



**Clinical and Radiographic Evaluation of Bioresorbable
Collagen Membrane alone or in combination with Nano-
Crystalline Hydroxyapatite Bone Graft in management of
Intraosseous Periodontal Defects**

Thesis

**Submitted to department of Oral Medicine,
Periodontology, Oral Diagnosis and Oral Radiology
Faculty of Dentistry
Ain Shams University**

**In partial Fulfillment of the Requirements of Master Degree in
Oral Medicine, Periodontology, Oral Diagnosis and Oral Radiology
By**

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B.D.S (Ain Shams University, 2008)

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LIST OF ABBREVIATIONS

Abb.	Meaning
ADA	American dental association.
AKt/PKB	Protein kinase B , also known as Akt
ANOVA	Analysis of Variance
BFGF	Basic fibroblast growth factor
BG	Bioactive glasses.
BMP	Bone morphogenetic proteins
BMPRs	Bone morphogenetic protein receptors
BP	Bovine pericardium.
CAL	Clinical attachment level
CEJ	Cement enamel junction
CBCT	Cone beam computerized tomography
CPC	Calcium phosphate cement
DBM	Demineralized bone matrix.
DPPA	Diphenylphosphorylazide.
DFDBA	Demineralized freeze-dried bone allograft.
d-PTFE	High density- polytetrafluoroethylene
e-PTFE	expanded-Polytetrafluoroethylene
ECM	Enterprise content management
EDTA	Ethylene di amine tetra acetic acid.
EGF	Epidermal growth factor
EGFR	Epidermal growth factor receptor
EMD	Enamel matrix derivative
ERK	Extracellular-signal-regulated kinases
ESCs	Embryonic stem cells
FA	Formaldehyde
FAK (PTK2)	Focal Adhesion Kinase , also known as Protein tyrosine kinase
FDA	Food and drug administration

Abb.	Meaning
FDBA	Freeze - dried bone allografts.
FGF2	Fibroblast growth factor 2
FHA	Fluorohydroxyapatite
GA	Glutaraldehyde
GBR	Guided bone regeneration
GI	Gingival index
GTR	Guided tissue regeneration
HA	Hydroxyapatite.
HIV	Human immunodeficiency virus.
HMDIC	Hexamethylene di-isocyanate
HPDLs	Human periodontal ligament fibroblasts
IGF	Insulin-like growth factor
IPSc	Induced pluripotent stem cells.
MAP Kinase	Mitogen-activated protein kinases
MSCs	Multipotent Mesenchymal stem cell
NHA	Nanocrystalline hydroxyapatite
OFD	Open flap debridement
PD	Probing depth
PDGF	Platelet-derived growth factor
PDL	Periodontal ligament
PI	Plaque index
PKB	Protein kinase-B
PLGA	Poly(L-lactide- co-glycolide)
PLLA	Poly(L-lactide)
PGAs	Polyglycolides
PMMA	Polymethylmethacrylate
PMNs	Polymorphonuclear neutrophils
POL	Polylysine
PR	Periodontal regeneration

Abb.	Meaning
PRP	Platelet-rich plasma
PTFE	Polytetrafluoroethylene
RTK	Receptor tyrosine kinase.
RT-PCR	Reverse transcriptase-polymerase chine reaction.
SD	Standard deviation
SFA	Single-flap approach
TCP	Tricalcium phosphate
TGF-β	Transforming growth factor- β

INTRODUCTION AND REVIEW OF LITERATURE

Periodontal diseases have distressed mankind since the dawn of history having a definite ancient lineage. It was first described to happen in the Ancient Egyptians as recorded in the Ebers papyrus. Periodontal disease has been mentioned in numerous medical works throughout different eras. Ibn Sina (Avicenna) (980-1037 AD) discussed periodontal diseases in a comprehensive treatise on medicine "Canon". This has been trailed by Abu'l-Qasim (Albucasis) (836-1013 AD) whose contributions to periodontology were among his outstanding achievements (*Shklar and Carranza, 2003*).

The last classification system of periodontal diseases was recommended by the international workshop 1999 for a classification of periodontal diseases and conditions and has been accepted by the American academy of periodontology .This classification comprises eight classes which are gingival diseases, chronic periodontitis, aggressive periodontitis, periodontitis as manifestation of systemic diseases, necrotizing periodontal diseases, abscesses of periodontium, periodontitis associated with endodontic lesions, developmental or acquired deformities and conditions(*Armitage 1999*).