Immediate implant placement and conventional loading of a maxillary central incisor

Technology and biology converge in the ‘Valley of the Sun’

Intra-Lock reveals BLOSSOM design
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DENTSPLY Implants is a leading provider of comprehensive implant solutions that allow for successful long-term outcomes.

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This 30-year-old caucasian female presented to the office, having been referred for the treatment of tooth #8. The patient’s chief concern at the initial visit related to the tooth's pink discoloration.

Upon clinical examination, it was discovered that tooth #8 had a previous history of trauma, and it was surmised that the clinical crown had become noticeably pink in color as a result of internal resorption (Fig. 1). This diagnosis was confirmed radiographically, indicating a large radiolucency involving the central and distal portions of the clinical crown (Fig. 2).

It was determined that restoration of this tooth was not possible, and therefore, extraction was indicated. The presence of a mid-line diastema, which the patient wanted to reproduce, directed the treatment plan for tooth replacement utilizing a dental implant.

Her medical and dental health, including a periodontal and occlusal analysis, identified her as a good candidate for dental implant surgery and restoration. Although she presented with a high lip line and a thin-gingival phenotype, an immediate placement technique with a conventional restorative loading protocol was recommended to accelerate her rehabilitation.

The clinical and radiological findings, in combination with the patient’s treatment expectations, led to an esthetic risk profile summing up to a medium esthetic risk, as per the specifications delineated by Martin et al 2007.

Prior to the initiation of the dental implant surgery, mounted diagnostic study casts were obtained and a surgical guide was fabricated.

The immediate implant surgical procedure for tooth #8 was carried out as described by Beagle 2006 (Figs. 3–7).

Excellent primary stability was obtained using a 12 mm 3.3-4.8 Regular Neck TE Straumann dental implant (Figs. 8, 9).

Fig. 1: Caucasian female, age 30, presents with internal resorption of tooth #8. A highly scalloped, thin type I gingival phenotype is clinically evident. (Photos/Provided by Dr. Jay R. Beagle)

Fig. 2: Periapical radiograph of teeth #8 and #9 illustrating the resorption defect associated with tooth #8.
Grafting of the horizontal defect dimension and thin labial plate was performed using autogenous bone and a resorbable collagen membrane (Figs. 10, 11).

A semi-submerged flap closure was chosen to enhance the final positioning of the peri-implant soft tissues, and a periapical radiograph was taken immediately following surgery (Figs. 12–14).

Ten weeks following implant surgery, a small gingivectomy was performed to gain access to the beveled healing cap (Figs. 15, 16).

A synOcta provisionalization coping was attached to the implant (Figs. 17, 18), and a self-curing acrylic resin provisional restoration was fabricated and marginated using a synOcta laboratory analog as described by Higginbottom and coworkers 2004 (Figs. 19, 20).
The peri-implant soft tissues were allowed to mature around the provisional restoration for four weeks prior to final impression (Figs. 21 – 23). Following connection of the analog to the impression coping, a master cast was fabricated to reproduce the implant location three-dimensionally. The master cast was then utilized to aid in the creation of a screw-retained cast-metal crown framework using...
a non-rotational synOcta gold coping. Following the insertion of a 1.5 synOcta abutment (Fig 26), which was hand tightened, the crown framework was attached to the implant with an SCS occlusal screw, and a second definitive impression using a closed tray technique was made to verify the peri-implant soft tissue profiles (Figs. 27–30).

The ceramic work was completed at the laboratory using this accurate master cast. The 1.5 synOcta abutment was torqued to 35 n/cm² and the final
crown was seated and checked for marginal fit, occlusal and interproximal contacts and emergence profile (Fig. 31).

Final glazing of the ceramics was then performed, and the SCS occlusal screw was tightened to 15 n/cm². The screw access was obturated with a cotton pledget and restored with a light cured composite (Fig. 32). A periapical radiograph was obtained to establish a baseline marginal bone level with maintenance.
visits scheduled every six months with the dental hygienist (Figs. 33, 34).

The one-year follow-up showed an excellent result clinically and radiographically with very stable peri-implant soft tissues and optimal crestal bone heights (Fig. 35).

*Acknowledgments*

**Prosthetic procedures:** Dr. Richard Stuart, private practice, Indianapolis, Ind.

**Laboratory procedures:** Michael Hahn, Boca Raton, Fla.

*References*


The effectiveness of guided bone regeneration (GBR), a technique used to promote horizontal or vertical bone regeneration, has been well-documented since the early 1990s. The stability of the regenerated bone and its positive response in time, once functioning, has also been well-demonstrated.

