

تجربة عملية لدراسة قدرة غشاء السمحاق المطعم باللازما الغنية بالصفائح الدموية على تكوين العظام

دراسة للحصول على درجة الماجستير في جراحة الفم والوجه والفكين

مقدمة من

طبيب/ تامر إبراهيم بدر

بكالوريوس طب الفم والأسنان - جامعة القاهرة

كلية طب الأسنان

جامعة عين شمس

2006

تحت إشراف

الأستاذ الدكتور/ ماجد لطفي
رئيس قسم جراحة الفم والوجه والفكين
كلية طب الأسنان جامعة عين شمس

دكتور/ صلاح عبد الفتاح
مدرس جراحة الفم والوجه والفكين
كلية طب الأسنان جامعة عين شمس

دكتور/ إيهاب سعيد
استاذ مساعد باثولوجيا الفم
كلية طب الأسنان جامعة عين شمس

تمت إشرافه

الأستاذ الدكتور/ ماجد لطفي
رئيس قسم جراحة الفم والوجه والفكين
كلية طب الأسنان جامعة عين شمس

دكتور/ صلاح عبد الفتاح
مدرس جراحة الفم والوجه والفكين
كلية طب الأسنان جامعة عين شمس

دكتور/ إيهاب سعيد
استاذ مساعد بقسم باثولوجيا الفم
كلية طب الأسنان جامعة عين شمس

Acknowledgment

First and foremost, thanks are due to ALLAH the most beneficent, unlimited and continuous blessing on me.

Special thanks and gratitude to Prof. Dr. Maged Lotfy, Head of department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Ain Shams University for his generous advice.

Many thanks to Dr. Salah Abd El Fatah ,Lecturer of Oral and Maxillofacial Surgery Department ,Faculty of Dentistry, Ain Shams University for his valuable help.

A lot of thanks to Dr. Ihab Saied Abd El Hamid assistant professor of Oral and Maxillofacial Surgery Department ,Faculty of Dentistry, Ain Shams University for his huge assistance..

I would like to thank, Dr.Ibrahim El Hakim professor of Oral and Maxillofacial Surgery Department, Faculty of Dentistry, Ain Shams University for his cooperation.

I would like to thank Dr. Hosam Mostafa Fahmy Assistant prof. of immunology Faculty of Medicine, Ain Shams University.

I would like to thank Dr. Awatef Abd El Hamid fellow in Medical research center & Belharizial research, Faculty of Medicine, Ain Shams University.

Many thanks for all members of animal house of Medical research center & Belharizial research, Faculty of Medicine, Ain Shams University.

Dedication

*To my parents, wife
And my son Omar*

List of Abbreviations

1-	Bone Morphogenic Protein	BMP
2 -	Platelet rich plasma	PRP
3 -	Insulin like growth factor	IGF
4 -	Platelet derived growth factor	PDGF
5 -	Transforming growth factor β	TGF β
6 -	Polypeptide growth factor	PGF
7 -	Particulate cancellous bone marrow	PCBM
8 -	Guided tissue regeneration	GTR
9-	Concentrated Platelet rich plasma	CPRP
10 -	Demineralized bone powder	DBP
11-	Bovine porous bone mineral	BPBM
12-	Marrow derived mesenchymal stem cells	MSC s
13-	Electrically stimulated periosteum	ESR
14-	Hydroxyapatite	HA

15-	Periosteal graft group	Group I
16-	Platelet rich plasma group	Group. II
17-	Periosteum + PRP group	Group. III
18-	Round per minute	RPM

Contents

	Page
• List of figures	I
• List of tables	V
• List of abbreviations	VI
• Introduction	1
• Review of Literature	5
• Aim of the work	33
• Material and Methods	34
• Results	53
• Discussion	75
• Summary and conclusions	84
• References	86
• Arabic Summary	1

List of Figures

No	Descreption	page
1 -	Tongue stitching to preserve airway	41
2 -	Injection of local anesthesia containing a vasoconstrictor	41
3 -	Skin incision along the inferior border of the mandible measuring about 4 cm	42
4 -	Bone exposure after dissection and muscle reflection	42
5 -	Drilling holes in bone using n0. 8 round bur	43
6 -	Connecting the holes using fissure bur	43
7 -	The dimensions of the defect is 1.5×1.0×0.5 cm	44
8-	Defect after curratage and haemostasis	44
9 -	Cortical bone after removal	45
10-	Vertical skin incision in the medial side of tibia measuring 6 cm	46
11-	Injection of local anesthesia containing a vasoconstrictor	46
12-	Dissection of periosteal graft with the overlying connective tissue	47
13-	Grafted periosteum	47
14-	Suturing of the periosteal graft to cover the	48

No	Descreption	page
	bony defect	
15-	Periosteum after suturing	48
16-	A syringe containing PRP and another containing thrombin connected to a double lumen connection	49
17	Injection of PRP	49
18-	Sutured periosteum and PRP	50
19-	Repositioning of flap and grafted periosteum	50
20-	Suturing the skin of the tibia	51
21-	Skin of the mandible after suturing	51
22-	Mandible after dissection	52
23-	Control side of periosteal graft covering induced bone defect group (2 weeks)10x	61
24-	Control side of periosteal graft covering induced bone defect gp. (4 weeks)10x	61
25-	Control side of PRP injected in the induced bone defect gp.(2 weeks)a	62
26-	Control side of PRP injected in the induced bone defect gp.(4 weeks)	62
27-	Control side of PRP and periosteal graft covering induced bone defect gp. (2 weeks)	63
28-	Control side of PRP and periosteal graft covering induced bone defect gp. (4weeks)	63

No	Descreption	page
29-	Periosteal graft from tibia covering induced bone defect (2 weeks)10XA	64
30-	Periosteal graft from tibia covering induced bone defect (2 weeks) 20XA	64
31-	Periosteal graft from tibia covering induced bone defect (2 weeks)	65
32-	Periosteal graft from tibia covering induced bone defect (2 weeks) 20xB	65
33-	Subperiosteal bone deposition (2 weeks)10X C	66
34-	Subperiosteal bone deposition (2 weeks) 20X C	66
35-	Periosteal graft from tibia covering induced bone defect (4 weeks) 10xA	67
36-	Periosteal graft from tibia covering induced bone defect (4 weeks) 20xA	67
37-	PRP injected in the induced bone defect (2 weeks) 10XA	68
38-	PRP injected in the induced bone defect (2 weeks) 20XA	68
39-	PRP injected in the induced bone defect (4 weeks) 10X	69
40-	PRP and Periosteal graft from tibia covering induced bone defect (2 weeks) 10xB	69
41-	PRP and Periosteal graft from tibia covering	70

No	Descreption	page
	induced bone defect (2 weeks) 20xB	
42-	PRP and periosteum covering induced bone defect (4 weeks) 10X A	70
43-	PRP and periosteum covering induced bone defect (4 weeks)20xxA	71
44-	Mean trabecular areas of the four groups	72
45-	Effect of time on mean trabecular area of control group	72
46-	Effect of time on mean trabecular area of group I	73
47-	Effect of time on mean trabecular area of group II	73
48-	Effect of time on mean trabecular area of group III	74

Aim of the Study

The aim of this experimental study is to study histologically the osteoinductive capability of autogenous grafted periosteum enhanced by platelet rich plasma for repair of mandibular induced bony defect.

Introduction

Review of Literature