صدق

الكهف ٢٤

CLINICAL EVALUATION OF MINIMALLY INVASIVE SURGICAL TECHNIQUE (MIST) VERSUS SUBGINGIVAL DEBRIDEMENT IN TREATMENT OF PATIENTS WITH DEEP PERIODONTAL DEFECTS

Thesis

Submitted in Partial Fulfillment of the Requirement of the Master Degree in Oral Medicine and Periodontology

Presented By:

Rasha Attia Ibrahium Shehata
B.D.S (2003)

(Ain Shams University)

Oral Medicine and Periodontology Department Faculty of Oral & Dental Medicine Cairo University 2010

Supervisors

Prof. Dr. Manal Mohammed Hosni

Professor of Oral Medicine, Oral Diagnosis and
Periodontology
Faculty of Oral and Dental Medicine
Cairo University

Dr. Weam Ahmed Maher

Lecturer of Oral Medicine, Oral Diagnosis, and
Periodontology
Faculty of Oral and Dental Medicine
Cairo University

Acknowledgement

These simple and humble words will never express my thanks and gratitude to my everlasting support AllAH

It is a great honor to express my sincere gratitude and appreciation to **Dr. Manal Mohammed Hosni**, Professor of Oral Medicine, Oral Diagnosis, and Periodontology, Faculty of Oral L Dental Medicine, Cairo University for her valuable guidance, expert assistance, and powerful support. I am very grateful and thankful for all the effort and time she gave me and exerted to make the research study possible.

I wish to express my deep thanks to **Dr. Weam Ahmed Maher**, Associate Professor of Oral Medicine, Oral Diagnosis, and Periodontology, Faculty of Oral and Dental Medicine, Cairo University.

Millions of thanks to my patient patients who suffered a lot with me during this research work.

Finally, my deep love and appreciation to my parents, sisters, and brothers and to my intimate friends (A, H, E, H, W).

To my Mom,

If anything is good about me,

It is because of you

List of figures

Fig	gure Title	Page
1		17
1		
	Papilla preservation flap. (a) Intrasulcular incisions made at	
	facial and proximal aspect. (b) An intrasulcular incision made alo	ong
	the lingual/palatal aspect of the teeth with a semi-lunar incision me	ade
	across each interdental area. (c) The detached interdental tissue	e is
	pushed through the embrasure with a blunt instrument to be include	ded
	in the facial flap. (d) Debridement of the defects	
2	2	20
	The modified Papilla preservation techniques (MPPT)	
3		22
	The simplified Papilla preservation flap (SPPF)	
4		38
	Preoperative radiograph taken by parallel technique showing interproxi	mal bony
	defect mesial to the first upper premolar	
5		38
	The sharp narrow #15C blade (at left), a slim design of #15C blade (at the	
	right)	
6a		39

The intrasulcular incisions used for MIS. Incisions A and B should be made as separate incisions. The connecting incision C performed as a

6b 39

The diagram shows the mesio-distal extension of the MIS flap. It is limited to the mid-buccal and mid-lingual aspects of the teeth adjacent to the defect in order to optimize wound stability (top view)

7	40
Two separate intrasulcular incisions showing minimal mesio-distal extension	
3	40
Horizontal incision connecting the two separate intrasulcular incisions	
	41
Buccally displaced papillary tissue	
0	41
Palatal access of the flap after granulation tissue debridement	
1	42
Horizontal incision	
12	42
Sharp dissection of the papilla using the Orban knife	
13	43
Papillary tissue elevated as a part of the small full thickness mucoperiosteal fla	n and

buccally

14	43
Defect and root surface after complete debridement of the gran	nulation tissue
15	44
The flap was repositioned and sutured	
16a	45
The modified internal mattress suture. The suture is lying on the	e surface of the
interdental tissue keeping the soft tissue flap in close contact with the	he underlying bone
16b	46
The steps of the suturing according to the modified internal m	attress suture
17	50
Histogram showing means PPD of the two groups at baseline, 3	3, and 6 months
18	52
Changes by time in mean PPD of the two groups	,
19	54
Histogram showing means CAL of the two groups	s
20	56
Changes by time in mean CAL of the two groups	•
21	58
Histogram showing mean GR of the two groups	
22	60
Changes by time in mean GR of the two groups	

