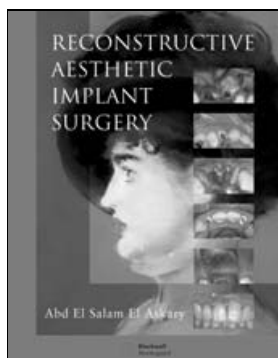


Book Reviews



Reconstructive Aesthetic Implant Surgery

Edited by Abd El Salam El Askary. Blackwell Munksgaard, a Blackwell Publishing Company, Ames, IA, 2003: ISBN 0-8138-2108-8 (146 pages; 333 color illustrations; price \$129.99; hard cover)

As we approach over 40 years of clinical success for the endosteal dental implant, we must remember that it was originally created to restore a functional quality of life for the edentulous patient, and aesthetics were of very little importance. The purpose of this text, as suggested in the foreword by Drs. Carl E. Misch and Kenneth W.M. Judy, is to highlight a concept that has received little emphasis in the arena of cosmetic dentistry. This emphasis, as stated by the title, is to educate the professional on the surgical options to create the necessary bone support and gingival architecture for a harmonious transition of natural emergence and papillary architecture from implant restoration to natural dentition. With deep conviction, I agree with the concept continually stressed by the author that the patient receives highest optimal treatment through a team approach. Dr. El Askary, through the five chapters of this book, creates an easy-to-read, illustrated overview of treatment planning and surgical aspects of aesthetic dental implant restorations.

The first chapter is an introduction, in which the author points out the importance of art in human life and how it shapes our perceptions. As quoted directly from this chapter: "Most artists

have one thing in common: they use their talent to imitate reality." To create an aesthetic result in dentistry, we too must use our artistic talents to mimic the natural dentition. Our teeth are not mere physical structures that provide a functional role. They also have a vital role in creating self-image, providing for perception in society, creating physical attractiveness, and influencing interaction within society. Therefore, it is the dental professional's responsibility to analyze available treatment options for patients to provide them with aesthetic and predictable long-term restorations. This sets the foundation for the book to explain how these results can be obtained with dental implant rehabilitation today.

The second chapter, "Presurgical Considerations," concentrates on the treatment planning phase from study models to surgical template. The author stresses the importance of complete presurgical planning and the importance of the team approach. The prosthetic treatment options available, along with reasons why one option should be chosen over another are discussed. These include, but are not limited to: study models, radiographic analysis, conventional fixed bridges, adhesive bridges, RPDs, dental implants, tissue biotype, and facial smile line.

The third chapter, "Aesthetic Implant Placement," deals with the importance of proper implant positioning in all three dimensions and how this ultimately affects the final treatment outcome. It also deals with the challenges of restoring, or how to correct misplaced dental implants.

The largest chapter of the book, "Soft Tissue Management," looks at currently used surgical procedures for tissue management around dental implants. The author classifies the management of soft tissues in the aesthetic zone into one of four categories, according to timing of clinical intervention: (1) before implant placement, (2) during implant placement, (3) at the time of abutment connection, and (4) at post-abutment connection. This chapter focuses on many of the current techniques used to augment deficient

labial gingival sites, the difficult nature of papilla regeneration, and the enhancement procedures. There are also numerous clinical photos demonstrating these techniques. The most difficult task is trying to recreate papilla; and thanks to research by Tarnow et al, we are given some very good guidelines as to papilla heights between natural teeth, natural tooth and a dental implant, and between adjacent dental implants.^{1,2} This needs to be thoroughly considered in the development of the treatment plan, so that patients can be told of potential limitations to the final treatment results. Even within the illustrations of this book, papilla height ultimately becomes masked by movement of the proximal contact in a more apical direction.

The final chapter, "Aesthetic Bone Grafting," focuses on how to develop underlying osseous support to influence soft tissue contours. The process of guided bone regeneration and types of bone grafting materials are discussed in a good overview. Advantages and disadvantages are given for all materials discussed, as well as the process of determining when to use a particular graft. Finally, the author mentions future techniques, including the potential use of Growth Factors and Bone Morphogenetic Proteins.

The book is bound in an artistic cover with the pages printed on a heavy paper stock. The writing style has a storybook flow that is very easy to read. The only problems of note are some confusing layout designs. On pages 78 to 84, there are minor editorial flaws which hinder the readability. Placing this aside, the author does a very nice job of providing a timeline for two-staged protocols to achieve optimum aesthetic results. Optimal placement of the dental implant becomes the prerequisite to achieving these results. It was best stated by the author that "[p]rosthodontic-driven implant placement is the golden rule that ensures predictable treatment results." This can often require surgical augmentation to correct the soft and hard tissue-deficient sites.

