IMPLANT TRIBUNE

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Dental industry's future
Implants and bone graft market to top $4.5B by 2012
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ICOI event: learning & jazz
New Orleans is the site of the next spring symposium
▸Page 13

New products
Astra Tech launches OsseoSpeed TX line at AO
▸Page 14

Scenes from the AO's annual meeting

Zimmer Dental is celebrating the 10th anniversary of its Tapered Screw-Vent Implant System. Featured at AO, more than 2 million units have been sold. (Photo/Humberto Estrada, DTA)

The Academy of Osseointegration's annual meeting took place from March 4-6 in Orlando. To catch a glimpse of the many exhibitors who showcased innovative implant technology at the event, turn to *Page 12B*.

Esthetic management of a single dental implant in the esthetic zone

By Michael Sonick, DMD

A medically and periodontally stable 37-year-old man presented with coronally fractured tooth #9, which had a history of endodontic treatment (Figs. 1a, 1b). The tooth was deemed restoratively hopeless.

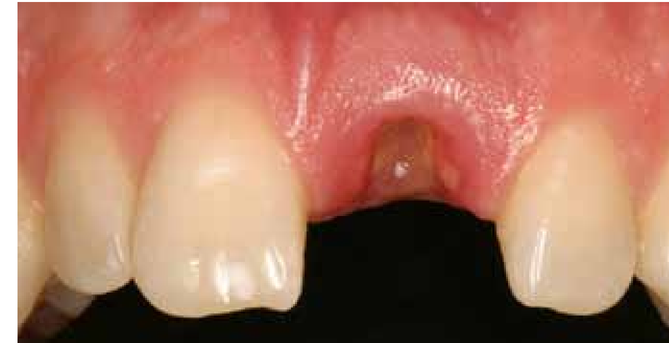

Fig. 1a, left: Hopelessly fractured tooth #9.

Fig. 1b, below: Periapical radiograph of endodontically treated tooth #9

Treatment plan

1. Extraction of tooth #9 and socket preservation
2. Three-month healing period
3. Placement of implant #9 and connective tissue graft
4. Three-month healing period
5. Implant #9 exposure, placement of healing abutment and connective tissue graft
6. Three-month healing period
6. Final implant #9 crown restoration

Extraction and socket preservation of tooth #9

After oral sedation with 0.25 mg triazolam one hour prior to surgery and local anesthetic induction using 2 percent lidocaine with 1:100,000 epinephrine and 0.5 percent bupivacaine with 1:200,000 epinephrine, a sulcular incision was made circumferentially around tooth #9. The remaining root was extracted atraumatically using a piezoelectric periotome device (Fig. 2).

Thorough degranulation of the extraction site with a pear-shaped carbide finishing bur and Prichard curette proceeded. No dehiscence or fenestration was detected. Freeze-dried bone allograft (FDBA) was used to obliterate the extraction socket.

A bioabsorbable collagen plug (CollaPlug®, Zimmer Dental, Carlsbad, Calif.) was used to cover the graft. The area was secured using 4-0 expanded polytetrafluoroethylene (ePTFE) suture (Fig. 3). The restorative dentist temporized space #9 with an interim removable partial

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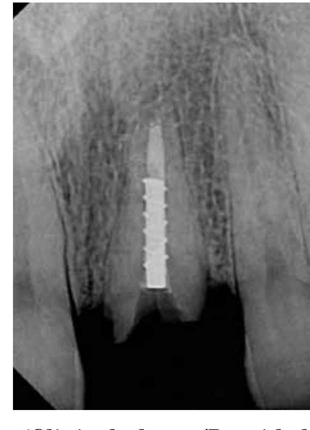

(Clinical photos/Provided by Dr. Michael Sonick)

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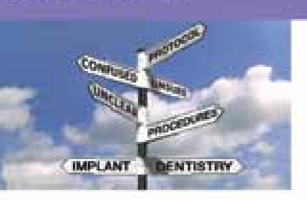

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World dental implant and bone graft market to top $4.5B by 2012

> '... the future of BMP and increased use of grafts and implants looks very promising.'