23		62
	Mean O-P distance of the two groups	
24		64
	Changes by time in mean PH of the two groups	
25		66
	Mean PI of the two groups	
26		68
	Changes by time in mean PI of the two groups	
27	Mean GI of the two groups	70
28	Changes by time in mean GI of the two groups	72
29		74
	Comparison of the shift in papilla position (O-P distance) and the gingival recession at base line, 3 months and 6 months. No significant change in O-P distance or gingival recession	
30		75
	Comparison of the PPD at baseline and 6 months. Interproximal defect distal to the upper left canine showed reduction in PPD about 3 mm at 6 months	
31		76
	Comparison of (O-P distance) and the gingival recession at base line and 6 months, minimal increase in the O-P distance and GR	
32		77
	Comparison of the PPD at baseline and 6 months. Interproximal defect mesial to the upper left first premolar showed reduction in PPD about 2 mm at 6 months	

List of tables

Table	Title I	Page
1	comparison between PD of the two groups	49
2	the changes by time in mean PD of non-surgical group	51
3	the changes by time in mean PD of surgical group	51
4	comparison between CAL of the two groups	53
5	the changes by time in mean CAL of non-surgical group	55
6	the changes by time in mean CAL of surgical group	55
7	comparison between GR of the two groups	57
8	the changes by time in mean GR of non-surgical group	59
9	the changes by time in mean GR of surgical group	59
10	comparison between O-P distance of the two groups	61
11 th	e changes by time in mean O-P distance of non-surgical gro	up 63
12	the changes by time in mean O-P distance of surgical gro	up 63
13	comparison between PI of the two groups	65
14	the changes by time in mean PI of non-surgical group	67
15	the changes by time in mean PI of surgical group	67
16	comparison between GI of the two groups	69
17	the changes by time in mean GI of non-surgical group	71
18	the changes by time in mean GI of surgical group	71

List of abbreviations

BL	Bone loss
ВОР	Bleeding on probing
CAL	Clinical attachment level
CEJ	Cemento-enamel junction
EMP	Enamel matrix protein
GI	Gingival index
GR	Gingival recession
GTR	Guided tissue regeneration
O-P distance	occlusal-Papilla distance
MID	Minimally invasive dentistry
MIS	Minimally invasive surgery
MIST	Minimally invasive surgical technique
M-MIST	Modified minimally invasive surgical technique
MPPT	Modified papilla preservation technique
MWF	Modified Widman flap
PI	Plaque index

PPD	Probing pocket depth
PPT	Papilla preservation technique
SPPF	Simplified papilla preservation flap

Contents		
Introduction	1	
Review of literature	3	
Aim of the study	30	
Materials and methods	31	
Results	47	
Discussion	78	
Conclusions	86	
Summary	87	
References	90	
Arabic summary	108	

Introduction

Surgical procedures in medicine have undergone radical changes in surgical access in the recent past. The size of incisions that are used to perform many surgical procedures have become smaller due to the advent of technology, that allows for access and visualization of the surgical site through a much smaller opening than was possible in the past.

In 1990, Wickham & Fitzpatric described the techniques of using smaller incisions as "minimally invasive surgery (MIS)." Most but not all of the medical term has procedures to which this been applied have used either laparoscopic/endoscopic instrumentation or high magnification surgical microscope. However, it has been suggested that the use of specific technology for visualization of the surgical site does not define the "minimal invasiveness."

Hunter & Sackier (1993) described the MIS as "the ability to miniaturize our eyes and extend our hand to perform microscopic and macroscopic operations in places that could be previously reached only by large incisions."

MIS has been developed to minimize surgical trauma and improve cosmetic results compared to the conventional full access surgery. Moreover, MIS reduces the amount of inpatient hospital days as it results in decreased morbidity, which promotes the patient acceptance of the surgical procedures.

In recent years, there have been a number of technological advances in the equipment and dental material, which have lead to an expansion of the minimally invasive approach in dentistry (*Christensen 2005*).