Vertical GBR is a technique with great potential but one that requires both the precise adherence to surgical protocols and application by operators with the appropriate knowledge and manual skills to ensure optimum management of soft tissues. In addition to achieving primary closure of the flaps, maintaining this closure during the entire period necessary for the formation and maturation of the new bone is a pre-requisite for the avoidance of membrane exposure, which inevitably leads not only to bacterial contamination but, nearly always, to the impairment of the surgical procedure of regeneration.

Numerous studies have described various clinical protocols regarding the management of soft tissues in both the upper and lower arches. This retrospective analysis describes the surgical technique of the management of soft tissues applied during GBR with non-resorbable membranes in 127 cases of vertical defects of the posterior mandible and evaluates the clinical results obtained.

**Materials and techniques**

Between 2000 and 2012, a total of 127 cases...
of vertical bone defects in edentulous posterior mandibles were treated with the use of GBR with non-resorbable membranes.

The technique was applied by following a surgical protocol, which has undergone few variations during the years.

From 2000 to 2008, expanded polytetrafluoroethylene (e-PTFE) titanium-reinforced non-resorbable membranes (Gore-Tex TR9, W.L. Gore & Associates, Flagstaff, Ariz.) were used as a barrier device in 72 cases (Fig. 1).

From 2009 to 2012, high-density polytetrafluoroethylene (d-PTFE) titanium-reinforced non-resorbable membranes (Cytoplast TI250XL, Osteogenics Biomedical, Lubbock, Texas) were used as a barrier device in 55 cases (Fig. 2).

All the membranes were fixed mesially and distally on the lingual side with the use of titanium pins (Helmut Zepf Medizintechnik, Seitingen, Germany) or mini-screws (Pro-Fix, Osteogenics Biomedical, Lubbock, Texas) (Fig. 3).

After positioning the graft material around the implants, which were left protruding from the crest (Fig. 4), the membranes were also stabilized on the buccal side with the same fixation devices (Fig. 5).

Preparation of the implant sites, for the most coronal portion of the osteotomy, involved the use of twist drills and, for the most apical portion, near the mandibular nerve, a piezoelectric OT4 insert (Piezosurgery, Mectron, Carasco, Italy) (Fig. 6).

Implants (Spline Twist and Tapered Screw-Vent, Zimmer Dental, Carlsbad, Calif.) were inserted, leaving their most coronal portion protruding from the crest for a length equivalent to the vertical bone regeneration planned. In certain cases — those in which it was not possible to obtain adequate primary stability in low quantities of residual bone — the vertical bone regeneration preceded the positioning of the implants (Figs. 7, 8).

Multiple cortical perforations, which created openings for osteopromotion, were then made with a piezoelectric OP5 insert (Piezosurgery, Mectron, Carasco, Italy) in order to stimulate blood and cell migration from the bone marrow spaces to the regeneration area.18,19

During the period of time analyzed, various graft materials, alone or combined, were used together with the membranes: autologous bone; tricalcium phosphate; DBM (Dynagraft, Keystone Dental, Burlington, Mass.); MFDBA (Puros, Zimmer Dental, Carlsbad, Calif.); or combinations of mineralized and demineralized allograft bone (MFDBA & DFDBA, enCore, Osteogenics Biomedical).

**Surgical management of soft tissue**

All surgeries as well as postoperative care are carried out by a single operator. For each patient, treatment includes the analysis of a diagnostic wax-up and CT or CBCT scan performed with a template. The objective is not only to position the implants where the quantity of residual bone allows but to position their platforms on the ideal line situated approximately 2 mm under the cement-enamel junction of the adjacent teeth.

After performing local anesthesia, (articaine hydrochloride 4 percent with epinephrine 1:100,000, Septanest, Oga, Muggiò, Italy), a horizontal, mid-crestal, full thickness incision is performed in keratinized tissue. The incision extends from the distal margin of the last tooth adjacent to the treatment area to the ramus of the mandible, ending with a releasing incision on its buccal surface.

In the second molar area, to preserve the integrity of the lingual nerve, the scalpel should be inclined at an approximately 45-degree angle with the tip in vestibular direction, and the blade should touch the external oblique line while the incision is made in distal and buccal direction.

