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Salient features

In this book we have dealt with all the surgical procedure involved in the placement of Dental Implants. It mainly focuses on the soft tissue considerations involved in the placement of osseointegrated supported prosthesis i.e Dental Implants. It mainly focuses on the Do's and Dont's involved for placing Dental Implants.

This Book brings in a comprehensive compilation of information regarding the significance of soft tissues in implantology, their defects and management.

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Soft tissue Considerations in Osseointegrated Supported Prosthesis



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SOFT TISSUE CONSIDERATIONS IN OSSEOINTEGRATED SUPPORTED PROSTHESIS

First Edition

SURGICAL AND PROSTHETIC ASPECT

Authors

Dr. Arunoday Kumar

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Dr. Rajesh. S. Nongthombam

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First Edition, by ***Dr. Arunoday Kumar, Dr. Priyaranjan, Dr. Rajesh. S. Nongthombam, Dr. Manjula Das & Dr. Sandeep Kumar***

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Salient Features

USP is “SOFT TISSUE CONSIDERATIONS IN OSSEOINTEGRATED SUPPORTED PROSTHESIS: SURGICAL AND PROSTHETIC ASPECT”

In this book, we have focused on the surgical and prosthetic aspects of soft tissues. Definitely this book is different in all aspects starting from contents, as this book gives detailed information about the prosthetic products which includes mainly:-

- ✓ In this book we have dealt with all the surgical procedure involved in the placement of Dental Implants.
- ✓ It mainly focuses on the soft tissue considerations involved in the placement of osseointegrated supported prosthesis.
- ✓ It mainly focuses on the Do's and Dont's involved in the surgical placement of Dental Implants.
- ✓ This Book brings in a comprehensive compilation of information regarding the significance of soft tissues in implantology, their defects and management.

Foreword

I am extremely privileged to write foreword letter for the book entitled “**Soft Tissue Considerations in Osseointegrated Supported Prosthesis: Surgical and Prosthetic Aspect**”. In this book we have dealt with all the surgical procedure involved in the placement of Dental Implants. It mainly focuses on the Do’s and Dont’s involved in the placement of osseointegrated supported prosthesis i.e Dental Implants.Dental. This Book brings in a comprehensive compilation of information regarding the significance of soft tissues in implantology, their defects and management.



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In the accomplishment of this book successfully many people have best owned upon me their blessing and their heart pledged support. This time I am utilizing to thank all the people who have been involved in the completion of this book.

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At last but not the least I would like to thank all my seniors and junior friends who effectively helped me in the completion of this book.

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Background

The rehabilitation of missing teeth by implants is one of the most demanding and complex treatments due to the necessity of obtaining an optimum esthetic result. At the level of the soft tissues, it involves obtaining the complete formation of the papilla and creating a harmonic contour of the gingival margin. Understandably, it is impossible to achieve satisfactory aesthetic results without peri-implant soft tissue that is harmonious with the adjacent tissues in color, form, and contour. Peri-implant architecture thus takes a major share in the aesthetic setup of any implant-supported restoration.

At the level of the papilla, there are two decisive factors that play an influential role: the formation of the biological width and the distance between the alveolar crest and the contact point. The position of the gingival margin depends mainly of the height and width of the facial bone, as well as on the biotype. The surgical technique, as well as certain prosthodontic aspects related to the implant, can influence the final position of the soft tissues.

In order to achieve long-term stable peri-implant health, it is important to achieve an adequate soft tissue seal around dental implant/restorations. The constant dimension of a biological width (of the soft tissue) often dictates where the final gingival margin will be. It is therefore not surprising that the position and stability of the alveolar bone ridge surrounding dental implants ultimately determines where the gingival margin rests. For dental implant restorations in the aesthetic zone, this is a crucial variable for the clinician to understand and deliver.

The expected aesthetic outcomes of implant therapy may be enhanced by manipulating or augmenting peri-implant soft tissues using periodontal plastic surgery. In addition, several factors such as presence of pre-existing ridge deformities, quality and quantity of soft tissue over the ridge and surgical strategies in implant placement/ uncovering are considered to be related to the final aesthetic outcomes of implant therapy.

Aesthetic implant positioning has a direct influence on the soft tissue profile and final appearance. The more precisely the implant is positioned; the easier it will be to obtain a natural-looking, implant-supported restoration in its soft tissue housing. With optimal implant positioning, any gingival discrepancy will be avoided, thus minimizing the need for further corrective surgeries and soft tissue reconstruction.

Unlike the natural dentition, a dental implant is a metallic body inserted into the jawbone. Therefore, its collar does not receive any blood supply from a surrounding periodontal ligament or any other vessels. Rather, it acquires a fibrous connective tissue band around its collar that is more dense and acellular. In addition, the very fragile nature of the oral mucosa makes its ability to withstand excessive clinical manipulations unpredictable, which can lead sometimes to asymmetrical final implant prostheses.

In view of the above, clinicians are required to handle peri-implant soft tissues with exceptional care because of their reduced blood circulation and delicate nature. Mastering the techniques of manipulating the delicate peri-implant soft tissue architecture in the aesthetic zone is therefore considered mandatory. It can lead to a remarkable improvement in the aesthetic outcome of implant-supported restorations when the other treatment steps are properly fulfilled.

As implant survival and success rates are high, the esthetic outcome has become the main focus of interest in esthetically sensitive areas. To achieve an optimal esthetic outcome, implants must be placed in an optimal position and inclination. Ideally, successful implant-supported restorations should imitate the appearance of natural teeth. The condition of the peri-implant soft tissue appears to be the critical determinant. The implant-supported restoration should be in symmetry with the reference tooth. The level of the peri-implant soft tissue, which influences the crown length, and its color and texture are decisive for the ‘natural’ appearance of implant-supported tooth replacements.

