

PROSTHODONTIC

—Insights—

A Digest of Recent Trends, Techniques and Clinical Concepts of Dental and Facial Esthetics



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Rebuilding A Smile: An Esthetic and Functional Oral-Facial Rehabilitation using Brånemark Osseointegrated Implants

Restoration of facial form and dental esthetics is integral with the establishment of oral function. As an example, patients suffering with advanced periodontitis often have teeth which have shifted into nonfunctional and unattractive positions (Fig. 1a.) The clinical report to follow provides detailed insight into the restoration of facial balance, dental esthetics, and oral function

(Fig 1b).

Medical History: The medical history of this 49 year old female is unremarkable with regards to the proposed implant prosthodontic rehabilitation.

Dental History: In spite of a 20 year history of periodontal therapy the patient suffered with the ongoing ravages of advanced periodontitis.

Numerous teeth were endodontically treated and extra coronal splinting was employed to stabilize both the maxillary and mandibular anterior and bicuspid dentition (Fig 2a,b).

Clinical examination revealed highly inflamed and suppurative gingival tissues, advanced mobility and an unsightly protrusive appearance of the maxillary and mandibular teeth in combination with a collapse of the posterior dentition. In full face smiling view the patient reveals all of the maxillary anterior dentition, including the receded spaces between the teeth (class IV smile line) (Fig 3). In profile, the maxillary dental protrusion creates a stretched lip appearance and the unsightly "bucked tooth" incisor position (Fig 1a).

Clinical considerations for therapy: Because of the advanced bone loss and multiple advanced mobility,

(Continued on Page 3.)



Figure 1a
Profile illustrates the preoperative "bucked tooth" appearance.



Figure 1b
Profile showing normal lip posture and esthetically repositioned anterior teeth following implant reconstruction.



Figure 2a
Preoperative periapical radiographs demonstrate advanced periodontitis



Figure 2b
Intraoral preoperative view demonstrates crowded mandibular anterior teeth.



Figure 3
Preoperative smiling view with teeth in the protruded position with advanced gingival recession.

