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KURCHA CHIKITSA – AN AYURVEDIC WAY OF MICRONEEDLING

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Abstract

Ayurveda being the ancient science of life, it has been a boon to mankind since the Vedic culture to the present day. Microneedling has gained more popularity now a day for the treatment of many skin and hair ailments. It produces micro bleeding and stimulates collagen remodelling. The same principle of treatment is explained long ago in Ayurveda in the name of pracchana and visravan karma with the help of Kurcha shastra and trikurcha shastra. We can compare Kurcha shatsra to dermaroller and that of Dermapen to Trikurchaka shastra which are used for microneedling.

Keywords: Kurcha Shastra, Trikurchaka shastra, pracchana visravan karma, Microneedling.

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INTRODUCTION:

Everyone wants to have beautiful, flawless, smooth and supple skin. In fact having a beautiful skin is every one's dream. But in today's hectic schedule and inappropriate lifestyle one fails to take proper care of the skin thus leading to early aging signs such as dark patches, acne scars, wrinkles, freckles, melasma, dark under eye circles and so on.

Ayurveda, an ancient medical science which deals with all the aspects of human life, also gave importance to the external appearance of person. All these skin elements can be managed effectively with a medical treatment in their early stages. But in the later stages it requires some specialized procedures such as microneedling, which we can correlate to *Kurcha shastra* as explained in *Ayurveda*.

Acharya Sushruta has mentioned that those who undergo the procedure of *raktmokshana* frequently never suffer from skin related disorders^[1].

The two methods mentioned for *sashastra raktmokshana* are *pracchan* and *siravedhan*^[2].

Pracchan karma causes microbleeding as caused by derma rolling. Dermapen, Derma roller, Dermastamp are the instruments used for micropuncturing or microneedling. Likewise our Acharyas have mentioned various

instruments used for *raktvisravan*(bloodletting), *Vedhan*(puncturing). Some of these instruments mentioned by *Acharya Sushruta* and *Acharya Vagbhata* holds base for structural and functional development of derma rollers and derma pen.

Microneedling (MN) is also known as Collagen Induction Therapy, is a process involving repetitive puncturing of the skin, with sterilized microneedles. In 1995, when Orentreich and Orentreich developed the concept of 'subcision' or using hypodermic needles to induce wound healing in depressed cutaneous scars^[3].

In 2005, Dr Desmond Fernandes developed first MN product which became the modern day dermaroller^[4].

Methodology-

Over a short period of time, Microneedling has gained mass popularity and acceptance as it is a simple, cheap, safe, and effective technique requiring minimal training^[5].

Acharya Sushruta has mentioned *visravana* karma that is superficial bleeding procedure especially for those who are weak, aged persons, children, females, sensitive persons^[6].

Kurcha shastra and *Trikurchaka* are such a surgical instruments used for *prachana* karma or microbleeding.

Vagbhatacharya has mentioned *Trikurchaka* and *Kurcha shastra* while explaining twenty six sharp instruments^[7]. *Trikurchaka* is indicated for *Rakta visravana*^[8], where as *Kurcha shastra* is indicated for Scraping^[9].

According *Vagbhatacharya*, *Kurcha* is a circular brush with sharp round spikes fixed on one end, seven or eight in number and fastened well. It measures four angula in length. *Kurcha shastra* is indicated for scrapping in **Nilika**(blue patches), *Vyanga*(Melasma) and *Keshashata*(loss of hair), *indralupta*(Alopecia areata) and *Shwittra*(Vitiligo)^[10].

Acharya Sushruta has mentioned *Trikurchaka Shastra* while explaining twenty sharp instruments which is used for *Rakta Visravana*^[11].

Trikurchak having 3 needles fixed on a wooden handle, it is of 8 angula, the tip of which is inverted with a hold. The gap between each *kurcha* is one vrihi in size. Its handle measures about 5 angula^[12].

Acharya Charaka mentions about *Kurcha shastra* in the treatment of *kushta* as – The rounded nodules which are fixed and hard, are to be softened by *nadi* and *prastara* type of *swedana karma*, after this these

nodules are injured by this *Kurcha shastra* and the blood oozes out, should be wiped away^[13].

Principle and mechanism of action of Microneedling-

Micropunctures are created using microneedles which produce a controlled skin injury without actually damaging the epidermis. These microinjuries lead to minimal superficial bleeding and set up a wound healing cascade with release of various growth factors such as platelet derived growth factor (PGF), transforming growth factor alpha and beta (TGF- α and TGF- β), connective tissue activating protein, connective tissue growth factor, and fibroblast growth factor (FGF). The needles also breakdown the old hardened scar strands and allows it to revascularize. Neovascularization and neocollagenesis is initiated by migration and proliferation of fibroblasts and laying down of intercellular matrix^[14]. It is a safe alternative for the treatment of post-burn injury, wrinkles, stretch marks and for smoothing of skin without the risk of dyspigmentation or scarring^[15].

Microneedling enhances the delivery of various drugs across the skin barrier as it bypasses the stratum corneum and deposits the drug directly up to the vascularised dermis^[16].

