رقعة النسيج الخام مقارنة بالشريحة الحنكية الدورانية في معالجة نقص المحيط الغرسي حول الغرسات السنية الفورية

رسالة الماجستير

المقدمة الى

كلية طب الفم والاسنان جامعة القاهرة

للحصول على

درجة الماجيستير فرع جراحة الفم والوجه والفكين

مقدمة من الطبيبة

أمنية إبراهيم السيد سلطان

بكالوريوس طب وجراحة الفم والأسنان
كلية طب الفم والأسنان
جامعة عين شمس

2001

المشرفون

أ.د. هما حكم

أستاذ جراحة الوجه والفكين

كلية طب الفم والأسنان

جامعة القاهرة

أ.د. مشيرة دعبه

أستاذ أشعة الفم

كلية طب الفم والأسنان

جامعة القاهرة

د. مصدوح سيد

مدرس جراحة الوجه والفكين

كلية طب الفم والأسنان

جامعة القاهرة

CONNECTIVE TISSUE GRAFT VERSUS PEDICLED PALATAL FLAP IN MANAGEMENT OF PERI-IMPLANT DEFECTS AROUND IMMEDIATE IMPLANTS

Thesis
Submitted to

Faculty of Oral and Dental Medicine
Cairo University

In partial fulfillment of the requirement for the
Master Degree in Oral and Maxillofacial Surgery

By

Omnia Ibrahim El-Sayed Sultan

B.D.S
(Ain Shams University)
2001

Faculty of Oral and Dental Medicine
Cairo University

2009

Supervisors

Dr. Maha M. Hakam

Professor of Oral and Maxillofacial Surgery

Faculty of Oral and Dental Medicine

Cairo University

Dr. Moshirah M. Dahaba

Professor of Oral Radiology

Faculty of Oral and Dental Medicine

Ciro University

Dr. Mamdouh S. Ahmed

Lecturer of Oral and Maxillofacial Surgery

Faculty of Oral and Dental Medicine

Cairo University

Abstract

Immediate implant placement at time of tooth extraction is a successful treatment modality. Primary flap closure is important for satisfactory final results with these procedures. The purpose of this study was to evolutes tow different techniques of soft tissue closure with immediate implant placement. In 11 patients 12 consecutive implants were placed immediately following extraction of one or more of the anterior maxillary teeth. Dimensions of the marginal defect were measured at time of implant placement and after 6-8 months during second stage surgery as follows: vertical defect height (VDH), horizontal defect width (HDW). Autogenous bone graft was used as grafting material. Patients were divided into tow groups, group 1 flap closure using pedeicled palatal flaps (PPF) group 2 flap closure using free connective tissue graft (CTG). The mean percentage area of reduced defect was 98.97 and 87.36 respectively. Differences between the groups were not statically significance.

Key wards:

Immediate dental implants. Anterior maxilla. Connective tissue graft. Pedeicled palatal flap. Autogenous bone graft. Marginal bone defect.

Introduction

Healthy functioning esthetic dentition is a condition each patient wishes to have. Unfortunately; such condition can be jeopardized by a variety of factors, resulting in loss of one or more of teeth. Rehabilitation for patients suffering from sequels of missing or extracted teeth using dental implants has developed greatly during the past two decades.

Initial work presented by ***Branermark***[1] group provided longitudinal studies illustrating the predictability of commercially pure titanium implants for treatment of edentulous patient. Their traditional protocol recommends a 12-month healing period between tooth extraction and implant placement.

Implant placement immediately or shortly after tooth extraction has proven to be a successful treatment modality [2]. It has numerous advantages since treatment time and bone resorption is reduced compared to the classical staged approach[3]. The clinical and radiographic success of this technique has been reported using various approaches[4].

Success of immediate implant procedures may be endangered by lack of soft tissue for closure over the immediate implant site. Several flap designs have been described[5].

The present study will evaluate the effectiveness of connective tissue graft versus pedeicled palatal flap for primary closure and graft maintenance over immediate implants in the anterior maxilla.