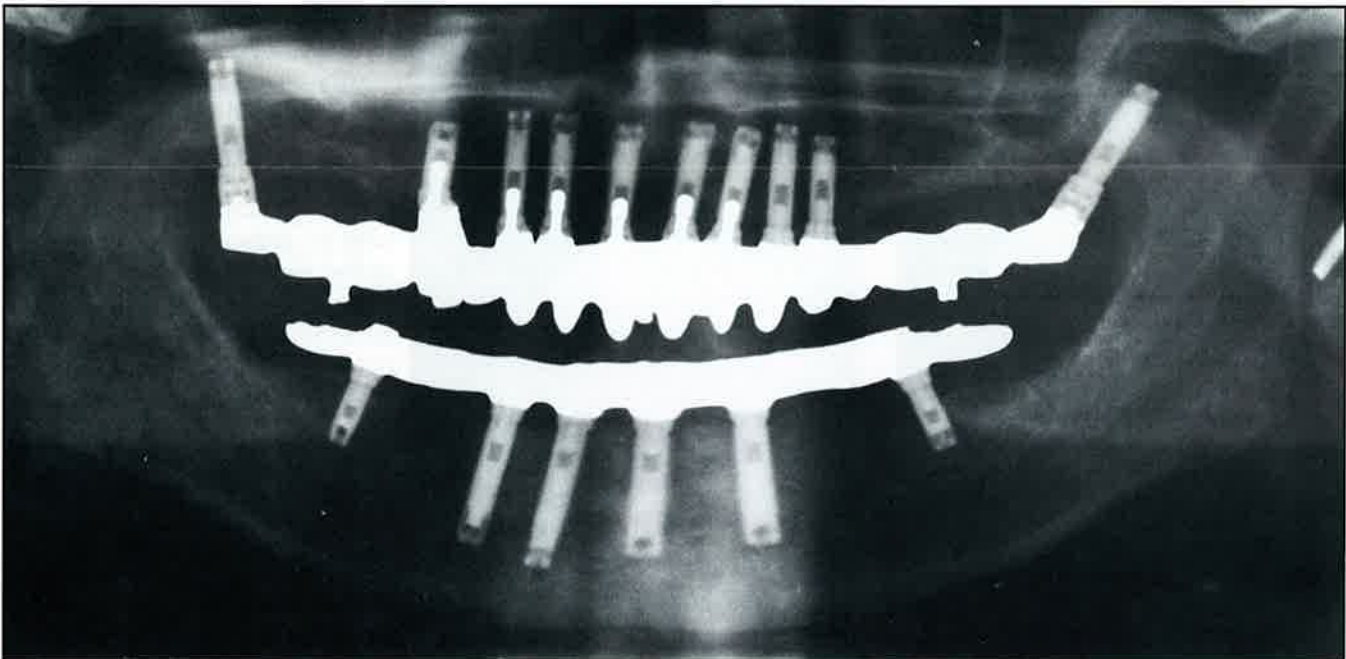


Figure 4
Postoperative panoramic radiograph illustrates the use of Brånemark implants to support a porcelain fused to gold maxillary prosthesis and mandibular traditional reconstruction (gold bar with acrylic denture teeth).

Rebuilding A Smile:

(Continued from Page 1.)

orthodontic therapy and repositioning of the dentition was not a reasonable option. In addition, abutment selection for traditional fixed prosthodontics was extremely limited in as much as the advanced bone loss would leave these teeth with a poor long term prognosis.

Treatment Plan: In light of the level of clinical deterioration, a treatment plan calling for the use of osseointegrated implants to replace the existing dentition was developed to provide long term stability, functional improvement, and an esthetic repositioning of the teeth. An additional objective of this plan was to provide the treatment in the shortest time possible.

Treatment Sequence:

March 26, 1996: All of the maxillary and mandibular periodontally hopeless and compromised teeth were removed. Six Brånemark implants were placed in the mandibular arch, and 10 implants were placed in the maxillary arch. Sutures were removed ten days following stage 1 surgery and provisional complete removable dentures were delivered. Several modifications to the temporary prostheses were performed throughout the 3-month mandibular healing phase.

June 25, 1996: Three months after



Figure 5a
Frontal view post-implant rehabilitation



Figure 5b
Postoperative intraoral view shows ideal class 1 occlusion.

stage I surgery, the mandibular implants underwent stage II treatment with the placement of EsthetiCone abutments. A conversion prosthesis was constructed and placed into service the same day. This provided the patient with a fixed provisional restoration, allowing the ability to evaluate both esthetics and function against the removable temporary maxillary denture.

September 10, 1996: Five and one half months after Stage I surgery, the implants in the maxillary arch were uncovered. A combination of 17° angulated abutments, EsthetiCone abutments and standard abutments were used to support a conversion prosthesis constructed and placed immediately following abutment placement. Master impressions and articulating records, using the conversion prosthesis, were completed at the same visit.

September 18, 1997: One week later the final porcelain fused to gold fixed prosthesis was delivered (Fig 4). This prosthesis used pink gingival porcelain to enhance the interdental esthetics (Fig 5a & b)*. The patient has functioned asymptotically with enormously improved esthetics since the completion of her prosthetic rehabilitation. The facial esthetic improvement is significant when compared to the protrusive position of the maxillary incisors preoperatively (Figs 6a,b & 7a,b).

Soft tissue response to the implant prostheses appears to be exceptionally healthy despite the history of long standing periodontal disease. Continued supervision and oral hygiene based on a 3-month recall is essential for patients undergoing implant reconstructions of this nature.

*Fort Washington Dental Lab Inc.,

Resorbable Versus Nonresorbable Membranes in Combination With Bio-Oss for Guided Bone Regeneration

Zitmann et al

The use of guided bone regeneration techniques is essential in current oral implant treatment. The purpose of this clinical investigation was to compare the new resorbable collagen membrane, Bio-Gide, to the conventional expanded polytetrafluoroethylene material (Gore-Tex) for guided bone regeneration in situations involving exposed implant surfaces. Over a 2-year period, 25 split-mouth patients were treated randomly: one defect site

was treated with Bio-Gide and the other defect site with Gore-Tex; all 84 defects were filled with Bio-Oss and covered with the respective membrane. The defect types, their dimensions, and their morphology were measured in detail initially and at re-entry to allow for calculation of the exposed implant surface. Changes in defect surface for both types of membranes were statistically significant. The mean average percentage of bone fill was 92%

for Bio-Gide and 78% for Gore-Tex sites. In the latter group, 44% wound dehiscences and/or premature membrane removal occurred. The resorbable membrane, Bio-Gide, in combination with a bone graft, can be a useful alternative to the well-established expanded polytetrafluoroethylene membranes.