In the proximal vestibular zone, the incision continues intrasulcularly involving the last two teeth adjacent to the area to be treated and concludes with a vertical hockey stick releasing incision.

Lingually, the incision continues intrasulcularly until the gingival zenith of the last tooth and continues along the crest of the ridge for approximately 1 cm in the thickness of the keratinized
implants

vertical GBR in the posterior mandible

C.E. article

gingiva. Full thickness flaps are then elevated and the mental nerve is isolated. The mobilization and release of the buccal flap is obtained with a horizontal periosteal incision performed with a new blade for the entire length of the flap, from the distal to the mesial release.

This longitudinal incision is performed approximately 5 mm apically from the crestal incision and should only affect the periosteal fibers. The passivation of the vestibular flap, thus obtained, allows for a mean coronal elevation of the flap of approximately 20 mm: this is the sum of the amount of tissue present above the periosteal line of incision (5 mm) and the stretching of the flap following the periosteal incision (15 mm) (Figs. 9, 10).

The lingual flap is also full thickness, elevated until the mylohyoid line is reached. This maneuver allows for the obtaining of a mean coronal elevation of approximately 15 mm (Fig. 11). At this point, following the technique previously described by Ronda and Stacchi, the mylohyoid muscle insertion on the inner surface of the lingual flap is identified, approximately 5 mm apically from the crestal line of incision.

This insertion, with the use of a blunt instrument, is first isolated (Fig. 12) and then separated from the flap by applying light tensile force. This maneuver allows for the near doubling of the lingual flap passivation and brings the coronal elevation from approximately 15 mm to approximately 30 mm (Figs. 13, 14).

The flaps thus passivated can be sutured, covering the membrane without tension, using two different suture lines: one horizontal mattress suture with 3-0 PTFE approximately 5 mm apically from the crestal line of incision (Cytoplast Suture, Osteogenics Biomedical) and a series of interrupted sutures with 4-0 PTFE to complete the flap closure. The releasing incisions are closed with resorbable sutures (6-0, 7-0) (Serafit, Serag Wiessner, Naila, Germany).

The sutures are removed after approximately 12-15 days and, during this period, the patient uses a chlorhexidine 0.2 percent mouthrinse twice a day for one minute. In addition, antibiotics (amoxicillin/clavulanic acid 875+125mg) and NSAIDs (ibuprofen 600 mg) are prescribed for one week.

After a period of approximately six months,
during which new bone formation is obtained and completed, the patient undergoes a second procedure for the removal of the membrane and fixation system, completing soft-tissue management (Figs. 15, 16).

Results

The goal of this study was to describe the results and complications that occurred both during and after surgery in 127 cases of vertical GBR with non-resorbable membranes, until their removal. Certain complications in a considerable percentage of cases can lead to the failure of the entire regenerative procedure. In order to list and analyze them, the classification proposed by Fontana et al. (2011)20 was used.

Beyond the normal sequelae associated with surgery (edema, blood extravasation and hematoma), neurological complications (8, Fontana 2011) occurred in three cases (2.4 percent). Paresthesia is believed to have been related to the release and elevation of the vestibular flap, which most likely caused the stretching of mental nerve fibers. In all three cases, the symptoms of paresthesia subsided one month after the surgery.

During the healing period, no membrane exposure occurred in any of the cases (no Class I, II or III complications, Fontana 2011). In nine cases (7.1 percent), graft sepsis occurred in the absence of membrane exposure (Class IV, Fontana 2011). All Class IV complications occurred during the first month after the regenerative procedure.

Discussion

The objective of this retrospective analysis is to focus on the complications associated with the surgical technique of vertical regeneration with non-resorbable membranes in order to evaluate the level of surgical predictability associated with this procedure in view of the complexity and difficulty in augmenting the posterior ridge.

From the analysis of the results described, the general percentage of failure was 7.1 percent.

However, it is evident that with the application of conventional passivation techniques, and the introduction of the new lingual flap management technique, the extent of coronal displacement of the flaps guarantees the specialist a sufficient quantity of tissue to perform a tension-free suture above the regeneration area.

This is confirmed by the fact that no membrane exposure occurred in the 127 cases analyzed. The primary cause of failure of this technique, from the analysis of our data, is the bacterial contamination of the graft-membrane-implant complex in its entirety.

