

*Research Article*

## Comparative Study Between Microneedling Alone and Microneedling with PRP or Vit. C in the Treatment of Melasma.

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### Abstract

**Background:** Melasma is a human melanogenesis disorder that lead to chronic, acquired hypermelanosis of the skin. Melasma has a significant impact on appearance, causing psychological and emotional distress, and reducing the quality of life of affected patients. The main cause of melasma has not yet been adequately studied. **Objectives:** This work aims to evaluate the role of microneedling alone or combined with PRP or vit. C in the treatment of melasma. **Methods;** the study was conducted on 20 patients with melasma. The age of patients ranged from 18 to 42. They were divided into two groups. **Results:** Clinical improvement in most of cases which was in the form of significant improvement of pigmentation on both sides but more significant on Rt. side with marked overall lightening but more significant on Rt side. **Conclusion:** microneedling alone or combined with PRP or vit.C is a good treatment for melasma patients especially combined form.

**Keywords:** Melasma, microneedling, PRP, Vit.C, treatment.

### Introduction

Melasma is a human melanogenesis disorder that leads to chronic, acquired localized hypomelanosis of the skin. It occurs on sun-exposed areas of the body and is symmetrically distributed, and affects mainly women (Pawar et al., 2015).

The term melasma originates from the Greek root "melas", which means black, and refers to its brownish clinical presentation. The designations: "mask of pregnancy", liver spots, uterine chloasma, chloasma gravidarum, and chloasma virginum do not fully characterize the disease, nor are semantically appropriate, although the term "chloasma" (derived from the Latin chlōos and the Greek cloazein: greenish) is still used in the medical literature (Handel et al., 2014b).

Pigmentation disorders were reported as the main cause of demand for dermatological care by 23.6% of men and 29.9% of women (Bagherani et al., 2015).

Melasma affects exclusively the sun-exposed areas. It commonly occurs in the face and occasionally the neck and forearm. During and after periods of sun exposure, its clinical manifestation is more apparent (Nicolaidou and Katsambas, 2014).

The exact underlying etiology for melasma remains a mystery; however, several well-known risk factors exist. It is more common in darker skin types, particularly Fitzpatrick skin types III and IV. Other reported risk factors include; genetic predisposition, exposure to ultraviolet light, pregnancy, and exogenous hormones (ie, oral contraceptives and hormone replacement therapy) (Rendon, 2004).

Best treatment strategy in melasma comprises the recognition of factors of impairment of the lesions as daily sun exposure, phototoxic drugs, cosmetics, skin picking (lead to post-inflammatory pigmentation), adherence to the treatment,

and hormonal steroids (e.g., contraceptive pills or hormone replacement therapy).

Preventive measures, as rigorous sun protection and quitting hormonal steroid supplementation, should be indicated to all high-risk patients as pregnant women and first-degree relatives from patients with melasma.

The aim is to evaluate the role of micro-needling alone or combined with PRP or vit.C in the treatment of melasma.

### Subjects and Methods

The present study has been conducted on 20 patients with melasma attending the outpatient clinic of the Department of Dermatology, STDs and Andrology, Minia University Hospital. All patients were females. The age of patients ranged from 18 to 42 years. They were attending the Dermatology outpatient clinic of Minia University Hospital in the period from January 2017 to June 2019.

All patients were subjected to full history taking, skin examination, photography, wood's light, dermoscopic examination and skin biopsy.

They were divided into 2 groups:

- Group A: includes 10 patients were treated with microneedling with vitamin C on right side of the face versus microneedling alone on left side of the face.
- Group B: 10 melasma patients treated by microneedling with PRP on right side of the face versus microneedling alone on left side of the face.

### Statistical analysis

Data were statistically analyzed using the IBM SPSS 20.0 program. The statistical difference between groups was expressed in *p value* which was considered significant when it was 0.05 or less.

### Results

We noticed a clinical improvement in most the cases After treatment there was significant improvement of pigmentation on both sides but more significant on Rt. side with marked overall lightening but more significant on Rt side.

**In group A:** Rt. Side (Dermapen + vit.C) 7 patients have excellent response (70%), 3 patients have good response (30%). Lt. side (Dermapen only) 4 patients have good response (40%), 6 patients have fair response (60%).

**In group B:** Rt. Side (Dermapen + PRP) 10 patients have good response (100%). Lt. side (Dermapen only) 2 patients have good response (20%), 7 patients have fair response (70%) (**p value 0.001 \***).

### Discussion

Melasma is a popular ethetic disorder. It is an acquired pigmentary disease characterised by medium- to dark-brown macules with well-defined geographic borders, more or less symmetrically distributed affecting mainly sun-exposed areas especially forehead, cheeks, temples and upper lip (Sadeghpour et al., 2018).

The main cause of melasma remains unknown. A lot of etiological factors involved such as exposure to ultraviolet radiation, contraceptive pills, pregnancy, hormone replacement therapy, phototoxic, cosmetics and anti-seizure medications. (Lima et al., 2017).

Many therapeutic options are available for melasma such as chemical peelings, light-based therapies (laser or intense pulse light), and topical agents, which are more effective in the epidermal type of melasma (Prignano et al., 2007).

Vitamin C is one of the new topical medications which interacts with ions of copper at the tyrosinase-active site that leads to inhibition of tyrosinase enzyme. (Lima, 2013).

Collagen induction therapy or percutaneous collagen induction (Microneedling therapy), is an increasingly popular treatment modality for skin rejuvenation. (Hou et al., 2017).

Platelet-rich plasma (PRP) is commonly used in plastic surgery and dermatology, especially for treating chronic wounds, burns and ulcers. PRP has also started to

be used in the field of cosmetology in recent years. Volumetric filling, acne scars, skin rejuvenation and alopecia are the main targets of PRP usage in cosmetology. (Çayırılı et al., 2014).

### Summary and Conclusion

Melasma is a common skin condition characterized by irregular light brown to dark brown patches on sun-exposed areas of the skin, it is more prevalent in women with darker skin types; however, its incidence in men is considerable.

Although multiple therapeutic modalities have previously been tried and touted as being successful, truly efficacious treatment options for this condition have been few and quite elusive.

Combined treatment of microneedling and vit C or microneedling with PRP showed significant improvement when compared with microneedling alone.

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