Int J Oral Maxillofac Implants 1997;
12:844-852



Figure 6a
Preoperative lateral cephalometric film illustrates the extent of the maxillary protrusion.



Figure 6b
Postoperative lateral cephalometric film showing optimal lip support created by an esthetically improved implant supported prosthesis.



Figure 7a:
Full face preoperative view.



Figure 7b
Final implant prosthetic result with ideal smile line and optimal dental esthetics

Knowing when you don't know: The ethics of Competency

By TK Kasegawa & M. Matthews, Jr.

Although patients should expect their practitioners to be competent, some however, hold unrealistic expectations about the scope of the dentist's practice and the outcome of care. Our understanding of the word competent includes intellectual, physical-technical and interpersonal competency. We must rely on elements of all three parts to practice professionally. If one part is missing, competency suffers.

There are also three levels of skill: competency or beginning level, proficiency entailing advanced education or several years of practice, and expertise or mastery which requires many years of practice and education. Other factors include diagnosis, which is influenced by the range and numbers of clinical experiences, self-assess-

ment which helps one realize limitations, and the fact that a general dentist may perform care across the full range of clinical competencies.

Every dentist recognizes a range of uncertainty regarding their ability to provide the standard of care. Consequently, a range of competency in practice can be established by setting limits to the scope of care. Uncertainty also can effect how we understand our limitations. There are limitations in current medical knowledge, no physician can provide the answer to all questions. In addition, the dentist must distinguish between uncertainty, personal ignorance or ineptitude, and the limitations of present medical knowledge.

Actually, the admission of our limitations is an expression of competen-

cy. When the practitioner decides that the patient's needs exceed his or her skill level, that practitioner is making a competent decision. In contrast, the incompetent clinician may be unable to recognize, or chooses to disregard, his or her skill limitation. Worse yet is the clinician who knowingly provides care below the standard.

The ability to "know what we don't know" is an inseparable value of competent ethical practice. A reasonable expectation by the profession of dentistry is that its members move from competency to proficiency to expertise by acquiring knowledge, skills and experience from treating patients, and with continuing education. This necessitates that dentists gradually test their skills against more complicated cases. For philosophers, knowing that you do not know is the beginning of wisdom; for health care providers, it's the beginning of professionalism.

Dental Abstracts, 1996;41(5):218-220

Tufts study uncovered tooth loss, smoking link

Earlier Tufts studies found a connection between smoking and bone loss, while other studies show that smokers tend to have fewer teeth than nonsmokers. A recent study confirmed the previous one and concluded that smoking may double a person's risk of losing teeth. The study strongly suggests that there is something biological going on. They hypothesize that loss of bone around the teeth is somehow affected by cigarette use and leads to eventual loss of teeth.

Other studies have shown that cancer risks and pulmonary function begin to improve as soon as smokers quit. Researchers will begin to investigate if something similar might happen regarding tooth loss.

When it is best to remove a tooth

Gordon J. Christensen

There are times when removing a tooth is the best decision, and when tooth retention actually impedes treatment, weakens restorations, reduces the esthetic result and shortens longevity of treatment results. This article reviews those situations in which removing teeth might be more acceptable than retaining them.

Dentists are advised to evaluate each situation with a goal of achieving the best function for the longest time with the best esthetic result. Tooth removal is suggested when the teeth compromise comprehensive oral therapy and patients must be fully educated about the need for this apparently radical therapy. Patients will usually accept the extraction if well-planned implants, or fixed or removable prostheses are alternatives offering a more optimum result.