Contamination can already occur during surgery (inappropriate handling of surgical instruments, graft contamination as a result of bacteria present in saliva) or during the postoperative phase (failed primary closure of the flaps or early exposure of the membrane). As seen, the appropriate management of soft tissue allows for an entirely passive and hermetic primary closure of the flaps, as well as its maintenance, for the entire duration of the healing period.

The problem yet unresolved is that of the cases in which graft sepsis occurs, despite flap closure being perfectly maintained.

In this situation, which always manifests itself during the first month after the procedure, intra-operative graft contamination plays a fundamental role. Given the difficulty in keeping the surgical area completely isolated from salivary contamination during the GBR procedure (above all, in the posterior mandible), the reduction of surgical time is one of the keys for minimizing the risk of infection.

In this regard, it could be useful to harvest autologous bone from a donor site, which is not from the actual area of regeneration, prior to the GBR procedure (with an inevitable increase in morbidity), or use commercial bone grafts alone, with the objective of entirely eliminating both autologous bone harvesting and the risk of infection associated with prolonged operating times.21

Conclusions

The current flap passivation techniques available to the specialist have significantly reduced the percentage of failure associated with early exposure of the membrane.

Therefore, we can surmise that vertical GBR is a realistically feasible solution in regard to surgical success (treatment results’ stability over time has already been extensively demonstrated), despite the technique being considered highly “operator-sensitive.”

The fact that vertical GBR is a difficult procedure is not, by any means, to be underestimated. It requires extensive knowledge and should be carried out after appropriate training, which must enable the specialist to acquire a complete theoretical and practical knowledge both in the fields of periodontology and implant dentistry.

References are available upon request from the publisher.
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Implant dentistry has come a long way from the early days. The advances are more than evolutionary. The American Academy of Implant Dentistry’s 62nd Annual Meeting from Oct. 23–26 will explore how biology and technology converge to improve the treatment options available to doctors to solve ever more difficult and complex issues for patients.

An international symposium, entitled “International Excellence in Implant Dentistry — The Spanish Connection,” complete with simultaneous translation, will lead off the main podium programs.

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The International Congress of Oral Implantologists (ICOI) will convene its World Congress XXX in Istanbul, Turkey. The dates for this three-day event are Oct. 3–5. The venue for the congress will be the Istanbul Lutfi Kirdar International Convention and Exhibition Centre (ICEC) located in the heart of the European side of this exciting dual-continent city.

Situated on one of the world’s busiest waterways, Istanbul is flanked by the Black and Marmara Seas and separated by the famous Bosphorus, or Istanbul, Strait.

Two-thirds of Istanbul’s 12 million people live on the European side of town, while one-third resides on the Asian side. ICOI’s World Congress will be held at the perfect time of year in Istanbul, and attendees are assured of favorable weather.

An endless array of tourist opportunities awaits the delegates to the congress. Istanbul is home to the famous Blue Mosque, the Hagia Sophia Museum, the Topkapi Palace, the Grand Bazaar and the Egyptian Spice Market, among other attractions.

The theme for ICOI’s 30th World Congress is “International Innovation and Perspectives for Implant Reconstruction,” and the meeting features a world-class international faculty. The scientific program was designed by Dr. Scott Ganz from Fort Lee, N.J., and Dr. Ady Palti, Baden-Baden, Germany.

The Scientific Committee, in concert with the co-hosts for this congress, the Turkish Society of Oral Implantology and the Meffert Implant Institute, has put together a lineup of speakers who will present on innovative topics that include immediate loading, bone grafting, three-dimensional imaging, guided surgical applications, occlusion and much more.

Main podium lecturers include Drs. Shinichi Abe from Japan, Volkan Arisan from Turkey, Nabil Barakat from Lebanon, Georg Bayer from Germany, Fred Bergman from Germany, David Garber from the United States, Asian Gokbuget from Turkey, Cuneyt Karabuda from Turkey, Christian Makary from Lebanon, Stavros Pelekanos from Greece, Marco Rinaldi from Italy, Nigel Saynor from the United Kingdom, Georgios Romanos from the United States, Avi Schetritt from the United States, Deborah Schwartz-Arad from Israel, Gerard Scortecci from France, Marius Steigmann from Austria, Jon Suzuki from the United States, Istvan Urban from Hungary and Gerlig Widmann from Austria.