Bryan K. Cochran, DDS

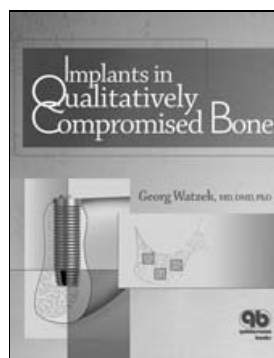
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Implants in Qualitatively Compromised Bone

Edited by George Watzek. Quintessence United Kingdom, 2004: ISBN 1-85097-050-5 (188 pages; 145 illustrations (92 color); price \$96; hard cover)

Sixteen contributing authors, mostly dual-trained European physician-dentists, including the editor, produced this text, which contains 11 chapters and the editor's preface. Each of the chapters has extensive references, ranging from 27 to 140 in number. The purpose of the text is to review the concept of "compromised bone" and its relationship with the success of implant integration. Dr. Watzek has been the head of the Department of Oral Surgery at the University of Vienna for over 20 years, and has authored 7 textbooks and more than 200 other publications. This book is worthwhile for the student and the clinician alike, as many implant prognosticating factors are presented and discussed, with plentiful references for further analysis provided.

The first chapter (28 references) defines minimal morphological requirements for successful implant placement: a bone volume of at least 10 mm in the vertical dimension and 5 mm in the horizontal dimension. Intraosseous factors such as cellular factors and wound healing are discussed in an overview. Wound-healing studies reveal the roles of monocytes and macrophages, and the authors attribute implant integration to these cells mainly due to their release of growth factors and chemokines. As noted by the authors, interleukin-1 and tumor necrosis factor- α are cytokines released by the monocytes which boost local

production of prostaglandins and promote wound healing, which is likely favorable with regard to implant integration. The authors speculate that age-related modification of mesenchymal progenitor cells could serve as one of the variables defining poor bone quality. These cells are influenced by bone morphogenic proteins, which are abundantly expressed at sites of bone repair and exert an osteoinductive potential. Osteoclasts are necessary to remove non-vital bone after osteotomy preparation, and may therefore serve as another variable for defining bone quality. Structural factors are defined via the Lekholm & Zarb classification system (Types 1 to 4). Type 4 bone has comparatively lower long-term success rates (50% to 94%), and the authors speculate that rough surface implants may be an option for increasing the long-term implant success rate. Vascular factors are the final element discussed in this chapter, as macro- and microperfusion are considered. Interestingly, some researchers speculate that alveolar ridge atrophy and circulatory compromise potentiate each other, as the micro- and macrocirculation of the bone are by no means invariable.

The second chapter (69 references) is a readable, in-depth description of the mechanism of bone development, remodeling, and loss. The anatomy of the alveolar region is inhomogeneous with regard to the ratio of cortical to trabecular bone. Osteoblasts, osteocytes, and lining cells belong to mesenchymal cell lineage, whereas osteoclasts are derived from hematopoietic progenitor cells. Osteocyte signaling a demand for bone regeneration may be conveyed to lining cells, and signaling molecules activate the bone remodeling mechanism. The cellular and molecular basis of the current understanding of bone preservation during remodeling is elucidated in detail. Mechanisms that cause bone loss during aging, loss of sex hormones, glucocorticoid excess, and chronic inflammation are adequately discussed. Chapter 3 (44 references) describes the structure of atrophic alveolar bone. The results of anatomic and histomorphometric studies are reviewed, highlighting the observations which may be helpful to clinicians. The group at the University of Vienna conducted studies on deceased human volunteers, which allowed them to make some correlations regarding the Lekholm & Zarb bone qualities. Of note, in this specific sample population, there was a sex-specific difference in the mandible, with Type 3 predominating in women and Type 2 in

men. The authors state that their data largely agree with those of Truhlar (1997), who studied bone quality in 2839 implanted sites by radiography and tactile sensation; however, as these analyses were based on a clinical classification system, they can at best give a rough subjective idea of bone quality. Of note, the majority of histomorphometric bone studies in a larger human population have been carried out on iliac crest biopsies. The authors noted a number of interesting differences, and conclude the chapter by noting that even within a small region, the cancellous bone structure of the jaws varies widely and all but defies the four bone qualities described by Lekholm and Zarb.