Global sales of dental implant systems, fast becoming the preferred restoration for replacement of missing or extracted teeth or as supports for dentures, crowns and bridges, are expected to maintain double-digit growth during the next five years, soaring to more than $4.5 billion, according to "Implant-Based Dental Reconstruction: The Worldwide Dental Implant and Bone Graft Market," second edition, a new study released from Kalorama Information.

Sales of dental implants and abutments rose more than 15 percent in 2006 alone reaching nearly $2 billion, led by Europe, where the popularity of implants saw sales peaking at $760 million or 42 percent of the global market.

Advanced bone grafting and regeneration techniques have radically expanded the possibilities for implant-based restorative dentistry. World sales of dental bone grafts reached $130 million in 2006, up 12 percent from 2005.

The report projects the use of bone grafts will more than double by 2012 with revenues reaching $266 million.

Grafting techniques are making it possible to expand the candidate pool for implants to include a sizable population of edentulous patients who were poor candidates for dental implantation due to severe bone resorption.

"The most closely watched research and development projects in dental bone grafting today involve bone morphogenic protein (BMP) products," noted Anne Anscomb, the report's author.

"BMPs have the potential to transform the bone grafting market and surpass all other products on the market including synthetic substitutes, allografts, and demineralized bone matrices. With the announcement in March that the FDA approved Medtronic's InFuse Bone Graft for certain oral maxillofacial and dental regenerative bone grafting procedures, the future of BMP and increased use of grafts and implants looks very promising."

Implant-based dental reconstruction includes revenue forecasts for each segment through 2016, global market share for four geographic regions, more than 35 tables and figures with detailed market data, reviews of new products, and computer-aided dentistry and reimbursement trends.

It can be purchased directly from Kalorama Information by visiting *www.kaloramainformation.com/Implant-Based-Dental-1399457*. It is also available at *MarketResearch.com*. IT

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Cadent iTero added to curriculum at LVI

Cadent, a leading provider of 3-D digital and CAD/CAM solutions, recently announced it has signed an agreement with the Las Vegas Institute for Advanced Dental Studies (LVI), one of the world's premier post-graduate dental training facilities, whereby the iTero digital impression system will become the exclusive digital impression technology integrated into LVI's curriculum.

LVI students who attend Core II (orthotic maintenance, adjustment and essential esthetic reconstructive techniques) and Core III (mastering dynamic adhesion in complex reconstructive cases) will be exposed to the iTero system.

Core V (comprehensive esthetic occlusal reconstruction) and Core VII (full-mouth reconstruction — essential tools for finalization of neuromuscular rehabilitation) programs will have the opportunity to utilize iTero in the restorative process. iTero clinical trainers will be onsite during the programs to provide training and hands-on support for LVI students to obtain live case experience working with the iTero system.

Along with Cadent, the LVI partner laboratories (The Aurum Group, DTI MicroDental, Las Vegas Esthetics and Williams Dental Lab) will provide the comprehensive prosthetic case development from the iTero digital impressions.

"The integration of iTero into the LVI curriculum supports our expanding network of educational opportunities for new and existing iTero dentists," said Timothy Mack, president and chief executive officer of Cadent. "Cadent recently completed its 2 millionth 3-D digital case for restorative dentists and orthodontists, a record of proven success which is required even to earn recognition by the faculty at the LVI.

"We are especially pleased that iTero has been deemed worthy of a partnership with LVI, a world-class organization that provides dentists with the continuing education needed to further develop their restorative dentistry practice."

