ON THE CUSP
Trends, Tips and Technology

3 Tips & Trends: Implant Restoration

4 A New Paradigm: Cementation Procedures for Dental Implants
Primary Issues in Cementable Restorations

6 Permanent Game Changers
Tackling the New Challenges for Dental Practices

7 Connectivity
Streamlined Workflows with Digital Open Solutions

Compliments of Town & Country Dental Studios
Dear Colleague,

Change is in the air as a new season begins, and we’d like to add to that excitement and anticipation by presenting our new issue of On The Cusp. Although summer might have been lazy and hazy, we at Town & Country have been busy at the bench and beyond. In this digital world, our capabilities are growing exponentially, yet at the same time we are still the personal laboratory you have come to know. We understand that you rely on us not only for consistent, high-quality products, but for providing you with experienced, knowledgeable and professional people to serve and advise you.

In our day to day communications with you, our doctors, we’ve gained greater insight into your concerns, your patients’ desires, and the challenges in your dental practice. There is increased demand for our CAD/CAM restorations, particularly hybrid prostheses and milled bar overdentures. Screw-retained implant crowns are being prescribed more often, partly due to concern over tissue response to residual cement. All-ceramic crowns and bridges are requested more than ever as patients become aware of non-metal alternatives.

Zirlux, our full contour zirconia restoration, has been in the spotlight with major advances in aesthetics and applications. Our new milling machines are working 24/7, carving expertly designed single crowns and bridges. With 16 Vita shades and our masterful staining, you have no need to compromise beauty for the unmatched strength of zirconia. You can have it all! And our Emax Press crowns are second to none—add a bit of layering for those uniquely characterized centrals, and just sit back and accept the compliments!

We hope you enjoy this issue of On The Cusp and invite you to share your comments and photos. Many thanks to our contributing doctors: Dr. David Jones, Dr. Ash Kaushesh, Dr. Adnan Qayyum, and Dr. Stephen Ramsay.

Warmest wishes,

Jeryl

Jerilyn Sapoznick
Implant Dept. Director,
Town & Country Dental Studios

Cover

Sirona Dental, Inc.
inLab MCXL Milling

Special thanks to DENTSPLY Implants for their support in the development of this issue.

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In this Issue

3 Implant restoration
4 Primary issues in cementable restorations
6 Tackling the new challenges for dental practices
7 Streamlined workflows with digital open solutions
Tips & Trends: Implant Restoration

A frequent topic and concern in dentistry is tissue response to implant restoration. **What can we do to improve the health and appearance of the tissue?** The use of a provisional restoration to sculpt the tissue, prior to impressing for the final restoration of the implant, can significantly aid the preservation of the papilla. Screw-retained temporaries, in particular, allow for easy modification to develop an ideal emergence profile. An Essix appliance can incorporate the freshly extracted tooth by contouring it as an ovate pontic to develop the tissue. Adjusting the contact areas of adjacent teeth that incline into the edentulous space will allow the building of tight broad contacts on the implant crown, thereby preventing food entrapment and maintaining gingival integrity. Reducing or restoring super-erupted opposing teeth before restoring the implant will provide a more ideal occlusal plane and aesthetic result.

![Essix appliance was used to develop tissue after #9 implant was placed. Restoration 5 months later with a zirconia Atlantis abutment and Zircad crowns. Dr. Adnan Qayyum, PA](image)

The final restoration is a key factor in maintaining the tissue architecture and health, and the choice may be cementable or screw retained. The many advantages of cementable restorations have been partially eclipsed by reports of peri-implant disease. This risk is attributed to residual cement remaining in the sulcus and may be responsible for renewed interest in screw-retained crowns. An in-depth article discussing cementable restorations follows in this issue of On The Cusp, and will provide a reliable technique for properly cementing implant crowns to avoid excess cement. The increased popularity of screw-retained crowns, bridges, and hybrid bar restorations may be related to the absence of cement, as well as providing retrievability. Careful planning of these cases is needed, preferably prior to surgery. We occasionally receive cases planned for a hybrid bar—but the implants are angled significantly, resulting in screw-hole exposures on the facial or buccal surfaces of the teeth.

