade. This created a lingual shell, which acted as a three-dimensional framework to support the additional layers of composite. Shade A2O composite was chosen to simulate the internal mammelons, and as an opacious layer to control any show-through. A thin coat of pink opaque tint was used at the fracture line to mask it and allow a seamless transition from the tooth to the restoration.[5,6] The next composite layer to be applied was shade A2 as the body dentin. Using a #11 artist brush, tints of white and lavender were

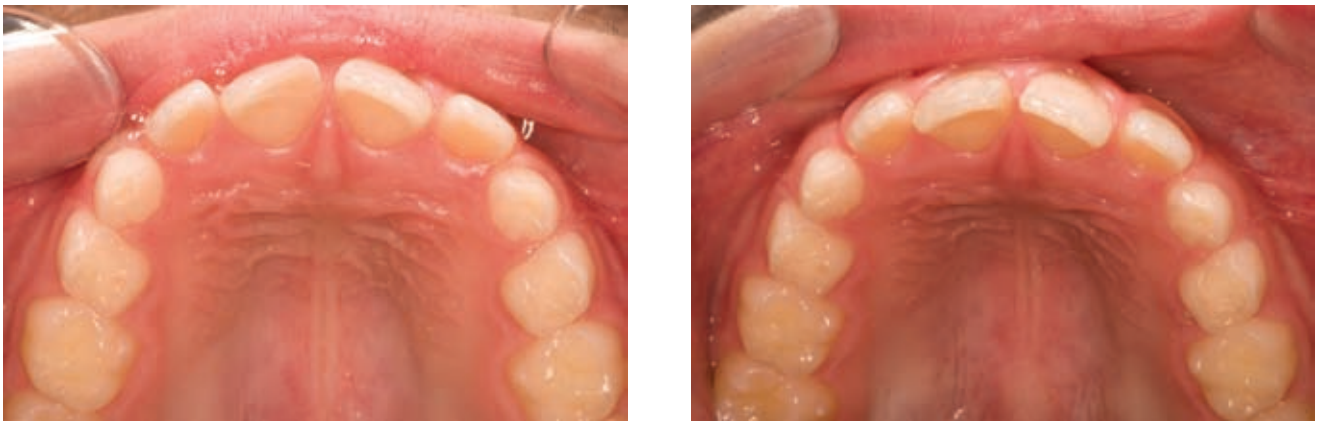

Figure 6: The fracture in tooth #9 required a restoration that replicated not only an optical match, but also proper contours. Before; retracted occlusal, 1:2 view. After; retracted occlusal, 1:2 view, re-establishment of proper contours in the restored tooth.

used to simulate hypo-calcifications and slight incisal translucencies in the coronal one-third of tooth #9. The final enamel layer was placed using shade CT, and sculpted to proper contours (Fig 6). The entire restoration was then covered with an oxygen-inhibiting gel and light-cured for 40 seconds from the facial and lingual aspects.

Finishing and Polishing

The primary anatomy was developed with a medium-grit diamond bur, followed by medium-grit polishing discs. The occlusion was checked to ensure that there were no premature contacts. A rubber Brownie point was used to place the secondary anatomy. To mimic the tertiary anatomy, a coarse diamond bur was run across the restoration at stall-out speed to simulate the appearance of perikymata. The entire tooth was then polished with fine pumice on a prophy cup, using firm pressure to aid the removal of any irregularities and blend the composite with the tooth.[7] A fine composite polishing paste applied with a felt disc was used under light pressure to achieve the final finish.[8]

Conclusion

Class IV direct composite restorations are an excellent treatment choice for clinicians who are faced with restoring incisal edge fractures of anterior teeth. Not only is the treatment very conservative in nature, but it also allows the clinician complete control to create a restoration that rivals the best ceramics. This treatment remains one of the great values in dentistry, leading to high levels of patient satisfaction and allowing cosmetic dentists to express their artistry.

Acknowledgments

Dr. Chan thanks Dr. Bruce Crispin and Dr. James Peyton for their mentorship and guidance, and Dr. Lawrence Addleson for his inspirational support of his pursuit of Accreditation. He also gives special thanks to his wife, Liann; and to his dedicated staff for their constant support.

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Examiners' Perspective for David Chan, D.M.D.

by J. Fred Arnold, III, D.M.D.
Lexington, KY
www.lexingtonsmiles.com

Being an Accreditation Examiner for the American Academy of Cosmetic Dentistry takes a great deal of dedication and time. Examiners must take time from their busy schedules to evaluate clinical cases, research the literature and write test questions for the Accreditation Written Exam, attend regular Examiner calibration training sessions, mentor candidates, teach Accreditation courses, and administer Oral Exams. Why do people volunteer to be Examiners?

The truth is, being an Examiner is extremely rewarding. Helping others achieve Accreditation, which is our purpose, is a way we give back to dentistry and honor those who taught us. This is a privilege and a charge to keep that is not taken lightly. Examiners work hard for your benefit and we measure our success by how many beautiful Accreditation cases we see, such as the one Dr. David Chan has presented here.

Case Type IV is a direst resin case that can be either a Class IV or a diastema closure restoration. The Class IV must replace at least 10% of the facial surface of an upper incisor. The diastema closure must be a closure of 1 mm or greater, which involves placement of resin on two adjacent teeth (upper incisors and/or canines).

Most Examiners agree that this is the easiest of the five clinical cases. It measures a candidate's ability to handle direct resin in such a way as to obtain a seamless transition and shade match with the natural tooth structure. Tooth morphology is also important, while smile design does not come into play.

Dr. Chan did an outstanding job with a Class IV direct resin case on a fractured central incisor. His case selection—a straightforward case without any complicating issues—was excellent.

Examiners passed this case unanimously. In the 1:1 views, the finish line was visible, which cost Dr. Chan some points. A couple of Examiners felt that the maverick characterization did not match that in the contralateral tooth, and another felt that the finish and polish were not the same as that in the contralateral tooth. These were all minor faults.

Dr. Chan showed great skill in his handling of composite resin. The elements of dental anatomy were excellent, and his composite layering and use of tints and opaquers led to a very convincing blend with the natural tooth structure. Dr. Chan deserves to be very proud of the outstanding dentistry that he has done for his patient.

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Accreditation Clinical Case Report, Case Type IV: Diastema Closure

by John C. Roberts, D.D.S.
Twin Falls, ID
www.smile7.com

Introduction

Every day patients visit their dentist and are simply told that they look great and have no cavities. Often, patients are not even given the opportunity to improve their smiles, possibly because so many dentists are embarrassed or afraid to offer cosmetic work to a patient, fearing that the patient will be offended. Every option should be offered to every patient, allowing him or her to make their own educated decisions about their health. With so many options available in today's dental arsenal—veneers, orthodontics, bonding, periodontics, and most often some combination of the above treatments—most people can have the smile of their dreams. This patient's chief complaint was that she simply wanted the space between her two front teeth closed; her dentist had never told her that this was even an option.

Every option should be offered to every patient, allowing him or her to make their own educated decisions about their health.

Patient History and Complaint

The patient, a 30-year-old female, presented in excellent health with no contraindications to any dental treatment. Within the past month, she had had a dental exam and professional cleaning and had been told she was in excellent condition. She came to our office after hearing from a friend that she could receive a treatment that would fill the space between her front teeth (Fig 1). She had been self-conscious about the space in her teeth for many years and, despite regular dental appointments, this was the first time she had heard that she could improve her smile in any way.[1] The patient

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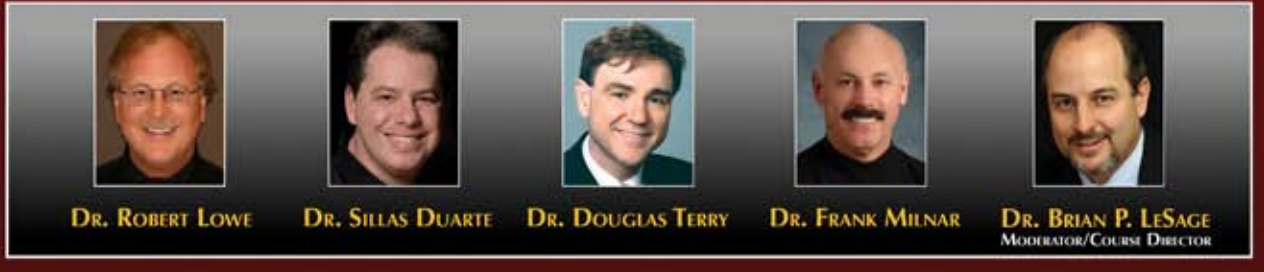

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Figure 1: Before and after, full-face view. The patient was surprised when I offered to close her diastema; this option had not been presented by her previous dentist.

was offered treatment options of orthodontics, veneers, or direct bonding, as well as a new crown on #10 (Fig 2).

Clinical Findings

No soft or hard tissue pathology was noted. The patient had no history of orthodontic treatment and was in a Class I occlusion with a diastema between #8 and #9. Healthy canine and protrusive guidance functioned nicely. Minimal, if any, wear patterns were present. No history or complaint of temporomandibular disorder; and no pain, popping, or crepitis upon maximum opening, or lateral or protrusive excursions were noted. The patient had nice facial symmetry with no midline shift or cant present.

The patient's periodontal health was excellent. No gingival edematous or redness were noted. There were no periodontal pockets over 3 mm and no gingival recession.[2,3] Teeth ##5-7, 12, 13, 18, 20-22, and 30 had existing composite fills. All-porcelain crowns were present on teeth #14 and #30. No restorative treatment was necessary at this time, except for esthetic improvements as desired.[4]

The patient exhibited a pleasing, natural smile.

The patient exhibited a pleasing, natural smile. The incisal curve of her anterior teeth matched well with the contour of her lower lip, with light contact of the incisal edge against the vermilion wet/dry border upon pronunciation of the "f" and "v" sounds. The buccal corridor tapered to the distal fully, correctly, and naturally.[5] She displayed acceptable levels of gingival tissue when smiling. The golden proportion of anatomical crown length for the anterior teeth was on the high side, but still within acceptable parameters (Fig 3).[6,7]

Diagnosis and Treatment Plan

The patient was aware of the diastema between #8 and #9. She also was aware of the discoloration of #10. Incisal edge continuity due to the distal tilt of #9 was inconsistent and needed smoothing. Due to the aggressive nature of veneers with respect to the health, good orthodontic alignment, and excellent white shade of her teeth, bonding to close her diastema was the recommended treatment.

The treatment plan was designed primarily to eliminate the diastema. The necessary hard tissue recontouring would be completed as needed in conjunction with building with composite to improve incisal edge continuity and give the illusion of the correct inclination of #9.[8] This would also be accomplished with the alteration of the existing line angles, changing the reflective and deflective zones appropriately. After reviewing study models and her options of orthodontics, veneers, or bonding, the patient proceeded with the recommended treatment of bonding with composite and mild recontouring of hard tissues. Treatment commenced as follows:

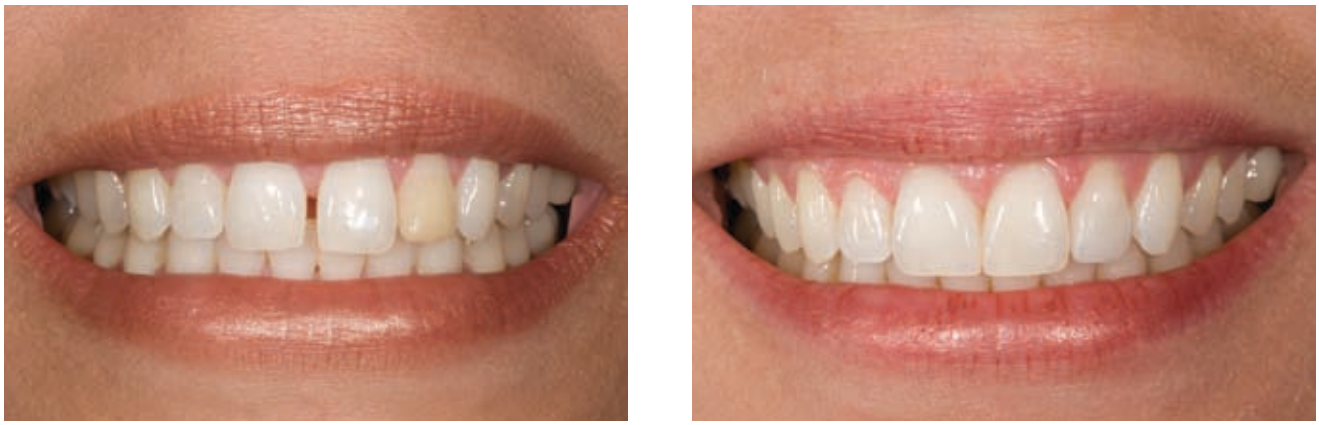

Figure 2: Before and after, 1:2 full smile. The old yellow veneer on the lateral incisor needed to be replaced to balance the color in her smile.

- Continuation of regular periodontal maintenance and home care.[9]
- Bonding of composite to the mesial, lingual, and facial of #8 and #9. Incisal length would be added to the mesial of the incisal edge of #9 with composite to correct its tilt. Minimal length would be added to the incisal of #8 to improve proportions, as well.
- A porcelain crown would be placed on #10 to match the color of her natural teeth.

Armamentarium

- assorted diamonds (Brasseler; Savannah, GA)
- GingiBraid non-impregnated retraction cord (Dux Dental; Oxnard, CA)
- Mylar matrix strips (Henry Schein; Melville, NY)
- micro applicators (Microbrush International; Grafton, WI)
- Matrix 38% phosphoric acid (Discus Dental; Culver City, CA)
- Excite bonding agent (Ivoclar Vivadent; Amherst, NY)
- 4 Seasons dentin, shade B1 (Ivoclar Vivident)
- Renamel microfill composite, shade incisal light (Cosmedent; Chicago, IL)
- Blue Phase 16 curing light (Ivoclar Vivadent)
- Epitex finishing strips (GC America; Alsip, IL)
- Sof-Lex finishing discs (3M ESPE; St. Paul, MN)
- FlexiBuff polishing discs (Cosmedent)
- Enamelize polishing paste (Cosmedent)
- Empress veneer (Ivoclar Vivadent)
- assorted finishing carbides (Brasseler)

Treatment

Before treatment started, shade selection showed a bright shade. Shade B1 dentin was chosen to provide the correct color match, as well as to provide necessary strength to the functional surfaces of the proposed restoration. A microfill incisal light would be overlaid in minimal thickness to accommodate proper final finishing and translucency.

This conservative approach accomplished all of the patient's goals without the aggressive treatment of veneers or the lengthy treatment of braces.

Removal of tooth structure with a bur was minimal. Reduction of the mesial facial of #9 was completed to bring the incisal edge in line with the whole arch. All surfaces to be bonded were lightly prepared with a diamond to remove any plaque and to expose a fresh enamel surface for improved bonding.

A clear plastic matrix was placed between the tooth and the papilla to tease the papilla from the mesial surface of #8. 35% phosphoric acid was applied to this area, as well as to the mesial, lingual, and incisal surfaces of #8, which were to be bonded. A thorough rinse was given at 15 seconds. The exposed cementum on the mesial root surface of the tooth was dabbed with a clean, dry microbrush to absorb any excess water

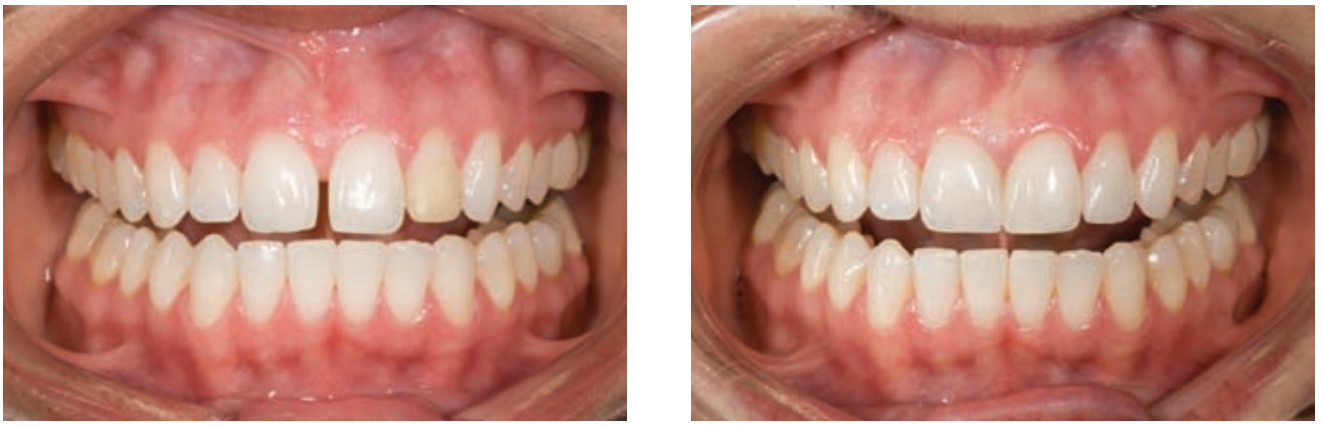

Figure 3: Before and after, 1:2 retracted view. Emergence profile and the deflective zone between the central incisors were paramount to maintaining a pleasing height-to-width ratio.

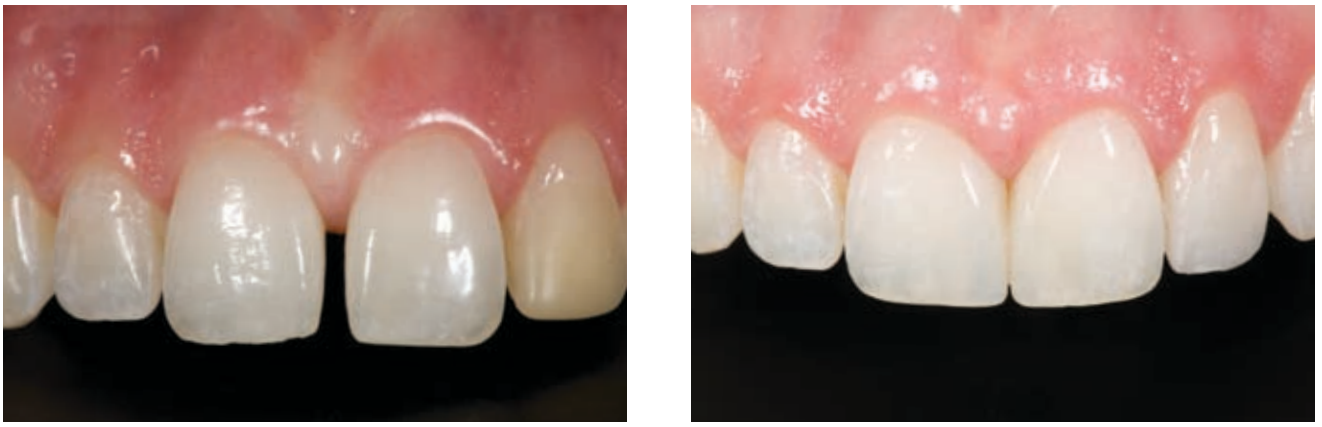

Figure 4: Before and after, 1:1 retracted view. Final polish allowed highlights to emphasize the final tooth contour.

and create a moist bonding surface. Bonding agent was applied to the cementum and enamel for 20 seconds.