The congress will convene at 1:30 p.m. on Thursday, Oct. 3. However, on Thursday morning, delegates will get the opportunity to attend several pre-congress courses given by our sponsors.

Scientific table clinics and poster presentations will also be a part of the program. Those interested in presenting either a poster or table clinic should visit the ICOI web site, www.icoi.org, for guidelines and application forms or email Dr. Avi Schetritt at dravi@perio.org.

The social event of the World Congress will be held at the exciting, slightly naughty, but oh so much fun, Palas Cahid. This popular night spot (we will be taking over the entire club) is located near the ICEC, but buses will take guests there, leaving from the ICEC at 7:45 p.m. on Friday, Oct. 4.

Cocktails will be served starting at 8 p.m. followed by dinner — and then the fun begins. A stage show will entertain the guests until midnight.

For complete information on ICOI’s World Congress XXX, visit the website at www.icoi.org.
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Registration now open for the 7th International Congress on 3D Dental Imaging

_i-CAT_ and Henry Schein Dental proudly announce the fall session of the 7th International Congress on 3D Dental Imaging will be held in Boston from Oct. 25-26.

This second session of 2013 is aimed at informing, inspiring and educating general dentists and specialists on the benefits of cone-beam imaging for the modern-day dental practice. During these two information-packed days, experienced professionals can delve into the many applications of 3-D dentistry for implants, orthodontics, TMD and airway diagnosis, oral and maxillofacial surgery and periodontics.

3-D technology has already become a valuable tool for facilitating efficiency, accuracy and precise treatment implementation. The event will explore the real-world utilization of this technology. Besides offering an excellent educational opportunity for treatment optimization, practitioners attending the event will obtain 11 continuing education credits.

Exciting and relevant lectures and demonstrations range from basic information to detailed clinical use and hands-on training with 3-D planning software programs. Attendees will have the opportunity, during lectures and breakout sessions, to learn from knowledgeable industry experts and colleagues who share their perspectives on real 3-D imaging applications, the company says.

Clinicians can also benefit from networking opportunities with colleagues from around the world. Partners and vendors will demonstrate 3-D imaging tools and options, supporting 3-D products for imaging, implant, restorative systems, orthodontics and 3-D treatment-planning software.

Speaker Dr. Juan-Carlos Quintero says: “I am living proof of the advantages of having 3-D scans in the office. I have seen them in action and want to help my colleagues understand the benefits as well.”

“When a clinician can operate more effectively and efficiently, both the dentist and the patient benefit,” said Matt Garret, vice president of marketing for i-CAT. “Education on 3-D technology can help to achieve this goal. To that end, we are proud to offer this well-respected educational event.”

The International Congress on 3D Dental Imaging can help expand the dental landscape for those at any stage of learning about 3-D dentistry — from those researching the technology all the way to advanced users. Register online, or via fax or phone. For information on the fall session of the 7th International Congress, call (267) 954-0330 or visit www.i-cat.com/events/congress. Register by Sept. 24 and receive a $200 discount.
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Reduce treatment time with digital dentistry

Author: Dean H. Saiki, DDS, and Grant Bullis, Glidewell Laboratories director of implant R&D and digital manufacturing

Case description

A 72-year-old female patient complained of a loose lower denture that was painful to wear and chew with. A routine examination revealed a pronounced lack of bone volume in the lower ridge in conjunction with a relatively high floor of the mouth, making relines ineffective. The decision was made to proceed with a screw-retained, provisional fixed denture supported by four implants. The restorative protocol for this case used state-of-the-art techniques to improve the accuracy of implant placement, optimize the function and esthetics of the provisional, and reduce the time required for treatment.

Treatment objectives

The objective of the treatment plan was to improve patient comfort and chewing function by replacing the patient’s existing mandibular denture with a screw-retained fixed implant bridge. The provisional denture and final restoration would be designed with dental CAD software, using the setup from the existing denture.

Treatment planning

The patient’s existing denture was modified with fiduciary markers to serve as the CBCT scan appliance. To ensure maximum accuracy of the surgical guide, an extraoral scan of the denture was then taken. A CBCT scanner was used to scan the intraoral lower denture, maxillary denture and the bite. From these DICOM datasets, stereolithography (STL) files were extracted. The bite scan was used to articulate the scans of the lower denture and the maxillary denture.

