

# MICRONEEDLING ALONE VERSUS MICRONEEDLING WITH BOTULINUM TOXIN EARLY VERSUS LATE INTERVENTION IN TRAUMATIC SCARS; SPLIT SCAR COMPARATIVE STUDY

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## Introduction

Tissue repair after injury is a complex phenomenon involving intricate and coordinated mechanisms. Even though during the last decade, many studies have increased our knowledge on the different cellular players involved in this process, many gray areas remain, particularly concerning the dialogue between different cell populations acting during wound healing and scar formation. The process of wound healing after each kind of tissue defect is a complex mechanism within which a lot of different factors interact to achieve a reconstruction of the skin. The skin is composed of two main layers: the superficial layer, the epidermis, which functions as a barrier to the external environment, and the deeper layer, the dermis, which is composed of connective tissue, and provides the skin with its mechanical properties. Normal cutaneous wound healing triggered by tissue injury consists of overlapping and highly coordinated phases of hemostasis, inflammation, proliferation and remodeling.

## Aim of the work

The aim of this study was to compare the efficacy of microneedling alone versus its use in combination with botulinum toxin in improving post traumatic and surgical scars. Also, to compare the efficacy of the early versus late intervention in improving post traumatic and surgical scars.

## Patients and Methods

This study was conducted on 40 participants of both genders with traumatic or post-surgical scares attending the dermatology outpatient clinic of Alexandria Main University Hospital. Patients were enrolled in the study after being briefed about different scars treatment. This study was approved by ethical committee of faculty of Medicine, Alexandria University. Anaesthesia: To anaesthetize the treatment area, Topical anaesthetic cream (mixture of local anesthetics ‘Lidocaine 25mg, Prilocaine 25 mg) was applied under occlusion for 1 hour and then completely removed using saline-soaked gauze before treatment. Disinfection: The treatment area was cleaned using Povidone Iodine 10% then saline solution 0.9%.

## Results

Table (I): Comparison between the pre and post treatment in both sub-group I regarding MMS.

MMS	Group I Pre treatment score	1 month after treatment	
		Group I-a	Group I-b
Group I (n = 20)			
Range	13.0-16.0	7.0-12.0	5.0-9.0
Mean	15.1	9.7	7.1
SD.	1.1	1.5	1.5
t-test P1		3.46 0.001*	4.01 0.003*
t-test P2			2.01 0.031*

Sub-group I-a = without botox

Sub-group I-b = with botox

P1 comparison between pre treatment Vancouver scale and both group II-a and IIb.

Pe comparison between Vancouver scale in group II-a and II-b.

t = student t-test

P was significant if  $p \leq 0.05$

\* = significant difference

Table (2): Comparison between the pre and post treatment in both sub-group II regarding MMS.

MMS	Group II Pre treatment score	1 month after treatment	
		Group II-a	Group II-b
Group II (n = 20)			
Range	12.0-17.0	9.0-15.0	5.0-12.0
Mean	14.5	11.7	8.9
SD.	1.9	1.8	2.0
t-test P1		0.002*	0.004*
t-test P2			2.51 0.016*

## Conclusion

In conclusion, we present in this study a new proof of concept that combined therapy provide an efficient well tolerated modality combining the advantages of different therapies acting synergistically with fewer side effects. The two modalities used inhere show comparable efficacy with a wide safety profile for an effective office procedure. On the other hand the improvement in recent scar was significantly higher more than old scar.