The entire tooth was then dried with a warm air dryer for an additional 20 seconds, along with a high-speed vacuum to evaporate all the carrier in the resin and eliminate any water on the exposed enamel. The bonding agent was light-cured for 30 seconds.[10] B1 dentin was applied to the lingual and mesial of the tooth, allowing enough space to apply the translucent microfill surface. This was cured and covered with composite shade incisal light. This was also applied along the incisal to help blend the transition of composite to tooth along the incisal, as well as to improve the continuity of the incisal edge of #8 with #9. This was recontoured incisally and interproximally with diamond and carbide burs and multiple discs to ensure proper midline cant and contour before the process was repeated on the mesial of #9. The layer of microfill facilitated correct polishing, which was accomplished with finishing and polishing discs and polishing paste (Fig 4).

No balancing or working interferences were noted during lateral canine disclusion. Protrusive excursions were examined and showed equal wear on the lingual of the maxillary incisors. Protrusive and lateral guidance allowed for immediate posterior disclusion.[11,12]

Summary

The patient was very pleased by how natural the final result looked.

She was surprised that a line could not be detected between the filling material and her natural tooth. Her concern that her teeth would look too "fat" after closing the spaces was also laid to rest. This conservative approach accomplished all of the patient's goals without the aggressive treatment of veneers or the lengthy treatment of braces. The patient will undoubtedly speak highly of cosmetic dentistry in the future.

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❖

Examiners' Perspective for John C. Roberts, D.D.S.

by J. Fred Arnold, III, D.M.D.
Lexington, KY
www.lexingtonsmiles.com

Dr. John Roberts did an excellent job with a diastema closure for his Case Type IV. This is a good example of a difficult case that would not be considered the best selection for this case type, even though Dr. Roberts, with great skill, made it successful. Treating tooth #10 with an indirect porcelain crown added a great deal of work to this case. Remember—if you treat it, it will be judged. Don't make it more complicated than necessary.

Dr. Roberts did a beautiful job of blending the composite seamlessly into the patient's natural tooth structure. His resin layering created a very convincing shade match, as well. The porcelain crown also blended naturally with the adjacent teeth.

All but one of the Examiners found fault with the width differences between teeth #8 and #9. Asymmetries between the central incisors rarely go unnoticed by the Examiners (this is covered under Accreditation Criteria #87—Are contralateral teeth in harmony in terms of size, shape, and position?). The other Examiner felt the line angles could have been better defined (Criteria #43—Have the line angles been properly developed?), which could have helped with the obvious visual perception of the width asymmetry of the central incisors.

An easy way to develop line angles properly is to mark them with a pencil for easy visualization while developing your primary anatomy. The line angles and the facial embrasures can then be easily refined with finishing discs, to create the desired virtual width and ensure symmetry in the light-reflecting and light-deflecting areas.

Several Examiners noted the blunted papillae between teeth #8 and #9. Be sure not to crowd the papillae with composite. If you are concerned about leaving a black triangle, sound to bone; you can count on achieving 4 mm between the osseous crest and the free gingival margin interproximally.

Examiners also noted the visible margin on tooth #10 (Criteria #61), which was a minor fault. There was a discrepancy between the cervical/incisal tooth length of teeth #7 and #10 (Criteria #86). It would be a shame to lose enough points to fail a case on something treated that is not even a requirement for the case type.

Despite these few faults, this case was in that zone of excellence needed to pass. Dr. Roberts' talent shone as he achieved Accreditation-level dentistry for his patient.

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Dr. Bill Blatchford

Accreditation Clinical Case Report, Case Type IV: Anterior Direct Resin Restoration

by W. Johnston Rowe, Jr., D.D.S.
Jonesboro, AR
www.arkansassmiles.com

Introduction

Traumatic injuries to anterior teeth can be a problem for people with active lifestyles; a wide variety of physical activities can contribute to dental trauma. Therefore, predictable, conservative, and natural restoration of damaged teeth is a true concern and challenge for any esthetic-minded practicing dentist. Many factors contribute to the appropriate design and material choice for the restoration of an anterior tooth, such as the patient's age, occlusion, habits, and esthetic desires.[1,2] Laboratory-fabricated restorations and chair-side direct restorations have unique advantages and disadvantages that should be considered by both the patient and dentist.[1,2]

Direct resin makes it possible for the tooth to be restored immediately in the most conservative fashion possible.

Direct resin makes it possible for the tooth to be restored immediately in the most conservative fashion possible; and without the complexity of communicating the details of shade, shape, and texture to a third party.[3] Therefore, resin can more readily be matched to the adjacent natural tooth by the clinician, because he or she can more accurately see the details in person. By using layering techniques, the clinician can recreate physical traits such as incisal translucency; and also can evaluate shape and contour as he or she is rebuilding the tooth, and make any subtle changes needed to provide a pleasing result.[2-5] Excellent blending with the natural dentition can be achieved by repairing traumatically damaged teeth with direct resin, thus restoring natural function and esthetics in an effective and efficient manner to provide a long-lasting, beautiful result.

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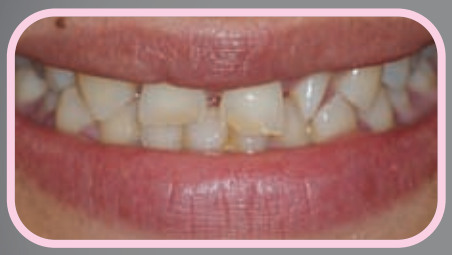

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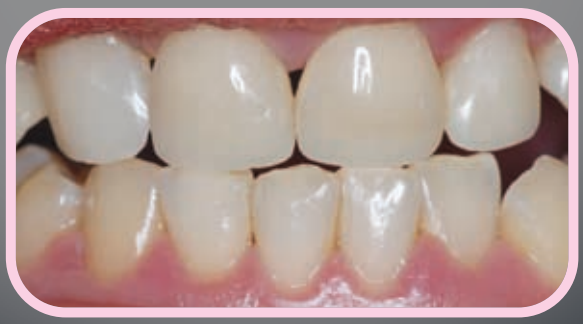

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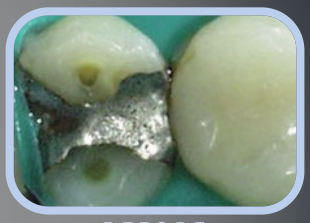
Bud Mopper, D.D.S., M.S.



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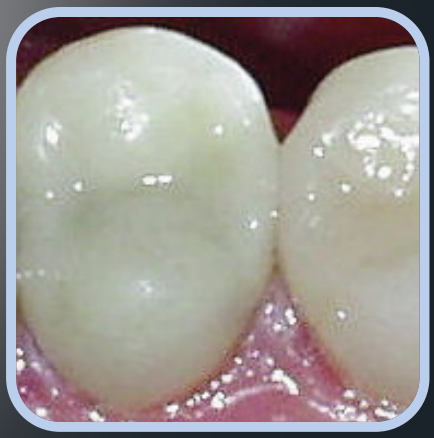

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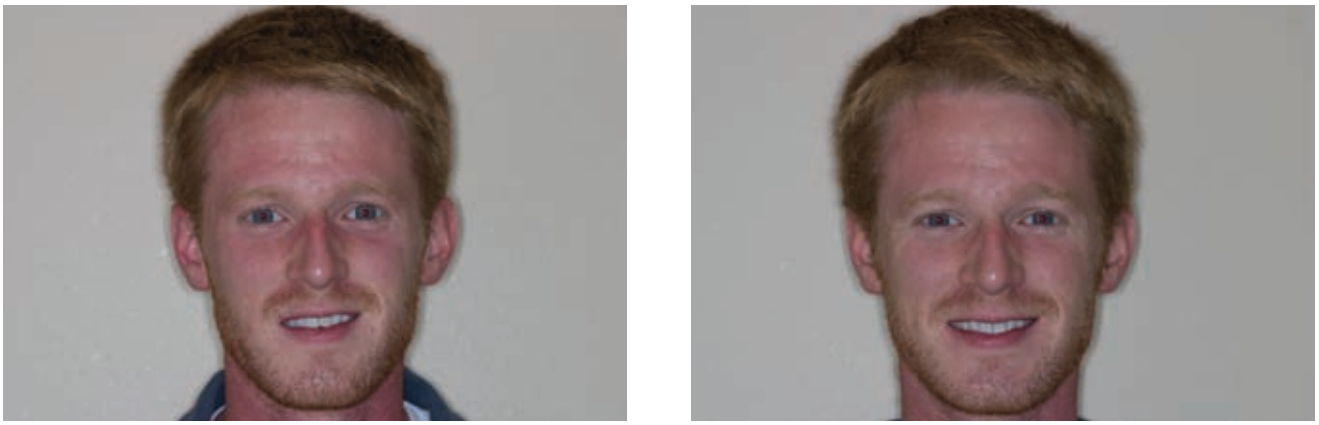

Figure 1: Full-face view. Before; the patient's facial appearance is affected by the fracture of tooth #9. After; his face appears more relaxed and confident after #9 has been restored.

Patient History and Chief Complaint

The patient, a 24-year-old male, had fractured his previously restored left central incisor while riding his bicycle over a stump two days before his restorative consultation. His mouth had smashed into the bike's handlebars, causing the fracture of the incisal third of #9; his chief concern was his appearance. The patient's medical history was not significant except for the fact that he smoked cigarettes occasionally. He stated that he received annual dental cleanings and had whitened his teeth in the past, and he had no other concerns aside from the esthetic appearance of the broken tooth (Fig 1).

Examination and Diagnosis

A periapical radiograph was taken of #9 and no pathology was noted. Pulp vitality tests using an electric pulp tester and ice were performed and the nerve of #9 responded within normal limits. Occlusion was also evaluated to rule out any possible traumatic interferences to the fractured tooth.[1]

Due to the conservative nature of this procedure, the patient chose to have no anesthesia.

The clinical examination revealed that the patient had some pathologic wear on his mandibular incisors, minor crowding, and slight constriction of both the maxillary and mandibular arches. Several small, serviceable composites and amalgams were noted in the patient's posterior dentition. A Class I molar and canine occlusion were observed. The patient exhibited no symptoms of any temporomandibular joint (TMJ) disorder and appeared asymptomatic following a TMJ evaluation. Orthodontic options to expand the arches and level the occlusal plane were discussed and the patient declined.

Tooth #9 exhibited a Class IV fracture with no pulpal involvement or evidence of pulpal trauma. The patient had a Class I occlusion with a history of anterior wear, but no current occlusal disharmonies were noted.

Treatment Plan

After discussing restorative options for tooth #9, the patient elected treatment with direct composite resin. He liked the idea of having his tooth restored in a single visit, and was very interested in having the most conservative treatment due to his concern that his active lifestyle might cause further dental damage in the future. Proper care for the resin restoration on tooth #9 was discussed; and the importance of optimal maintenance, including regular cleanings and examinations, was stressed.

An alginate impression of the maxillary arch was made and a study model from a mix of quick-set plaster and die stone was fabricated. Tooth #9 was waxed to full contour on the study model to provide a symmetrical appearance with #8. A vinyl polysiloxane (VPS) stent was

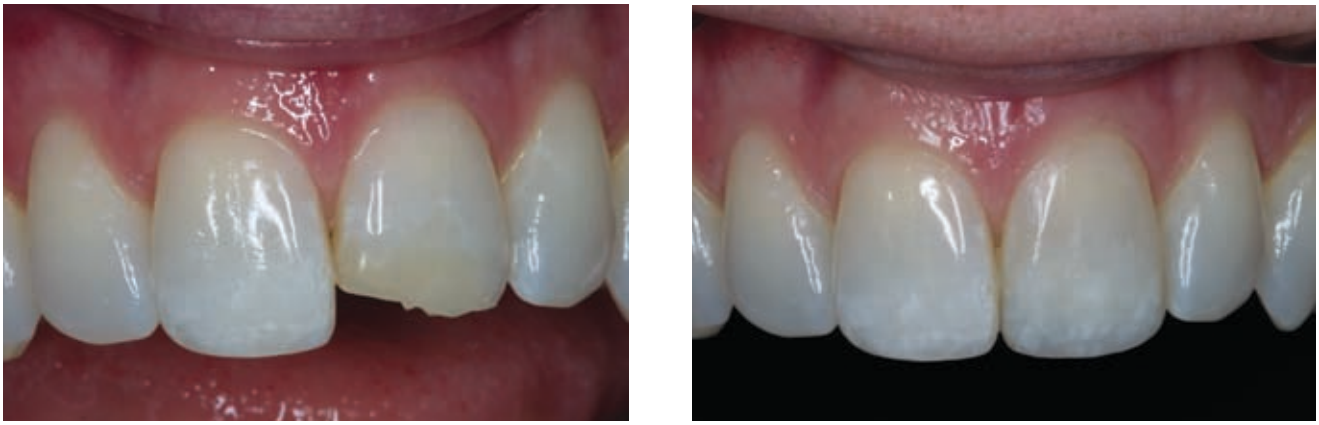

Figure 2: Retracted view, 1:1. Before; the left central incisor is fractured as well as stained on the previously placed composite. After; the composite restoration mirrors the translucency and decalcified areas of the adjacent central incisor.

then formed to fabricate a lingual and incisal matrix for the restoration of #9.[3,6]

Armamentarium

- Jeltrate Plus fast-set dustless alginate (Dentsply Caulk; Milford, DE)
- Bellewax (Kerr; Orange, CA)
- Genie VPS impression material, rapid-set (Sultan Dental Products; Englewood, NJ)
- Isolite mouthpiece illuminator (Isolite Systems; Santa Barbara, CA)
- 5X magnification surgical loupes (Orascoptic Research, Inc; Middleton, WI)
- Zeon illuminator headlight system (Orascoptic)
- Waterlase Er,Cr:YSGG laser (Biolase; Irvine, CA)
- Anterior composite preparation set LS-7520 (developed by Newton Fahl): medium diamonds 801-009, 801-014, 830-016, 834-021, 862-009; fine diamonds 850-012, 850-014 (Axis Dental; Coppell, TX)
- 35% phosphoric acid etching gel (Ultradent; South Jordan, UT)
- ResinKeeper (Cosmedent)
- Microbrush regular applicators (Microbrush; Grafton, WI)
- OptiBond FL primer and bonding agent (Kerr Orange, CA)
- Optilux 501 curing light (Kerr/Demetron; Orange, CA)
- Renamel microfill and hybrid composites (Cosmedent)
- Kolor + Plus tints and opaquers (Kerr)
- Gold composite instruments, 8A, 8AL, multi-use, IPCL, IPCT (Cosmedent; Chicago, IL)
- #1, #3 artist brushes (Cosmedent)
- #12 scalpel and handle (Hu-Friedy; Chicago, IL)
- Anterior and posterior composite finishing set LS-7521 (developed by Newton Fahl): fine and super-fine diamonds 368-016, 801-023, 888-012, 889-009; 12-fluted carbides H246-009, H379-014 (Axis Dental)
- OptiDisc composite finishing discs (Kerr)
- Epitex Mylar finishing strips (GC; Alsip, IL)
- HiLuster Plus polishing cups and points (Kerr)
- FlexiBuff polishing discs (Cosmedent)
- Enamelize composite polishing paste (Cosmedent)

Treatment Description

Preparation

Due to the conservative nature of this procedure, the patient chose to have no anesthesia. Because of his interest in the procedure, he was provided with a hand-held mirror to view the restorative process.

The lingual and incisal matrix was tried in the patient's mouth for fit. A shade map for the resin restoration was designed using color-corrected lighting; and multiple tabs of the restorative composite were cured and compared to tooth #9 to verify color choices. Selected tints and composite shades were loaded into

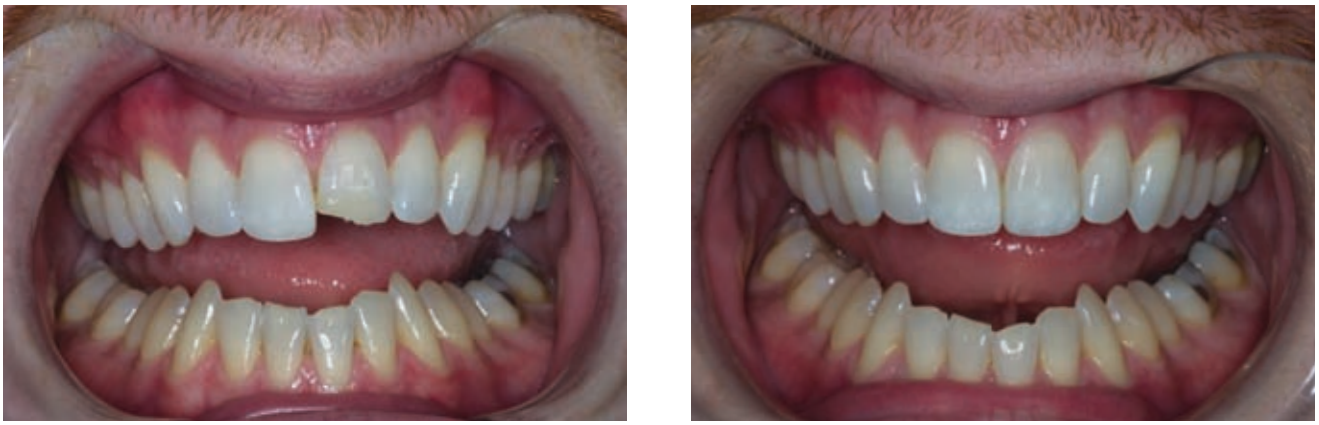

Figure 3: Retracted view, 1:2. Before; note how the mesial line angle in the preoperative image fades into the existing composite. After; the mesial line angles reflect the light, revealing symmetry of contour.

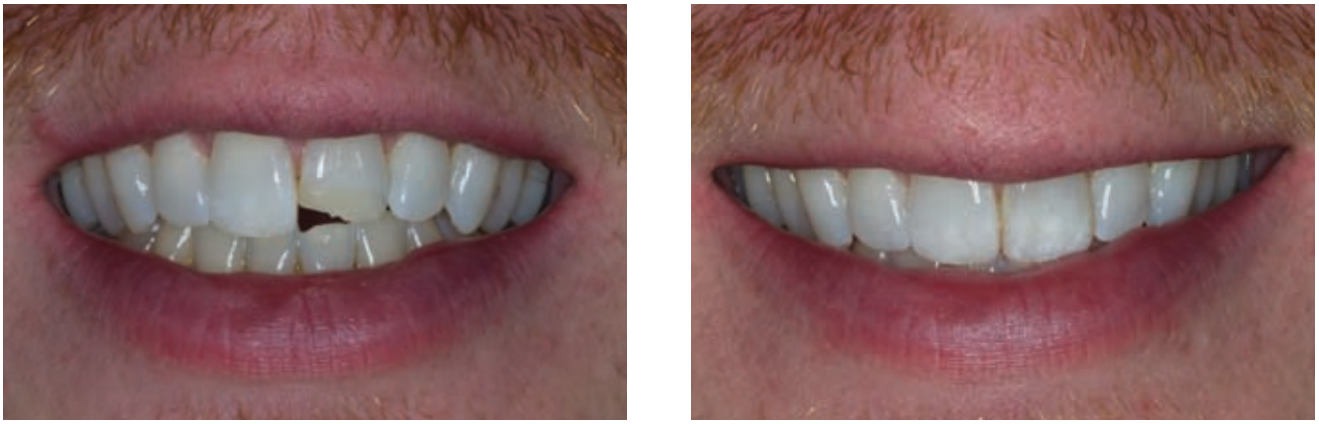

Figure 4: Full smile, 1:2. Before; the fracture is in the center of the smile, which is the focal point. After; the symmetry of contour, color, value, and texture of the two central incisors create a harmonious smile.

a covered composite resin keeper to provide for organized access during restoration.

A medium-size mouthpiece illuminator was placed in the patient's mouth for comfort and isolation, along with two #2 cotton rolls to elevate the patient's upper lip. The cotton and the illuminator provided adequate isolation from moisture and contamination during the restorative procedure.