Review of literature

In 1985 two-staged titanium implants were first placed in patients and studies showed prolonged survival and improvement in benefit-to-risk ratio compared to previous implants [1]. This event has revolutionized maxillofacial reconstruction, and since then structure design and surgical techniques have developed greatly.

Currently available dental implant systems, that have high documented rat of success, are established entirely on principle of osseointegration that was defined by ***Branermark***[6].

Osseointegrated implants in the original protocol presented by ***Branermark*** were placed after complete healing of the alveolar bone. This process takes about 6 to 12 month[7]. Owing to the natural tendency of bone resorption and remodeling, about 44% or even more of crestal bone loss is observed during this healing period with the majority of this resorption occurring during the first 6 month[8 9 10].

Eventually, the continued process of bone resorption and remodeling will alter a suitable site for implant placement to one that is dimensionally inadequate for implant placement (Fig 1). Further more, soft tissue changes that take place together with the remodeling process may compromise the esthetic outcome[11]. Early implantation procedure has scientific evidence that it preserves the anatomy and physiology of alveolar process[12].

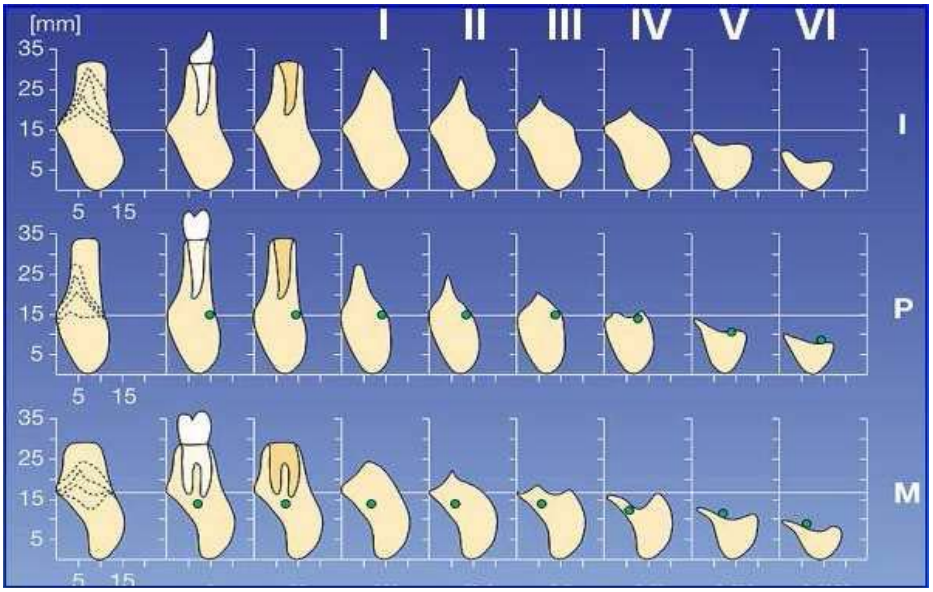

Figure 1: The continued process of bone resorption following extraction.[13]

- I-dentat
- II-postextraction
- III-convex ridge adequate height and width
- IV-knife-edge ridge adequate height inadequate width
- V-flat-ridge with loss of alveolar process
- VI-loss of basal bone

Woolfe et al.[14] presented an animal study on dogs. Where implants were inserted at the site of hemi-sectioned roots of premolars. After 4 months 90% preservation of bone height was evident radiologically .

Becker and Becker,[15] evaluated bone biopsy removed during the second-stage of implant surgery. They reported 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 osteoitegrated.

Rosenquist and ***Grenthe,***[16] published a study describing a total of 109 Nobelpharma implants placed immediately into extraction sockets. They concluded that immediate implantation is a safe and predictable procedure if certain guidelines are followed.

Schwartz and ***Chaushu***,[17] reported other advantages for immediate implants including reduction in treatment time and number of surgical interventions and better esthetic results regarding implant location and soft tissue healing.

On the other hand, ***Rosenquist*** and ***Grenthe***[16] reported the presence of infection as a limiting factor in immediate implantation. ***Grunder et al***[18]**.** also emphasized that periodontal infection is a potential risk factor for immediate implants. More teeth implants were lost if the reason for tooth extraction was periodontitis (10.2%) when compared to trauma (0%), root fracture (0%), periapical inflammation (0%) and caries (5 %).

