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Role of Centella Asiatica Extract in Thermal Burns Healing

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Abstract

Currently, several medicinal plants have been integrated into the health care system to aid in wound healing. Centella asiatica has been used in traditional medicine because of its ability to heal wounds and prevent scarring. This article is about the role of Centella asiatica (C. asiatica) in thermal burns healing.

Keywords: Centella asiatica, thermal burns, scar

Introduction

Wound healing process occurs with almost all medical treatments. Natural substances contained in herbs and plants have properties that assist in and enhance the wound healing process with its antioxidant, anti-inflammatory and antibacterial properties.[1,2] Epithelialization is the natural act of healing dermal tissue resulting in minimal or no scarring.[5] In most cases, scars occur if the depth reaches the dermis layer. When hypertrophic scar or keloid develops, it may induce itching, pain and even scar contracture.[3] A lot of agents have been used to improve scars such as onion extract, resveratrol in grape's skin, curcumin and Centella. The role of Centella asiatica extract in thermal burns healing is due to its anti-oxidant and anti-inflammatory and collagen remodelling property.[4]

Materials and Methods

This study was conducted in tertiary care centre in department of plastic surgery after getting the department ethical committee approval. Informed consent was obtained for examination and clinical photography. A 16 year old female with 2nd degree and 3rd degree burns involving the both lower limb from ankle to thigh (Figure 1) was admitted and given regular topical application (Figure 2) of Centella preparation (Figure 3).

Results

The wound had healed with adequate patient

Fig. 1: Thermal Burns injury before treatment

Fig. 2: Application of Centella asiatica extract on thermal burns injury

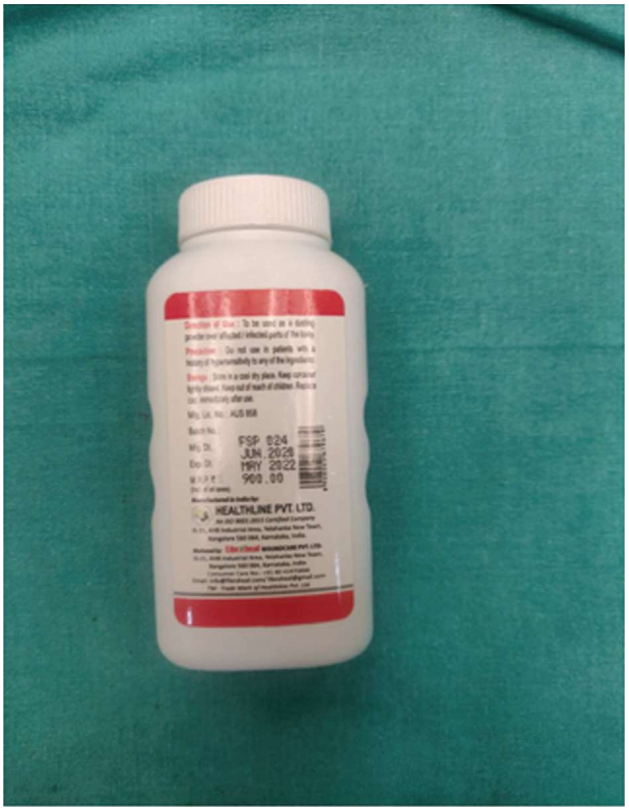

Fig. 3: Centella Asiatica preparation

Fig. 4: Thermal Burns wound after skin grafting after wound bed preparation with Centella extract

satisfaction with a minimal scar formation (Figure 4).

Discussion

Centella asiatica, also commonly known as Gotu kola, is a small plant that belong to the family a piaceae.[4] The active compounds of C. asiatica responsible for thermal burns healing are pentacyclic triterpenes, including asiaticoside and madecassoside. In vitro studies demonstrated that asiaticoside decreases fibroblast proliferation in a dose-related manner and reduces the expression of both TGF- β I and TGF- β II at the transcriptional and translational level.[10] Asiaticoside also slows down scar formation by increasing the activity process of SMAD 7 which is a negative regulator of TGF-β signalling.[11] The other active composition, madecassoside acts by inhibiting the migration of fibroblasts.[12] Both active chemical substances promote C. asiatica to induce

fibroblast proliferation and collagen synthesis. It involves the improvement of the tensile strength of newly formed skin and maturation of the scar by the production of type I collagen.[7]

It is mostly often used for wound healing, treating mental fatigue, bronchitis, asthma, dysentery, kidney trouble, urethritis, antiallergic and anticancer purposes and even for blood pressure. It is rarely used for memory improvement with not much use. Useof Centella extract for 4-8 weeks seems to improve blood circulation and reduce swelling in people with varicose veins.

It has low adherence to the wound bed (figure 2). It doesn't have skin irritating potential and has no effects on serum biochemical profile when applied dermally. There is limited or no scar formation.[8,9]

It can't be used in conditions like damage to skin caused by radiation therapy. It is safe when used for up to 10 weeks. It might cause itchiness and redness if used for longer period. Contact dermatitis[13,14] can occur sometimes. It also might cause liver damage. Especially, people who already have a liver disease should avoid using Centella asiatica since it might make liver problems worse.

Conclusion

The effect of Centella cream on scar development of the thermal burns may be attainable in terms of better pigmentation. By means of objective measurements and longer follow-up times, Centella cream may prove to be an alternative to prevent the formation of hypertrophic scar.

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