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Case study
Management of two implants in the esthetic zone

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New case management
Materialise Dental launches DentalPlanit

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Dental implants can be successful with less root than crown

Dental implants are now a common way to replace a tooth. But a dentist must first determine that an implant restoration can be successful for a particular patient.

As an indicator, dentists use the crown-to-root ratio — how much of the tooth extends above the jawbone and how much is in the bone. However, the ideal crown-to-implant ratio for the replacement tooth has yet to be determined.

A new study in the current issue of the *Journal of Oral Implantology* evaluated the health of implants that had been in place more than five years. By examining the crown-to-implant ratios in these cases, the authors found that this factor was not as important to the success of implants as previously thought.

Radiographs were used to examine 309 single-tooth short-length implant-supported restorations in 194 patients. All the implants had been surgically placed between February 1997 and December 2005.

The ideal crown-to-root ratio for a tooth to serve as an abutment for a partial denture is considered 1 to

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The Academy of Osseointegration's annual meeting will be March 3-5 in Washington, D.C. (Photo/stock.xchg)

Group's annual meeting to focus on 'Combining Fundamental Principles with New Technologies'

Recognizing implant dentistry's global reach, the Academy of Osseointegration will debut an International Symposium to highlight clinical research, technology and treatment advances that may be unfamiliar to U.S.-based practitioners during the AO's 2011 Annual Meeting, taking place March 3-5, in Washington, D.C.

This focus on international innovations is part of the meeting's overall theme, "Back to the Future: Combining Fundamental Principles with New Technologies for the Next 25 Years." The theme will serve as a guide for applying the knowledge gleaned during the last quarter century to the technology of tomorrow, Annual Meeting Program Committee Chair Dr. Tara Aghaloo of Los Angeles said.

"The 2011 annual meeting will illustrate that the most effective technological advances will reinforce fundamental principles and improve outcomes," she said. "To maintain the credibility of our rapidly growing field, we must avoid embracing technologies that do neither."

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2 — twice as much root as crown. But previous studies have given mixed results about ratios for implanted teeth. Excessive crown-to-implant ratios have been named as detrimental to long-term survival of an implant, while disproportionate ratios have been noted in high rates of implant survival.

The current study found an average crown-to-implant ratio of 2 to 1. Natural teeth with such ratios would often be recommended for extraction and replacement.

The authors found that stable implants could be produced with less of the tooth serving as root. Additionally, the study found no statistically significant relationship between increasing crown-to-implant ratios

and decreasing bone-to-implant contact levels around the implant.

Full text of the article, "Crown-to-Implant Ratios of Short-Length Implants," Journal of Oral Implantology, Vol. 36, No. 6, 2010, is available at www2.allenpress.com/pdf/orim-36-06-425-433.pdf.

About the Journal of Oral Implantology

The Journal of Oral Implantology (JOI) is the official publication of the American Academy of Implant Dentistry and of the American Academy of Implant Prosthodontics. It is dedicated to providing valuable information to general dentists, oral surgeons, prosthodon-



tists, periodontists, scientists, clinicians, laboratory owners and technicians, manufacturers and educators. The JOI distinguishes itself as the first and oldest journal in the world devoted exclusively to implant dentistry. For more information about the journal or society, visit www.joi-online.org. **IT**