Chapter 4 (43 references) describes flap design and surgical anatomical considerations for implant placement. For both jaws, avoid denuding the alveolar bone to prevent extensive resorption of the host bone postoperatively. Postoperative hemorrhagic events are described, including citations of fatal bleeding incidents (9) in the literature. Most of these involved airway obstruction. Three-dimensional imaging is suggested to minimize the risks inherent in the underlying anatomy. Chapter 5 (41 references) describes assessment of bone quality: techniques, procedures, and limitations. Preoperative assessment can be conventional or by computerized tomography. Intraoperative assessment can be done via torque (Friburg 1999) described as low (<30 Ncm), medium (30 to 40 Ncm), and high (>40 Ncm). Resonance frequency analysis (Meredith 2000) as a diagnostic test method can assess bone-implant interface immediately after implant placement and during follow-up investigations. According to the author, the Implant Stability Quotient (ISQ) has a scale from 0 to 100. Values below ISQ 40 are "at-risk," and values over ISQ 55 are considered favorable. Postoperative assessment includes the Periotest device, but the authors believe that the application of this diagnostic aid is limited, citing two clinical reports (Mericske-Stern 1997, Meredith 1998). Chapter 6 (140 references) describes surgical perspectives for compromised bone. Guided bone regeneration procedures are described, along with strategies for improving bone quality at the cellular level. Implant considerations such as modifications of shape and surface are detailed. A strategy for placing implants in Type 4 bone is put forth, as well as a discussion of timing of implant placement in conjunction with functional

loading. The authors conclude the chapter with a discussion of a flexible schedule with regard to implant healing times.

Chapter 7 (116 references) concerns experimental approaches in bone regeneration. The biology of the clot with the associated cellular and molecular activity is described. Critical-sized defects and their relationship to bone regeneration strategies depend on three components: temporary extracellular matrix, signaling molecules, and mesenchymal progenitor cells. Approaches to reconstructing bone rely on scaffold design, cell-based, or growth-based strategies. Gene therapy is also a future consideration. Bone is considered one of the most promising targets of regenerative medicine. Chapter 8 (79 references) details considerations for implants in the elderly. General age-related changes in bone are presented in addition to the changes in alveolar bone. Primary and secondary osteoporoses are discussed, and the authors point out that for postmenopausal women, there has yet to be a single implant study designed to investigate this population. Age-related changes of the maxillary sinus and soft tissues, in addition to a discussion of oral hygiene in the elderly are discussed in this chapter. Implant prognosis as a function of age is also reviewed. Chapter 9 (27 references) is a short chapter on implants in children and adolescents. Growth and development of the maxilla and mandible are reviewed, and very general guidelines are provided. The importance of treatment planning in these patients is emphasized. The final section details the use of "temporary" implants as ultimate orthodontic anchorage.

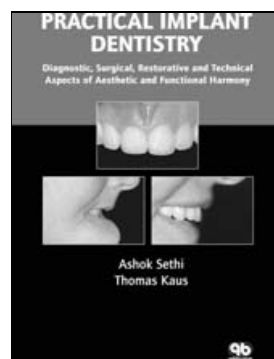
Chapter 10 (68 references) is coauthored by a surgeon and an acknowledged expert in maxillofacial prosthodontics, Dr. John Beumer III. The goal of the chapter is to evaluate current concepts of radiation therapy with respect to dental implants and their long-term success. An overview of the physical properties of radiation, and photo and particle irradiation is presented. Electromagnetic waves with wavelengths smaller than one angstrom are photons and cause low-density ionization measured in electron volts. X-rays are produced by electrical devices, and gamma rays are produced by radioactive disintegration of unstable radioisotopes (Co 60, Cs 137, Ir 192). Therapeutic effects are essentially caused by disruption of atomic structures producing cellular chemical and biological changes. Bone reaction to

this treatment is discussed in detail. "There is no general agreement on the fate of osteoblasts after irradiation." Meyer (1956), Kok (1953), and Ergün (1980) believe that osteoblasts are killed by "irradiative trauma." Anderson (1979) found no evidence of osteoblastic degeneration after irradiation. No consensus has been developed on the fate of osteocytes after irradiation. Cellular response to therapeutic radiation results in a tendency toward fibrous tissue formation and non-lamellar bone tissue. A discussion on healing and non-healing (osteoradionecrosis) is presented. Use of hyperbaric oxygen as a treatment modality for radiation patients is presented. Experimental and clinical studies of implants in irradiated bone are detailed, and clinical guidelines are outlined.

The final chapter (43 references) details the use of lasers in implant dentistry. This chapter delivers very basic information regarding lasers, and is completely irrelevant with regard to the title of the text.