Once the datasets were accurately merged in the treatment-planning software, the implants were virtually selected and placed at the optimal positions and angulations for the available bone volume and prosthesis support. Multi-unit abutments were used to correct the angle of the two posterior implants and to provide a common restorative platform across all implant sites (Fig. 1).

The DICOM data was segmented for density, and models of the patient’s mandibular arch, provisional denture and surgical guide were 3-D printed and articulated, so the entire surgical and prosthetic stack could be examined and a surgical index fabricated on the articulated model between the guide and maxillary cast (Figs. 2a-c).

Implant placement

After administering mandibular anesthesia, the surgical guide was placed with the aid of the surgical index. The surgical guide was used to prepare the

Fig. 1: After digitally evaluating the quality and quantity of mandibular bone, implants and multi-unit abutments were virtually placed with the appropriate angling and depth for the bone morphology of the patient.
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osteotomies and guide the placement of four 4.7 mm implants. Primary stability of all four implants was acceptable, and multi-unit abutments were mounted on top of the implants.

The temporary prosthesis was held in place with a luting index, and cold cure acrylic was used to fix the prosthesis to the multi-unit temporary cylinders. After curing, the prosthesis was removed and finished extraorally.

_Final restoration_

The final restoration protocol made use of intraoral scanning, dental CAD/CAM and 3-D printing to deliver the final prosthesis in just three appointments.

• First appointment: The patient’s provisional prosthesis was used to guide the design of the final restoration. First, a scan was taken of the provisional in the mouth, taking care to capture adjacent anatomical landmarks. Next, the opposing denture was scanned extraorally.

Two additional scans were taken of the lower denture seated in the mouth as well as the edentulous arch. At the laboratory, technicians used the scan data to design the final prosthesis, which included the milled titanium bar.

• Second appointment: The denture setup was placed with one screw tightened on the milled bar, and radiographs were taken to verify passive fit of the substructure. After making a minor fit adjustment, the provisional was reinstalled and the verified denture setup was sent back to the lab.

• Third appointment: The lab processed the denture to the titanium bar with acrylic to finish the final prosthesis (Figs. 3a–c). The provisional was removed and the final fixed implant denture was delivered (Figs. 4a–d).

_Clinical report_

Guided surgery and dental CAD/CAM are complementary technologies that can make the surgical and restorative phases of implant therapy more efficient and predictable. Because we can predict the implant position using guided surgery, prosthesis design can be done presurgically.

Advanced treatment protocols that leverage digital impressions, treatment planning, guided surgery and dental CAD/CAM technology are transforming implant therapy, shortening treatment times and improving prosthetic outcomes.
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As a recent graduate from dental school, I’m often asked by those still suffering on the clinic floor what the main difference is between dental school and private practice. There are several answers that come to mind, but I would have to say that out of all of them, the most gratifying one to me is having the ability to decide which equipment and technology I want to purchase. Technology that I not only want but that, in my mind, are necessities for a modern dental practice. Technology that not only benefits the practice, but also benefits my patients and allows me to do better dentistry.

I have found the PreXion3D Elite CBCT to be an absolutely essential piece of equipment, one that I use on a daily basis and, ironically, one that I almost passed on. After graduating, the looming mountain of student debt we dentists are so familiar with weighed heavy on my mind. Added to that was the cost of purchasing a practice and updating nearly everything in it. It is safe to say I didn’t want to spend any more money on “non-essential” items.

Fortunately, I listened to the advice my father, a dentist, gave me, and I bought the Prexion. I’m so glad I did because not only did it make me a better dentist, it made me more money, too.

I discovered rather quickly how the Prexion3D Elite produced a pattern in my office. Within that pattern are five main themes. The Prexion provides such a wealth of information that traditionally goes unnoticed, thereby enhancing my ability to accurately diagnose necessary treatment. I’m able to virtually place implants and look at the entire mouth in three dimensions, leading to better, more comprehensive treatment planning.

I’m then able to use the visually striking images and detail to increase patient education and
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understanding, which leads to much higher case acceptance. Finally, having a detailed map of otherwise obscured structures allows me to perform better clinical dentistry and to do so with more confidence.

Diagnosing more treatment, which educated patients accept, that is performed with confidence all lead to the two things: better dentistry and a better bottom line. The cases discussed below are examples of two situations in which the Prexion3D Elite proved invaluable.

Patient No. 1 presented with tooth #19 exhibiting decay and a missing mesial marginal ridge. Because of the extent of breakage and questionable long-term prognosis, the patient elected to have it extracted and an implant placed.