"The inclusion of the iTero digital impression system supports LVI's ongoing efforts to integrate the best of dentistry's technological advances into the LVI curriculum," said William G. Dickerson, DDS, founder and chief executive officer of LVI. "The era of digital dentistry has arrived and the addition of iTero to our programs will enable LVI students to become proficient in the industry's most successful digital impression system."

iTero serves more than 1,700 dentists in 12 countries, and is the only digital impression technology that does not require powdering or coating of the teeth, enabling the processing of more complex cases than any other system. IT

(Source: Cadent)

Tell us what you think!

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IT Corrections

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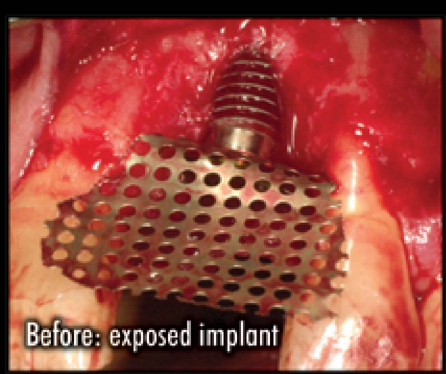

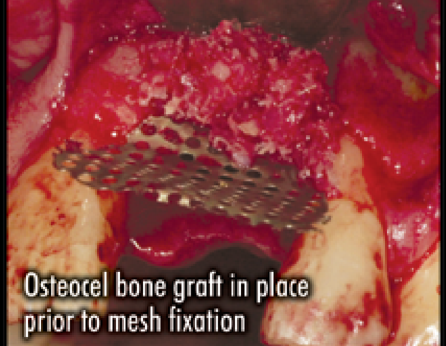

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Bone Formation

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- Positive osteogenesis: In vitro cell culture assay

[1] Histologic Evaluation of a Stem Cell Based Sinus Augmentation Procedure: A Case Series. – McAllister, Haghighat, Gonshor. – Journal of Perio., April 2009

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← IT page 1B

denture.

After three months of uneventful healing (Fig. 4), Stage 1 implant placement was initiated.

#9 fixture placement and connective tissue graft

After oral sedation with 0.25 mg triazolam and local anesthetic induction using 2 percent lidocaine with 1:100,000 epinephrine and 0.5 percent bupivacaine with 1:200,000 epinephrine, a flap was created using a trapezoidal papilla-sparing incision design that involved a palatally oriented crestal incision over the #9 site with two vertical releasing incisions made on the buccal, both avoiding the mesial and distal papillae.

A full-thickness flap was raised past the mucogingival junction. Degranulation of the site with a pear-shaped carbide finishing bur and Neumeyer bur revealed adequate apico-coronal, bucco-lingual and mesio-distal dimensions for implant placement.

After osteotomy preparation, a rough-surfaced, internal hex 4 mm (diameter) by 13 mm (length) implant was placed into the filled site (NanoTite® Parallel Walled Certain® Implant, BIOMET 3i, Palm Beach Gardens, Fla.) (Fig. 5).

Primary stability was achieved, and a cover screw was placed.

In order to form an esthetic soft-tissue profile by expanding mucosal dimensions, a connective tissue graft was harvested from the palate and placed on the buccal aspect of the ridge overlying the implant. The graft was stabilized using 5-0 chromic gut sutures (Fig. 6).

After periosteal release via lateral scalpel incisions, the flap was primarily closed with 4-0 ePTFE sutures in an interrupted and horizontal mattress fashion (Fig. 7). The area was re-temporized with a resin-bonded fixed partial denture.

