صفاء أبو السعود محمد

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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

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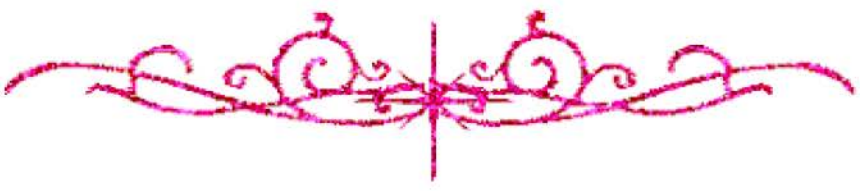
بعض الوثائق الأصلية تالفة



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بالرسالة صفحات لم ترد بالأصل

Comparison Between Biodegradable and titanium Lag-Screws in stabilization of mandibular body FRACTURES (AN EXPERIMENTAL STUDY)

Thesis

Submitted to the faculty of Oral and Dental Medicine,
Cairo University
For Partial Fulfillment of the Requirements of The
Master Degree in Oral Surgery

By

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Dedication

This work is dedicated to my father and to my mother Who gave me unlimited support , continous encouragement through this work and made it possible.

Content :

List of Appreviations

AO	Arbeitsgemeinschaft fur Osteosynthesefragen.
ASIF	The Swiss Association for the study of Internal Fixation.
B.V.	Blood Vessel
C.T.	Connective tissue
DFS	Drill free screw
H.&E	Heamatoxylin & Eosine
I.M	Intra-muscular
IMF	Inter maxillary fixation.
I.V	Intra venous
N	Nioten
PLGA	Poly. L. Glycolic acid
PLLA/PGA	Poly. L. Lactic acid/polygly colic acid
SR-PLLA	Self-reinforced poly. L. lactic acid
STS	Self Tapping Screw
W	Week

INTRODUCTION

Introduction

Internal rigid fixation is one of the most popular methods to treat unstable fractures of the body of the mandible. The use of bone plates and screws to fix mandibular fractures verify rigid fixation and stabilization of bony segments during healing [1].

Metallic screws and / or plates other than titanium are usually removed after the osteotomy has consolidated which often requires general anesthesia. Titanium plates have been introduced to overcome this need for secondary intervention, as this material is supposed to be biocompatible. However due to corrosion, titanium particles have been found in scar tissue covering this plates and in loco-regional lymph nodes. Although it is uncertain if the presence of these particles in soft tissues and lymph nodes has an influence on the patients' long-term health status, some authors e.g. (Kim **et al.**, 1997) [2] recommended removal of the osteosynthesis material.

Many attempts have been made to produce a gradual biodegradable fixation device that does not interfere with healing; strong enough for fixation, has biomechanical properties similar to bone, and does not cause any systemic or local disorders [3].

Research on biodegradable devices for fracture fixation has been in progress for the past 30 years. Initially, the strength of these biodegradable devices was poor and intermaxillary fixation (IMF) was needed to support the fixation. Early studies on biodegradable plates employed metal screws for attachment because of difficulties in achieving rigid fixation or failure of the screw component with biodegradable materials [4,5].

The mechanical properties of biodegradable material have been now improved by many modifications. The need for better strength led to development of new absorbable polymers as polylactide, polyglycolid and their copolymers which are the most important because of their biocompatibility, adjustable mechanical properties, adjustable degradation rates and resorbability through biologic process [6].

Recently, **Edward, Kiely & Eppley** [7] evaluated the potential effectiveness of resorbable plate and screw fixation for skeletal stabilization of simultaneously performed maxillary and mandibular osteotomies in 20 consecutive patients using copolymeric poly. L. lactic acid/ polyglycolic acid (PLLA/ PGA) plates and screws. It was concluded that this form of bone fixation is a viable alternative to standard metallic fixation techniques for certain maxillomandibular deformities in which excessive bony movement are not performed.

The promising results of these former studies on the biodegradable fixation plates and screws encourage us to evaluate the validity of using SR-PLLA lag screws in fixation of mandibular osteotomies.