Remaining old restorative material present in the incisal third of #9 was removed and fresh enamel was exposed using a laser under 5X magnification. The area to be bonded was then smoothed with a medium-grit diamond bur (850-012) to provide a gradual beveled surface for resin application. The bevel was delicately extended to approximately two-thirds of the facial of #9 toward the gingival third of the tooth.

Etching and Bonding

A clear Mylar strip was placed in the interproximal areas mesial and distal to #9 to protect the adjacent teeth during acid etching. A 35% phosphoric acid gel was applied to the facial and incisal prepared area of #9 and agitated for 15 seconds. The acid etchant was then removed by rinsing with copious amounts of water, and excess moisture was removed with a short blast of air. Direct lighting was removed and ultra-violet filters were applied to the headlight and mouthpiece illuminator while primer was applied for 20 seconds and air-thinned, followed by an application of bonding agent. The bonding agent was air-thinned and then cured for 20 seconds. The

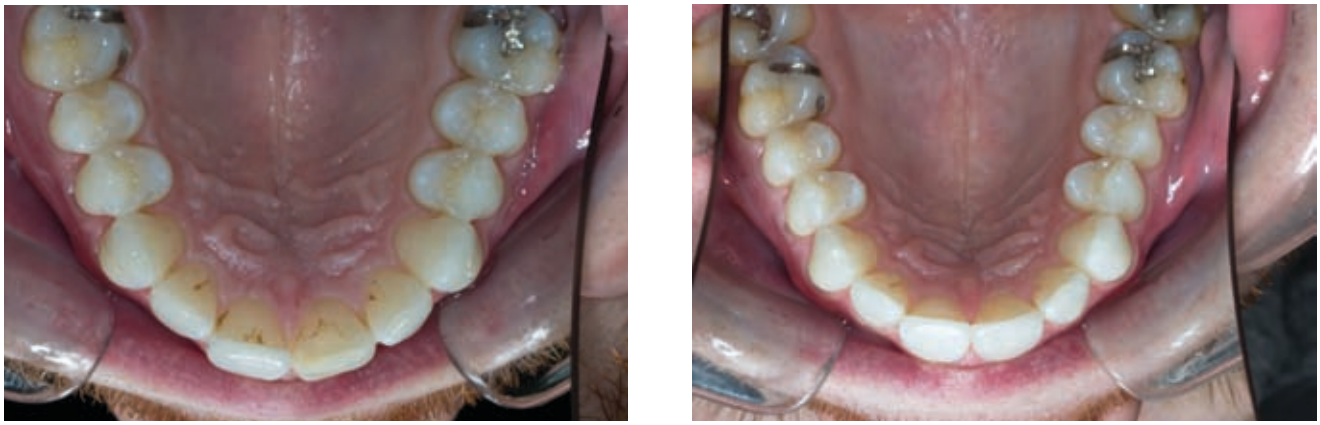

Figure 5: Maxillary arch, occlusal view, 1:2. Before; the arch form is not complete due to the missing incisal edge of tooth #9. After; the incisal edges create a continual, symmetrical arch form.

Mylar strip was removed and the lingual and incisal matrix was seated in place, filled with a thin layer of hybrid semi-translucent white resin in the area to be restored. The semi-translucent white layer was adapted to the prepared edge of the defect on #9 with a gold-tipped composite instrument and cured for 20 seconds. This hybrid layer was to provide a wear-resistant lingual and incisal area, as well as a halo effect to enhance the incisal appearance of #9 and mirror #8.[3,6]

Proper planning and meticulous attention to execution can provide the patient with an esthetic result that is conservative, functional, and natural in appearance.

Layering

The matrix was removed and an artificial dentin layer with anatomic internal lobes was formed using a B2 hybrid composite.[3,6] A slight hint of blue tint was applied between the incisal portion of each lobe with an artist's brush to accentuate the lobes and the mesial and distal interproximal areas.[3,6] A 20-second cure was performed. A thin artificial enamel layer of B1 microfill resin was used to cover the areas between the lobes and provide a very thin layer, half of the distance of the beveled preparation toward the gingival area of #9. The B1 was kept significantly thinner in the incisal third to allow for greater translucency. This layer was used to provide the basic contour of the tooth prior to application of the layers used to add effects to mimic the translucency of #8[3,6] (Fig 2). A small amount of incisal light microfill was applied to the incisal area around the lobes and in the interproximal areas on the mesial and distal of #9. A white tint was applied to the incisal and middle thirds of the tooth with an artist's brush to mimic the appearance of #8. Following a 20-second cure, a 0.5-mm layer of B0 microfill with additional incisal light microfill in the incisal third was used to cover the entire length of the preparation and establish full contour of the restored tooth[3,6] (Fig 3). This layer was smoothed and shaped with an artist's brush to provide an even surface and minimize the incorporation of any air pockets.[3] A final cure was applied for 60 seconds.

Finishing and Polishing

The labial and lingual surfaces were then contoured using medium-grit disc polishers, diamond finishing burs, and carbide finishing burs, carefully preserving the contours and surface characteristics (Fig 4).[3,6] Interproximal areas were contoured with finishing strips.[3,6] The isolation was removed and proper occlusion was verified in centric occlusion and excursive motions, shaping the incisal edges to function harmoniously (Fig 5). Final polish was performed with rubber cups and points, fine and super-fine abrasive discs, and polishers with polishing paste.[4,5]

The patient's teeth were inspected for any excess restorative material. The occlusion was checked again and smooth, proper contacts were verified with unwaxed floss. Postoperative homecare instructions were given and the patient was scheduled

for a follow-up appointment for radiographic and photographic documentation, as well as a final check for function and esthetic evaluation. A soft, thick, custom-fit athletic biteguard was fabricated in an effort to protect the patient's teeth when he rides his bike in the future.

Conclusion

Class IV direct resin restorations are an excellent choice for restoring traumatic fractures to anterior teeth. Proper planning and meticulous attention to execution can provide the patient with an esthetic result that is conservative, functional, and natural in appearance.

Acknowledgments

Dr. Rowe thanks Dr. J. Fred Arnold, III, for his mentorship throughout this case and the journey of the Accreditation process. He also thanks his wife, Dr. Kristy Roberts Rowe, for her constant support.

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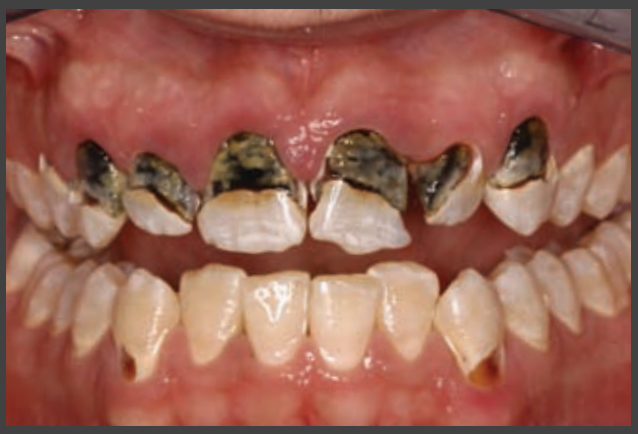
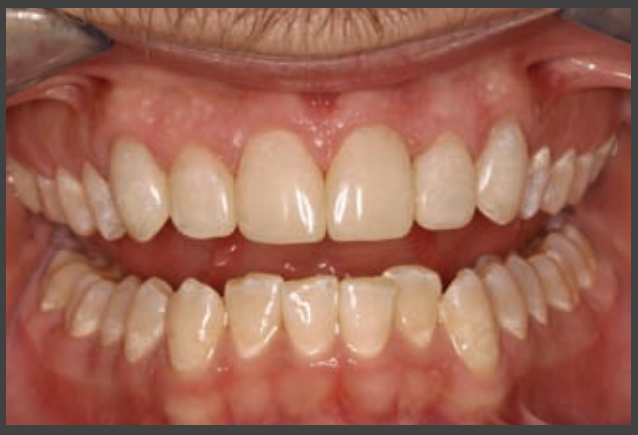


Before, retracted 1:2 view.



After, retracted 1:2 view.

Acknowledgment

Dr. Ted Murray, whose article, "Clinical Case Report, Accreditation Case Type V: Six or More Direct Resin Veneers" appeared in the Fall 2007 issue of *The Journal of Cosmetic Dentistry*, wishes to thank Dr. Ron Jackson (Middleburg, VA) for his remarkable teaching skills and his dedication to the profession. Dr. Murray says, *"Dr. Jackson's unique insights into the behavior and correct use of composite resins and his unsurpassed ability to make us see what is possible have been invaluable to me and to the thousands who have benefited from his instruction."*

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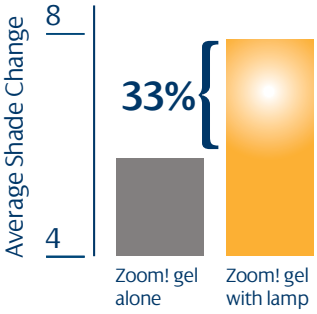

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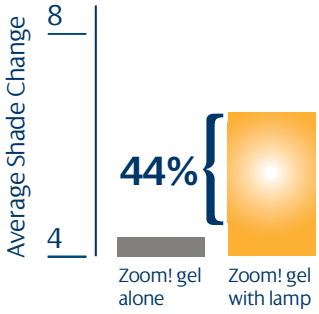

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Examiners' Perspective for W. Johnston Rowe, Jr., D.D.S.

by J. Fred Arnold, III, D.M.D.
Lexington, KY
www.lexingtonsmiles.com

Dr. John Rowe presented a well-executed Class IV composite restoration for his Accreditation Case Type IV. Case selection was excellent, allowing Dr. Rowe to concentrate all of his efforts on the direct resin restoration.

Because Case Type IV is not a smile design case, a limited number of criteria become very important to the Examiners. Is the finish line invisible? Is the composite undetectable? Is the fracture line or underlying tooth structure visible through the restoration? How are the contours of the restoration? Are they symmetric with the contralateral tooth? Are the line angles well developed? Do the finish and polish match the natural teeth? Dr. Rowe handled these things well.

Predictable results take preoperative planning. Dr. Rowe's initial preparation included waxing up the fractured tooth to final contours on a diagnostic model, and then creating a putty matrix to index the incisal edge and the lingual anatomy. This takes the guesswork out of the proper incisal edge and lingual shelf position during build-up and layering of the composite. The proper primary anatomy is then easy to achieve.

Examiners passed this case unanimously, with no major faults. A common minor fault was too much incisal translucency compared to the contralateral tooth. One Examiner deducted points because the restoration had a slightly lower value, which is also related to the higher translucency. Moisture or debris in the photography were minor faults, along with the x-ray being of poor diagnostic quality. Examiners scores ranged from a -4 to a +1, with four out of five Examiners giving this case a +1 for its overall look. Remember, it takes an -8 to fail the case.

Dr. Rowe should be proud of his first passed Accreditation case. There is nothing like the confidence gained by passing your first case; it makes the others seem easier to achieve. The five-year time limit to complete the five clinical cases after passing the written exam goes by quickly. Please do not procrastinate in completing your cases; remember, the American Board of Cosmetic Dentistry® does not grant waivers for time extensions. To pass three or four cases and then have to start over again is not fun for anyone. It has happened—don't let it happen to you!

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Accreditation Success Story: No Man is an Island

by Scott W. Finlay, D.D.S.
Arnold, MD
www.annapolissmiles.com

Professional growth is not a linear experience. Rather, it is punctuated by phases of stress, frustration, accomplishment and, finally, satisfaction. When I began practicing 20 years ago in Annapolis, Maryland, I was a functionally based, Dawson/Pankey-style dentist. I believed that I had the tools and training to provide the best care possible; I was ready to conquer the world. What I did not realize was that this new phase of my dental education was not going to be "spoon fed" to me. I had to begin to learn from my mistakes, understand my limitations, and seek out mentors and training that would enable me to improve my skills. In furtherance of that pursuit, I completed continuing education continuums from St. Petersburg to Seattle, from Beverly Hills to Manhattan. I worked hard to integrate the concepts of complete dentistry into my everyday practice.

Joining the AACD seemed to be a natural fit for the direction in which I wanted to grow. Previously, my education had been a solo experience. What I was about to learn, thanks to the AACD, was that there are many great teachers in our profession who are not only willing to share their knowledge, but who also want to support us and help us to implement this knowledge to achieve our goals. Having "real world" mentors can speed our growth by sparing us from mistakes that others have already made.

When I joined the Academy in 1995, I was dogmatic about my treatment approach and buoyed by my clinical success; Accreditation seemed only to be a formality. What I did not anticipate was how much I would learn along the way.

"*You don't know what you don't know until you know it.*" Whoever first told me that could not have been more right. I began to realize, in Accreditation Workshops, when I looked at my cases projected onto the wall (with central incisors the size of Yao Ming), that maybe my professional skills did need to be refined. Now I was challenged.

I quickly began to appreciate that in order to move forward with my commitment to become Accredited, I was not going to be able to do it alone. I needed a mentor to encourage me and to help keep me focused. I needed my team to help me identify those wonderful patients who would allow me to diligently labor over the smallest of details to improve my skills. And most

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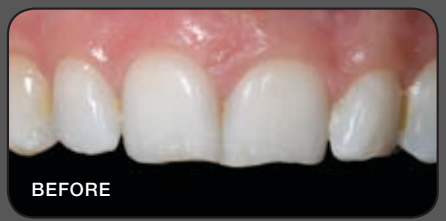

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importantly, I needed my family, who enabled me to focus so much of my time and energy on the quest to grow professionally.

It is easy to become distracted, frustrated, and burned out along the Accreditation journey. I am blessed with a supportive wife and daughter; and with my team, who supported my every step and took pride in the growth and accomplishments that we had achieved together. The proudest moment of my career came at the AACD's Annual Scientific Session in Atlanta in 2007, when I was called to the stage to receive my Accreditation award. My family and team, who had come to support me, greeted the announcement of my name with cheers, whistles, air horns, and confetti. The outburst might have been embarrassing to some, but I could not have been happier that they shared my pride and excitement in what we had accomplished together. Only those closest to us can really understand the sacrifices and investment that we make throughout this journey.

The real keys to success are focus, commitment, support from others, and passion for what we do. My experiences with the AACD and my journey through the Accreditation process have helped me focus more on what I enjoy doing most in dentistry: Giving people the smiles they want and deserve. My Accreditation journey has had immeasurable positive effects on my professional confidence, on the success of my practice, and on the lives of my patients.

We cannot go it alone on the road to Accreditation, and we do not have to, thanks to the support that the AACD can offer. To have leaders in the field of dental esthetics who will thoughtfully look at our work and provide encouraging and constructive mentoring teaches us more than just how to improve our skills; it demonstrates the passion and humility that a true leader needs to possess. I have been inspired by these experiences and relationships. Accreditation can be a virtuous pursuit and, for those who truly commit to achieving excellence, the rewards are greater than we can imagine.

Carpe Diem—seize the day: Have fun, realize that you need the support of those around you...and know that you have it.

❖

PACIFIC CHALLENGE 2009

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THE CHALLENGE

For fifteen years, many yachting challenges have captured the minds of the world's sailing community, but only a few racers have dared to accept the challenge of racing across the farthest expanse of ocean between any two points of land. A small crew facing extreme odds to make a 2070 mile shot across the open ocean from San Francisco Bay to the Hawaiian islands, the Pacific Challenge has been named one of the most difficult saliboat races in the world. The elite of the worldwide yacht racing community currently entered in this challenge are not the only ones putting their efforts where their mouths are. Lissa Bisson and Garrett Caldwell aboard their 47' yacht, Oceanaire, will be sailing to benefit "Give Back a Smile."

This nonprofit program helps individuals touched by domestic violence reclaim their lives, health, and self-esteem through repairing and restoring their smiles. The program has helped hundreds of people who might otherwise bear marks that last longer than scars or bruises. You can visit the foundation's website at www.aacd.com/foundation to find out more information.

Garrett Caldwell, a US Merchant Marine officer and US Coast Guard Captain, will combine his passion for sailing with this worthy cause.

Lissa Bisson, Director of Special Services, Frontier Dental Laboratories, who is passionate about this cause, together with Mr. Caldwell, will race their yacht to Hawaii to bring national attention to Give Back a Smile and their mission of giving surviors hope for a better tomorrow.

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Newly Accredited Fellows

Kevin M. Landers, D.D.S.

Dr. Landers graduated from the University of Illinois School of Dentistry in 1989. He then began a private practice in Chicago, with an emphasis on comprehensive, surgical, and cosmetic dental care. In addition to being an Accredited Fellow of the AACD, Dr. Landers holds memberships in the American Dental Association, Chicago Dental Society, and the Illinois State Dental Society. Dr. Landers has provided services to the "Boys Hope Girls Hope" organization, wellness fairs, and the AACD's Give Back A Smile™ program. He and his wife, Courtney, have two sons and a daughter.

Rebecca Kraivixien Pitts, D.M.D., D.Sc.

Dr. Pitts received her D.D.S. and completed her postdoctoral residency in Advanced Education in General Dentistry from Chulalongkorn University, Thailand, in 1988 and 1989 respectively. She also earned a D.M.D. from Boston University. In 1995, she received a D.Sc in Advanced Restorative Dentistry from Boston University. Dr. Pitts maintains a private practice in Lake Mary, Florida, and was voted by her peers as one of the area's top cosmetic dentists in Orlando Magazine. *She became an Accredited Member of the AACD in March 2007 and an Accredited Fellow in December 2007.*

Sam Sadati, D.D.S.

Dr. Sadati is a 1994 graduate of Creighton University School of Dentistry and has been in private practice in Palm Beach, Florida, for 14 years. He has taken more than 1,500 hours of continuing education, including the Florida State University advanced postgraduate esthetic continuums I, II, and III; and the patient mastery continuum at the State University of New York at Buffalo. Dr. Sadati became Accredited by the AACD in 2005 and attained Fellowship in 2007. He also is a Fellow of the Academy of General Dentistry and of the International Academy for Dental-Facial Esthetics. He, his wife, Olivia, and their two daughters live is Boca Raton, Florida.

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Clinical Science and Art

In This Section:

Adult Facial Augmentation: Comparison of the Use of Hyaluronic Acid Injections and a Removable Orthodontic Device

by Theodore R. Belfor, D.D.S.
Catskill, NY
www.facialdevelopment.com

Author Disclosure

Dr. Belfor is chairman and president of OrthoSmile™ Inc., which holds the patent for the Homeoblock™ appliance, the device discussed in this article. Dr. Belfor is the inventor and owner of the Homeoblock appliance.

Abstract

This article compares the temporary facial enhancement that is achieved by injection of hyaluronic acid, to the enhancement that is provided by The Homeoblock™ functional removable orthodontic appliance (Space Maintainers Laboratory; Chatsworth, CA). Two case reports—one for each procedure type—are presented.

Today, injectable agents, specifically soft tissue fillers, represent the most commonly performed cosmetic procedures in the United States.