However, Immediate implant placement my be adversely affected by lack of soft tissue closure and flap dehiscence over the extraction site [3] [19]. The presence of bony defects at implantation site and the discrepancy that exist between the implant (size and shape) and the socket wall is another risk factor.

Bone defects around immediate implants:

Unfortunately, not all extraction sockets are suitable for immediate implants. A variety of classification systems have been proposed to serve as useful diagnostic tools. ***Salama*** and ***Salama's***[20] preoperative classification of extraction sites is based on the classical definition of periodontal intrabony defects. They divided them into three types:

- ***Type 1*** which is ideal for immediate implantation. It has 4-wall socket or 3-wall dehiscence type defect with minimal bone resorption, adequate bone beyond the apex, acceptable discrepancy between fixture head and necks of adjacent teeth, manageable gingival recession.
- ***Type 2*** which require orthodontic extrusive augmentation. It has dehiscence greater than 5mm, substantial discrepancy between fixture head and necks of adjacent teeth, and significant gingival recession. (Fig 2)
- ***Type 3*** which is not suitable for immediate implantation. It is characterized by inadequate vertical and buccolingual bone dimension; sever recession and loss of labial bone plate.

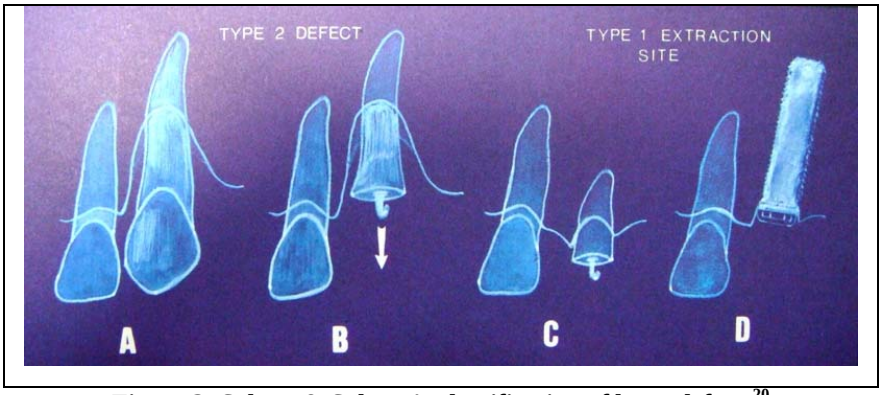

Figure 2: Salama& Salama's classification of bony defects[20]

Gelb[11] presented an intra-operative classification of coronal bone-implant morphology in order to evaluate the outcome of his regenerative protocols. The morphological relationships stated as follows; (fig 3)

- ***No-wall defect*** in which there is no labial plate of bone having one socket wall missing.
- ***Three-wall defect*** with both buccal and lingual defects relative to the implant, but at least one socket wall has contact with the implant.
- ***Circumferential defect*** were implants circumferentially has no bone at their coronal aspect.

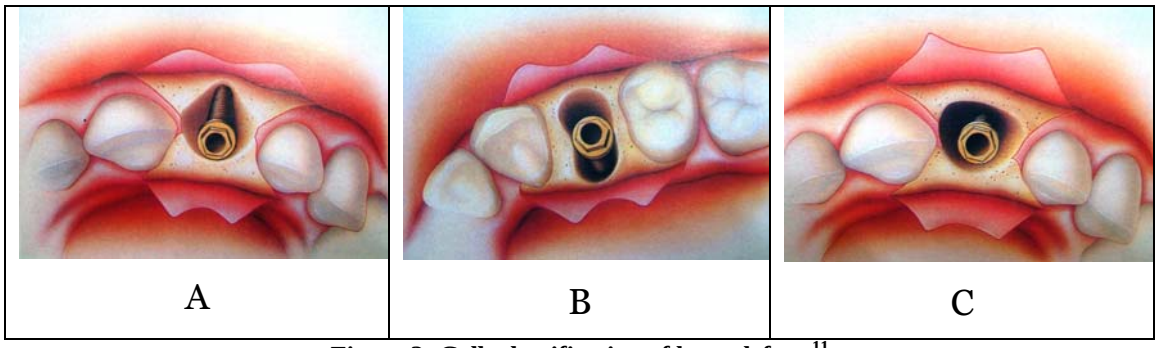

Figure 3: Gelb classification of bone defects[11]
A: No-wall
B: Three-wall
C: Circumferential