Implant exposure with connective tissue graft

The #9 site healed well and without incident after three months (Fig. 8). After using a tissue punch technique to remove the mucosa immediately coronal to the fixture (Fig. 9), a one-piece 4.1 mm (platform) by 5 mm (emergence profile) by 4 mm

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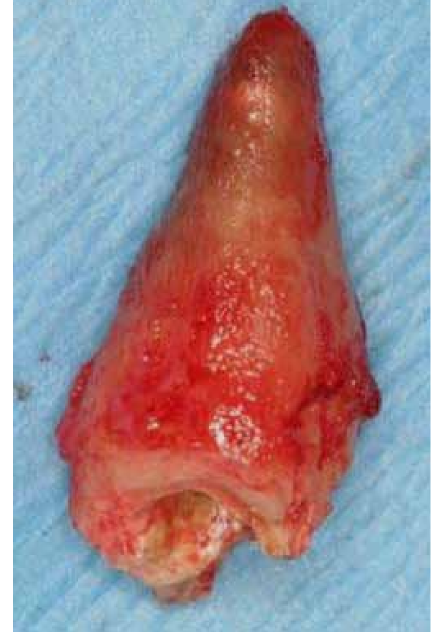

Fig. 2: Atraumatically extracted #9 tooth.

Fig. 3a: Buccal view of socket preservation site.

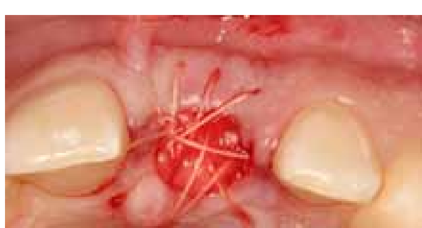

Fig. 3b: Occlusal view of socket preservation site.

Fig. 4: Healing three months post-extraction and socket preservation.

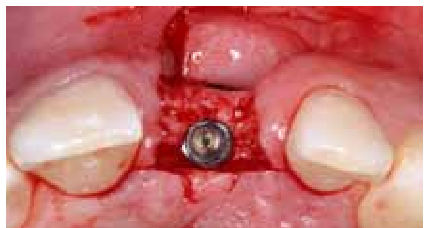

Fig. 5a: Occlusal view of implant placement. Note palatal placement of fixture.

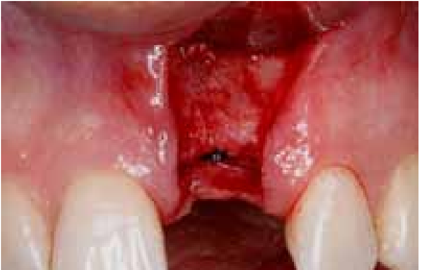

Fig. 5b: Buccal view of implant placement. Note papilla-sparing flap design.

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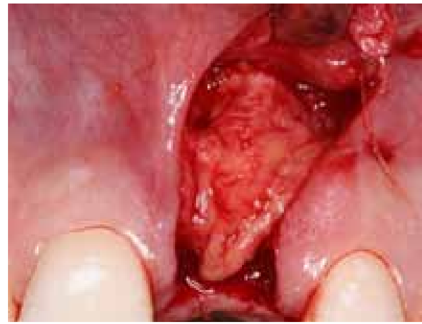

Fig. 6: Connective tissue graft secured in place over the buccal ridge.

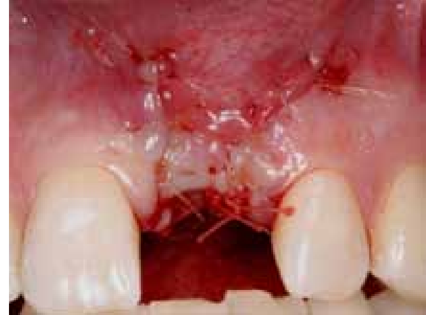

Fig. 7: Primary closure of grafted implant site.

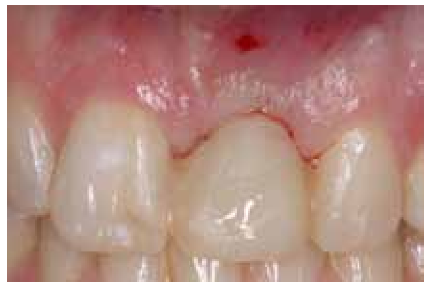

Fig. 8: Healing three months post-implant placement. Note the favorable position of the mucosal margin.

