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Role of Topical Onion Extract in Scar Management

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Abstract

An imbalance of collagen synthesis and degradation is the most common cause of scarring. Onion extract inhibits fibroblast activity, which helps to reduce scar formation. Despite the fact that onion extract is used in a variety of commercial products, the precise molecular mechanisms by which onion extract reduces scar development in the skin are yet unknown. The aim of this study is to evaluate the effectiveness of onion extract gel in improving the scar.

Keyword: Scar reduction, Onion extract gel.

Introduction

Wound healing includes three phases-inflammation, tissue formation, tissue remodeling which is a complicated and dynamic interaction process. Scar from surgical wounds can range from asymptomatic to cosmetically unattractive.[1] Intralesional steroid injection, surgical excision, cryotherapy, irradiation, dermabrasion, pulse and carbon dioxide laser therapy are only a few of the well proven scar treatment available. These treatment have varying degrees of efficacy and necessitate numerous sessions of therapy. As a result, hypertrophic scar and keloids must be prevented and identified early in order to be managed effectively.[2] In our study we discuss role of onion extract in scar reduction.

Materials and Methods

The study was carried out in a tertiary care hospital in South India after receiving approval from departmental ethical committee. The subject was a 40 years old male patient who undergone fasciotomy and debridement over the right foot and leg following necrotising fasciitis. Patient was management with Split skin graft following which he developed hypertrophic scar.

Vancourer scar scale before starting scar

Fig. 1: Video Dermatoscopy assessment of Scar

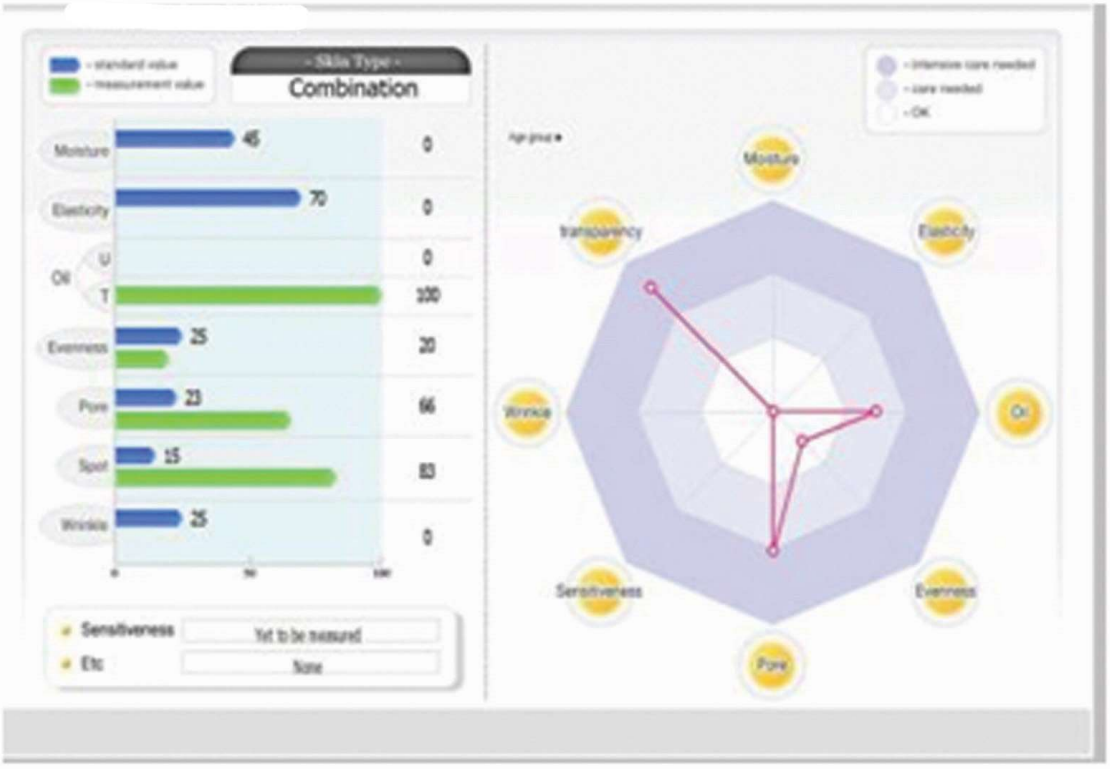

Fig. 2: Videodermatoscopy - pre treatment with topical onion extract

Fig. 3: Onion extract

management -10/13.Video dermatoscopy done to assess the scar.(figure 1,2) Topical onion extract application was applied over the scar.(figure 3,4) After application of onion extract, 2 session per week for 1 month.

Results

In our study after application of onion extract, Video dermatoscopy showed improvement (figure 5). Vancourer scar scale improved to 7/13 and clinically also improved. (figure 6)

Fig. 4: Topical application of onion extract

Fig. 5: Video dematoscopy- post topical onion extract management.

Fig. 6: Scar improved

Discussion

During the wound healing process, the production of matrix metalloproteinase (MMP)-1 causes the breakdown of extracellular matrix (ECM) components, including type I collagen. To encourage re-epithelialization, MMPs can break components of cell-cell junctions and cell-matrix interactions inside the epithelium. MMP-1 is present in human cutaneous wounds during the

re-epithelialization process, but it disappears once the lesion is closed.The ECM must be altered in order for wound healing to be resolved and scar formation to be reduced. MMPs are thus important regulators of a variety of tissue repair processes.[3]

Excessive extracellular matrix accumulation may result in the formation of a hypertrophic scar or keloid if MMP-1 activity is imbalanced between ECM syntheses during the wound healing process. Excessive type I collagen buildup, decreased MMP-1 activity, and elevated TIMP-1 expression may all play a role in both pathologic situations. In various investigations, onion extract has been demonstrated to suppress fibroblast growth. Onion extract is thought to be involved in fibroblast inhibition and antiproliferative. Onion extract itself can induce the modification of ECM through up-regulation of MMP.[4]

Conclusion

Topical onion extract appears to be a useful treatment modality for scar management. In our study after application of onion extract, Video dermatoscopy, vancourer scar scale score and clinically showed improvement.

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