Meltzer[21] presented another classification, specifying treatment parameters for osseous defects:

- ***Class I.*** The defect resides completely within the bony housing, with the walls intact. The diameter of the site is greater than that of the implant.
- ***Class II.*** The defect has 3 of the 4 walls intact; the fourth wall has either a dehiscence or fenestration. The defect may still be self-confined.

- ***Class III.*** This site is characterized by two defects. Type I has adequate ridge height but inadequate width. Type II has 2 of the 4 walls intact, the other present with either dehiscences or fenestrations.
- ***Class IV.*** Defect due to inadequate vertical height.

Garber and ***Belser***[22] classified immediate implantation postextraction sites into:

- ***Class I.*** comprises a normal extraction site with dehiscence of less than 5 mm and requires the utilization of immediate implant placement in conjunction with GBR.
- ***Class II.*** Characterized by reduced extraction site and dehiscence equal to 5 mm. It is treated with immediate implant placement and GBR utilizing autogenously bone grafting.
- ***Class III.*** Exhibits a compromised extraction site with dehiscence of greater than 5 mm and, although no buccolingual or vertical bone loss is evident, there is no potential primary stability. The tooth can be either extruded or a staged treatment plan instituted, encompassing GBR and autogenous bone grafting 6 to 9 month post surgery.

Bogaerde[23] presented a morphologic classification of bony defects adjacent to dental implants to discuss its clinical implication. He divided bone defects adjacent to dental implants into two main groups according to the remaining bone walls lining the defect. These two groups are: ***closed defects:*** in which the surrounding bony

walls are fully preserved, ***open defects:*** lacking one or more of the surrounding bony walls (Fig 4).

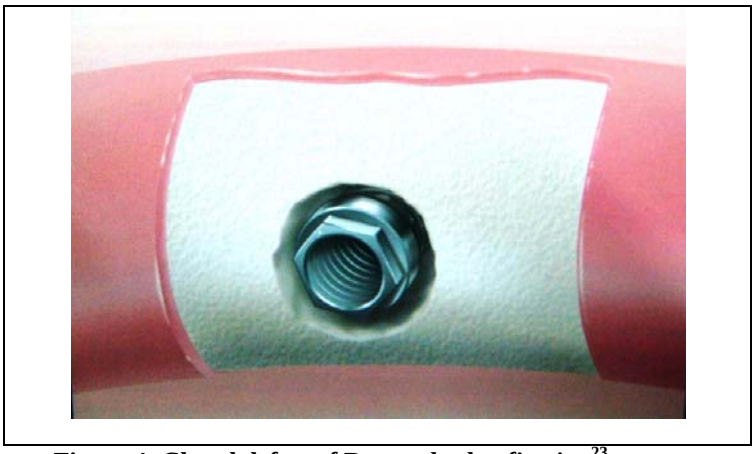

Figure 4: Closed defect of Bogaerde classfication[23]

Open defects are further subdivided according to the implant-bone contact at four sites (mesial, distal, buccal, and lingual), at level of implant neck into the following subgroups:

- ***ONs:*** no implant-bone at implant neck, suprabony defect.
- ***ON:*** no implant-bone contact at implant neck, intrabony defect.
- ***O1:*** one implant-bone contact at implant neck.
- ***O2:*** two implant-bone contacts at implant neck.
- ***O3i:*** three implant-bone contacts at implant neck, intrabony defect (dehiscence with in the envelope).
- ***O3e:*** three implant-bone contacts at implant neck, extrabony defect (dehiscence outside the envelope) (Fig 5).

