شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

Evaluation of Soft Tissue and labial plate of bone stability of immediate implant in direct contact versus gap with socket shield

(A randomized clinical Study)

Thesis submitted to the Faculty of Dentistry, Ain Shams University in partial fulfillment of the requirement for Master Degree in Oral Medicine, Periodontology and Oral Diagnosis

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Dedication

To my precious **Mother** and **Father** who always support me, without them I wouldn’t have achieved anything.

To all my **brothers** and friends specially that they always present for support.

To Lamees Tarik my fiancé for supporting me.

To Prof. Dr. Khaled barakat for igniting my passion towards dental periodontal surgeries.

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Last but not least, great thanks to **my patients** for trusting me.

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List of abbreviations

EDS	Extraction Defect Sounding
ERA	Esthetic risk assessment
CBCT	Cone beam computed tomography
SRP	sagittal root position
DBBM	deproteinized bovine bone mineral
FDBA	freeze dried bone allograft
PRF	platelet rich fibrin
BMPs	bone morphogenic proteins
VEGF	vascular endothelial growth factor
PDGF	platelet-derived growth factor
TGF-β	transforming growth factor β1 and β2
GBR	Guided Bone Regeneration
PET	Partial extraction therapies
FPD	fixed partial denture
EMD	enamel matrix derivative
RCT	randomized control trial
SST	socket shield technique
RM	root membrane
FOV	field of view
PI	plaque index
KG	Keratinized gingiva
SD	Standard deviation
ISQ	implant stability quotient
SS	Socket shield
RST	root submergence technique

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Review of Literature

Alveolar bone volume and favorable architecture of the alveolar ridge are essential to obtain ideal functional and esthetic prosthetic reconstruction following implant therapy ***(Schneider 1999).***

Loss of alveolar bone may occur prior to tooth extraction because of periodontal disease, peri-apical pathology, or trauma to teeth and bone. Damage of the bone tissues during tooth extraction procedures may also result in bone loss. Finally, alveolar bone atrophy after tooth extraction is a well-known phenomenon ***(Lekovic et al., 1998).***

The tooth is anchored to the jaws via the bundle bone into which the periodontal ligament fibers invest. The shape as well as the volume of the alveolar process is determined by the form of the teeth, their axis of eruption and eventual inclination ***(Tallgren, 1972).***

The bundle bone, is a tooth-dependent structure and consists of lamellar bone, has a thickness of 0.2–0.4 mm Schroeder HE (1986). In the anterior maxilla the facial bone wall thickness has been shown to be less than 1 mm in 90% of cases and less than 0.5 mm in almost 50% of cases ***(Braut et al., 2011; Januario et al., 2011).***

After tooth loss or extraction, the bundle bone at the site loses its function and disappears. ***(Botticelli et al. 2004; Arau´jo & Lindhe 2005).*** This bundle bone loss leads to mostly horizontal bone loss and to a lesser extent vertical bone loss. In a study done by lekovic and colleges, they compared the use of bio-absorbable membrane versus no intervention after extraction of a tooth. A significant decrease in the average internal vertical measurements was detected at 6 months when compared to baseline (1.06±0.17 versus 6.88±0.29mm, respectively) as well as a significant decrease in the horizontal measurements 6.06±0.17 versus7.38±0.24mm, respectively ***(Lekovic et al. 1997, Arau´jo & Lindhe 2005).***

The mid-facial recession of an immediate implant placed into an extraction socket has been reported to be 0.55 to 0.75 mm at 1 year of follow-up (***De Rouck et al., 2008***).In posterior sites, the objective of implant therapy is restoring function of chewing. In anterior sites, however, the esthetic appearance is equally important to restore. Ideally, successful implant-supported restorations should imitate natural teeth appearance ***(Belser et al., 2004)***. The peri-implant soft tissue condition appears to be the critical determinant (***Garber 1996***).

Araujo & Lindhe., 2009 described the physiologic alveolar socket healing into three phases, the inflammatory phase that begins with the formation of the blood clot. During the 2-3 days following extraction, inflammatory cells migrate to the site to decontaminate it before the formation of a new tissue. The combination of inflammatory cells, vascular sprouts and immature fibroblasts forms a granulation tissue after 4 to 5 days. Which is gradually replaced with connective tissue matrix that is rich in collagen fibers and cells. The proliferative phase is characterized by rapid tissue formation. There is an appearance of osteoid calcification, which begins at the periphery and at the base of the socket. The bone matrix appears very early towards the second week of healing, and is be replaced by mature bone tissue. Bone filling occurs between 5th to 10th week and it is completed after 16 weeks. Complete epithelial closure of the socket takes place after 4 to 5 weeks.

Bone modeling and remodeling phase: Bone modeling is defined as change in the shape and architecture of the bone. Assessment of residual bone quality and quantity is a key determinant of success to restore esthetics by implant placement. The alveolar bone atrophy occurring at buccal aspect is proven to be more significant than lingual or palatal aspects of jaws ***(Pietrokovski & Massler 1967).***