The following situations illustrate times when removing a tooth may be the best decision:

1. Endodontically treated teeth with continuing chronic pain
2. Inadequate coronal tooth structure remaining for long-term service
3. Inadequate internal root structure remaining
4. Esthetic nonconformity
5. Vertically cracked roots
6. A natural tooth among several implants
7. Teeth with significant periodontal destruction

Validation of dental implant systems through a review of literature supplied by system manufacturers

By: SE Eckert et al
Mayo Clinic and Mayo
Foundation, Rochester, MN

This review solicited literature from six implant manufacturers (Calcitek, Dentsply, Interpore IMZ, Nobel Biocare, Straumann ITI, Steri-Oss) to validate their implant systems. All six manufacturers responded to the request for references in 1991; however, two of them, Dentsply and Steri-Oss, declined to participate in the 1995 review. The review was conducted in an academic setting as a cooperative effort between two graduate training programs, periodontology and prosthodontics, and with the assistance of a research associate. Every effort was made to prevent reviewer bias affecting literature selection or interpretation.

The meaning of this literature-based validation is unclear. From an academic standpoint, it is absolutely appropriate to demand evidence before changes in therapy, techniques, designs, or materials are initiated. Clinical trials should be conducted to ensure safety and effectiveness of new or different implant materials, surface configurations, surgical techniques, and surface coatings. The question remains one of whether the profession should demand research or simply move forward without it.

It was clear from the review that some implant systems are prone to high initial survival rates, which are

followed by longer periods of declining survival. It appears that implant survival curves for all the reporting implant systems intersect in the 3- to 7-year period, with the Nobel Biocare implant system maintaining a favorable survival slope with increasing years of implant service.

It seems appropriate to consider the Nobel Biocare implant system, whose validity has been demonstrated through a series of retrospective and prospective clinical studies, as the reference standard against which all other systems must be compared. By using this implant system as a therapeutic control, prospective randomized clinical trials may be designed to determine scientifically whether there is a difference among implant systems.

The reviewers reached the following conclusions:

1. Scientific validation of the Nobel Biocare implant system was provided through a series of prospective and retrospective studies that used

specific success criteria in multiple clinical applications.

2. Validation of the Calcitek, IMZ and ITI implant systems was provided through quasi-scientific documentation. The recommended articles often did not describe success criteria, provide statistical analysis, or differentiate among implant designs.
3. Analysis of implant survival alone is inadequate to demonstrate the validity of a specific implant system. Implant health, bone response, soft tissue health, failure pattern, time of failure, and ease of restoration must be considered in discussing implant success.
4. Scientific documentation of implant "success" either is not readily available for review or the implant manufacturers are not able to supply references for such documentation.
5. Success criteria that are acceptable to the implant industry should be developed to assist the dental practitioner in making informed choices about selecting an implant system.
6. Randomized clinical trials using validated implant systems as controls should be performed to determine the presence or absence of differences among implant systems.

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Brånemark System Prosthetic & Surgical Training Programs

Dates: January 15-17, 1998
April 13-15, 1998
September 8-10, 1998

Presenters: Thomas J. Balshi, DDS, FACP
Glenn J. Wolfinger, DMD
Bob Winkelman, CDT, MDT
Ron Dove, Nobel Biocare,
System Specialist

Location: Institute For Facial Esthetics
467 Pennsylvania Avenue #201
Fort Washington, PA 19034
Tel: 215-643-5881
Fax: 215-643-1149
email: PITEAM@aol.com

Sponsor: Institute for Facial Esthetics

Tuition: \$1,800.00

- **Venue:** This course is held in a clinical setting. Participants will observe all implant related treatment scheduled during the 3-day program, including stage 1 and 2 implant surgeries and bone grafting procedures.
- **Hands-on training,** both prosthetic and surgical; lectures; slides; videos
- **Hours:** 3-day program from 8:00 a.m. – 5:00 p.m.
- **Objectives:** To demonstrate the effect of osseointegrated implants on facial esthetics and general patient well being; patient management before, during and after Stage I and II surgery. Post-prosthesis maintenance.
- **IFFE is an ADA CERP recognized provider**

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and Implant Prosthodontics

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