

**Evaluation of the need of graft material
in delayed immediate implant**

Thesis

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Dedication

To my parents for their endless love and Sacrifices

To my family

To my precious Pearl "my son"

Acknowledgement

First and foremost thanks are due to **Allah the beneficent and merciful**

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Contents

	Title	Page
1	Introduction	1
2	Review of Literatures	2
	Aim of the Study	43
3	Materials and Methods	44
4	Results.....	71
5	Discussion	80
6	Summary.....	86
7	Conclusion	87
8	Recommendations	88
9	References	89
10	Arabic summary.....	108

List of tables

Table number	Title	Page
Table (1):	List of group A & B showing age, sex, implant diameter and implant length of all cases.	45
Table (2):	Mean bone density, \pm SD, and \pm SE in the two studied groups during the whole follow-up periods.	47
Table (3):	Comparison between the P-values of the two studied groups during the whole follow-up periods using Kolmogorov-Smirnov test.	75
Table (4):	Student t-test for comparison of mean bone densities of the two studied groups during the whole follow-up periods.	76
Table (5):	Mann-Whitney U test for comparison of mean bone densities of the two studied groups during the whole follow-up periods.	76
Table (6):	The mean differences, standard deviation values and results of paired t-test for the changes by time in mean bone density.	77
Table (7):	The mean differences, standard deviation values and results of Wilcoxon signed-rank test for the changes by time in mean bone density	78

List of figures

Figure number	Title	Page
1	Occlusal view of maxilla	48
2	Examination of occlusion	48
3	Pre-operative periapical radiograph	48
4	Gingival flap	50
5 (a)	Luxation of upper 2nd premolar using periotome	50
5 (b)	Luxation of upper 1st premolar using periotome	51
6 (a)	Extraction of upper 1st premolar	51
6 (b)	Extraction of upper 2nd premolar.	52
6 (c)	Extracted remaining roots.	52
7	Intact cortical plate of bone.	53
8	Closure of the flap using interrupted sutures	53
9 (a)	Panoramic radiograph following teeth extraction.	54
9 (b)	Tracing procedure.	54
10 (a)	Measurement of root diameter using a caliber.	56
10 (b)	Tooth length determination.	56
11	Infiltration anesthesia.	61
12	Reflection of pyramidal flap.	61
13 (a)	Drilling of osteotomy site.	61
13 (b)	Drilling of osteotomy site with a larger drill.	62
14	Insertion of fixture in a clock-wise rotation by finger twisting.	62
15	Final seating of the implant using ratchet wrench.	62
16	Implant cover screw is leveled just beneath the adjacent alveolar crest.	63
17	Insertion of graft material into osteotomy site.	63

18	Insertion of fixture using finger twisting.	63
19	Final seating of fixture using wrench.	64
20	Insertion of cover screw.	64
21	Scoring of periosteum.	65
22	Suturing.	65
23	Radiographic template.	67
24	Digora system.	67
25	Clinical evaluation of the implant site.	69
26	Diagrammatic representation for assessment of bone density.	69
27	Clinical evaluation shows no signs of inflammation, infection or wound dehiscence.	71
28	The case of wound dehiscence in a graft-free site.	71
29	Base line radiograph for group (A).	72
30	1month post-implantation for group (A) .	72
31	4months post implantation for group (A) .	72
32	Base line radiograph for group (B) .	73
33	1month post-implantation for group (B) .	73
34	4months post implantation for group (B) .	73
35	This Bar-graph shows the mean changes in bone density in the two studied groups during the whole follow-up periods.	75
36	This bar-graph showing the mean changes in bone density during whole follow-up periods.	79
37	This line-graph shows the mean changes in bone density during whole follow-up periods of the two studied groups	79

تقييم الحاجة إلى مادة طعام في حالة الغرسة الفورية المؤجلة

رسالة

مقدمه إلى كلية طب الفم والأسنان

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الملخص العربي

أشتملت الدراسة الحالية على غثي عشر غرسة سنية تم وضعها في ستة مرضي أصحاء، خمس مرضي من الأنثى واحد من الذكور. تراوحت أعمال المرضي من ٢٤ - ٤٩ عام.

كان الهدف من البحث هو تقييم الاحتياج إلى مادة الطعم (Plaster of Paris) في حالة الغرسة الفورية المؤجلة وذلك عن طريق الفحص الأكلينيكي وباستخدام أشعة إكس.