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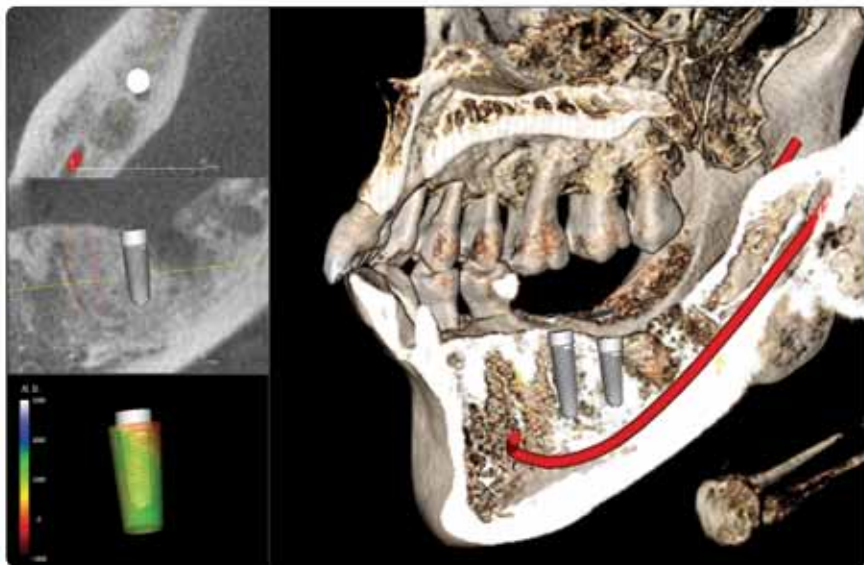
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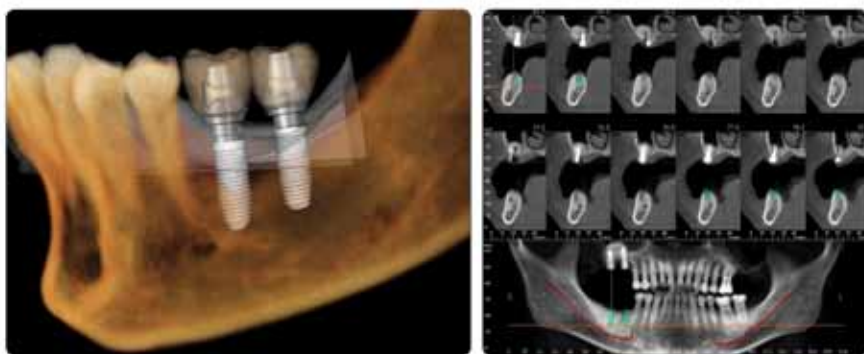
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Published by
Dental Tribune America

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Implants see fastest growth in emerging markets

By Daniel Zimmermann, Group Editor
Dental Tribune International

Premium manufacturers are driving the market for dental implants and bone-craft substitutes in countries such as China and India, according to iData Research.

In a market report, the Canada-based consulting company has forecasted the market volume of both countries for dental implants to exceed \$400 million by the year 2017.

Strong double-digit growth rates were also predicted for Brazil, another potent global emerg-

ing market.

The rapid growth of dental implants will also drive the market for dental biomaterials and bone-craft substitutes, the report states.

The number of procedures using these materials is expected to reach almost 400,000 in both countries by 2017.

“The de-regulation of dental care services in China and India has fueled growth of private dental clinics in major urban centers,” said Dr. Kamran Zamanian, CEO of iData.

“In addition, the low cost of

labor has kept implant procedural costs relatively low, promoting dental tourism from countries such as Japan, South Korea and Australia.”

Markets in China and India are currently dominated by a few foreign manufacturers such as Dentsply-Friadent, Nobel Biocare or Straumann.

The Swiss-based company particularly has increased its market share in China and South Eastern Asia with the introduction of products including the Bone Level Implant and SLActive dental implant surface tech-

nology.

Global business consultant Frost & Sullivan recently awarded the company with its 2010 Asia Pacific Dental Implant Company of the Year Award for superior performance in different areas such as strategic product development.

Europe still holds the largest share of the \$3.2 billion global dental implant market followed by the United States, Korea and Japan.

The market itself is projected to grow by more than 20 percent during the next five years.

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Healthy gums may lead to healthy lungs

Maintaining periodontal health may contribute to a healthy respiratory system, according to research published in the *Journal of Periodontology*. A new study suggests that periodontal disease may increase the risk for respiratory infections, such as chronic obstructive pulmonary disease (COPD) and pneumonia. These infections, which are caused when bacteria from the upper throat are inhaled into the lower respiratory tract, can be severely debilitating and are one of the leading causes of death in the United States.

The study included 200 participants between the ages of 20 and 60 with at least 20 natural teeth. Half of the participants were hospitalized patients with a respiratory disease such as pneumonia, COPD or acute bronchitis, and the other half were healthy control subjects with no history of respiratory disease. Each participant underwent a comprehensive oral evaluation to measure periodontal health status.

The study found that patients with respiratory diseases had worse periodontal health than the control group, suggesting a relationship between respiratory disease and periodontal disease. Researchers suspect that the presence of oral pathogens associated with periodontal disease may increase a patient's risk of developing or exacerbating respiratory disease. However, the study authors note that additional studies are needed to more conclusively understand this link.

“Pulmonary diseases can be severely disabling and debilitating,” said Donald S. Clem, DDS, president of the American Academy of Periodontology. “By working with

Session: 'How to avoid implant catastrophes'

Catastrophic implant failure will be the topic of the Academy of Osseointegration's 2011 Annual Meeting's closing session, as academy members and guests review "Major Catastrophes and How to Avoid or Handle Them," on Saturday, March 5.