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Practical Implant Dentistry

Ashok Sethi and Thomas Kaus. Quintessence Publishing Co., Ltd., New Malden, United Kingdom, 2005: ISBN 1-85097-061-0 (288 pages, 540 color illustrations; price \$162; hard cover)

Since its introduction, the dental implant has changed the standard of dental care and the way of thinking about treatment. Numerous surgical and prosthodontic techniques were introduced to achieve the best esthetic and functional outcome, but occasionally too many techniques could confuse the dentists who just started their way to implant practice. This book is written at an intermediate level covering most current techniques without involving intricate laboratory procedures, and is intended for use by general practitioners who already have a limited experience in implant dentistry, or by specialists who have just started to apply their treatment to more complicated implant cases. This book is highly practical and clinically relevant. It shows very clear decision-making guidelines with flowcharts and is perfect for anyone seeking straight and simple solutions for complex cases.

This book is composed of three sections: (1) Introduction and Assessment, (2) Implant Placement: Surgery and Prosthodontics, and (3) Hard and Soft Tissue Augmentation and Manipulation. The first section is fairly short, but valuable, and assumes that readers are already familiar with the terms and techniques used in the book. Although only broad principles are described, all essential factors for good treatment planning are touched without omission. Moreover, it places a heavy emphasis on explaining diagnostic techniques such as the classical ridge mapping and the use of up-to-date planning software with CT scanning and 3D modeling.

In the second section, comprehensive surgical and prosthetic techniques are described for cases with ideal supporting tissue. The techniques range from replacing a failing single tooth with immediate placement to treating multiple missing teeth with delayed placement. A variety of prosthetic and surgical techniques are also shown step-by-step for several clinical scenarios. In addition, the incision designs for exposing submerged implants and the complex prosthetic procedures are explained thoroughly, using a flowchart and numerous clinical photographs.

The third section introduces surgical augmentation and manipulation of hard and soft tissue when implant sites are not ideal for acceptable esthetics and stability. In order to overcome insufficient bone quantity and quality, bone expansion, bone graft, and bone condensation are described in detail, since these are popular and practical in

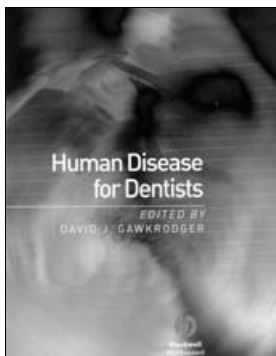
a private practice setting. Furthermore, various sinus lift methods are reviewed with respect to different types of bone resorption and enlargement of the maxillary sinus. Onlay grafts or nerve repositioning for the mandible, and extensive onlay grafts from the iliac crest for the severely resorbed bone cases, are demonstrated with beautiful illustrations and photographs. At the end, soft tissue surgical manipulations to correct various esthetic complications after implant placement are shown thoroughly.

This book is well produced with a hard cover, and it includes numerous stunning illustrations and pictures. The abundant flowcharts make it easy for readers to visualize various implant treatment options in specific situations. The authors present many checklists for specific stages, before proceeding to the next step of treatment. Also, the pictures, illustrations, and flow charts are extremely valuable for fast referencing without reading all the text. A reader looking for scientific information about biology or materials of implant dentistry may be disappointed. Although the book succeeds in showing various useful techniques based on the authors' clinical experiences, it falls short of describing relevant research evidence to support the validity of these techniques. It becomes critical when immediate loading is suggested for routine treatment without explaining objective methods measuring implant stability. All references are located at the back of the book, not at the end of each chapter, which makes it difficult to find them. Furthermore, there are only 208 references in this text, which might not be enough for some readers seeking more information to master techniques. While reading this book, please note that only the Ankylos dental implant (Dentsply Friadent, Germany) has been used. This implant has some unique features, such as horizontal ledge design at the implant platform to minimize bone loss, for which these implants could be placed deeper than that other system; however mentioning other implant types and comparing the differences would be helpful.

As implantology requires a combination of complex surgery and advanced prosthodontics, dentists are often overwhelmed by the vast amount of information and different choices of techniques. This book is clearly focused on simplified clinical practice and shows many technical options in an organized manner without excessive explanation. Dentists may want to keep this book close at

hand—it will provide them with correct treatment under specific clinical circumstances, quickly and without detour.