Fig. 9: Exposure of the #9 implant using a tissue-punch technique.

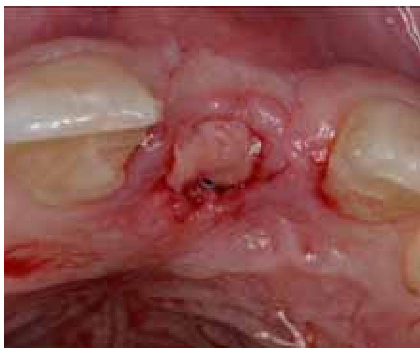

Fig. 10a: Soft-tissue graft inserted into the buccal pouch.

Fig. 10b: Placement of the healing abutment on the #9 implant.

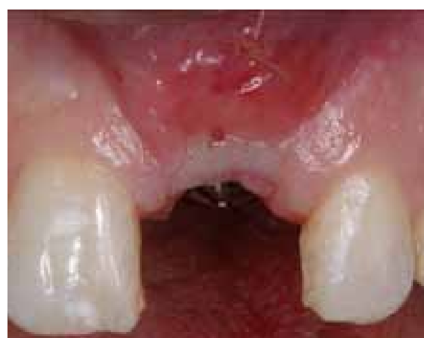

Fig. 10c: Buccal view of site with graft in place.

Fig. 11: Periapical radiograph of fixture at time of exposure. Note the favorable bone height.

← IT page 6B

(height) healing abutment (Certain® EP® Healing Abutment, BIOMET 3i, Palm Beach Gardens, Fla.) was placed on the #9 implant.

To further augment the buccal ridge dimension, another connective tissue graft was harvested from the palate.

A pouch-like envelope flap was raised over the labial ridge aspect into which the connective tissue was transplanted and fixed using 5-0 chromic gut suture (Fig. 10). The healing abutment remained exposed.

A periapical radiograph revealed sufficient bone height around the

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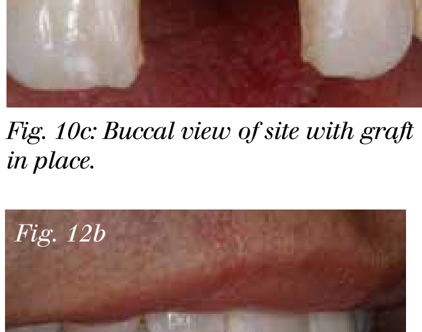

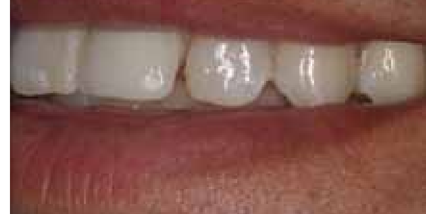

Figs. 12a–12c: View of final restoration

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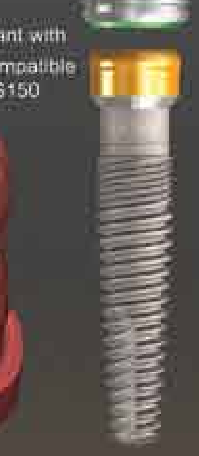

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Cost Savings	50%	62%	58%	54%	54%	51%	51%	0%	63%	63%

List prices as of 2/23/09

ReActive™ Tri-Lobe Implant

Platform Shifting, Micro-threads,
Deeper Threads, Round Apex
All-in-one Packaging: Cover Screw,
Transfer & Straight Abutment
ReActive USA price = $200
NobelActive USA price = $656

Free Implants for Nobel Biocare Customers

3 Surgically Compatible, RePlant® Implants with Titanium Transfer/Temporary Abutments plus 2 Contoured Abutments

US List Price for 3 Implants, Abutments and Prosthetic Components:
RePlant = $620
NobelBioCare® = $1907

FREE Introductory Offers at www.implantdirect.com

Terms and Conditions Apply