At the level of the bone, implant body is secured at the surgical site in the bone by a process called as osseointegration. Healing of endosseous implants develops through the mechanism of osseointegration, in which bone grows right up to the implant, without any soft tissue, cartilage, or ligament fibers being present between the bone and the implant surface. At the molecular level, the bone-implant interface could be described as a zone of cells and proteins in close apposition to a polycrystalline surface of titanium. This structure results in a very strong connection between bone and implant, so that the 2 components cannot be separated without fracture. Because of this connection, implants exhibit no micromobility in the alveolar bone, which would affect their behavior when they are exposed to occlusal forces. An osseointegrated implant may move only 10 *micrometer* when loaded. This is primarily because of bone flexure. So, here it becomes very important for the prosthodontist to take into considerations, the available bone in terms of quality and quantity and various other factors when planning for

implant placement. And it also becomes very important for us to have a thorough knowledge of bone physiology *and understanding bone behavior during oral bone grafting, implant placement, osseointegration and long-term bone maintenance.*

This Book brings in a comprehensive compilation of information regarding the significance of soft tissues in implantology, their defects and management.

SOFT TISSUE CONSIDERATIONS IN OSSEOINTEGRATED SUPPORTED PROSTHESIS: SURGICAL AND PROSTHETIC ASPECT

Authors

**Dr. Arunoday Kumar, Dr. Priyaranjan , Dr. Rajesh. S. Nongthombam, Dr. Manjula Das,
Dr. Sandeep Kumar, Dr. Syeda Shamima Nastaran Quazi**

BRIEF INTRODUCTIONS OF THE BOOK

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As implant survival and success rates are high, the esthetic outcome has become the main focus of interest in esthetically sensitive areas. To achieve an optimal esthetic outcome, implants must be placed in an optimal position and inclination. Ideally, successful implant-supported restorations should imitate the appearance of natural teeth. The condition of the peri-implant soft tissue appears to be the critical determinant. The implant-supported restoration should be in symmetry with the reference tooth. The level of the peri-implant soft tissue, which influences the crown length, and its color and texture are decisive for the ‘natural’ appearance of implant-supported tooth replacements.

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This Book brings in a comprehensive compilation of information regarding the significance of soft tissues in implantology, their defects and management.

Given the complex required procedures for successful and ultimately cosmetic and long-term results, an interdisciplinary “team approach” to care is highly recommended when considering implant therapy in the esthetic zone. Soft and hard tissue maintenance, as well as the ability to diagnose and predictably reconstruct these tissues when they are lacking, are key to esthetic success. Understanding the diagnostic keys when replacing a single anterior tooth helps ensure a long-term esthetic result. Proper implant selection and placement in three dimensions are also important factors. The dental team’s ability is to diagnose and treat soft and hard tissue deficiencies aids in preventing esthetic implant failures. The inter-disciplinary management of these cases enables each clinician to focus on the aspect of care that he or she is most comfortable with and has the most clinical experience performing. From preoperative case analysis to restorative completion, the patient will be the ultimate beneficiary of the team philosophy.

The transmucosal attachment that occurs at implants made of c.p. titanium is comprised of two parts: one barrier epithelium that has features in common with a junctional epithelium and is about 2 mm long. This barrier epithelium is continuous with one zone of connective tissue, about 1-1.5 mm high, that attaches (“integrates”) to the implant and contains collagen fiber bundles, some of which invest in the periosteum of the bone crest and run a course parallel with the surface of the implant. The gingiva at teeth and the mucosa at implants made of titanium have some characteristics in common, but differ in the composition of the connective tissue, the alignment of the collagen fiber bundles and the distribution of vascular structures in the compartment apical of the barrier epithelium.

Many different treatment options with many different components exist in implant prosthodontics today. Choices among them must aim for the rational use of the components for the majority of patients treated, ease in handling a safe and fast clinical procedure, and an economically favorable outcome for both patient and dentist. In a limited number of patient the standard choices are not enough, and a custom-designed approach is useful.

When it comes to implants to be inserted within the esthetic zone in view of a fixed restoration, a deep placement — close to or at the alveolar bone crest level — of the shoulder of implants often specifically designed for this indication, permits the suprastructure margin below the mucosa to be hidden, and the development of a gradual harmonious emergence profile from the implant shoulder to the surface, so that the resulting clinical crown replicates the profile of the natural control tooth despite a slightly more palatal implant position. This in turn leads to a secondary peri-implant bone loss or bone remodeling — particularly in a case of multiple adjacent implants — due to the reorganization of a biologic width. Under these particular circumstances, screw-retained restorations, based on prefabricated, machined components, will assure a maximum marginal adaptation, favoring the maintenance of the long-term stability of the esthetic result. The currently flat, "rotation-symmetrical" design of standard screw-type titanium implants, leading to a marked submucosal implant shoulder position at the interproximal aspect, may not represent, however, the optimal design, in particular in the context of multiple adjacent implants.

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Salient features

In this book we have dealt with all the surgical procedure involved in the placement of Dental Implants. It mainly focuses on the soft tissue considerations involved in the placement of osseointegrated supported prosthesis i.e Dental Implants. It mainly focuses on the Do's and Dont's involved for placing Dental Implants.

This Book brings in a comprehensive compilation of information regarding the significance of soft tissues in implantology, their defects and management.



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