EVALUATION OF THE EFFECT OF PLATELET RICH PLASMA (PRP) ON THE ESTHETIC OUTCOME AND SCAR FORMATION OF UNILATERAL CLEFT LIP REPAIR BY MODIFIED MILLARD CHEILOPLASTY (A RANDOMIZED CONTROLLED TRAIL)

Submitted to the Faculty of Dentistry, Cairo University
In Partial Fulfillment of the Requirement of the Doctor Degree
In Oral and Maxillofacial Surgery

By

Shaimaa Mohsen Refahee

B.D.S (Faculty of Dentistry- Cairo University; 2006)
M.D.S (Faculty of Dentistry-Cairo University; 2013)

2018

Supervisors

Dr. Basma Gamal Moussa

Professor of Oral and Maxillofacial Surgery,

Faculty of Dentistry,

Cairo University.

Dr. Omnia Mohamed Abd Elaziz

Lecturer in Oral and Maxillofacial Surgery,

Faculty of Dentistry,

Cairo University.

Dr. Dawlat Emara Gomaa

Associate Professor of Plastic Surgery,

Faculty of Medicine,

Cairo University.

Dr. Hadeel Mohamed Saif Eldin Aly

Professor of Radio-diagnosis,

Faculty of Medicine,

Cairo University.

Judgment committee

Prof. Dr .Ragia Mohamed Mounir

Professor of Oral and Maxillofacial Surgery,

Faculty of Dentistry,

Cairo University.

Dr. Abd Elmonem Abd Allah Abd Elghaffar

Professor of Oral and Maxillofacial Surgery,

Faculty of Dentistry,

El Azhar University.

Dr. Basma Gamal Moussa

Professor of Oral and Maxillofacial Surgery,

Faculty of Dentistry,

Cairo University.

Dedication

This work is especially dedicated

To

My family whom gave me love, care, and support to be the best. From them I learned "where there is a will, there is a way".

ACKNOWLEDGEMENT

First of all, I am deeply thankful to ***ALLAH*** *who gave me the strength and patience to accomplish this work. Wards do fail to express my deepest gratitude to HIS MIGHTY who granted me with my Angels, i.e. Supervisors.*

Really I don't find words to express my grateful appreciation and respect to my mentor ***Prof. Dr. Basma Gamal Moussa,*** *Professor of Oral and Maxillofacial Surgery, Faculty of Dentistry, Cairo University, for her great effort, continuous guidance, expert touches and instructions without which I would have never been able to fulfill this work.*

From the depth of my heart, I would like to express all my deepest thank to ***Dr .Omnia Mohamed Abd Elaziz****, Lecturer in Oral and Maxillofacial Surgery, Faculty of Dentistry, Cairo University, for her kind supervision, valuable advices and continuous encouragement throughout the study.*

Words can never express my deep gratitude and sincere consideration to ***Dr. Dawlat Emara Gomaa****. Assistant Professor of Plastic Surgery, Faculty of Medicine, Cairo University, for her grand efforts, times and patience in accomplishing this work with great accuracy.*

My sincere thanks to ***Prof. Dr. Hadeel Mohamed Saif Eldin Aly.*** *Professor of Radio-diagnosis, Faculty of Medicine, Cairo University, for her effort, guidance, and meticulous supervision.*

My deepest thanks to ***Prof. Dr. Mamdouh Ahmed Aboul Hassan*** *Professor of Pediatric Plastic Surgery, Faculty of Medicine, Cairo University, for his kindness and support during clinical work of my thesis.*

My sincere thanks to ***Prof. Dr. Kamal Hassan Ghallab*** *Pofessor of Statistics and Plant Breeding, Institute for Research and Strategic Studies of Nile basin countries, Fayoum University, for helping me, his support, and kindness*

My great thanks to all ***staff members*** *of Oral and Maxillofacial Surgery, Faculty of Dentistry, and Pediatric plastic surgery, faculty of medicine, Cairo University for helping me and giving me their experience throughout my work, their efforts will always be remembered.*

I would like to thank the children's parents for their cooperation, concern about their children, and their commitment.

Last but not least, my love and respect goes to my colleagues who helped me throughout my wok.

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
BM	Prof. Dr. Basma Mousa
CL	Cleft lip
CL/P	Cleft lip or palate
CL±P	Cleft lip with/without primary palate
CLP	Cleft lip and palate
CP	Cleft palate
CPLA	Computerized photogrammetric lip analysis
CT	Computer tomography
CTGF	Connective tissue growth factor
ECM	Extracellular matrix
EGF	Epidermal growth factor
FGF	Fibroblast growth factor
g or (RCF)	Gravitational force or (Relative centrifugal force)
GFs	Growth factors
HS	Prof. Dr. Hadeel Mohamed Saif Eldin
IL-10	Interleukin-10
IL-6	Interleukin-6
INR	International normalized ratio
min	Minutes
MRI	Magnetic resonance Image
MSS	Manchester scar scale
OA	Dr. Omnia Abd Elaziz
PDGF	Platelet derived growth factor
PH.L	Philtrum length
POSAS	Patient and observer scar assessment scale
PPP	Platelet poor plasma

PRP	Platelet rich plasma
PT	Prothrombin time
PTT	Partial thromboplastin time
RAE	Right angle endotracheal tube
RBCs	Red blood cells
SBSES	Stony Brook scar evaluation scale
SCs	Satellite cells
SM	Shaimaa Mohsen
SW	Scar width
TGF-β	Transforming growth factor-β
TNFα	Tumor necrosis factor-α
UCLP	Unilateral cleft lip and palate
VEGF	Vascular endothelial growth factor
VPI	Velopharyngeal incompetence
VSS	Vancouver scar scale
WB	Whole blood
WBCs	White blood cells

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Abstract

Objective: To evaluate and analyze the effect of platelet-rich plasma (PRP) injection on the scar formed after unilateral complete cleft lip scar repair using a modified Millard technique.

Hypothesis: An unavoidable cheiloplasty scar is a result of the wound healing process that not only influences patient self-esteem for life but also affects muscle function.

Design: Blind, randomized, controlled clinical trial.

Patients: From December 2016 to February 2018, 24 patients with unilateral complete cleft lip undergoing primary cheiloplasties were equally assigned to study and control groups.

Intervention: All patients were treated by modified Millard cheiloplasty. In the study group, PRP was injected into the muscle and skin layers immediately after wound closure, while the control group patients were treated with no PRP injection.

Outcomes Measures: Scar width was assessed after 6 months through the muscle using ultrasonography and at the skin surface via photographs.

Results: Scar width showed a significant improvement in the study group.

Conclusions: Injection of autologous PRP provides effective improvement of cutaneous and muscular wound healing and decreases scar tissue formation.

Keywords: Cleft lip, platelet rich plasma, cheiloplasty, growth factors