Introduction

Non-removable Appliances

In 1961, Haas stated that the Haas appliance increased nasal and maxillary width in 9- to 18-year-old subjects. Bishara and Staley compared the Haas, Minne, Hyrax, and Quad-Helix appliances, concluding that maxillary expansion resulted in increased nasal width with significant effects on the palatine lacrimal and zygomatic bones.[1] None of the aforementioned is a removable appliance and, despite the veracity of these findings, the soft tissue changes that might also occur have not been related to the underlying skeletal changes.[2]

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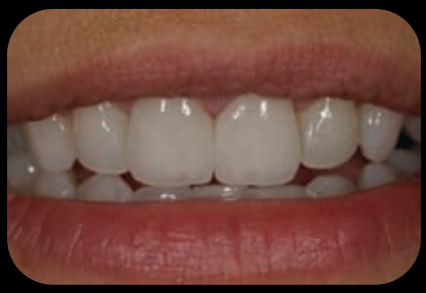

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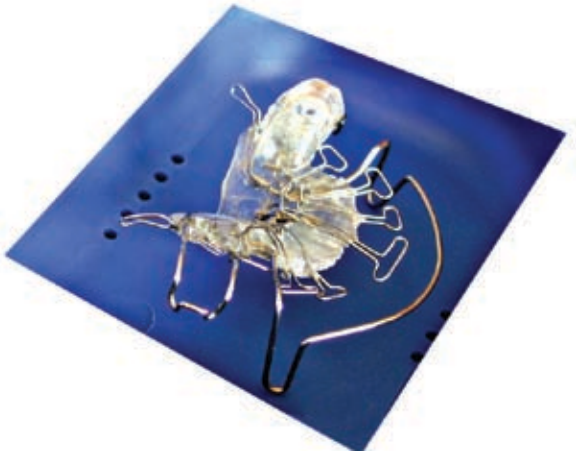

Figure 1: The Homeoblock™ Oral Appliance.

Stereo-Photogrammetry

In the cases presented here, a three-dimensional (3D) facial capture system (3dMDface System, 3dMD; Atlanta, GA) and stereo-photogrammetry were used to generate clinically accurate digital models of the patients' facial surfaces. This uses stereo-triangulation to identify external surface features viewed from stereo pairs of cameras. This technique projects a unique, random light pattern that is used as the foundation for triangulating the geometry in 3D. The capture takes less than 2 milliseconds per frame. The data are processed, creating a precise 3D point cloud digital model of the patient that is ready for immediate clinical use. Stereo-photogrammetry has been found to be "a suitable three-dimensional registration method for quantifying and detecting development changes in facial morphology."[3]

Hyaluronic Acid

There are a variety of non-surgical treatments for reducing facial lines and wrinkles, including botulinum toxin A, "wrinkle creams," chemical peels, and massage. "Hyaluronans, which have to a large extent replaced collagen, both bovine and human, have become the most popular agents used for soft tissue augmentation in the entire facial area."[4] The recommended technique involves a somewhat painful injection into the skin with a very fine needle. This may be done in one injection, or in a series of "beads" along the length of the area to be augmented. Today, injectable agents, specifically soft tissue fillers, "represent the most commonly performed cosmetic procedures in the United States."[5]

Homeoblock

The Homeoblock appliance (Fig 1), which enhances facial volume, can also reduce lines, wrinkles, and depressions, and produce a more youthful facial appearance. The device consists of Adams clasps on the second bicuspids, a palatal expansion screw and a Hawley labial bow from cuspid to cuspid, flap springs in contact with the incisors and bicuspids, and a unilateral bite block. Dr. Donald Enlow has said, "A capacity for facial remodeling in adults is retained throughout life."[6] The Homeoblock is designed for adult facial and jaw development while straightening teeth, is worn only at night, and can produce noticeable facial changes in adult patients in four to six months.[7] Contraindications for use of the Homeoblock appliance are active gingival or periodontal disease, poor oral hygiene, or severely rotated or impacted teeth.

Case Reports

Case 1

A 43-year-old female presented for a consultation. She reported that she received hyaluronic acid injections from time to time to remove facial lines, wrinkles, and depressions. A 3D stereo-photogrammetric image was taken before this treatment and three to four weeks after the treatment (Fig 2). Surface texture and color were removed for comparison (Fig 3). Morphometric analysis was conducted to determine volumetric change. The red-to-orange color indicates a 1.3-mm increase in surface dimension around the eyes, lips, cheeks, and chin (Fig 4).

Case 2

A 36-year-old female requested treatment to improve her smile. On examination it was found that the

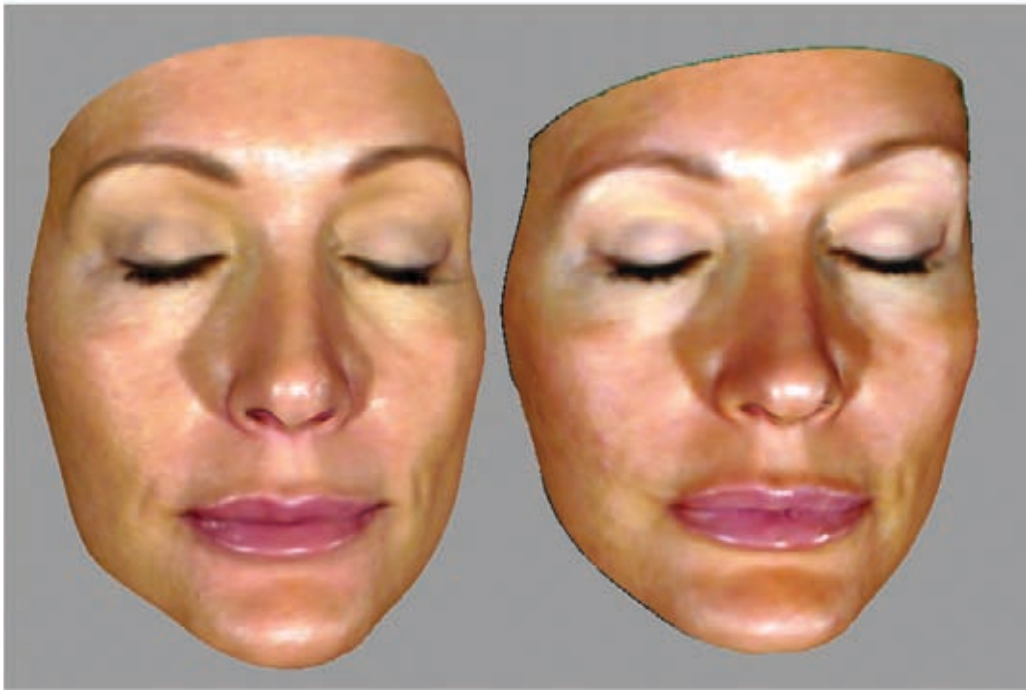

Figure 2: Before and after facial enhancement with hyaluronic acid injections. The post-treatment image shows fuller lips and enhanced facial symmetry.

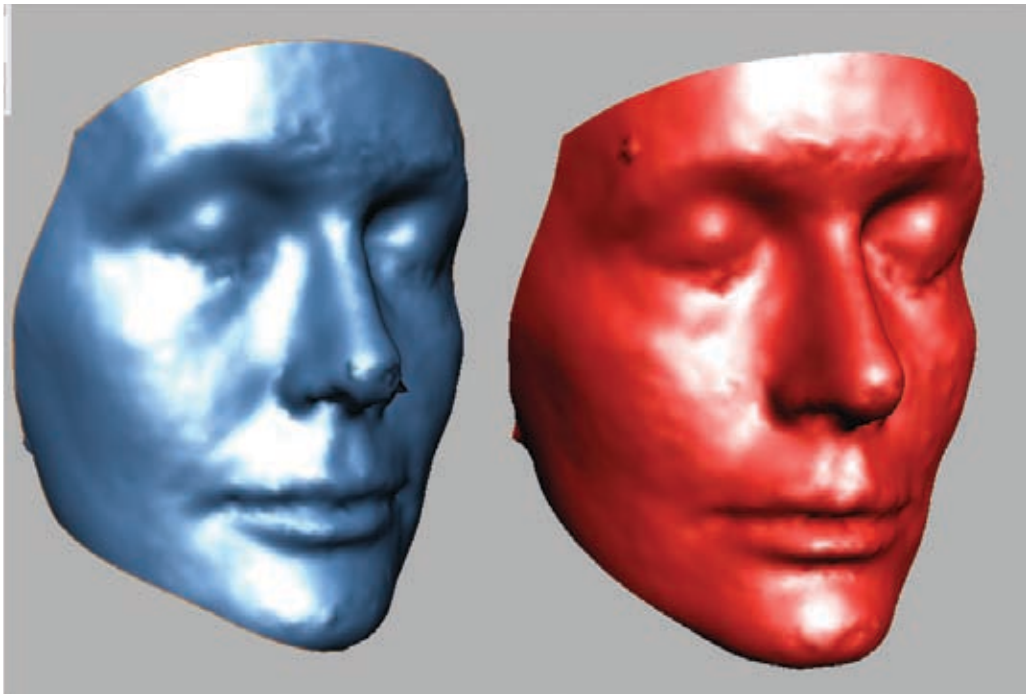

Figure 3: Post-treatment image shows reduced naso-labial depression.

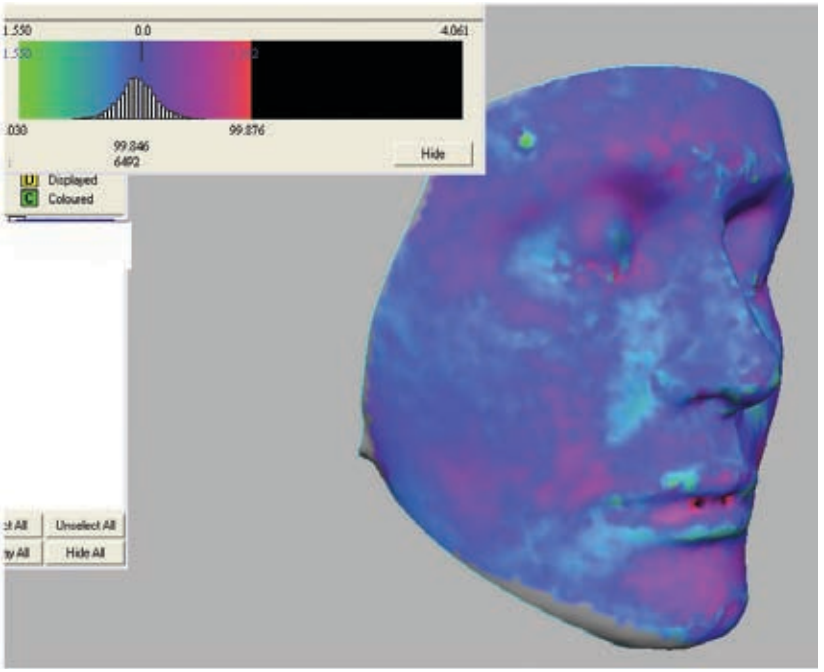

Figure 4: Morphometric analysis showing the increase in surface dimension around eyes, lips, cheeks, and chin.

upper arch was crowded. Three-dimensional facial stereo-photogrammetric images were taken. Impressions for study models were taken and Homeoblock appliances were fabricated (the patient was treated with upper and lower appliances to maintain the occlusal relationship).

The patient was instructed to wear the appliance every evening and throughout the night. Once a week, the expansion screw was advanced one full turn (0.25 mm). The patient reported for clinical adjustments and observation every three weeks; intraoral photographs were taken at each visit. The active treatment lasted 26 months, after which time a retainer was provided. During the course of treatment, intraoral photographs were taken (Figs 5 & 6). Nine months into treatment, a second 3D photograph was taken and assessed for morphometric changes (Fig 7). Surface color and texture were removed for comparison (Fig 8). Morphometric evaluation for volume change was done (Fig 9). The results are the same regardless of age and gender (Fig 10).

The Homeoblock is designed for adult facial and jaw development while straightening teeth, is worn only at night, and can produce noticeable facial changes in adult patients in four to six months.

Results

Facial changes were evident in both patients. Morphometric analysis indicated volumetric change, shown by the changes in surface dimensions. The surface dimension changes were comparable in both patients; however, the patient treated with the Homeoblock can expect very little if any reversal as long as she wears the appropriate retention. The patient treated with hyaluronic acid injections will need to redo the procedure in six months.

Discussion

Although the Homeoblock appliance often is viewed as a simple palatal expansion device for adults similar to a hyrax appliance, it is unlikely that the semi-rapid expansion with the Homeoblock deploys the same physiologic mechanism in adults.

It is likely that the appliance induces a phenomenon more in line with the functional matrix hypothesis.[8] The development of the hypothesis took a decade of study of the roles of intrinsic (genomic) and extrinsic (epigenetic) factors in ce-

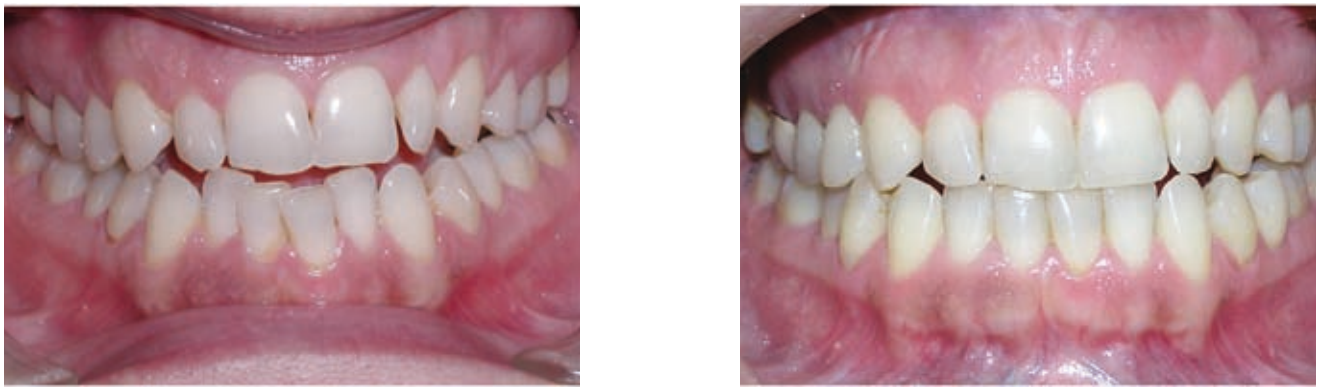

Figure 5: Images 26 months after treatment show increased size of upper and lower alveolus and straighter teeth.

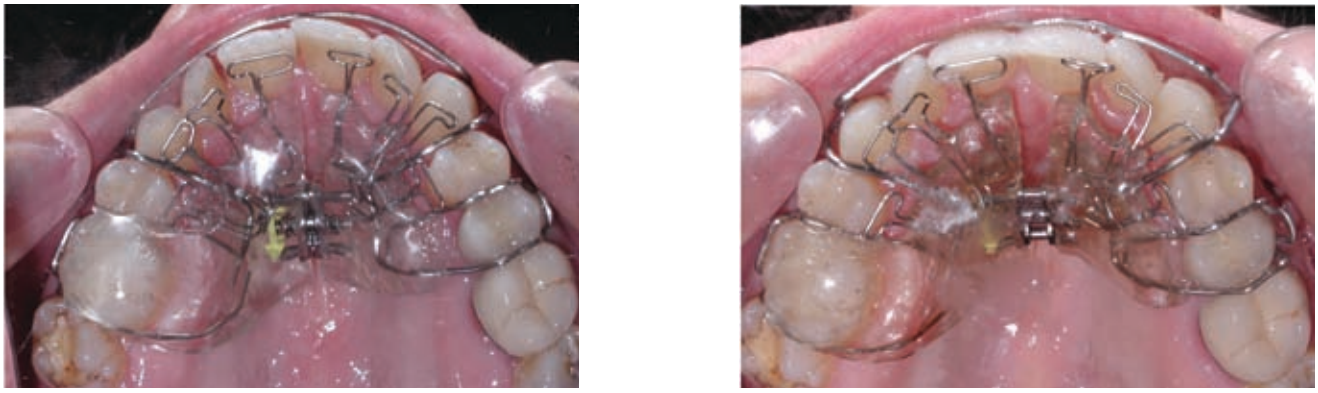

Figure 6: Before and after 12 months' treatment with the Homeoblock.

phalic growth. The functional matrix hypothesis stresses epigenetic primacy. Simply put, external forces (epigenetic) are more significant in the size, shape (e.g., form), and location of the maxilla than are genetic influences.

The unilateral bite block combined with the expansion screw of the Homeoblock provides a mechanical signal that is picked up by receptors around the teeth and around the bone. The mechanical signal is transformed into an electrical and chemical response that travels in the bone to the nucleus of a bone cell. The signal passes through the membrane of the nucleus to the genome via "signal transduction," stimulating the expression of redundant genes or DNA alleles that start the process of bone development even in adults.

It is within the province and ability of the general dental practitioner to enhance midface volume and reduce maxillary retrusion using orthopedic orthodontic devices.

Moss states that "Static and dynamic loadings are continuously applied to bone tissue, lending to deform both extra-cellular matrix and bone cells. When an appropriate stimulus parameter exceeds threshold values, the loaded tissue responds by the triad of bone cell (osteocyte, osteoblast, osteoclast) adaptation processes."[8] Both osteocytes and osteoblasts are competent for intracellular stimulus reception, transduction, and subsequent intercellular signal transmission. In other words, the cell response can be "networked" from one osteocyte to another and then on to the osteoblasts. Osteoblasts indirectly regulate bone deposition and maintenance and directly regulate osteoclastic resorption.[9]

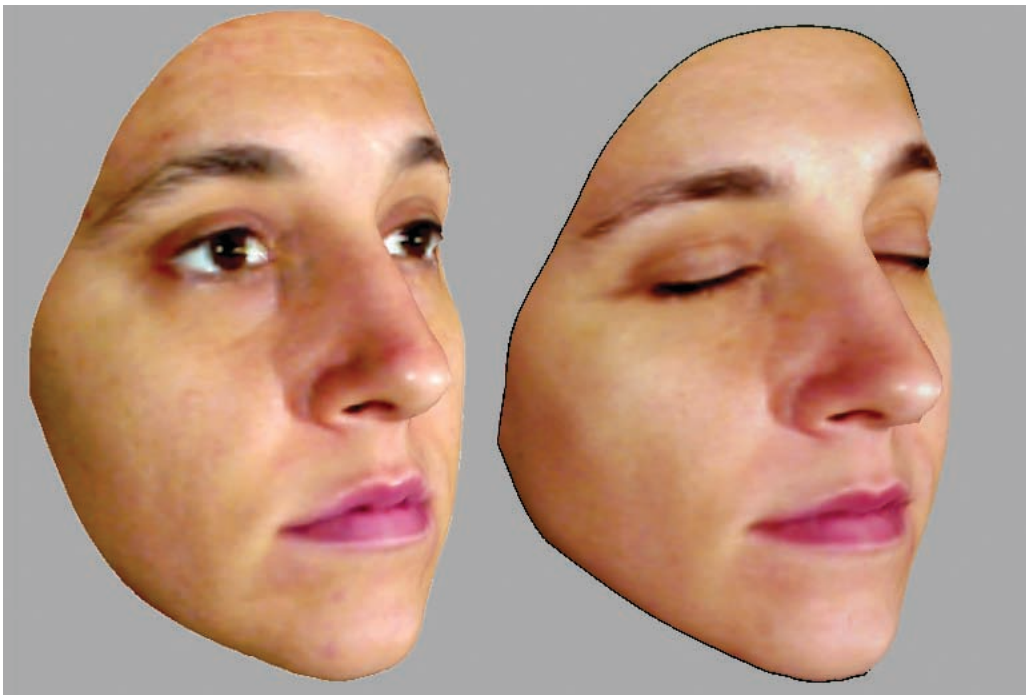

Figure 7: Before and after nine months' facial enhancement with the Homeoblock.

