

*Research Article***Microneedling Treatment in Facial Aging****El-Domyati M, Moftah NH and Ahmed AM**

Department of Dermatology, STDs and Andrology, Faculty of Medicine, Minia University, Egypt

**Abstract**

**Background:** Skin microneedling is minimally invasive treatment modality produced noticeable clinical improvement of photoaged skin and atrophic post-acne facial scars. There are some factors determine the effect of microneedling treatment methods including; pretreatment preparations and the use of multiple sessions and other factors. **Objectives:** This work aims to evaluate the use and effectiveness of different depth of penetrations of dermapen needles in management of facial aging. **Methods:** The study was conducted on 14 subjects with skin aging. The age of subjects ranged from 35 to 52 years. **Results:** Facial aging subjects showed improvement in all of them, but the difference in all grades of improvement between both sides of the face was not statistically significant, with no patients achieving very good improvement on both sides of face. **Conclusion:** Microneedling is effective, safe and Low coast modality in treatment of photo-aging.

**Keywords:** Microneedling, treatment.

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**Introduction**

Microneedling, a collagen induction therapy, is a technique of repeated drilling of the dermis in order to induce repair and neocollagenesis. Moreover, microneedling has been used to enhance transdermal absorption of drugs (drug delivery) (Chung et al., 2014, Konicke et al., 2017 and Iriarte et al., 2017).

Aging of the skin consists of a combination of genetically predisposed factors (intrinsic aging) and environmental factors (photo-aging) (Lawrence 2000).

The aim of this work to evaluate the use and effectiveness of different depth of penetrations of dermapen needles in management of facial aging.

**Subjects and Methods**

The present study has been conducted on 14 subjects with skin aging attending the outpatient clinic of the Department of Dermatology, STDs and Andrology, Minia University Hospital. The age of patients ranged from 35 to 52 years.

All patients were subjected to full history taking, complete general and dermatological examination and photographing of right and left sides of the face.

Both sides of the face were treated with 6 sessions of skin microneedling using dermapen device with a needle length of 2.5 mm for right side of face and 1.5 mm for left side of face.

**Statistical analysis**

Data were statistically analyzed using SPSS program. The statistical difference between groups was expressed in p value which was considered significant when it was < 0.05.

**Results**

We noticed clinical improvement in most of cases which was in the form of skin texture and appearance. It started at about 1 months and completed by 3 months of treatment.

All patients showed improvement, but the difference in all grades of improvement between both sides of the face was not statistically significant, with no patients achieving very good improvement on both sides of face.

**Discussion**

Microneedling, a collagen induction therapy, is a process involving repetitive puncturing of the skin with sterilized microneedles to reach the papillary and reticular dermis, inducing dermal regeneration (Iriarte et al., 2017; Ramaut et al.,

2018). It offers a relatively low cost and minimally invasive tool for treatment of multiple cosmetic and dermatologic conditions (Lee et al., 2016) with positive therapeutic effects in treatment of post acne scars and facial aging (Ramaut et al., 2018).

Generally, different studies reported that skin microneedling induces clinical and histological improvement of facial aging by occurrence of selective dermal injury that leads to wound healing repair response (Fabbrocini et al., 2009; El-Domyati et al., 2015 a,b) through increases growth cytokine synthesis, collagen and elastin deposition and decreases inflammatory markers (Mujahid et al., 2020). These changes can increase the thickness of the skin and dermal papillae and improve the appearance of scars and wrinkles (Fernandes and Signorini, 2008).

In facial aging, it is preferred to use 1.5 mm depth of penetration because there were no significant increase in the grade of improvement using 2.5 mm depth of needling above the depth of 1.5 mm as well as occurrence of severe erythema and pain with 2.5 mm depth of penetration.

### Summary and Conclusion

The use of 1.5 mm depth of penetration is preferable in management of facial aging to decrease the down time after session. In the future, larger-scale in-vivo studies with a longer follow-up period are mandatory to confirm such findings and to standardize the other parameters of the used protocols such as the number of treatment sessions and the interval between sessions.

### References

1. Chung JY et al., (2014): Pulse in pulse intense pulsed light for melasma treatment: a pilot study. *Dermatol Surg*; 40: 162-168.
2. Konicke K, Knabel M and Olasz E (2017): Microneedling in dermatology: a review. *Plast Surg Nurs*; 37: 112-115.
3. Iriarte C et al., (2017): Review of application of microneedling in dermatology. *Clin Cosmet Investig Dermatol*; 10: 289-298.
4. Fabbrocini G et al., (2010): Acne scars: pathogenesis, classification and treatment. *Dermatology Research and practice*; 2010: 893080-893093.
5. Lawrence N (2000): New and emerging treatments for photoaging. *Dermatol Clin*; 18: 99-112.
6. Ramaut L et al., (2018): Microneedling: Where do we stand now? a systematic review of the literature. *J Plastic Reconstr Aesth Surg* 7:1 1-14.
7. Lee JC et al., (2016): Mesotherapy, microneedling, and chemical peels. *Clin Plast Surg*; 43:583-595.
8. El-Domyati M et al., (2015a): Multiple microneedling sessions for minimally invasive facial rejuvenation: an objective assessment. *Int J Dermatol*; 54:1361-1369.
9. El-Domyati M et al., (2015b): Microneedling therapy for atrophic acne scars: an objective evaluation. *J Clin Aesthet Dermatol*; 8: 36-42.
10. Fernandes D and Signorini M (2008): Combating photoaging with percutaneous collagen induction. *Clin Dermatol*; 26: 192-199.
11. Mujahid NBS et al., (2020): Microneedling as a treatment for acne scarring: A systematic review. *Dermatol Surg*; 46: 86-92.
12. Fabbrocini G et al., (2009): Acne scarring treatment using skin needling. *Clin Exp Dermatol*, 34(8):874-879.