Instrument

Derma Roller - It is a simple hand held drum shaped roller consisting of handle with a cylinder studded with 192 fine stainless steel microneedles all around in eight rows 0.5-1.5mm in length and 0.1 mm in diameter. The microneedles are synthesized by reactive ion etching techniques on silicon or medical grade stainless steel. It is pre sterilised by gamma irradiation. Medical grade stainless steel makes the needles non- allergenic to human tissue. Re-sterilization of the dermaroller in an autoclave or using ultrasound is prohibited because needles would lose their sharpness and may detach from the roller. Roller should be kept in isopropyl alcohol all the time^[17].

A dermapen works through a method of puncturing the skin through a spring-loaded automated function, the dermapen uses microneedles to move up and down across the skin, puncturing small holes as it moves. The dermapen process is fast and therefore doesn't damage the dermal layers of the skin^[18].

Indications of Microneedling

Microneedling may help address many skin-related complaints, including:

- Wrinkles
- Scarring
- acne
- alopecia
- skin pigmentation issues
- stretch marks

- loose skin, such as after weight loss or liposuction
- It may also help rejuvenate the skin^[19].

Contra indications

- Active acne, herpes labialis.
- Chronic skin disease like eczema and psoriasis
- Blood clotting disorders and patient on any anticoagulant therapy like warfarin, heparin or other oral anticoagulants, as it can cause uncontrolled bleeding
- Rosacea
- Skin malignancy, Moles or warts and Solar keratosis: as the needles may disseminate abnormal cells by implantation.
- Patients who have not pretreated their skin with vitaminA.
- Patients on Aspirin should discontinue it atleast three days before the treatment^[20].

DISCUSSION

Microneedling is a relatively new minimally invasive procedure which has gained a lot of popularity in recent era. But in *Ayurveda* our *acharyas* have described similar type of procedure using instruments named *Kurcha shatsra* and *Trikurchaka shastra*. We can compare *Kurcha shatsra* to dermaroller and that of Dermapen to *Trikurchaka shastra*.

Mode of action of *Kurcha chikitsa* in Skin conditions –

Kurcha chikitsa is indicated in hyper and hypo pigmentation of skin. These conditions can be well managed in their early stages with internal medicines and external applications of *Varnya dravyas*. But the same fails to relieve the conditions in their advanced stages. Then intervention of *kurcha chikitsa* will be helpful as it enhances transdermal drug absorption.

In *Shwitra - Visravana karma* is one of the surgical techniques used to treat *shwitra* in ancient times with *kurcha Shashtra*^[21]. This *vistravana karma* for *shwitra* can be considered as microneedling. This microneedling creates a tiny punctures on the skin, which triggers skin repair, leading to the creation of new collagen and also helping in improving blood supply to that area. Therefore the short term wounding of the skin is intended to trigger the supply of thyrosin an amino-acid which helps in formation of new melanocytes in hypo-pigmented skin^[22].

In *vyanga* and *Nilika* - Dermarolling creates microscopic wounds in the skin with tiny needles to promote skin cell regeneration. It lightens hyper pigmentation by breaking up melanin clusters^[23].

Mode of action of *Kurcha chikitsa* in Hair conditions –

Khalitya, in contemporary alopecia is *raktajavikara* therefore *prachhanna* by derma roller is done. *Prachhanna* helps in clearing the obstructed *romakupas*, vitiated *rakta* is expelled out.

The physical damage done by puncturing the Epidermis and Dermis causes an inflammatory tissue reaction to repair the damage. The inflammatory reaction stimulates the Dermal Fibroblasts to activate the follicles. Dermarollers on the scalp helps to stimulate reactivation of hair growth cycle resulting in better hair growth and facilitate hair fall reduction^[24].

Derma rollers work in two ways- in addition to prompting scalp to produce more collagen and thus supporting the growth stage inside the hair follicle, it also improves blood flow. The epidermis reacts to the wound by sending more blood to the wound to heal it^[25].

Mechanisms of hair re-growth induced by Microneedling include: Release of platelet derived growth factor, epidermal growth factors are increased through platelet activation and skin wound regeneration mechanism

1. Activation of stem cells in the hair bulge area under wound healing conditions which is caused by a dermaroller

2. Over-expression of hair growth related genes vascular endothelial growth factor, B catenin, Wnt3a, and Wnt10b ^[26].

CONCLUSION

Microneedling (MN) is also known as Collagen Induction Therapy. Over a short period of time, Microneedling has gained mass popularity and acceptance as it is a simple, cheap, safe, and effective technique requiring minimal training. Dermapen, Derma roller are the instruments used for micropuncturing or microneedling. Microneedling, though it is a new trend in modern era in the field of Dermatology, cosmetology and trichology, *Kurcha shastra* and *trikurchaka shastra* are used for the same purpose in *Ayurveda* since long ago. We can compare *Kurcha shatsra* to dermaroller and that of Dermapen to *Trikurchaka shastra*.

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