![A zirconia abutment was later placed with a provisional Radica crown, followed by an Emax crown. Dr. Stephen Ramsay, NY](image)

While the use of angled multi-unit abutments may improve the hole positions, they are not always available for all implants and sizes, add to the cost of the restoration, may emerge several millimeters above the tissue limiting clearance for tooth placement, and in some instances, are too divergent for a common path of insertion.

Careful diagnostic treatment planning and understanding the limitations and benefits of the various restorative options will help you to provide your patients with realistic expectations. At Town & Country, we work together with you every step of the way to evaluate your case and provide the best solution. A locator overdenture on four implants may seem straightforward, until the models are mounted and we discover that the locator housings interfere with tooth placement. A change to a CAD/CAM Hader bar solves the problem. A hybrid bar may not be possible to construct due to angulation of the implants or multi-unit abutments. The solution is a milled bar with locator attachments and an overdenture with a superb intimate fit to the bar.

Call us today at 1.800.925.8696 and we will help you plan a successful case. We love the challenge of your most challenging cases!

- Jerilyn Sapoznick, Implant Dept. Director, Town & Country Dental Studios

**PROBLEM**

Impression transfer copings show the angulation of the implants, and whether the holes for the fixation screws of a hybrid will be too facial/buccal.

Angled multi-base abutments corrected the angles of the implants, but did not provide a common path of insertion for this CAD/CAM hybrid bar (Montreal design). The case was successful as a CAD/CAM milled titanium bar with locators and superstructure for overdenture.

Locators are angled too facially to allow proper tooth position for an overdenture.

A titanium CAD/CAM Hader bar with distal extensions was the solution.

**SOLUTION**

A precision milled CAD/CAM titanium bar and superstructure with locators provide excellent retention due to intimate fit of the structure and attachments. The locators are threaded into the bar and the superstructure is designed and milled at the same time as the bar.
A New Paradigm: Cementation Procedures for Dental Implants

Primary Issues in Cementable Restorations

Our Technical Support team members are often asked about cementation technique and the type of cement to use. Cementation, being such a critical factor in successful implant restoration, is presented in this first of a three part series: Cementation Procedures for Dental Implants.

OVERVIEW

Historically, implant restorations were screw retained to facilitate the clinician’s ability to remove and repair the restoration. Complications of screw-retained restorations include but are not limited to screw loosening, screw breakage, faulty occlusion, poor esthetics and higher laboratory costs.

Patients began to request more esthetic restorations, objecting to the look of an occlusal screw access hole. Further, correcting poor implant angulation with screw-retained restorations proved to be a challenge. The advent of custom abutments allowed for the improvement of angles, esthetics, and the fit between abutments and implants. This encouraged restorative dentists to shift toward cemented restorations on implants.

RESTORATIVE DESIGN

Implant abutments need to be designed with a taper of 6 to 8 degrees for optimum retentive force. An abutment with 6 degrees of taper has a retentive force measured at 80gm/mm. As taper increases, retention decreases. The abutment surface and the intaglio surface of the crown or bridge can be abraded to increase the adhesion of the cement to each surface. The increased surface area will enhance the retention of the restoration.

Margin placement is critical so that cement is not driven deeply into the sulcus. If the sulcus is deep, the crown can be vented lingually to allow relief of hydrolysis, and prevent cement residue below the tissue. Once the cement is set, the access can be closed with composite resin. Ideally, the margins should be between 1 to 2mm sub-gingival and follow the contours of the gingiva to facilitate clean up. Our patient-specific, CAD/CAM Simpl® abutments are ideally designed to achieve optimum margin placement, length and taper to create the ideal implant restoration.