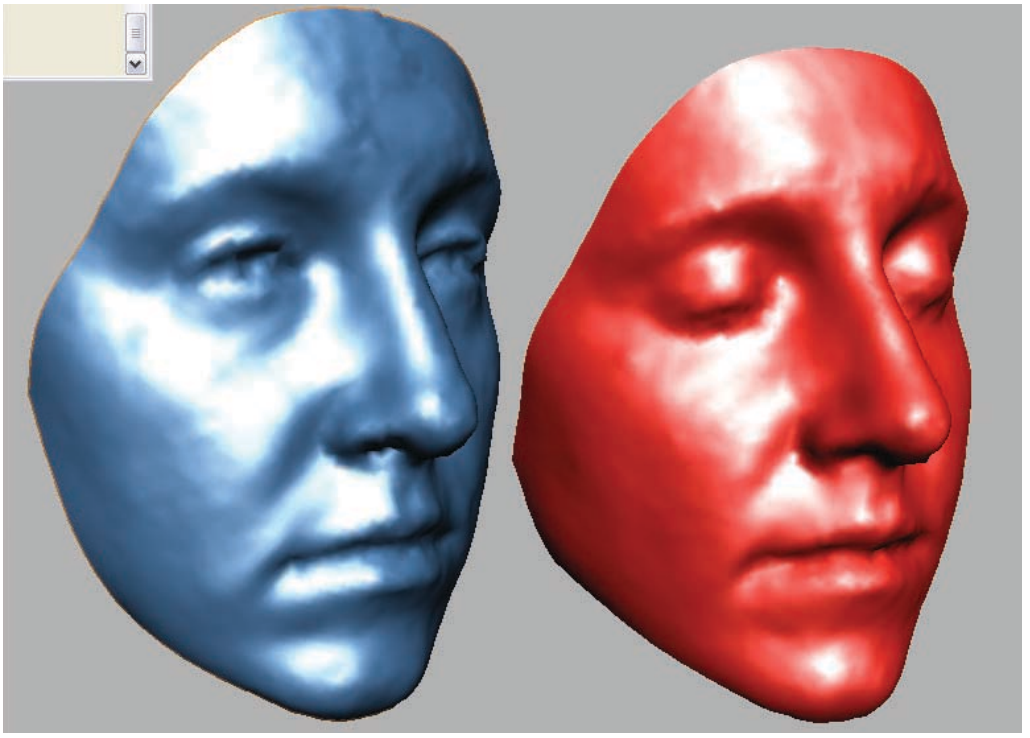

Figure 8: Surface color and texture removed. The post-treatment image shows a reduction in the naso-labial depression, a fuller upper lip, and less "pouching" at the corner of the mouth.

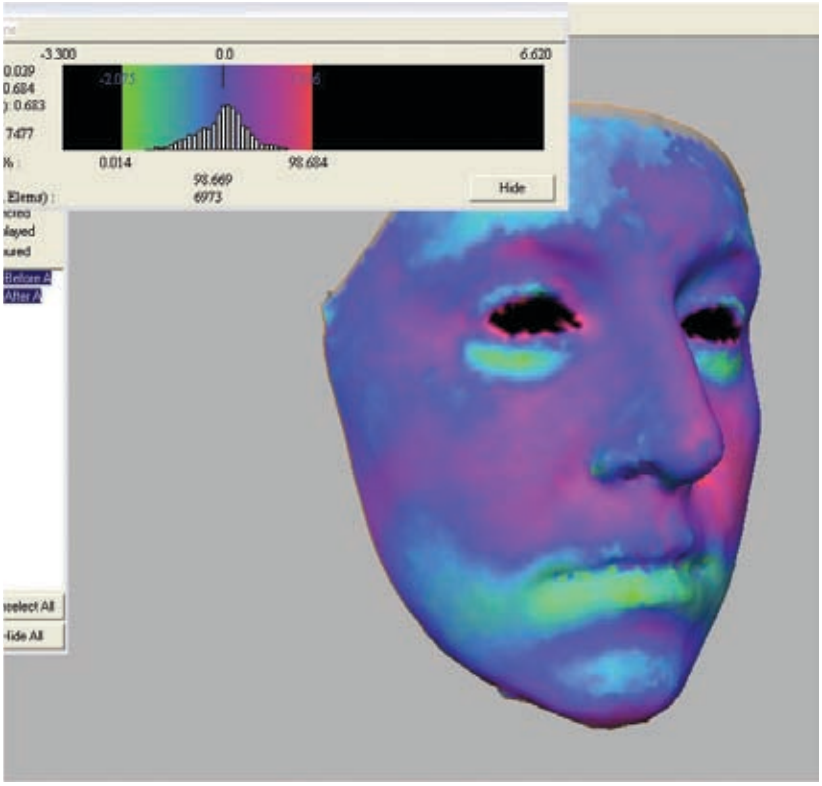

Figure 9: Morphometric evaluation. Red-to-orange color indicates an increase in surface dimension of 1.8 mm around the eyes, upper lip, and chin.

Osseous mechano-transduction is unique in that adaptational responses are confined in each bone organ independently. "This process translated the informational content of a periosteal functional matrix stimulus into a skeletal unit cell signal."[8] It is suggested that the bite block induces a spatial change that invokes a biomolecular response that can activate the osteocytic genome.[10]

Conclusion

Maxillary retrusion combined with soft tissue changes are natural consequences of midface aging.[11] Cosmetic surgeons are limited in the ability to enhance the midface, as they cannot directly treat the changes in the bone that are part of the aging process. There is great demand by patients to mitigate these effects. It is within the province and ability of the general dental practitioner to enhance midface volume and reduce maxillary retrusion using orthopedic orthodontic devices. This capability now positions the dental practitioner to work in a multidisciplinary environment in conjunction with the cosmetic surgeon. The dental treatment will, at least, give greater longevity to the treatment provided by the physician. New technology such as the cone beam volumetric bone scan provides us with the ability to statistically evaluate soft and hard tissue changes in three dimensions. This ability will give us a greater understanding of the aging process and allow for better treatment planning.

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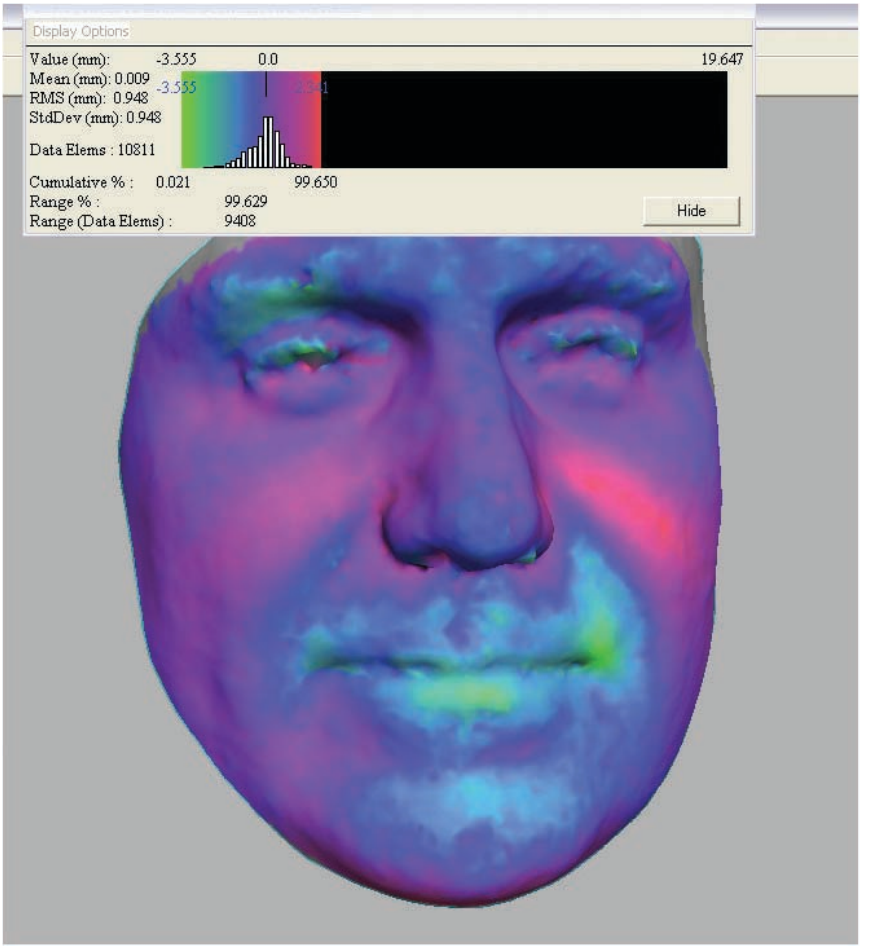

Figure 10: Similar changes can be seen in a male patient.

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Improving Your Portrait Photography

by James Fondriest, D.D.S.
Lake Forest, IL
www.lakeforestdentalarts.com

Introduction

Whether for documenting clinical circumstances, celebrating the completion of treatment, or marketing your skills to potential clients, improving your portrait photography skills has great value. Single lens reflex (SLR) cameras are becoming commonplace in dental offices for intraoral use. The same SLR camera that you use intraorally is excellent for exposing beautiful portraits, as well. Interesting and emotion-generating portraits can be created with these cameras by changing the light source, lens, and camera settings from the typical intraoral set-up. This article provides details on how to set up professional-style lighting in the dental office and capturing better portraits.

The same SLR camera that you use intraorally is excellent for exposing beautiful portraits, as well.

Lighting

Flash Systems

Typical intraoral camera set-ups have a ring or dual-point flash system mounted to the lens. The ring flash positions the light very close to the lens, allowing illumination of everything visible in the viewfinder. A dual-point flash has two separated light sources, making it slightly more difficult to get light into the back of the mouth with retracted shots, but the indirect lighting effect makes your porcelain look nicer and less opaque. Both flash systems yield a high-contrast, detailed image good for documentation purposes; but they typically also produce a very flat, harsh, and less appealing quality when portraits are taken. They leave a single specular reflection in the center of the pupils, which gives a "beady eye" look (Fig 1).

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Figure 1: Portrait taken using Canon 20, 100-mm macro lens, Canon MR-24EX twin flash. The patient's proximity to the black background caused a shadow to be formed on the background.

Figure 2: Postoperative portrait taken with two symmetrical strobes/softboxes as main lights, hair light strobe with parabolic and grid diffuser, Nikon D200 camera, Nikkor 28-70mm f/2.8D ED-IF zoom AF-S lens.

Because these camera systems usually have a 100-mm macro lens, the patient should stand at least 7′ away from the camera so that his or her entire head can be photographed. The actual required distance depends on the camera's chip size. The 7′ distance challenges the onboard flash system to throw sufficient light to your subject. Dental photography suppliers recommend setting the flash compensation at +1 to +1 2/3 to overcome this exposure deficiency, but this flash compensation may create a tendency to overexpose the intraoral images.

Better portraiture lighting can be achieved by removing the onboard macro flash. Macro flashes and lenses are specifically designed for taking close-up pictures of small objects. Studio lighting can offer a less harsh and contrasted result, and the light can be directed from many different angles (Fig 2). With a shorter lens, the photographer can move closer to the subject, making it easier to expose images at different angles.

The better artistic images elicit an emotional and/or intellectual response from the viewer.

Natural lighting offers the most artistic opportunities in portraiture, but time and logistic limitations make artificial lighting the most convenient for dentists. Studio lighting offers unlimited artistic expression when photographing your patients.

Continuous Lighting

Studio lights can be divided into two categories: continuous lights (spot lights) and non-continuous flash lights (strobes). It is easier to use continuous lighting (i.e., the studio lights are always on). With continuous lighting, you can move the lights around the patient to see how the face and teeth are directionally illuminated and evaluate the exposure (i.e., level of lightness or darkness of the photograph) before the picture is taken. This kind of lighting creates the dependability of "what you see is what you get." However, there are drawbacks to using continuous lighting in the small confines of a dental office. These lights are hot and will heat the room. As a result, your subject will tire more quickly and begin to perspire, so you will not capture as many photographs; nor will you have a chance to experiment with as many poses, lighting set-ups, or wardrobe changes.

Strobe Lighting

Strobe lighting is the most common studio lighting selection. Basically, a strobe light is a light system that synchronizes its flash with your camera's shutter opening or to other strobes. Just like the flash on your camera, strobes power up a charge and release a flash of light when the camera demands it. Strobes have rheostats or digital exposure adjustments that allow you to adjust the amount of light that is thrown. You can set your ideal camera settings manually and then adjust the strobe light output to create an ideal exposure. Your subject stays fresh longer because he or she will not become tired due to heat. Also, because you can keep the lighting low between

Figure 3: The strobe light can be supported by a tripod for ease of positioning, and softboxes can be mounted on it to diffuse and soften its harsh flash.

Figure 4: Higher-contrast portrait taken with a beauty dish as the main light, two hair light strobes with parabolics and 30⁰ grid diffusers, Nikon D200 camera, Nikkor 28-70mm f/2.8D ED-IF zoom AF-S lens.

shots, the pupils stay dilated, which many in the professional portraiture industry believe produces a younger, healthier look. Strobe lights can be triggered by your camera via a wire, radio transmitter, or by other strobes firing (i.e., "slave triggering"). Strobes typically are mounted on tripod light stands (Fig 3); or, in the small space of a dental office, sometimes on walls and ceilings. When they are wall-mounted, the ability to experiment with lighting is limited. Wall mounts (e.g., Mathews baby plates [Mathews Studio Equipment, Inc.; Burbank, CA]) cost an average of $17.50 each, versus tripod light stands, which cost approximately $40 each.

Many different diffusion devices that yield different light qualities can be attached to strobes. Umbrellas (e.g., reflective and trans-illumination variations) are inexpensive and easy to use, and they soften the harsh light of the strobe. Softboxes are used more often in studios, require less room, and offer the greatest softening effect. Softer light shows fewer visible wrinkles or skin imperfections[1,2] and yields very nice reflections off porcelain restorations. The closer the strobe with an attached softbox can be placed to your subject, the softer the light will be. The larger the softbox, the softer the light is.[3]

Creating a quality portraiture area in your office is well worth the investment.

Parabolics and beauty dishes are other common strobe diffusion attachments used in the modeling business, but these tend not to flatter older patients because they produce light that is high in contrast and shadows that exaggerate skin imperfections.[2] An example of a high-contrast image taken with a beauty dish as the main light is seen in Figure 4.

LIGHTING SET-UP

Setting up a studio light system in a dental office requires very little room. I use a small area adjoining a narrow hallway previously used as a Panorex nook. It provides a rectangular space of 6′ x 4′ (Fig 5), in which there are two main strobe lights with 24″ x 32″ softboxes attached, each supported by moveable tripods. Having them on tripods enables me to move them around easily and quickly. For documentation photography, I keep them equidistant from the patient and the camera. The general rule is that a softbox should be placed no further from the subject's face than the sum of its dimensions (i.e., 24″ + 32″ = 56 inches). I tend to keep them less than 36″ from, and at the same height as, the face. Often you can tell what lighting was used in a portrait by looking at the specular reflections in the eyes. Figure 6 was exposed with closely placed symmetrical softboxes. This lighting set-up fully illuminates the buccal corridors (Fig 7).

A third strobe, the hair light, is mounted 2′ (3 to 4′ would be better) above the patient's head on the back wall. The height is limited by my ceiling. This hair light strobe is synchronized to the camera shutter via a radio transmitter (e.g.,

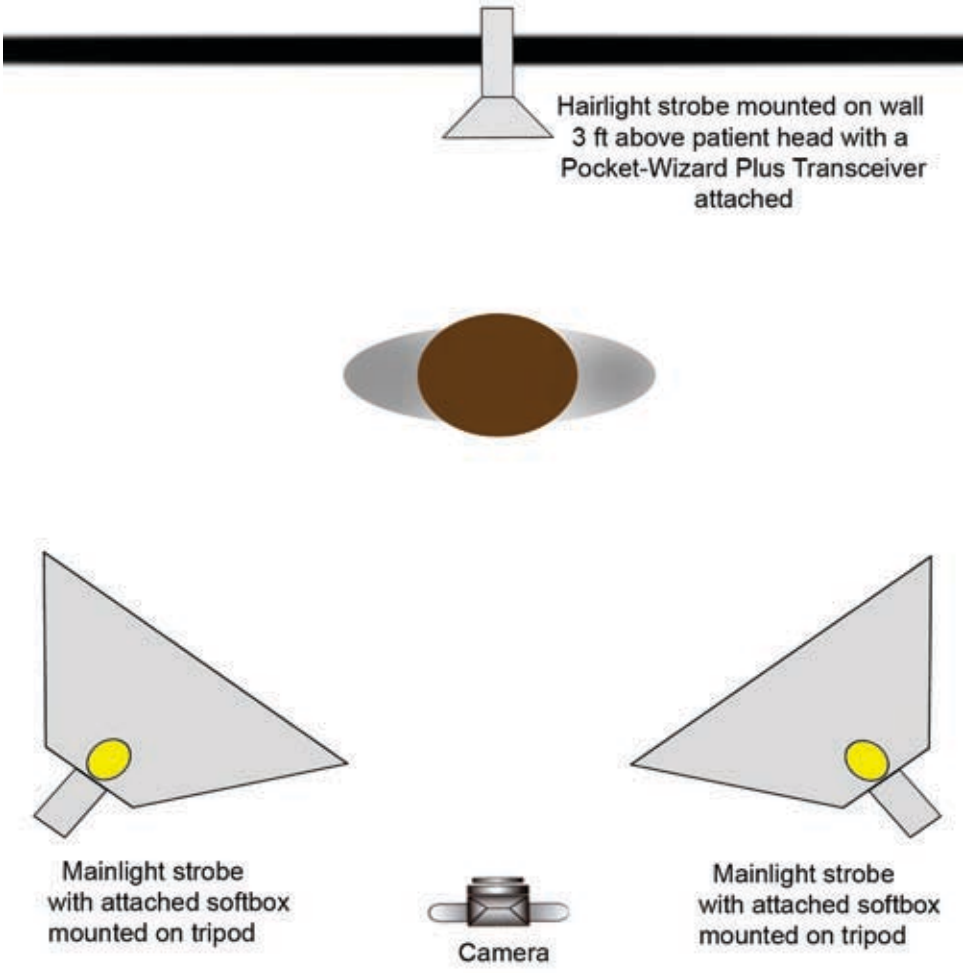

Figure 5: Ideal portraiture set-up for dental office. Background has hooks to hold black velvet curtain. Set-up requires a minimum space of 6′ x 4′.

Pocket Wizard Plus transceivers, Pocket Wizard; Elmsford, NY) that is mounted on the hot shoe of the camera. The two main light strobes are slave-triggered (i.e., they will fire when the hair light strobe fires for the exact same length of time).

The hair light is a light pointed from above that illuminates the hair and/or shoulders. Hair lights are used to create a visual separation between your subject and the background. If your subject's hair or clothing has little contrast from the background, the distinction between the two is lost (Fig 8). The illumination that the hair light produces without the main light(s) firing is demonstrated in Figure 9. The individual in Figure 9 also was photographed with the main lights firing, as seen in Figure 10.

The hair light has a parabolic diffuser with a 20^0 grid. The grid collimates the light into a small circle, illuminating only the subject's head and shoulders. This keeps direct light from coming back into the camera lens, which would cause lens flare. Using a lens hood also helps to reduce lens flare from a hair light that cannot be placed high enough above the patient's head due to ceiling height limitations. I have a small rectangular area on the floor, demarcated with duct tape where the patient should stand so that the hair light will hit its target. If the patient stands outside of the rectangle, his or her hair will not be illuminated well.

Lens

A fast close-up zoom lens (e.g., Canon EF 24-70mm F/2.8L USM [Canon USA; Lake Success, NY]; Nikkor 28-70mm f/2.8D ED-IF AF-S lens

Figure 6: Portrait taken with two symmetrical strobes with 24″ x 32″ softboxes as main lights, hair light strobe with parabolic reflector and 20⁰ grid, Nikon D200 camera, Nikkor 28-70mm f/2.8D ED-IF zoom AF-S lens.

