Evaluation Of The Effect Of Soft Tissue Augmentation On Crestal Bone Level Around Endosseous Non Submerged Dental Implant

Thesis submitted to
The Faculty of Oral and Dental medicine
Cairo University
In partial fulfillment of the requirements for the
Master's Degree in Oral and Maxillofacial Surgery

By

Omniya Mohamed Abdel Aziz

B.D.S., Cairo University.
Oral and Maxillofacial Surgery Department
Faculty of Oral and Dental Medicine

Cairo University

2010

Supervisors

Doctor

Mohamed Galal Beheiri

Professor of Oral and Maxillofacial Surgery

Oral and Maxillofacial Surgery Department

Faculty of Oral and Dental Medicine

Cairo University

Doctor

Azza Ezz El-Arab

Professor of Oral and Dental Medicine

Oral and Dental Medicine Department

Faculty of Oral and Dental Medicine

Cairo University

Doctor

Moushira Dahaba

Professor of Oral Radiology

Chairperson of Oral Radiology Department

Faculty of Oral and Dental Medicine

Cairo University

TO MY FAMILY

ACKNOWLEDGMENT

I would like to express my profound gratitude and appreciation to Doctor ***Mohamed Galal Beheiri***, professor of Oral and Maxillofacial surgery, Faculty of Oral and Dental Medicine, Cairo University, for his remarkable supervision, generous help and support.

I would like to mention my heartfelt thank you for, Doctor ***Azza Ezz El-Arab***, professor of Oral Medicine and Periodontology, Vice Dean for Postgraduate Studies and Research, Faculty of Oral and Dental Medicine, Cairo University, for all the assistance she has provided me during this research. She gave me all the leads, advice and encouragement anyone could want. She provides guidance and support not only on the professional level but also on the personal one. I hope I can return the favor.

I would like also to express my appreciation for, Doctor ***Moushira Dahaba,*** Head of Oral Radiology department, Faculty of Oral and Dental Medicine, Cairo University, for her kind care, generous help and tremendous efforts in this research.

I would like to thank, Doctor ***Amr Maher***, consultant anesthesiologist, Student Hospital and New Dental Educational Hospital, Cairo University for his generous cooperation and patience in the statistical part of this study.

I would like to take this opportunity to express my deep and sincere gratitude to Doctor ***Hesham El-Hawary***, Lecturer Oral and Maxillofacial surgery, Faculty of Oral and Dental Medicine, Cairo University, for his marvelous effort, attention and continuous support throughout the research. He is a cooperative colleague, helpful brother and a dear friend.

Last and never the least, I would like to thank, my dear colleagues and friends, Doctor ***Hani El Nahass, Ramy EL-Biealy and Samer Noman*** for their tremendous help, and effort throughout the research. It was indeed a pleasure working with you.

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LIST OF ABBREVIATIONS

Term	Abbreviation
Acellular Dermal Matrix……	ADM
Apically Positioned Flap /Vestibuloplasty…….	APF/V
Clinical Attachment Level…….	CAL
Free Gingival Graft…….	FGG
Freeze-Dried Dura Mater and Fascia Lata Allografts…..	FDAGs
Gingival Index……..	GI
Human Fibroblast-Derived Dermal Substitute…….	HF-DDS
International Team for Oral Implantology……..	ITI
Keratinized Mucosa Width……..	KM
Peri- implant Probing Depth……	PD
Plaque Index…….	PI
Solvent-Preserved Dura Mater and Fascia Lata ……	SPAGs
Subepithelial Connective Tissue Graft……	SCTG

INTRODUCTION

&

REVIEW OF LITERATURE

Dental implants have been used for decades with good long-term clinical success; they have been proven to be a predictable method of restoring function in the oral cavity over the years ***(Adell et al., 1985)***.

The use of dental implants in the treatment of complete and partial edentulism has become an integral treatment modality in dentistry ***(Misch, 1991)***.