Based on the PA radiograph, there appears to be plenty of bone to place an implant (11.5-13 mm). The cone beam tells a much different story. The coronal view depicts an exaggerated lingual bias of the mandible. Had I tried to place a long implant in ideal position, I very likely would have perforated the lingual plate. Knowing this prior to surgery, I adjusted my angulation accordingly and placed the implant confidently and successfully.

Patient No. 2 presented to my office with a broken tooth, having lost the crown, post and core buildup. We discussed options and the patient elected to have an implant placed in what would soon be the extraction site. Using the information provided by a conventional 2-D digital X-ray, the diagnosis seems obvious and the treatment plan straightforward. Aside from the anemic fill, tooth #3 doesn’t look too menacing on the 2-D image.

When you look at the same area on a cone beam, however, an additional problem jumps out from the screen: Tooth #3 has a failing RCT with a resulting periapical lesion. The patient was able to see the problem clearly and understood that additional treatment was necessary. Rather than one extraction and implant, he elected to do two. In this instance, that was 100 percent increase in production that would have walked out the door undiagnosed if I hadn’t made the decision to obtain the equipment necessary to provide my patients with the best care possible.

My decision to purchase the Prexion3D Elite was certainly a scary investment, at a time when I didn’t think I could make it work. However, it has given me the best return on any investment I’ve ever made, not just clinically, but financially as well.

Dr. Blake Julian received his bachelor’s in human biology from the University of Kansas and his DDS from the University of Missouri at Kansas City (UMKC). Julian is the owner of Signature Smiles Family Dentistry in Greenville, S.C., where he and his wife, Holly, make their home.
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Fascinating ergonomics

Surgical straight and contra-angle handpieces

Author: W&H staff

The new W&H straight and contra-angle handpieces not only make working more pleasant but also more flexible and less tiring, the company says. And all that with optimal visibility and perfect hygienic conditions.

Innovative performance

The W&H product portfolio for surgical straight and contra-angle handpieces has been expanded and particularly impresses with its ergonomics, a Mini LED+ with daylight quality, flexible cooling with replaceable spray clips, a scratch-resistant surface coating and the first surgical contra-angle with a 45-degree head. All straight and contra-angle handpieces can be fully dismantled for superior cleaning.

Fatigue-free working

The ergonomic shape makes work less tiring. The handpieces were specially designed for a wide range of users, regardless of whether they are right- or left-handed.

Perfect light with Mini LED+

The surgical straight and contra-angle handpieces are now equipped with a Mini LED+. This offers optimal illumination as the Mini LED+ can be integrated very close to the handpiece tip, thanks to it being half the size of a normal LED. For the first time, the WS-56 (1:1), WS-92 (1:2.7) contra-angle handpieces and the S-9 (1:1) straight handpieces are now available with light.

With their integrated generator, the straight and contra-angle handpieces can create the energy for the LED light all on their own. As soon as the straight or contra-angle handpiece goes into operation, the integrated generator produces the electricity needed autonomously and supplies the LED.

Flexible cooling

For the first time, cooling can now be individually adapted with replaceable spray clips, so the coolant is always in the right place, the company asserts. The spray clips (for WS-75, WS-75 LG, WS-56 and WS-56 LG) allow attachment of the coolant tubes for external cooling and the internal bur cooling (Kirschner-Meyer) on the left or the right.

Perfect hygiene

The new scratch-resistant coating on the surface of the straight and contra-angle handpieces offers the optimal basis for improved cleaning and hygiene, the company says. In addition, the new surgical straight and contra-angle handpieces can also be completely dismantled, thermo washer disinfected and sterilized up to 135 degrees C.

The first surgical contra-angle handpiece with a 45-degree head

The new WS-91 and WS-91 LG contra-angle handpieces with a 45-degree head unite the advantages of straight and contra-angle handpieces for the first time. The 45-degree angle allows considerably better access and better visibility of the treatment site. This makes palatinal access to the maxillary molars much simpler, even with a small mouth opening.

In contrast, in buccal applications, there is more space between the cheek and operating site. At the same time, the view is barely affected.

A ratio of 1:2.7 makes it possible to work quickly and effectively, allowing rotating instruments to achieve speeds of up to 125,000 revolutions per minute. A three-port spray guarantees sufficient cooling of the bur as well as of the tooth and bone. According to the company, the contra-angle handpiece with a 45-degree head is ideal for surgical extractions of wisdom teeth, tooth separations and apical resections.