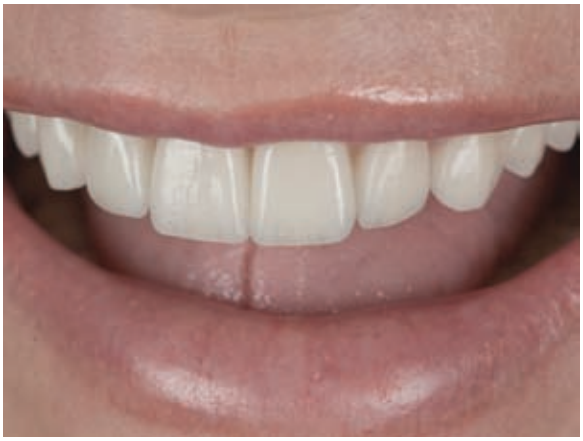

Figure 7: Note the symmetrical illumination of the buccal corridors obtained using a Canon 5D camera and Canon EF 100mm F/2.8 macro prime lens.

[Nikon Inc.; Melville, NY]; or equivalent) is best for dental portraiture.[4] Space is always limited in the dental office, so select a lens that allows you to get closer to your subject but still enables visual capture of more than chin to hairline. The closer you can get to your subject, the more acute the angles from which you can take images. The shorter lens also will allow your patient to stand further away from the background so that the flash shadow does not appear on the background (e.g., Fig 1). Be careful not to cause image distortion by coming too close to the face with your lens; set at 30 mm or below.[4,5] Using a shorter lens can create a "fish eye" look. I tend to keep my zoom lens setting between 45 mm and 70 mm (Figure 11).

BACKGROUNDS

I prefer non-patterned and non-distracting backgrounds and suggest black, gray, or white. My Panorex nook has been painted a glossy white that appears gray in photographs when unlighted (Fig 12), or bright white when illuminated by another slave strobe on a tripod hidden behind the patient (Fig 13). We also have hooks in the walls that support a large black velvet curtain. Ideal backgrounds of different colors can be purchased in the form of rolled paper on a rod that can be held up by wall "J" hooks or tripods.[6] If you do not use a hair light, use backgrounds that provide contrast to your subject's hair color.

SET-UP VARIATION

The set-up described above (Figs 5 & 6) is the most ideal set-up for taking dental portrait photography. It is important to illuminate the buccal corridors evenly to avoid a distorted or even an asymmetric appearance of the teeth. When you are capturing facial images, you may want to experiment with uneven lighting. Professional portrait photographers prefer the more sophisticated, artistic effect they achieve by placing the two softboxes at different angles and setting the strobes with different F-stop exposure settings.[1] By adjusting the tripod placement to different angles and distances, one strobe becomes the "main" or "key" light and the other becomes the "fill" light, creating interesting effects (Fig 14).

SETTINGS

While there are no "rules" for settings in portraiture, the lens aperture setting for photographing one person generally is wide open (2.8 to 8). This yields a shallow depth of field that softens the silhouette of the hair and makes the background less defined. The lens is set on center-weighted autofocus; always center your lens on the teeth. The camera is set to manual mode (e.g., ISO 100, RGB color space [Adobe Systems]), image-quality RAW + large JPEG, with the shutter speed anywhere from 1/125th to 1/250th of a second. Be sure that your radio transceiver will synchronize at the shutter speed you select. By setting the shutter speed faster than 1/160th of a second, the influence of ambient light in your studio becomes neg-

Figure 8: No hair light was used to distinguish the patient's hair from the background, and the distinction between the two is partially lost.

Figure 9: Portrait taken with only hair lights aimed at the top of the head and shoulders to distinguish the subject from the background.

Figure 10: Portrait taken with a hair light and two asymmetrical strobes with softboxes. The main light is to the right and the fill light is just left of the camera.

ligible.[3] Note, however, that even when I am working at a shutter speed of 1/250th of a second, I keep the room lighting subdued in order to dilate my subject's pupils.

Image Files

The newest cameras capture two types of image files: RAW and JPEG. RAW files offer the best and fullest digital rendering of the image captured and are preferred over JPEG files, which are already processed and compressed, with most of the data having been thrown away.[7] RAW files actually are considered to be the digital "negative" but are not in a useable format; they must be converted to a file format such as JPEG, TIFF, PSD, or PNG to be used in visual presentations or printed.

Image File Conversion

There are many software purveyors that have written software for RAW file conversion or development, but currently the most popular one is Photoshop Elements (Adobe Systems Inc.; San Jose, CA) RAW converter. The conversion process allows much of the same latitude that developing real film allows, such as adjusting exposure, saturation, and contrast, depending on the software. Anyone with minimal computer knowledge can learn to develop a RAW image in minutes. It is not possible to make a change to a RAW file and resave it—it can only be saved as a new file type; RAW files are digital proof that an image has not been retouched or "interpreted" by software. No photographer throws away their negatives before they see the prints, and no dental educator should ever delete their RAW files, which have potential educational use.

Once the RAW converter "develops" your image, save a downsized and compressed version called "copy" so that you do not overwrite your original JPEG. A 500 KB to 1 MB JPEG file is a suitable file size for placing into a PowerPoint (Microsoft Corp.; Redmond, WA) or Keynote (Apple Computer Inc.; Cupertino, CA) presentation, or for e-mailing to your specialists and laboratory. The image later can be cropped, rotated, and perhaps turned into a grayscale image to fit your needs.

Investment

With a minimum investment in equipment and office space, you can make major improvements in your ability to communicate clinical circumstances to your patients

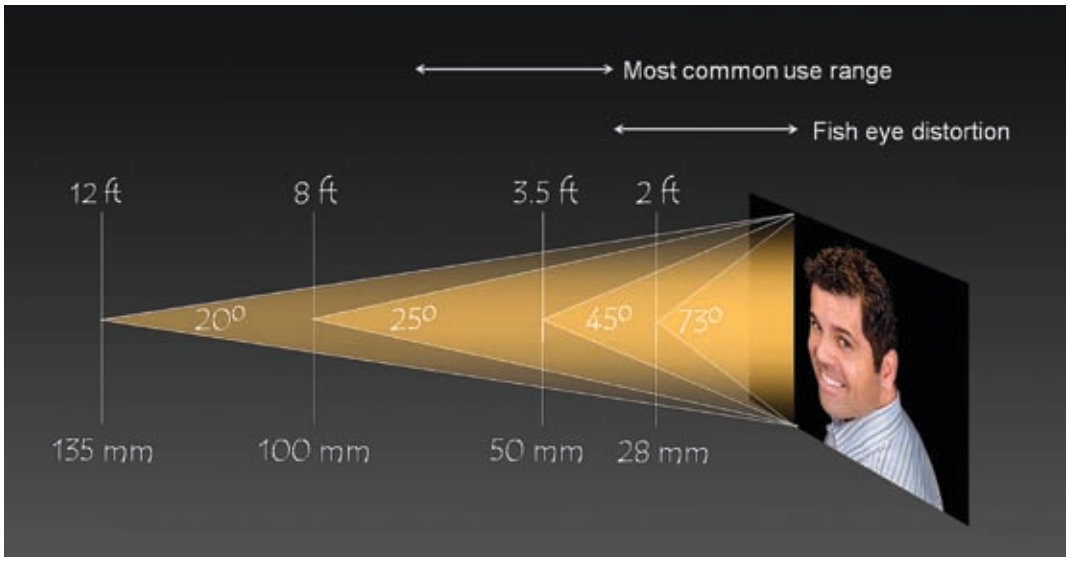

Figure 11: The angle of view varies with lens length (the shorter the lens, the wider the angle of view).

and those with whom you work. You will find that creating a quality portraiture area in your office is well worth the investment, and it will enable you to better share the beautiful dentistry you create with others. Either of the following strobe lighting set-ups will facilitate quality portraiture photography in the dental office.

1. Budget Version (approximately $900):

Elinchrom D-Lite 4 compact monolight Flash Kit (Adorama Camera, Inc.; New York, NY), includes:

- two Elinchrom D-Lite 400 Ws monolights (strobe lights with flash strength of 400 watt seconds)
- two Manfrotto 9′ light stands to support strobes with attached softboxes
- one 25.5 x 25.5″ softbox
- one 21 x 21″ softbox
- two sync cables (this connection from the camera to strobes fires the lights synchronized to the shutter)
- lighting guide DVD/user booklet.

Optional additions:

- one or two Mathews baby plates with 5/8″ studs (wall-mounting arms if space is too limited for light stands)
- Microsync (www.microsync-digital.com) strobe sync radio transmitter.

2. Professional-Quality Version (approximately $3,700):

- three Elinchrom 300RX digital style monolite strobes (used as key/main lights)
- three Chimera (Boulder, CO) quick-release speed rings for Elinchrom digital style monolites (connectors between strobe and softbox)
- two or three light stands to support strobes (if two, then order the wall-mounting arm)
- one Mathews baby plate with 5/8″ stud (wall mount for hairlight)
- two Chimera 24″ x 32″ shallow throw softboxes with baffle and two diffusers
- one Elinchrom reflector and grid set, includes: 8.25″ reflector; 8^0, 12^0, 20^0, 30^0 round honeycomb grids (attached to the hair or background monolites; collimate the light)
- two Pocket Wizard Plus transceivers (sits on camera hot shoe; syncs camera with strobes)
- Savage Port-A-Stand kit; seamless backgrounds (recommend black, white, or gray) with support.

CONCLUSION

An image's ultimate use is the best determinant of how it should be composed. If the images are to be used for treatment planning, communication, or educational purposes, then the images are enhanced when taken with specific patient positioning, focus points, and exposures while simultaneously providing symmetrical illumina-

Figure 12: The lighting used here consisted of two symmetrically placed strobes with 24″ x 32″ boxes, a hair light strobe with parabolic, and 20⁰ grid.

Figure 14: Artistic portrait taken with asymmetrically placed and lit main light and fill light, both with 24″ x 32″ softboxes attached; and a background strobe with a bare parabolic diffuser.

Figure 13: The glossy white background wall is illuminated with a strobe, with a 12″ x 36″ softbox behind the patient shooting up from the floor.

tion.[8] Other dentists may appreciate a straight-on documentation-style photograph, but if your intention is to show your successful treatment results or artistic flare, then it is not as critical to follow documentation guidelines. Telling prospective cosmetic clients that the beautiful images they are viewing of your other patients were taken in your office can have a powerful positive impact. Most of these patients will understand that quality esthetic dentistry requires artistic aptitude. Good portraiture showcases your artistic talent.

Capture your viewer's imagination. The better artistic images elicit an emotional and/or intellectual response from the viewer. Try to make the viewer wonder about your other patients' journeys from beginning to end, as well as to speculate about what is beneath the surface.

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Surgical Management of the Extraction Site for an Implant-Supported Prosthesis in the Esthetic Zone: A Case Report

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Abstract

An esthetic and functional implant-supported prosthetic replacement of a hopeless tooth in the esthetic zone presents a unique challenge. Often, with thin biotype and/or bone loss from periodontal or endodontic origin, an extraction will likely be followed by a collapse of the alveolar ridge, thus compromising the prosthodontic replacement of a hopeless tooth in terms of function as well as appearance. Therefore, a socket preservation procedure should be part of the treatment plan. On the other hand, with society's premium on time, so-called "instant orthodontics" is more often preferred to traditional lengthy orthodontic treatment. The case presented here describes extraction of a non-salvageable tooth #8 and repair of the buccal dehiscence in conjunction with a socket graft, followed by an implant/crown restoration. This case also addresses a simultaneous correction of a severely rotated #9 with a full crown instead of orthodontic therapy.

Treatment outcome in the esthetic zone is not as predictable as in other areas of the oral cavity.

Introduction

More often than not, people seek dental care when they have pain, swelling, and tooth or prosthesis failure. Their initial concern is, understandably, focused on the primary cause and relief of their discomfort. Once the immediate problem has been addressed via pharmacology, endodontics, or restoration, a long-term treatment plan should be arrived at so that we can treat the cause, not just the symptoms. However, to arrive at a proper treatment plan for each individual patient, the doctor-patient relationship and treatment expectations must be very clearly stated and understood, especially when the problem is in the esthetic zone. Indeed, by its very nature and location, treatment outcome in the esthetic zone is not as predictable as in other areas of the oral cavity, because patients' expectations are—understandably—much

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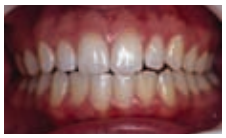

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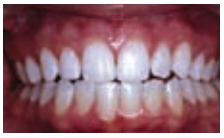

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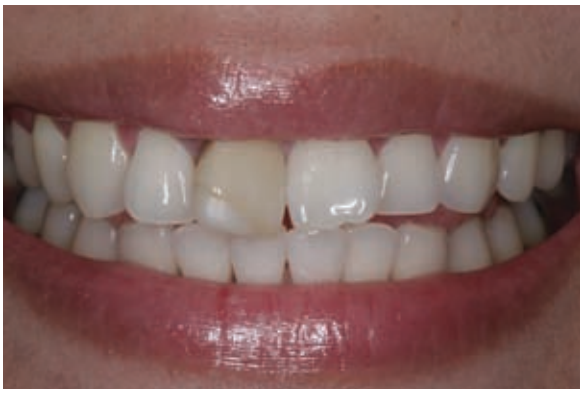

Figure 1a: Full smile, before, showing unesthetic appearance.

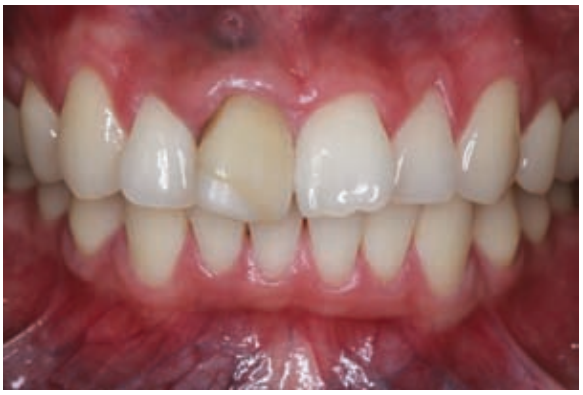

Figure 1b: Retracted view, before, showing fistula in apical area #8.

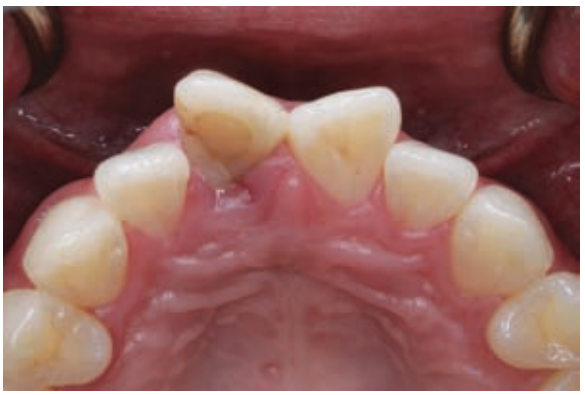

Figure 1c: Occlusal view, before, showing severity of rotation and less-than-optimal space for two proportional central incisors.

higher. In addition, the final result is not only dependent on the clinician's training and ability, but also on each patient's unique biological and emotional responses.

Case Report

Chief Complaint and Evaluation

The patient was a 22-year-old female in very good health. Her chief complaint was the unpleasant appearance of her central incisors (Figs 1a–1c). After all diagnostic information (including mounted study and diagnostic models, full-mouth radiographs, occlusal analysis, and photographs) had been obtained and evaluated, the patient was scheduled for an appointment at which different treatment options were presented in depth.

Treatment Options

The following four treatment options were presented to the patient:

- Extraction of tooth #8, socket preservation graft, and orthodontic treatment to align tooth #9.
- Same as above, but using Invisalign (Align Technology; Santa Clara, CA) retainers.
- Extraction of tooth #8, socket graft, and a bridge on ##7–9.
- Extraction of tooth #8, socket graft, implant-supported crown on #8, and crown on #9.

The patient chose the fourth option, which comprised extraction of the hopeless tooth #8 (Fig 2), socket preservation and repair of the facial bone dehiscence, an implant-supported crown on tooth #8, and a full crown on tooth #9.[1-7] The patient

Figure 2: Radiograph, before, showing extensive resorption and osseous defect.

was fully informed and aware of the possibility of pulpal exposure and subsequent endodontic treatment in tooth #9. This was because a large amount of tooth structure would have to be removed during crown preparation in order to correct the severe rotation.

First Treatment Phase

Pharmacologic Protocol: Once the treatment selection was finalized, the patient was scheduled to begin the first treatment phase. As surgery would be involved, the patient was to start taking amoxicillin 875 mg (one tablet twice a day for seven days) the day before surgery; and dexamethasone 4 mg (three tablets on the morning of surgery, two tablets the next morning, and one tablet the third and fourth mornings).[8] The presurgical pharmacologic protocol was directed at reducing the risk of infection, postoperative discomfort, and swelling. The amoxicillin is, of course, for minimizing risk of infection. The dexamethasone is aimed at inhibiting all phases of inflammation by blocking the increased capillary permeability produced by histamine and kinins, thus decreasing edema and associated postsurgical pain.

Despite the severe misalignment and aggressive tooth reduction, the pulp chamber of tooth #9 was not violated.

On the day of surgery, the patient was given two tablets of ibuprofen 200 mg (the ibuprofen helps to inhibit the synthesis of prostaglandins from arachidonic acid and, therefore, minimizes discomfort and edema associated with inflammation[8]); and a rinse of 0.12% chlorhexidine gluconate. The perioral area was also scrubbed with 0.12% chlorhexidine gluconate solution.

Enameloplasty and Extraction: Following local anesthesia using Citanest 4% plain (Dentsply Pharmaceutical; York, PA) and Marcaine 0.5% (AstraZeneca; Wilmington, De) with 1/200,000 epinephrine, enameloplasty was performed on the mesial surface of teeth #7 and #10 to slenderize them. This was done to create the optimal space for the two central incisors before tooth #9 was prepared for a full crown. Fortunately, despite the severe misalignment and aggressive tooth reduction, the pulp chamber of tooth #9 was not violated; this would have necessitated endodontic treatment. After this, tooth #8 was gently extracted (Fig 3a). Using a curette, the socket was cleaned of any granulation tissues and residual root canal filler, and the severity of the dehiscence was analyzed. In addition, in order to increase vascular supply for the graft, the free gingival margin around the socket was de-epithelialized with a round diamond bur.

Socket Preservation and Repair of Facial Bone Dehiscence: It was clinically evident with palpation and bone sounding that the facial bone defect was approximately 4

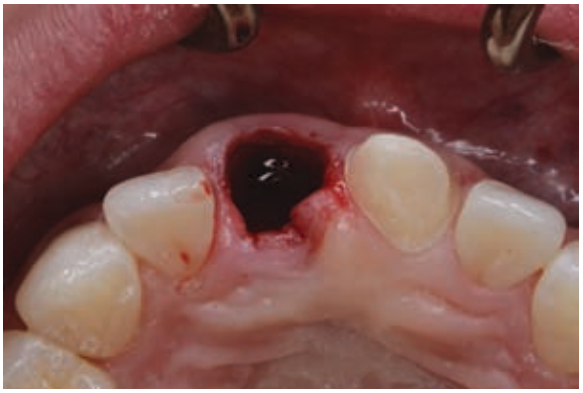

Figure 3a: Tooth #8 extracted with preservation of papillae; and #9 crown preparation.