CLINICAL CONCERN

The increased popularity of cementing crowns and bridges onto implants is not without issue. Retrievability of the restoration may not be possible, achieved only with the use of a temporary cement. Excess cement, if left in the sulcus, may lead to peri-implant disease, bone loss and implant failure. The time between restoring the implant and the disease process can range from four months to nine years, with an average of three years passing before the dentist discovers a problem.

As implants and teeth differ in their peri-implant biology, the appropriate cementation techniques, suitable cement selections, and even the procedures for the cleanup of excess cements differ as well. The following section will briefly highlight these issues and offer a solution to overcome these problems.

PERI-IMPLANT BIOLOGY

A weak adhesion exists between soft tissue, connective tissues and implant surfaces. Teeth have a more robustly developed attachment system. The weaker soft tissue adhesion seen with implants is more susceptible to complications caused by excess cement and the hydrostatic force of cement being pushed into the tissues during crown placement.

CEMENTATION TECHNIQUES

Only a very limited amount of cement is needed to fix a restoration to an implant abutment. A recent survey of over 400 dentists showed that many dentists placed in excess of 20 times more cement into the crown than was required. This overload of cement means that most of it is extruded at the restorative margin, frequently sub-gingival, making cement removal virtually impossible.

A detailed evaluation of which cement is best for the variety of restorations and applications will be presented in Parts II and III of this series on Implant Cementation. The use of a dual cure, resin modified glass ionomer cement for permanent cementation is widely accepted, and success is assured if manufacturer’s instructions are followed.

SOLUTION

Less is more! Limit the amount of cement placed in the crown to minimize the excess expressed at the restoration margin. The amount of cement needed is approximately 50 microns—the thickness of a layer of nail polish or a strand of a human hair.

One of Town and Country’s distinguished clients, Dr. Ash Kaushesh, a Diplomate of the American Board of Oral Implantologists, developed a technique using a fast setting dental material to make a chairside cementation abutment. Dr. Kaushesh calls it a ‘Cement Die Jig’ (CDJ) which is used to coat the inside of the crown with close to the 50 microns of cement needed.
HERE IS A SIMPLE, STEP BY STEP PROCESS FOR CREATING A CEMENT DIE JIG (CDJ):

**STEP 1.** To help keep crown clean of cement, use wax outside the crown margin.

**STEP 2.** To fabricate a CDJ you can inject VPS (vinyl polysiloxane) or rigid bite material (Blu-Mousse) into the crown.

**STEP 3.** Inspect the chairside cementation abutment, compare it to the actual abutment and note its orientation in relation to the crown.

**STEP 4.** The CDJ is now ready for use. Using our Simpl® Placement Jig, insert the abutment in the patient’s mouth, confirm it is fully seated (x-ray verification) and torque the screw to the appropriate manufacturer’s Ncm value.

**STEP 5.** To prevent cement from entering the abutment screw access hole, insert a 1mm ball of Teflon (plumber’s) tape into the screw access hole to protect the screw hex. Then seal off the access hole with any rigid dental bite material (Blu-Mousse or Regisil).

**STEP 6.** Load the crown with cement: insert the CDJ into the crown and the excess cement will be extruded chairside and easily removed, leaving a thin layer of cement inside the crown. This is all done outside of the mouth.

**STEP 7.** Inspect the inside of the crown for an even cement layer. If you find any bare areas simply add a little extra cement and then seat the crown.

Upon insertion, a minimal amount of cement will be expressed and clean up should be easy. Always use a radiopaque cement and take an x-ray to be sure there is no cement extrusion at the restoration/abutment.

Leaving excess cement in this area can lead to implant failure. A patient presenting with pain in the upper right quadrant was referred to Dr. David Jones of Manhasset, NY. Dental x-rays were taken which showed significant bone loss around a failed dental implant. After extracting the implant with attached crown, you can clearly see the cement that remained on the implant fixture.

ADVANTAGES OF THE CDJ

The CDJ is a fast, simple technique that limits excess cement to an absolute minimum, making cleanup quicker and easier. The CDJ particularly should be used for stock manufacturer’s abutments where margins may be too deep to clean excess cement.