"Exploring catastrophic failures helps to further our professional knowledge, since we tend to learn most from mistakes," explained Annual Meeting Program Committee Chair Dr. Tara Aghaloo of Los Angeles. "This session will offer an excellent educational opportunity for clinicians, whether they are new to the field or have many years of experience."

Attorney Michael Ragan will open the program with a presentation on implant claims, damages and remedies. Other AO Annual Meeting highlights will include:

- **"Two-Track" Scientific Program:** The Surgical Track will explore prosthetic concepts, computer-



Dr. Tara Aghaloo

guided implant dentistry, hard- and soft-tissue augmentation and how to determine success. The Restorative Track will cover maxillary overdentures, short implants, digital impressions and CAD/CAM restorations and other surgical concepts. (Saturday, March 5).

- **Round Table Clinics:** Fifteen separate sessions offer attendees the opportunity to discuss diverse implant dentistry topics — everything from stem cell-based treatments and advances in ridge expansion to maxillary sinus augmentation — in small, informal settings with presenters. (Friday, March 4)

- **Limited Attendance Lectures:** Thirteen limited attendance lectures will increase interaction between annual meeting attendees and world-class clinicians on a range of topics. Sessions include implant esthetics, treatment planning for complex implant restorations, management of failed sinus grafts, implant provisionalization and more. (Friday, March 4)

- **Corporate Forum:** AO's 2011 Corporate Forums will feature manufacturer-hosted educational sessions that showcase the latest research, products, techniques and developments. (Thursday, March 3)

- **Allied Staff Program:** The AO

Annual Meeting's Allied Staff Programs offer concurrent sessions designed for dental lab technicians and hygienists. The daylong series of programs will focus on topics that range from growing a surgical implant practice and contemporary implant maintenance to CAD/CAM information and new products. (Saturday, March 5)

"Allied staff sessions will emphasize the importance of the team approach to patient care," Aghaloo said. "New technologies and clinical applications are being introduced at an increasingly rapid rate. It is essential that allied staff professionals understand these concepts and how they apply to implant dental practices."

Complete program and registration information for the 2011 AO Annual Meeting is available online at the academy's website at www.osseo.org. ■

(Source: Academy of Osseointegration)

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International Symposium debut

The International Symposium, to be held Friday, March 4, will offer presentations by a combination of established and up-and-coming speakers. The symposium will be moderated by Drs. Mark Handelsman, Santa Monica, Calif., and Kenji Higuchi, Spokane, Wash., and topics and presenters include:

- "Management of the Deficient Maxilla," by Dr. Joan Pi Urgell of Barcelona, Spain.

- "Evidence-Based Protocols for Anterior Esthetics," by Dr. Carlos Araujo of Sao Paulo, Brazil.

- "Use of Mesenchymal Stem Cells in Alveolar Bone Augmentation," by Dr. Minoru Ueda of Nagoya, Japan.

- "Accuracy of Computer-Guided Implant Placement Using a Mucosa-Supported Surgical Template" by Dr. Dehua Li of Xi'an, China.

- "Future Horizons for Growth Factor Applications in Implant Reconstruction," by Dr. Henning Schliephake of Gottingen, Germany.

- "Esthetic Design in Complex Cases," by Dr. Fernando Rojas of Viscaya, Castellon, Spain.

'Point/Counterpoint' approach to implant controversies

"Point/Counterpoint" sessions will provide a forum for debate on "Treatment of the Esthetic Zone," Friday, March 4.

Drs. Michael Norton of London, England, and Craig Sirota of New York, N.Y., will moderate a series of discussions featuring opposing viewpoints on a range of topics:

- "Implant Restorations: Analog vs. Digital Technology." Opposing viewpoints on "tried-and-true" analog technology for implant

restorations vs. computer-assisted approaches will feature Drs. Baldwin W. Marchack (analog) and Christopher B. Marchack, Pasadena, Calif., in a debate pitting father against son.

- **"Papilla Augmentation: Prosthetic Enhancement of Soft Tissues."** Dr. Christian Coachman, Sao Paulo, Brazil, will outline a three-dimensional prosthetic reconstruction option to enhance soft-tissue architecture. Dr. Sonia S. Leziy of North Vancouver, BC, Canada, will advocate solutions by surgical and restorative team members.