أشتملت الدراسة على الفريقين (أ،ب) تم وضع الغرسات بهم بعد ٤ - ٦ أسابيع من خلع الأسنان العلوية الأمامية الضاحكة. تم وضع ٦ غرسات في الفريق (أ) مع استخدام مادة الطعم، بينما في الفريق (ب) تم وضع ٦ غرسات بدون استخدام ادة الطعم. تم عمل فحص دوري إكلينيكي باستخدام أشعة إكس بعد وضع الزرعة مباشرة، وبعد شهر وبعد أربعة أشهر من وضع الزرعة مباشرة، وبعد شهر وبعد أربعة أشهر من وضع الزرعة.

أوضحت نتائج الفحص الأكلينيكي خلوها من علامات الالتهاب أو العدوي في مكان الجراحة لكلا الفريقين، بينما وجد شق بسيط باللثة في حالة واحدة من الفريق ب.

أثبتت نتائج الفحص باستخدام أشعة إكس ارتفاع ملحوظ في كثافة العظم حول الزرعات في كلا الفريقين. وبالرغم من وجود ارتفاع طفيف في الكثافة العظمية في الفريق (أ) عن الفريق (ب)، ظل هذا الارتفاع غير مؤثر إحصائيا.

Introduction

Loss of natural teeth will dramatically affect esthetics, masticatory function and may also lead to psychological and emotional troubles. Replacement of missing teeth by dental implants has a high documented success rate over 15 years follow-up period of osseointegrated implants (*Adell et al. 1981*).

The American academy of implantology (1991) defined the oral implantology as “it is the art and science required to insert and maintain biocompatible materials and devices either on or within the jaw bones followed by fabrication of fixed or removable prosthesis to restore function, comfort and esthetics to the partially or totally edentulous patient”.

Success of dental implants is based on the principle of osseointegration. Osseointegration phenomenon was first described by a swedish bioengineer Per-Ingvar Brånemark. *Brånemark et al. (1969)* have described histologically the direct bone-to-implant connection on experimental animals. Further studies were also done by *Schroder et al. (1976)* to clearly demonstrate this intimate connection between implant and bone histologically. Since this year, many other studies have been proposed in order to improve the performance and esthetics of dental implants.

Review of Literature

Osseointegration is a histological term denoting direct bone to implant connection (*Brånemark et al. 1969*). Osseointegration has also been defined based on the clinical stability as” it’s a process whereby clinically asymptomatic rigid fixation of alloplastic materials is achieved and maintained in bone during functional loading” (*Zarb and Albrektsson 1991*).

Albrektsson et al. (1981) have illustrated the factors affecting the success of osseointegration, these factors are bio-compatibility of implant material, design of an implant, surface conditions, status of host bed, technique of insertion and finally the loading conditions.

In 1988, Albrektsson was the first to discuss criteria for success of osseointegrated endosseous dental implants. He noted that successful implant should be clinically immobile, no signs and symptoms of infection, paraesthesia or violation of the canal, no peri-implant radiolucency and finally marginal bone loss around the implant should not exceed 0.2mm annually after an implant 1st year of service.

In 1989, Smith and Zarb added two additional criteria for implant success. These criteria include proper implant positioning in order to provide satisfactory esthetic results for supra-structures and the success rate should not be less than 85% at the end of 5 years and 80% at the end of 10 years.

Classification of dental implants:

There are different classifications that have been proposed for endosteal dental implants in the literatures according to the following aspects:

1. Implant material.
2. Implant design.
3. Surface topography.
4. Surgical stages.
5. Manner of insertion.
6. Technique of loading.
7. Time of insertion.

1. According to implant material:

Implant materials are classified according to host tissue reaction into biotolerant, bioinert or bioactive materials (*Osborn and Newesely 1980*)

- Biotolerant materials are surrounded by fibrous capsule leading to fibrointegration as gold or cobalt-chromium alloys.
- Bioinert materials that allow direct bone to implant contact leading to osseointegration e.g. pure titanium.
- Bioactive materials: these materials allow the formation of chemical bond along the interface e.g. Hydroxyapatite.

Implant materials can also be classified into metals, ceramics and polymers (*Sykaras et al. 2000*). Various metals and alloys have been used in dental implant manufacturing. Many of metals and alloys e.g. gold, stainless steel and cobalt-chromium are now obsolete in the oral implant