The fashioning of modern implantology is attributed to ***Brånemark and co-workers***, due to their unprecedented work. Their fundamental work demonstrated that commercially pure titanium implants could be anchored to the jaw bones. The relationship between the bone and the implants was called osseointegration ***(Brånemark et al 1987)***.

A prerequisite for the osseointegration of implants is that they should be surrounded by bone of good quality ***(Rosenquist and Grenthe 1996)*** and the implant should not be functionally loaded during a healing period of three to six months ***(Buser et al. 1999)***.

Osseointegrated implants as anchors for various prosthetic reconstructions have become a predictable treatment alternative. ***(Schroeder et al.1976, Brånemark et al.1977, Schroeder et al. 1978)***. It was proposed, that implants required submucosal placement during the healing period for successful tissue integration ***(Brånemark et al. 1977, Adell et al. 1981)***. As a result, a second surgery after an appropriate time of extraction site healing was necessary. Moreover, the healing period delays treatment for 6 months and the result could be jeopardized because resorption may leave inadequate alveolar process for implant placement ***(Rosenquist and Grenthe 1996)***.

It was shown that after extraction of teeth, the greatest reduction of the alveolar bone occurs in the first 6 months to 2 years ***(Araujo & Lindhe 2005; Araujo et al. 2005)***. An estimate of 25% decrease in buccopalatal width occurs within the first year ***(Tallgren 1972; Misch 1990)***, thus studies were conducted which aimed at shortening the treatment period and reducing the number of surgical procedures ***(Juodzbalys and Wang 2007)***.

A classification system for timing of implant placement after tooth extraction was proposed, based on desired clinical outcomes during healing following extraction ***(Chen et al 2004)***. In this classification system, *type 1* refers to the placement of an implant into a tooth socket concurrently with the extraction; *type 2* refers to the placement of an implant after substantial soft tissue healing has taken place, but before any clinically significant bone fill occurs within the socket (4-8 weeks); *type 3* is placement of an implant following significant clinical and/or radiographic bone fill of the socket (12-16 weeks) ; and *type 4* is placement of the implant into a fully healed site (more than 16 weeks).

The classification was further expanded to entail: ***(Chen et al 2009)***

- Postextraction implant placement*:* Used to collectively describe type 1, type 2, and type 3 implant placements.
- Early implant placement*:* Used to collectively describe type 2 and type 3 implant placements.

Placing an implant immediately or shortly after tooth extraction offers several advantages that include shorter treatment time, less bone resorption, fewer surgical sessions, easier definition of the implant position, and better opportunities for osseointegration because of the healing potential of the fresh extraction site ***(Grunder et al 1999)***.

The placement of implants in fresh extraction sockets was first described by ***Schulte & Heimke (1976) and Schulte et al. (1978)***, who referred to this procedure as 'immediate implant' ***(Botticelli et al 2008)***. Its' clinical and radiographic success has been reported in a number of clinical reports using various approaches ***(Wilson et al 1998)***.

Different human studies have shown that the immediate implant placement can provide a success rate for osseointegration similar to that obtained for the placement of implants into ossified extraction sites. ***(Tolman and Keller 1991, Watzek et al. 1995, Augthun et al. 1995, Rosenquist and Grenthe 1996)***.

Becker and Becker (1990), evaluated bone biopsy removed during the second-stage of surgery in immediate implants that showed the presence of woven bone, osteoblastic formation, and compact bone containing osteocytes within their lacunae in the gap between the implant and the socket wall. This proved that immediate implants were adequately osteointegrated.

Rosenquist and Grenthe (1996) published a study describing a total of 109 implants in 51 patients placed immediately into extraction sockets of a 67 months follow up period. The authors studied osseointegration in terms of stability, lack of symptoms, and lack of peri-implant pathology based on radiographic examination. The implant survival rate was 93.6% while the success rate was 92.0% for implants replacing teeth extracted because of periodontitis and 95.8% for implants replacing teeth extracted for other reasons. They suggested that immediate implantation is a safe and predictable procedure.