- **"Traditional Flap Approach vs. Flapless Surgery."** Clinical evidence demonstrating the advantages of flapless surgery will be presented by Dr. Stephen T. Chen, IV, of Melbourne, Australia. Dr. Anthony G. Sclar of Miami, Fla., will specify individual case factors for determining use of a traditional flap versus a minimally invasive approach.

- **"Immediate Implant Provisional Restoration."** Dr. Stephen J. Chu of New York, N.Y., will advocate on behalf of immediate placement by addressing current concepts, research and innovations and how they enhance treatment.

- **"Guidelines for Selecting Implant/Prosthetic Protocols in the Esthetic Zone."** Dr. German O. Gallucci of Boston will present an analysis of clinical considerations within the context of their direct application to esthetic implant/prosthetic rehabilitations and current scientific evidence.

The point/counterpoint format will also drive debate during the meeting's opening symposium, "Controversies in Implant Dentistry" on Thursday, March 3.

"Both the opening symposium and 'Point/Counterpoint' sessions will feature respected implant professionals debating ongoing controver-

sies, while audience members will engage in the discussion through use of audience response technol-

ogy," Aghaloo said. ■

(Source: Academy of Osseointegration)

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Management of two implants in the esthetic zone

By Saghi Parham, DDS

A medically and periodontally stable 24-year-old woman presented with two failing root canals on teeth #8 and #9. Her dental records indicated both teeth were endodontically treated twice before. The first root canals were performed when she was 18 years old due to a trauma incident and again six years later.

Two weeks prior to presenting at our office, the patient stated she had another accident causing trauma to her two maxillary centrals. A new series of radiographs revealed apical infections on both teeth (Fig. 1). Both teeth were deemed restoratively hopeless (Fig. 2).

Treatment plan

The patient was given the option to have a removable partial denture, fixed partial denture or implants. The following treatment was performed:

- Extraction of teeth #8 and #9 and maxillary periodontal esthetic osseous surgery.
- Temporization with a resin-bonded fixed partial denture during healing period.
- Placement of implants for #8 and #9.
- Six-month healing period.
- Placement of final implant crowns.
- Extraction and socket preservation.

The teeth were extracted followed by a thorough degranulation and debridement of the extraction sites. No dehiscence or fenestration was detected, and no graft material was placed in the extraction sites. The space was then temporized with a resin-bonded fixed partial denture (Fig. 3).

Esthetic periodontal osseous surgery

The primary goal for this procedure was to eliminate the “gummy smile.” Osteoplasty was followed by approximately 1 to 1.5 mm of osteotomy. The flap was repositioned apically (Figs. 4 and 5).

Implant placement

After osteotomy preparation, two internal-hex implants with S.L.A. (sand-blasted with large grit and acid etching) surfaces were placed (Fig. 6).

A 3.8 mm x 12 mm implant was placed into site #8 and a 3.4 mm x 12 mm implant was placed into site #9 (Implantium S.L.A. implant by Dentium USA, Cypress, Calif.). Primary stability was achieved, and healing abutments were placed. The site was re-temporized using the same



Fig. 1: Pre-op radiograph. (Photos/ Provided by Dr. Saghi Parham)



Fig. 2: Pre-op smile

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Fig. 3



Fig. 4



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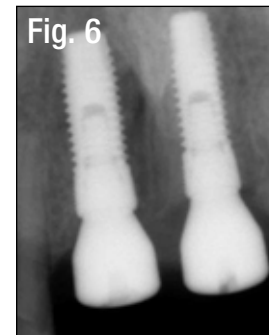


Fig. 6



Fig. 7

Fig. 3: Temporary resin-bonded fixed partial denture.

Fig. 4: Esthetic periodontal osseous surgery.

Fig. 5: Results of esthetic gum lift.

Fig. 6: Radiograph showing placement of two implants in spaces #8 and #9.

Fig. 7: Radiograph showing finalized implant prosthetics.

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resin-bonded fixed partial denture that was used during the first healing phase.

Final prosthetics

Final restoration of both #8 and #9 implants was performed at six months. The marginal height and contours of both implants matched, and a periapical radiograph revealed sufficient bone height around the fixtures (Figure 7).

The patient was happy with the functional and esthetic results (Figure 8). **II**



Fig. 8

Fig. 8: Final smile.

II About the author



Dr. Saghi Parham received a bachelor of science degree with a major in biology from the University of California, Los Angeles. She received her doctor of dental surgery degree from the University of Southern California, School of Dentistry.

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