The CDJ can be made for singles or for multiple abutment splints or bridges. The concept is simple and easy to implement. Its use will give you and your patient a greatly improved quality of care and long term success for your cementable implant restoration.

Joe Apap, CDT, General Manager, Town & Country Dental Studios

Next in this three part series on cementation, we will present “Permanent & Retrievable Options in Cementation Selection.”

Special thanks to Dr. Ash Kaushesh and Dr. David Jones for the use of their clinical photography and their continued support in our clinician/dental lab collaboration.

REFERENCES:


Permanent Game Changers

INTRODUCTION

Levin Group has identified 8 Permanent Game Changers that are having—and will continue to have—a profound impact on the careers of dentists and specialists across the country:

1. The Great Recession and Uninspiring Recovery
2. Changes in Consumer Purchasing Habits
3. Opening of New Dental Schools
4. Decrease in Insurance Reimbursements
5. Expansion of Dental Service Organizations (DSOs)
6. Higher Dental School Student Loan Debt
7. Fewer Associateship Opportunities for New Dentists and Specialists
8. Dentists and Specialists Practicing 8–10 Years Longer

Two of these, #3 and #6, have a direct bearing on the new generation of dentists entering the field—who in turn will change the situation for all dental professionals.

REVERSING A TREND, MORE DENTAL SCHOOLS ARE OPENING

Unlike the late 80s and 90s, when several dental schools closed, new schools have been opening in recent years—eight since 2001, with two others planning to open soon, according to the ADA. The opening of new schools is a healthy sign for the field of dentistry. However, it is also a game changer that will impact not only their young graduates but also all practicing dentists. According to the Levin Group Data Center™, three out of every four dental practices have experienced production declines in the last four years. Financial concerns are reducing the demand for dental services and, with more schools graduating dentists, the tight market will only get tighter. The new dentists themselves will have a harder time gaining a foothold in the dental field, and established practices will face competition from energetic, young dentists.

The challenges posed by this increase in the number of dental schools will be compounded by a related game changer… higher dental school student loan debt.

AVERAGE COST OF A DENTAL SCHOOL DIPLOMA: MORE THAN $200,000

Even without training in a specialty, the 2011 dental school graduate walked away with a diploma and a staggering tab for $203,374, on average. Dentistry is still one of the better-paid professions, but that kind of debt can cast quite a shadow over a young dentist’s career:

- It puts new dentists under financial stress even before they get their practices up and running.
- It drains practice revenues, hampering efforts to grow and improve the practice.
- It can make a position with a DSO look more attractive.

This debt-ridden generation of dentists will eventually come into their own and move to the front ranks of their profession, but until that time the entire dental industry will go through major adjustments as it regains its balance and starts to grow again. Those adjustments involve the conduct of the practice as a business.

THE LEVIN GROUP GROWTH FACTOR—NOW FASTER, EASIER, BETTER THAN EVER

Responding to the 8 Permanent Game Changers, Levin Group has redesigned its management and marketing consulting programs to generate results as rapidly as possible. What were formerly 12-month programs have now been concentrated in a 9-month, fast-track format. Equally important, implementation processes have been streamlined to make it easier for doctors and their teams—guided by experienced Levin Group consultants—to immediately begin moving their practices in the right direction.

CONCLUSION

Understanding the impact of the 8 Permanent Game Changers—including the opening of new dental schools and the high student loan debt burden on today’s graduates—is essential. For young dentists deeply in debt as well as established doctors faced with more aggressive competition, excellent systems are essential. By implementing management and marketing systems proven to generate rapid growth, dentists in all career stages can achieve higher levels of financial health and professional satisfaction.

Roger P. Levin, DDS

To learn how to run a more profitable, efficient and satisfying practice, visit the Levin Group Resource Center at www.levingroup.com/gp—a free online resource with tips, videos and other valuable information. You can also connect with Levin Group on Facebook and Twitter (Levin_Group) to learn strategies and share ideas.
During a meeting held earlier this year, Mikael Sander, Group Vice President of Digital Implant Solutions, DENTSPLY Implants, provided insight regarding some key corporate initiatives and overall goals for his group, which include indication and technology-driven solutions such as ATLANTIS patient-specific, CAD/CAM abutments, intra-oral scanning and digital implant treatment planning.