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Human Disease for Dentists

Edited by David J. Gawkrödger. Blackwell Munksgaard, a Blackwell Publishing Company, Ames, IA, 2004: ISBN 0-632-06453-6 (279 pages—including sample test questions, case problem solving, and index; 48 color illustrations, 57 black and white drawn figures; price \$59.99; soft cover)

Thirty-five contributing authors and one editor produced this text, which includes 29 chapters, two sections of sample test questions and problem solving, and one section of color illustrations. The preface is by Dr. David J. Gawkrödger. This text is a review of human disease for the dental profession, as its title suggests. Its intended audience includes dental students, dentists, and other dental health-associated providers.

Emphasis is placed on conditions patients may have that dentists will most likely encounter in their everyday practices. The authors and editor present the health information in a succinct, organized, and easy-to-understand format for the reader. Helpful websites and further reading resources are listed after each chapter to further enhance the reader's knowledge and understanding of each topic covered in the text. This text will greatly assist the reader in physically assessing a patient and in understanding basic human disease and conditions, and appropriate care for those patients in the dental office.

The book begins by addressing basic skills, including taking an adequate and appropriate medical history and performing a thorough clinical examination. Emphasis is placed on taking a complete medical history to prevent complications that could arise during dental treatment. In this section and elsewhere in the text, it is interesting to note examples of case studies, which encourage the reader to diagnose the patient's condition and its effect on the potential dental care of the patient. In addition, there is a section at the end of the text with very helpful test questions and case studies to aid in the comprehension of the material.

The next section of the text covers diseases and conditions the dental patient might present with. The 19 chapters include topics such as cardiovascular diseases, respiratory diseases, gastrointestinal diseases, endocrine disorders, renal diseases, neurological diseases, blood disorders, infectious diseases, allergies, eye disorders, ear, nose, and throat diseases, skin diseases, rheumatological disorders, and psychiatric diseases. Pregnant patients, medical emergencies, and dental patients with disabilities are also covered in these sections. I found these chapters especially interesting. As stated previously in this review, many contributors added to this text, and each added their clinical and practical expertise in describing concisely each human disease and condition discussed. I should also note that in each of these chapters, figures and tables assist the reader in understanding the material.

Following the section dealing with diseases and conditions are chapters on pharmacology and anesthetics. Topics in these chapters include cardiovascular drugs, antibiotics, immunosuppressants and corticosteroids, pain origin and control, general and local anesthesia, maxillofacial trauma and anesthesia, and drug interactions. Again, the authors' clinical and practical expertise shows through in these chapters, making the material both interesting and understandable.

The final section contains very helpful problem solving, case study-type questions, short answer questions, and multiple choice questions. Answers are also provided. This section is very useful to test your and/or the student's knowledge of the material covered. The questions are appropriate and useful, and contain material dentists will run into in their practices on an almost daily basis. If you use this book in a class on human disease

or physical assessment, this section will especially come in handy. The book finishes with the color illustrations section and then the complete index.

The soft cover text is attractively bound and printed on high quality paper stock. I would recommend this text for any dental professional who would like to sharpen his or her wisdom regarding human medical conditions and diseases. Even if you already feel comfortable in your knowledge on this topic, there is always new and interesting information to be learned—I found both revisiting older information and learning newer material to be very valuable. This text would also be excellent for the first- or second-year dental or dental hygiene student. The information contained will be very useful for newer dental professional students and will give them an excellent foundation of knowledge of human diseases and conditions; and this knowledge will be used throughout their professional careers.

I particularly appreciated the information from the 35 contributing authors and editor—each adding information to the text from their field of expertise. Each medical discipline was discussed by a professional from that particular discipline, making the information in the text current, relevant, and applicable for the dental health professional.

The majority of the authors and the editor are from Sheffield, UK; and for American readers, it is fair to note that a small amount of the

spelling in the “King’s English” is different from what we typically read here “across the pond.” Examples are “haematological” versus “hematological,” “anaesthesia” versus “anesthesia,” “behavioural” versus “behavioral,” etc. Other differences included dialing 999 versus 911 in the event of a medical emergency, and consulting with the Working Party of the British Society of Antimicrobial Chemotherapy versus the American Heart Association for guidelines regarding prophylactic antibiotic coverage for appropriate patients. I found these differences to be very minor, and few and far between.

In closing, *Human Disease for Dentists* provides a wealth of information for the dental professional in a single source. The authors’ comprehensive knowledge, written in an understandable manner, is quite refreshing. This text would be an excellent addition to the library of any dentist involved in the care of patients; in addition, it would be an outstanding text in the dental school classroom for a human disease or physical assessment course before the dental professional students begin their careers in the clinic.

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