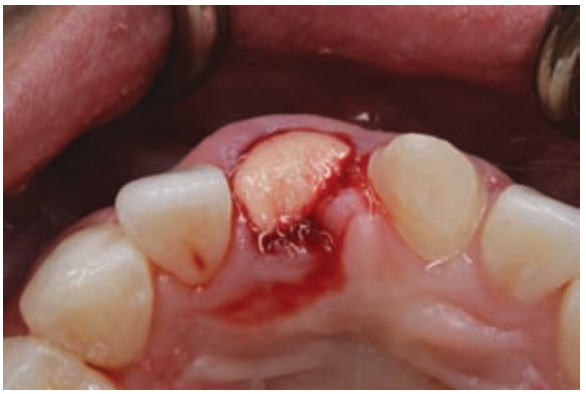

Figure 3b: Socket preservation with Alloderm membrane covering Grafton placed in socket.

mm in diameter, therefore a membrane was necessary to protect the osseous graft.[9-18] I used Grafton (BioHorizons; Birmingham, AL), a demineralized freeze-dried bone allograft (DFDBA), instead of an autograft because it would eliminate the need to harvest bone from the patient. DFDBA may induce healing through osteoconduction, osteoinduction, or possibly a combination of both processes.[19] An Alloderm (LifeCell; Branchburg, NJ) membrane was used to avoid a secondary surgical site, due to its ability to become part of the native tissue; as well as the material's ease of placement, shaping, and suturing.

After the space for the membrane had been "tunneled" in both facial and palatal sides of the socket (extending at least 3 mm past the bony margins as well as the bony perforation), a piece of Alloderm was inserted and adapted against the facial bone, and Grafton was used for socket preservation.[20]

Before filling the extraction socket, in order to further increase the vascular supply for the graft, bleeding points in all walls (except the facial wall) were created with a #1 round bur on a surgical high-speed handpiece. Once the Alloderm edge was folded palatally to completely cover the socket hole and the particulate allograft (Fig 3b), 4-0 Vicryl suture (Ethicon; Somerville, NJ) was used to stabilize the surgical site.[21-23] The area was then provisionalized with a cantilever bridge (Figs 4a-4c) made from Luxatemp (Zenith/DMG; Englewood, NJ). Great care was taken to avoid pontic pressure on the grafted site.

Great care was taken to avoid pontic pressure on the grafted site.

Postoperative Instructions: Before the patient was dismissed, she was given detailed postoperative instructions, including the correct use (gentle circular motions) of micro brushes soaked in 0.12% chlorhexidine gluconate for the next six weeks to keep the surgical area clean. The patient was seen again in two weeks for suture removal.

Second Treatment Phase

Extraction: After proper monitoring and a six-month waiting period, the second treatment phase—which comprised an implant-supported crown on tooth #8, and a full crown on tooth #9—began. The pharmacologic and surgical protocols were similar to those in the first treatment phase. After anesthesia had been achieved, the #8 pontic was removed to expose the edentulous area (Fig 5a). After a papillae-preserving beveled incision was made,[24,25] a mucoperiosteal flap was reflected where the implant was to be placed (Fig 5b).

Implant Position: In any esthetic/reconstruction case, the position of the implant directly correlates with the diagnostic wax-up, which serves as the point of reference for a surgical stent (or stents). The perceived esthetic position of an implant should not compromise bone requirement (at least 1.5 mm all around the implant body). Indeed, the main purpose of the surgical stent is to transfer the position of the implant from the study cast accurately to the surgical site, and to serve as a drill guide in the preparation of the osteotomy.[26]

Implant Placement: In terms of the three dimensions—mesiodistal,

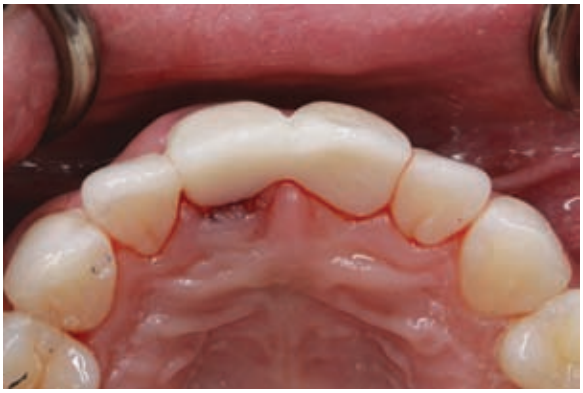

Figure 4a: Occlusal view of attached temporary crowns after suturing.

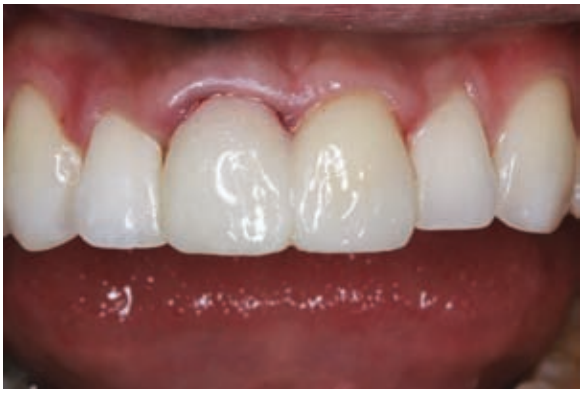

Figure 4b: Retracted view of attached temporary crowns after suturing.

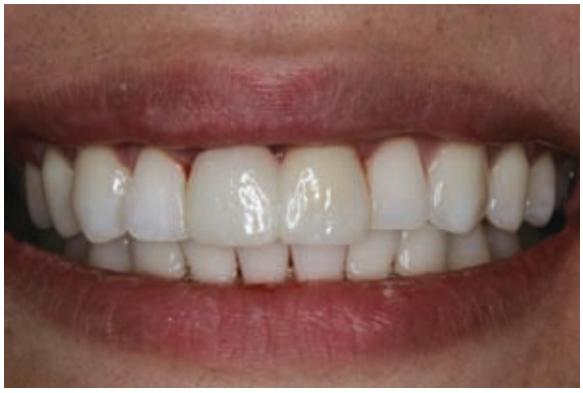

Figure 4c: Full-smile view of temporary crowns, showing improved smile.

labiopalatal, apico-incisal—I chose to place the implant slightly distal to the midline between #7 and #9, so that it would follow the path joining the gingival apex of the final crown (a little distal to the midline in most central incisors). This was done so as to achieve an ideal emergence angle in the mesiodistal dimension. With respect to the sagittal axis, the implant was placed to leave a little less than 1.5 mm of bone, because the labiopalatal orientation of the implant has the most profound influence on the emergence profile of the final restoration.[27] In the case of a central incisor, the emergence profile is flat in the facial dimension.

Once proper position and angle had been verified visually and radiographically (Fig 5c), a 3.5 mm x 13 mm Tapered Screw-Vent MTX surface implant (Zimmer Dental; Carlsbad, CA) was placed (Fig 5d). I selected this size because I wanted to ensure that the implant would not be placed too close to the interdental papillae, which would have caused unnecessary pressure on the papillary soft tissue. This, in turn, might have resulted in recession and formation of "black holes" to the bone crest. In this case, it worked out to be 2 mm below a line joining the adjacent teeth's cemento-enamel junction. Before reproximating the flap, a new piece of Alloderm (Fig 5e) was inserted between the alveolar bone and the flap to improve the marginal architecture, as well as to increase the amount of keratinized tissue.[28]

Once the flap had been sutured with 4-0 Vicryl suture (Fig 5f), the temporary pontic was re-attached using Add & Bond (Parkell; Edgewood, NY) and Filtek flowable composite (3M ESPE; St. Paul, MN). The occlusion was checked and adjusted again before postoperative instructions were given. A waiting time of six weeks elapsed before the site was re-entered using a diode soft-tissue laser (American Dental Technolo-

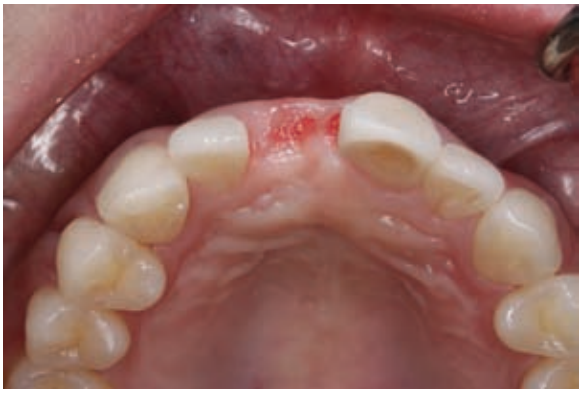

Figure 5a: Six months after socket preservation, showing good ridge maintenance.

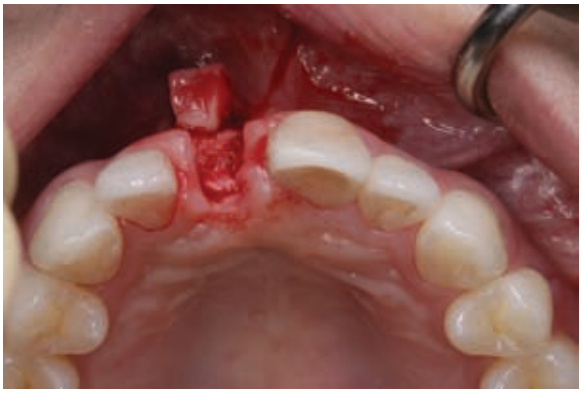

Figure 5b: Papillae-preserving incision with reflected mucoperiosteal flap.

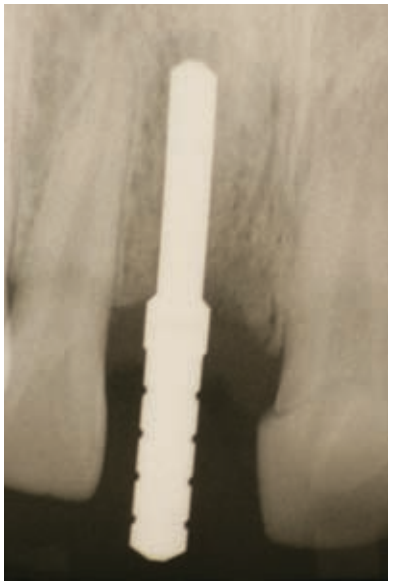

Figure 5c: Radiograph of pin demonstrating acceptable alignment.

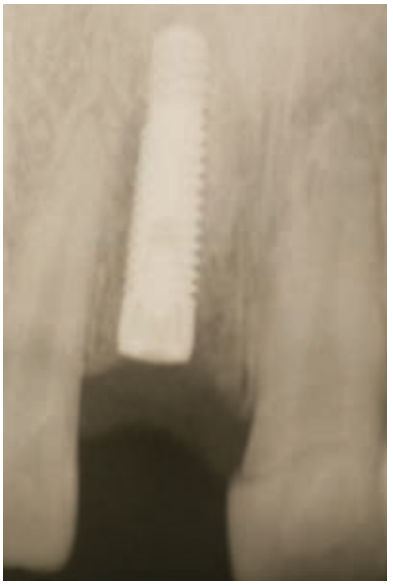

Figure 5d: Radiograph of #8 implant on day of placement.

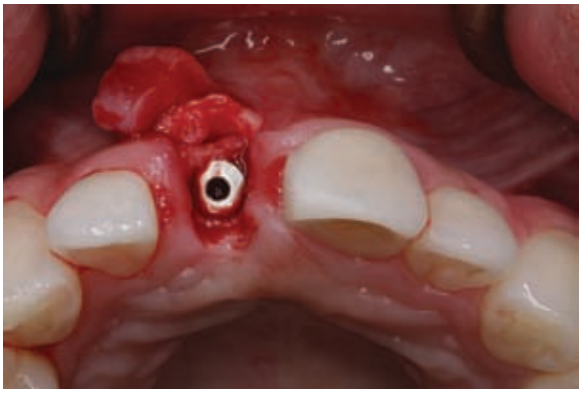

Figure 5e: Occlusal view showing implant placed and addition of another piece of Alloderm to improve the gingival architecture.

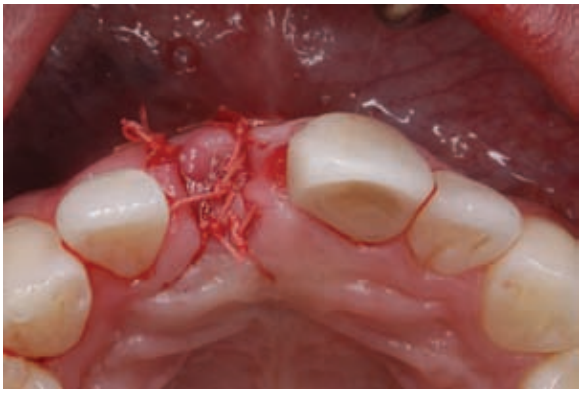

Figure 5f: Flap sutured following implant placement.

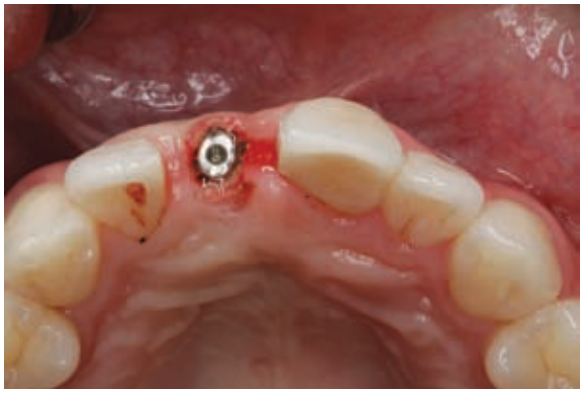

Figure 6: Cover screw exposed with diode laser.

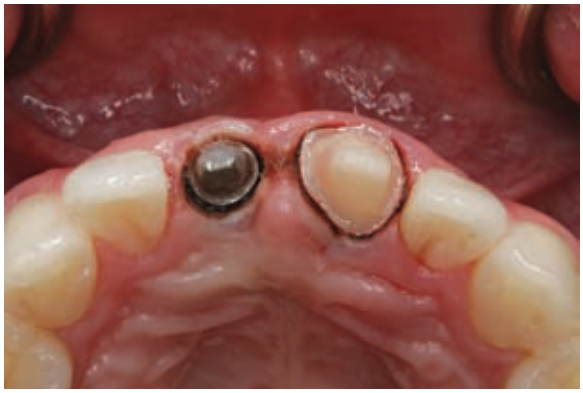

Figure 7: Occlusal view of preparations.

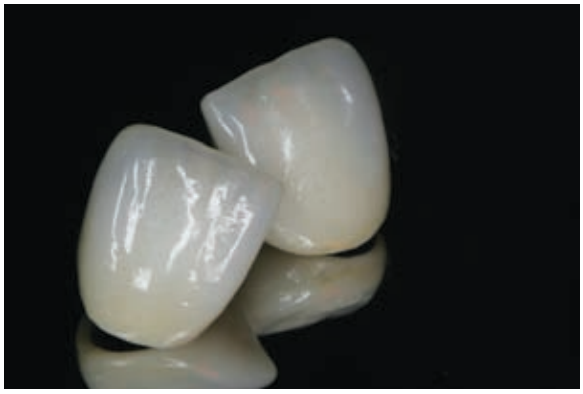

Figure 8: Final crowns ready for try in.

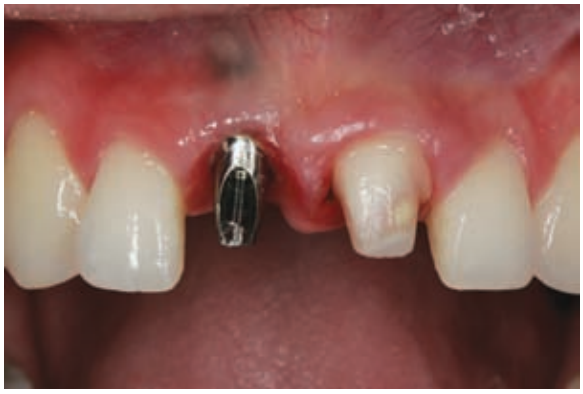

Figure 9: Preparations on day of delivery, showing good gingival architecture.

gies; Corpus Christi, TX) to expose the cover screw (Fig 6) and thread in the healing collar. Because I was going to use a prefabricated abutment, and because the tissue had been well managed, I decided not to use a healing abutment. The temporary was repaired again using the technique described above.

Abutment: After three months the temporary was again removed, and a hex-lock contour abutment (Zimmer Dental) was fitted, torqued to 30N/cm (with a torque wrench and a modified hemostat to prevent abutment rotation), and prepared for a crown (Fig 7). An impression was made with Imprint 3 vinyl polysiloxane impression material (3M ESPE). This time, separate temporaries were fabricated for both teeth #8 and #9. I used the Zimmer prefabricated abutment because I have found it to be well-designed, user-friendly, and cost-effective. Moreover, the patient's biotype was thick enough to prevent any unsightly gingival show-through; I also am fortunate to have ceramists who can work magic with porcelain-fused-to-metal (PFM) crowns.

Provisional Fabrication: At this stage, a great deal of time was spent fabricating the provisional crowns, especially, the one for tooth #8. Special attention was paid to ensure a proper and natural emergence profile. The provisional crowns not only have to serve as a model for the final prostheses, but also must provide proper gingivo-sulcular support to help stabilize the gingival architecture that I had worked hard to develop and maintain.

Finalization: My standard protocol for any esthetic/reconstruction case is to have the patient return

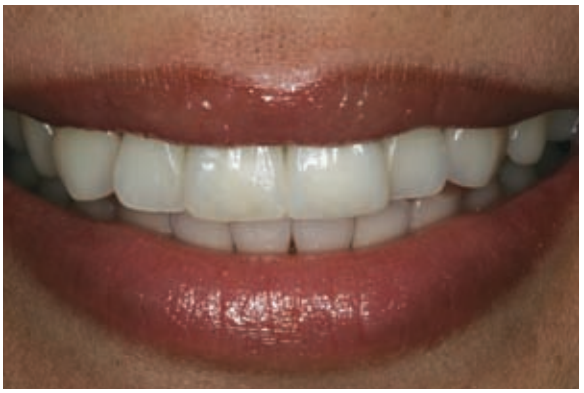

Figure 10a: Full smile, with final crowns showing natural harmony.

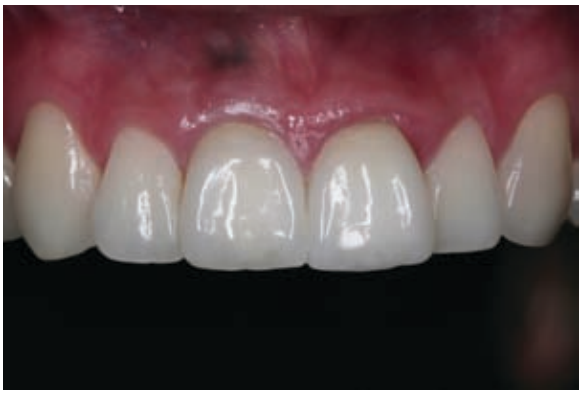

Figure 10b: Retracted view of final crowns, showing harmonious integration.

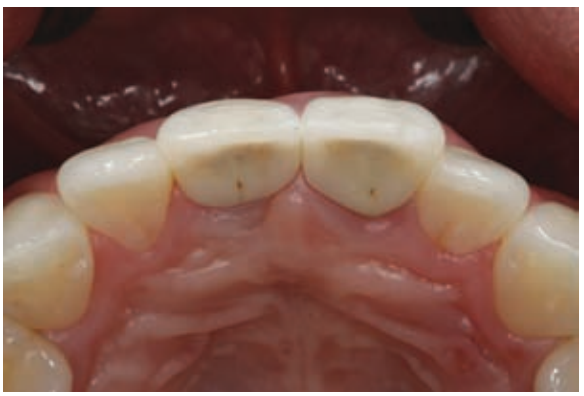

Figure 10c: Occlusal view of final restorations.