As dental patients become more aware and educated on the availability and benefits of implants as a solution for missing teeth, they are becoming equally as discerning about the customization and esthetics of their treatment outcomes. At DENTSPLY Implants, we understand that for dental professionals and patients alike, implants do much more than replace the missing dentition. In fact, implant treatment is helping to restore function, esthetics, health and, for many, overall outlook on life.

It is for this reason that, as a company, we are committed and focused on providing products and services that contribute to bringing simplicity and efficiency to the workflow for all members of the treatment team. In order to provide patients with the best results possible, teamwork, communication and the ability for clinicians and dental technicians to seamlessly transition through the phases of treatment care is critical. The ability to provide individualized solutions is also very important, because each patient has unique needs and requirements that should be considered and accommodated. A good example of this can be seen when comparing an ATLANTIS abutment with a pre-fabricated abutment. The “one-size-fits-all” concept of a stock abutment does not take into consideration the biological, anatomical and mechanical parameters that make up the foundation of a patient-specific abutment that is “reverse engineered” based on the final desired tooth. With over a million ATLANTIS abutments placed, the growing use of these patient-specific abutments can be seen as an indicator that “personalized” care is a preferred treatment modality.

The key to success remains the connectivity throughout the process that technology allows us to provide. This connectivity is made between ourselves and our customers as well as among the treatment team members and between different steps in the planning and treatment processes. The concept of an integrated workflow can be demonstrated through intra-oral scanning and other scanning solutions that produce high quality 3D imaging from which a case can then be accurately planned and treated, from implant placement all the way through to the final restoration. Technology also provides efficiency and helps to reduce time, which contributes to the possibility for increased production volume and profitability. In the case of ATLANTIS, it is possible to get an exact and functionally identical duplicate of an abutment that is ordered. This allows the clinician to place one abutment permanently in the patient’s mouth while the other is used by the dental technician as a master die. If the design of the abutment requires modification due to changes to the surrounding tissue over time or for any other reason, rather than “starting from scratch,” the digital file of the original abutment can be accessed for use as a foundation from which the additional changes can be made. All these services help to save the clinician and laboratory additional labor and contribute to higher patient satisfaction through reduced office visits and chairtime.

Connectivity through technology also means the confidence of knowing what to expect—each and every time. Computer-aided design software programmed with mechanical parameters and engineering principles helps to ensure accuracy, strength and consistency in the final product. For laboratories such as Town and Country, who are focused on delivering products and services of the highest quality to their clinical partners in the most reliable way, we are further inspired to continue the development of implant solutions that satisfy this need.

Mikael Sander, Group Vice President of Digital Implant Solutions, DENTSPLY Implants
“Very fast and easy. The SIMPL placement jig is a great help in seating multiple abutments.”
—Dr. Rubinstein

“With SIMPL, I have the confidence and the ability to restore any implant case.”
—Dr. Jones

“Ease of use decreases chair time.”
—Dr. Jones

“I no longer have to order lab analogs, UCLA abutments or screws from manufacturers.”
—Dr. Annapolen

“SIMPL restorations fit so well, I can seat a case in just 15 minutes.”
—Dr. Glassman

“Don’t you deserve less chair time, greater patient satisfaction and increased profitability? Here’s how: SIMPL® restorations from Town & Country. We make planning and seating your implant cases fast, easy and assured. Just provide us with a fixture-level impression, transfer coping, a counter and a bite. Give us two weeks and we’ll deliver a complete, all-inclusive custom implant unit ready for insertion. Every SIMPL abutment is laser-measured and custom-milled, so fitting is quick and comfortable - and that means a more productive and profitable practice. Call 1-800-925-8696 to learn more - or visit tncdental.com

The lab you deserve.