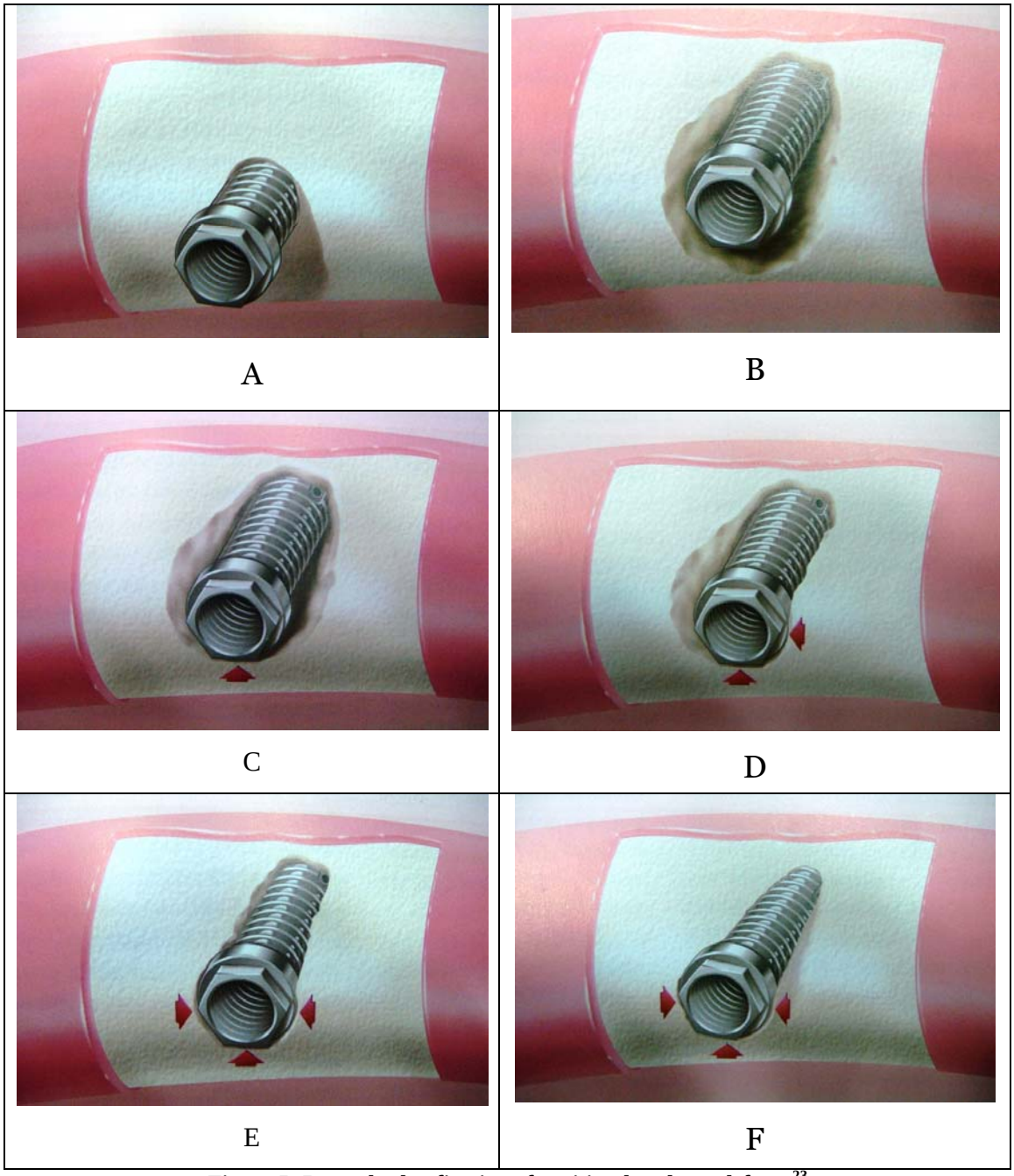

Figure 5: Bogarde classfication of peri-implant bone defects.[23]

A: ONs B: ON

C: O1 D: O2

E: O3i F: O3e