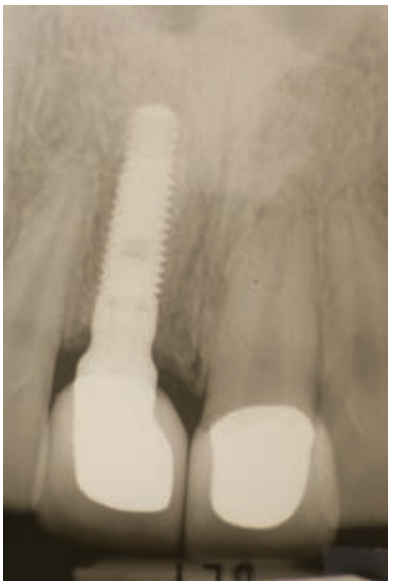

Figure 10d: Radiograph of final restorations on #8 and #9.

in two weeks to finalize the provisional restorations. At this refinement visit (assuming that everything functions well and looks good, and that the soft tissue is clinically healthy and architecturally sound), multiple photographs are taken and a silicone impression of the provisional crowns is obtained. As project leaders, we must ascertain to the best of our ability that all interim prostheses closely resemble the final ones in all dimensions, so as to avoid any unpleasant surprises at the long-awaited try-in and cementation visit.

In this case, after an additional five-week waiting period (and almost six months after implant placement),[29] the final PFM crowns were ready to be tried in (Fig 8). After the patient gave her approval, tooth #9 was anesthetized, the temporary crowns were removed, the preparations (Fig 9) were cleaned with Tubilicid (Global Dental Products; North Bellmore, NY), and the final crowns were tried in and cemented (Figs 10a-10d) with RelyX Unicem (3M ESPE).

Follow-Up Appointments: The patient returned one week later for the first follow-up appointment and occlusal verification. At this time, additional photographs of the restorations and portrait shots were taken and documented (Fig 11). The patient was seen again in 30 days,

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Figure 11: "After" portrait, showing the patient's satisfaction with the result.

and then every three months during the first year to monitor hard and soft tissue remodeling and maturing, in case there were any esthetic or functional concerns.

Conclusion

Even though this case had a highly satisfactory result with respect to socket preservation and soft tissue maintenance, a favorable outcome in the esthetic zone usually presents a great challenge to the clinician. However, with careful planning and exact treatment protocol, a high percentage of cases in the esthetic zone can be successfully managed. This patient was very cooperative throughout the long journey, and was very happy with her final restorations.

Author's Note: All occlusal shots have been flipped digitally, as they were taken with an occlusal mirror. All other images are unaltered.

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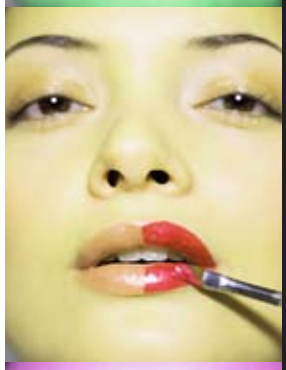


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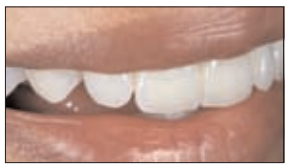

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Practice Development

In This Section:

Twelve Tips for Increasing Case Acceptance

by Roger P. Levin, D.D.S.
Owings Mills, MD
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INTRODUCTION

When dentists begin offering more cosmetic services to patients, the expectation is that increased production and higher profits will follow. However, to ensure that patients *accept* cosmetic treatment on a regular basis, practices must be willing to alter some of their routines. Case presentation is a prime example. A completely different approach is required when presenting cosmetic treatment, as compared to traditional need-based dentistry. Unfortunately, most doctors tend to present cases for cosmetic dentistry in the same manner as they do for need-based dentistry. The result is an often-disappointing rate of cosmetic treatment acceptance. The following vignette illustrates some mistakes doctors make during cosmetic case presentation.

To ensure that patients accept *cosmetic treatment on a regular basis, practices must be willing to alter some of their routines.*

Mrs. Brooks had been seeing her dentist, Dr. Jones [Dr. Jones is a composite profile from Levin Group case studies] *for years, and was happy with the care she had received. One day, at the end of her scheduled hygiene appointment, Mrs. Brooks asked Dr. Jones if there was anything he could do to make her teeth straighter. After examining her mouth for a few minutes, the doctor proudly told her that he would recommend some gingival recontouring and crown lengthening with veneers, to give her teeth a more even appearance. Dr. Jones ended by suggesting that selective reduction could also give her a better overall look. Mrs. Brooks looked puzzled and said,* "Well, what do veneers look like? And, what would you lengthen again? That all sounds painful…and is it expensive?"

Dr. Jones gave her a quick explanation about veneers, then hurriedly looked at his watch and apologized. He explained that he was sorry he couldn't discuss it further, but another appointment was waiting. He told Mrs. Brooks to ask the front desk staff for some brochures on veneers and some of the other techniques he had mentioned. Mrs. Brooks was confused, but since she had only asked about making her teeth straighter out of curiosity it didn't concern her much. She took the bro-

chures home but never bothered to read them. No one from Dr. Jones' office ever contacted her about cosmetic treatment, so the idea was soon forgotten.

In the above approach to case presentation, Dr. Jones simply answered his patient's questions with a logical, straightforward technical reply. However, he gave no thought to building a case, persuading, or winning Mrs. Brooks over to how she could benefit from cosmetic treatment. Therefore, it wasn't surprising that the patient soon forgot about cosmetic treatment entirely. A different kind of case presentation would have been much more successful.

STRATEGIES FOR SUCCESS

The case presentation strategies described here can help to increase the number of patients who say "*yes*" to cosmetic treatment.

1. HIRE A COSMETIC TREATMENT COORDINATOR

For many cosmetic practices, a cosmetic treatment coordinator can make an enormous difference. Treatment coordinators are highly trained individuals who participate in case presentation, handle fees, and schedule patients. The cosmetic treatment coordinator has one goal: To increase cosmetic case acceptance. By taking on tasks previously handled by the dentist, a well-trained treatment coordinator increases the time doctors spend providing patient care, which can boost production and profitability.

The treatment coordinator, once integrated into the practice, handles all aspects of the new patient exam and consultation. Eventually, the patient develops a strong relationship with the treatment coordinator, which adds to the patient's trust in the practice. The treatment coordinator can also do one thing the dentist cannot—this individual can testify to previous cosmetic cases in which the doctor provided excellent care. In this way a *transfer of trust* is created, which ultimately leads to case acceptance.

In addition, if the patient is unable to make a decision while in the office, then the treatment coordinator will be required to follow up. As illustrated with Dr. Jones' practice, many offices do not follow up with patients who haven't accepted treatment. A treatment coordinator can follow up by the next morning with each cosmetic patient who has received a case presentation. Specific scripting helps the treatment coordinator to continue enhancing the relationship with the patient throughout this process.

Most doctors tend to present cases for cosmetic dentistry in the same manner as they do for need-based dentistry.

This follow-up method helps to increase the number of patients who accept treatment. Many patients need to talk to spouses, check their finances, and evaluate their work schedules before making a decision about cosmetic dentistry. Given that motivation is short-term, it is critical that the patient receive a call within the next 24 to 48 hours, along with follow-up calls after that. A good approach is to arrange calls with both the patient and spouse, offering to provide a 20-minute case review. The acceptance rate on these calls can be very high when handled by a well-trained treatment coordinator.

2. CREATE A COMFORTABLE ATMOSPHERE

Upgrading your office's appearance is an investment in your practice. Consider hiring an interior designer to evaluate the office and make recommendations. By creating a more esthetic look and feel, patients will be more favorably impressed. The consultation room should be comfortable, quiet, and private. You want to eliminate hallway noise and staff interrupting the doctor with questions or information. This is a critical time for the patient and should be handled appropriately.

3. GET TO KNOW PATIENTS ON A PERSONAL LEVEL

Between the initial exam appointment and the treatment presentation, the practice should be getting acquainted with the patient. Getting to know patients on a personal level can make a tremendous difference in how they perceive the doctor and the practice. When the staff and doctor make an effort to learn even a little personal information, patients feel a higher level of comfort and trust.

Try to learn at least one new thing every time the patient comes to the office. Note these observations in the patient record so they can be referenced over time. Patients are impressed, and a stronger relationship is forged, when you can begin an appointment by mentioning something that individual has already shared with you.

4. DON'T WAIT TO EDUCATE PATIENTS AFTER THE FACT

Dr. Jones waited until Mrs. Brooks asked about cosmetic treatment before he gave her information. Dr. Jones' practice should have been educating patients in the prac-

tice about cosmetic services through strategies like placing brochures in the reception area, mailing patient newsletters, and holding evening seminars or cosmetic "open house" events.

5. Customize cosmetic presentations for each patient

Cosmetic case presentations should be customized for each patient. Doctors really need to think about what this patient wants, why the patient wants it, and how to approach it. Dr. Jones could easily have adapted his case presentation specifically to Mrs. Brooks (a patient with whom his practice was well-acquainted). Establish a few key thoughts prior to the presentation, including the following:

- Who is this patient?
- What is his or her current situation?
- How difficult will the cosmetic enhancement be?
- How expensive will it be?
- Did the patient articulate a specific reason for wanting cosmetic enhancement?
- Did the patient seem very motivated to have cosmetic enhancement?
- Was it the patient, or the practice that initiated a discussion of cosmetic dentistry?

The main goal is to *understand* the patient, not simply to present the case in a mechanical manner. This customized approach will make a tremendous difference in acceptance rates.

6. Don't rush through case presentations

Just as Dr. Jones did, dentists often rush through a case presentation because they are focusing on the daily demands of their work. This can cause dentists to hurry through what feels like one of the least important parts of the day. The reasoning may be that case presentations are about future treatments, and therefore do not warrant the same attention. However, each effective case presentation is an opportunity to grow the practice

A hurried case presentation is an extremely negative experience for patients; the patient's perception is that the doctor has not taken sufficient time to provide information, have a discussion, or answer questions. A hasty delivery often leads to patients turning down or ignoring recommended treatment, which was the case with Mrs. Brooks.

Dentists must remember that cosmetic dentistry is completely elective…there is no sense of urgency.

The best approach to presenting treatment is to sit down, relax, and follow the system that has been established for case presentation. A few extra minutes can make a tremendous difference in the number of patients accepting cosmetic treatment. Dr. Jones should have reacted to Mrs. Brooks question about straightening her teeth with the following approach:

Mrs. Brooks, that's a wonderful idea. I'll need some time to review your records to determine the best method to proceed. When you talk to Jenny at the front desk, ask her to schedule an appointment for us to discuss this further. At that point I will have had time to fully review your records, and will go over all the options with you.

7. Shift the focus away from technical information

Many practices focus too much on technical information during cosmetic case presentation, in the way that Dr. Jones did with Mrs. Brooks. Patients want to hear how they will *benefit* from cosmetic treatment, which was something Dr. Jones never mentioned. Dentists are fascinated by how things work; patients are not. The key is to focus clearly on everything the patient has to gain with cosmetic dentistry, rather than on how it is done. Patients want simple explanations about benefits, and they want to know that cosmetic dentistry will work… not *how* it works.

8. Train your front desk staff to answer questions

The front desk staff is critical in helping patients follow through with cosmetic dentistry. After a treatment presentation, most patients will ask questions at the front desk, including *whether they should go through with treatment, is it worth it, how long has the practice been doing those treatments*, etc. How the front desk answers these questions can make an enormous difference in a patient's decision.

With these questions, patients are seeking validation from the front desk team. Although doctors present and close treatment plans, in many cases it is the staff that convinces the patient to follow through with treatment. In order to maximize case acceptance, front desk team members should be completely trained on all cosmetic services, including the top three benefits of each treatment procedure. Patients may have already heard this information, but they want to hear it again. They need that

final validation from another person to follow through with treatment.

9. BUILD A TEAM THAT PROJECTS AN OUTSTANDING ATTITUDE

Attitude is often the fundamental element that determines how patients perceive the practice and whether they decide to accept treatment. An upbeat, energized, and positive practice will have a far more dynamic effect on patients. For many patients, cosmetic dentistry is a big step toward self-improvement and a better quality of life. They want to feel that same sense of great possibilities and enthusiasm reflected in the cosmetic team.

How do you develop a team with a great attitude? As the saying goes: Hire attitude, train skill. Interview prospective employees for personality, attitude, and energy. Make it clear that the practice has zero tolerance for bad attitudes. Let every team member know that attitude is critical by doing the following:

- Discuss the importance of positive attitudes in morning meetings and staff meetings.
- Compliment team members who display a positive attitude.
- Send the staff to seminars that give practical advice on developing a positive attitude.

10. EVALUATE THE SCHEDULE

A practice will have great difficulty changing its service mix to include more cosmetic services unless scheduling is addressed. From a practice management standpoint, scheduling is the single most critical system. Offices that spend most of their time on single-tooth appointments will have little room in the schedule to book cosmetic services. Once a patient decides to accept elective treatment, that person wants an appointment scheduled quickly. A practice that puts off new patients for weeks at a time will have a low overall production in cosmetic dentistry.

Doctors rarely correlate low production in cosmetic dentistry with scheduling issues, but these two areas are very much connected. To make a cosmetic practice grow, time must be available for the cosmetic patient. That is why it is critical for cosmetic practices to adopt a new scheduling system.

11. PAY ATTENTION TO THE DOCTOR AND TEAM'S APPEARANCE

Dress and appearance are critical factors in cosmetic dentistry. Unlike police or fire personnel, dental offices do not have a standard uniform that immediately inspires patients' confidence. A polished, professional appearance on the doctor and team's part creates an image of competence and high self-esteem, and a well-run practice.

The following suggestions can help to introduce this topic:

- Consider having someone from a high-end clothing store present an overview on how to dress and accessorize professionally. Stores are happy to do this, as they believe it is an avenue for attracting new customers.
- Invite a speaker to make a presentation to your team on the importance of image. The team will see it as a perk, and you can send a message about how to create an appearance that inspires trust and confidence.
- Talk about appearance in staff meetings. Discuss how to enhance the office and the staff's image. When the doctor participates in the conversation, it goes a long way toward making the entire team comfortable about the subject.

12. TRACK CASE ACCEPTANCE RATES

Cosmetic practices need to track case acceptance rates in two specific ways. First, track the number of patients who receive treatment presentations and how many of those accept or reject treatment. Second, track the level of production presented and the level of production accepted or rejected.

Only by identifying how many patients accept treatment versus the number of rejected treatments can a practice determine a positive or negative trend toward cosmetic case acceptance. A ratio can then be tracked

over time to determine how the practice is performing. With training, time, and experience, a practice can easily increase the number of patients accepting cosmetic care.

It is also essential to measure case acceptance by production. Practices, like any business, need production and profit to grow and prosper. To make this happen, dentists need to not only see an increasing number of patients who accept cosmetic treatment, but also more patients who accept higher-end cosmetic treatment. Tracking both of these measures will help practices better understand which case presentation approaches produce the desired results.

Summary

Developing a successful cosmetic practice requires doctors to do more than simply add esthetic treatments to the service mix. Dentists must remember that cosmetic dentistry is completely elective. Because patients are not experiencing pain or discomfort, there is no sense of urgency.

Cosmetic case presentation must be approached in a completely different way than presentations for need-based dentistry. When doctors adopt the case presentation strategies outlined in this article, they will be better positioned to persuade more patients to say "*yes*" to cosmetic treatment, and to enjoy the increased production and profitability that follows.

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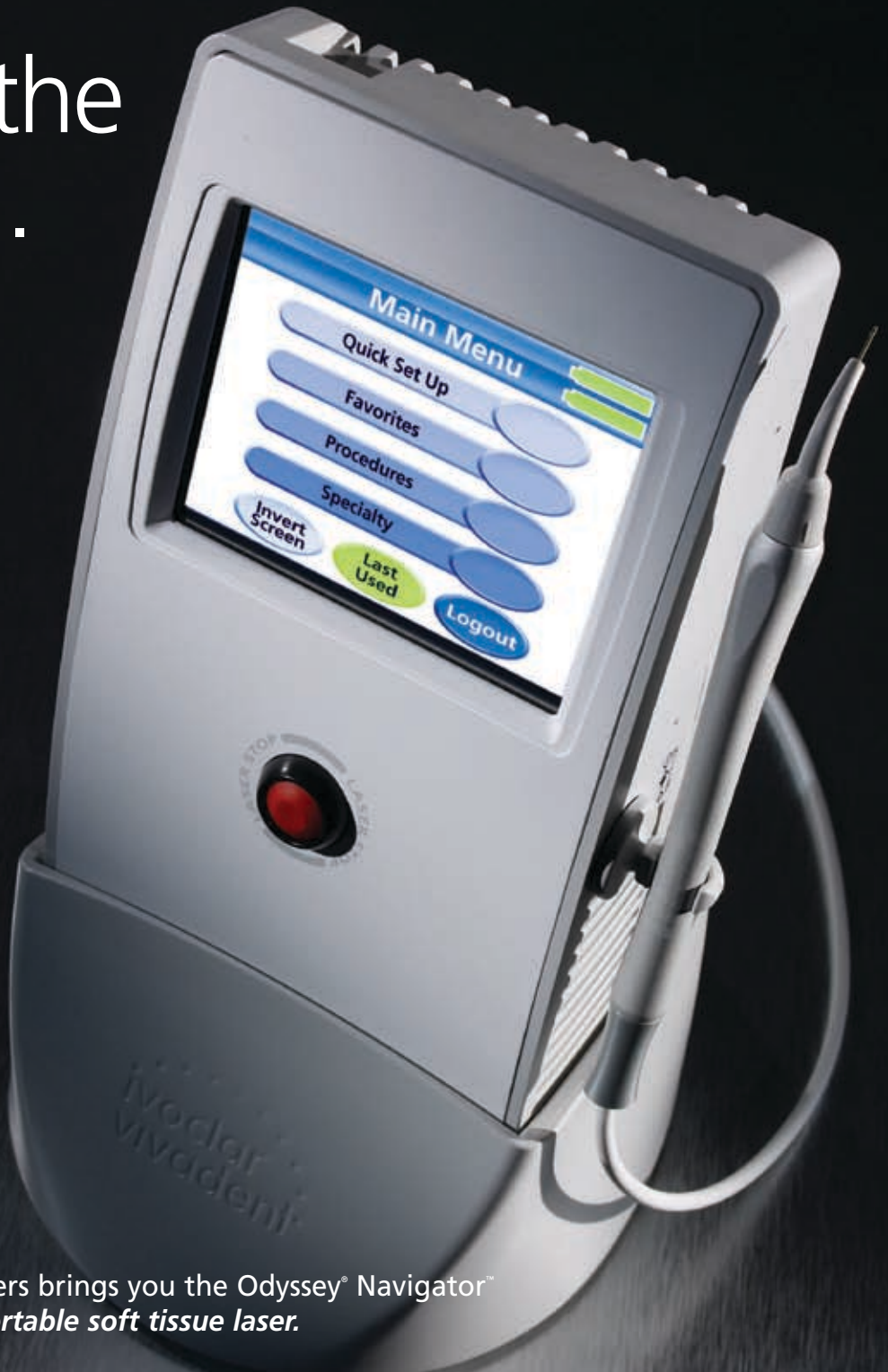

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