For more information on the all W&H products, visit www.wh.com/na.
The new LODI System offers us a good alternative to o-ball attachments when the use of a narrow diameter implant is desired. I also like the LODI Surgical Kit. It has nifty snap-on Drill Stops and a Torque Wrench that tops out at 70Ncm, which assists in determining the level of primary stability.”

Steven H. Pratt, DDS, FAGD, FAAID

“I have placed more than 50 LOCATOR Overdenture Implants and this system is exactly what I have been looking for. It is easy to use with graduating drill diameters and multiple length drill stops, as well as paralleling pins for alignment. My patients are very happy with their treatment and I am happy to no longer hear them complain that they can lift their lower denture out with their tongue like I consistently heard with o-ball mini systems.”

James G. Jenkins, DMD

“I originally tried the LOCATOR Overdenture Implant System because I didn’t have enough vertical room with the system I’ve been using. This implant from ZEST Anchors is perfect for these situations. I’m sure I’ll continue to use this implant system.”

Joseph A. DeLapa, DDS

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Your colleagues are recognizing the benefits of LODI in their practice, isn’t it time that you did? Start by trying LODI today, please visit www.zestanchors.com/odi/77, or call 855.866.LODI (5534).

Courses to learn about the LOCATOR Overdenture Implant System are now available! Please visit WWW.ZESTANCHORS.COM to view course locations.
Scientific advances are happening at breakneck speed. The mere “ability to integrate” is no longer the sole measure of dental implant success. The new checklist is much more extensive and refined, including factors that allow clinicians to re-engineer the biology of the osteotomy. We can now enhance initial stability of the implant, resulting in faster integration. Bone remodeling can also be reduced, preserving tissue biotype and crestal bone. The result of this biological aggregate is shorter healing times to final reconstruction, along with creating more favorable esthetic environments.

The challenge for every dental implant manufacturer is to stay at the forefront of science and technology by engineering dental implant systems that meet or exceed clinicians’ expectations. Intra-Lock® International says it has shown itself to be committed to this ethic, and the BLOSSOM® design (patent pending) is one such example.

Intra-Lock discovered that a subtle but meaningful component of the “new measure of success” had gone largely unnoticed. Implant architecture, mostly in the form of body design, had seen dramatic changes while the role of thread design was largely
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overlooked. Following retrospective reviews of clinical outcomes, the shortcomings of standard thread design became evident. Diminished primary stability, increased micromotion, deleterious bone remodeling and higher failure rates were occurring. What were the factors responsible for these less than desirable outcomes?

Compression remodeling of bone was one of those factors. When implants are seated in bone, there is a significant increase in torque as the implant is being driven through the bone. If high torque forces remain at final seating, over compression of bone can lead to trabecular microfracture and excessive bone remodeling. This may result in fibrous encapsulation and subsequent implant failure, the company asserts.

Implant manufacturers attempted to address this problem by adding additional design features to the implant body. Most notable was the early introduction of a "self-tapping" feature that was machined into the apex of the implant. This tapping complex allowed the implant to enter the osteotomy with increased efficiency. However, this tap design had two undesirable consequences: There was a substantial loss of surface area in the apical third and the buildup of a large concentration of fractured bone in the cutting area (known as "crowding").

BLOSSOM cutting design (patent pending) reflects how the scientists and bioengineers at Intra-Lock tackled this problem and produced an implant that represents a major advance in implant design and biologic synergy. This design has now transformed self-tapping into a full-fledged asset — a complete operating system that is incorporated into the body of the implant.

The design consists of a series of strategically placed cutting surfaces and spiral channels that are designed to eliminate "crowding" and to produce fewer, more evenly distributed bone particles. In addition, BLOSSOM implants automatically generate a physiologic autologous micro-graft. The net result is a more gentle and precise delivery of the dental implant.

BLOSSOM cutting design moves us closer to the biologic paradigm of accelerated implant healing by minimizing bone trauma. It cuts efficiently through the osteotomy while preventing over-compression of bone.

By reducing compression-mediated microfracture, it shortens early bone remodeling with the net effect of faster integration and increased bone-to-implant contact, the company says.

The Blossom implant accomplishes this using finesse, not force, to achieve better initial stability and increased success rates in oral implantology.

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