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# Application of 2020 Updated Algorithm for Scar Management

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## Abstract

Hypertrophic scars and keloids are fibroproliferative disorders in the reticular dermis layer: this layer exhibits continuous inflammation, excessive angiogenesis, and abundant collagen accumulation.Scars can be prevented and managed in a variety of ways. Scar massage with emollients, compression garments, intralesional steroids, surgical scar revision, and laser therapy are all common scar treatment techniques. In this article, we are applying the updated 2020 algorithm for treatment and prevention of scar in our subject.

**Keywords:** Scar; Algorithm; Laser.

## INTRODUCTION

Scar management is a typical issue that people seek advice from a plastic surgeon about. Abnormal scars can be uncomfortable, itchy, and can make it difficult for the sufferer to move their joints, neck eyelids, or lips. Hypertrophic scars and keloids are fibroproliferative disorders in the reticular dermis layer: this layer exhibits continuous inflammation, excessive angiogenesis, and abundant collagen accumulation.[1] Because of their location, colour, consistency, or size, scars can become ugly (height).

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Scars can be prevented and managed in a variety of ways. While scars cannot be totally avoided, they can be significantly improved with careful wound treatment. There is no one-size-fits-all approach to scar management. Scar massage with emollients, compression garments, intralesional steroids, surgical scar revision, and laser therapy are all common scar treatment techniques. In this article, we are applying the updated 2020 algorithm for treatment and prevention of scar2 in our subject.

## MATERIALS AND METHODS

This study was conducted in the Department of Plastic Surgery at a tertiary care center after getting the departmental ethical committee approval.The subject was 22yr old female with post burn scar on her face caused by an accidental kerosene flame burn 20yrs back. (Figure 1) The scars were evaluated twice using the Vancouver scar scale scoring system, clinical photography twice once pre-treatment and next 2 month after the completion of the therapy. She underwent high level laser therapy (Figure 2), onion extract application (Figure 3), intralesional

steroids injection (Figure 4), low level laser therapy (Figure 5), collagen cream application, sun screen application, coconut oil massage. Post treatment VSS score and clinical photographs were reassessed.

**Fig. 1:** Pre Procedural

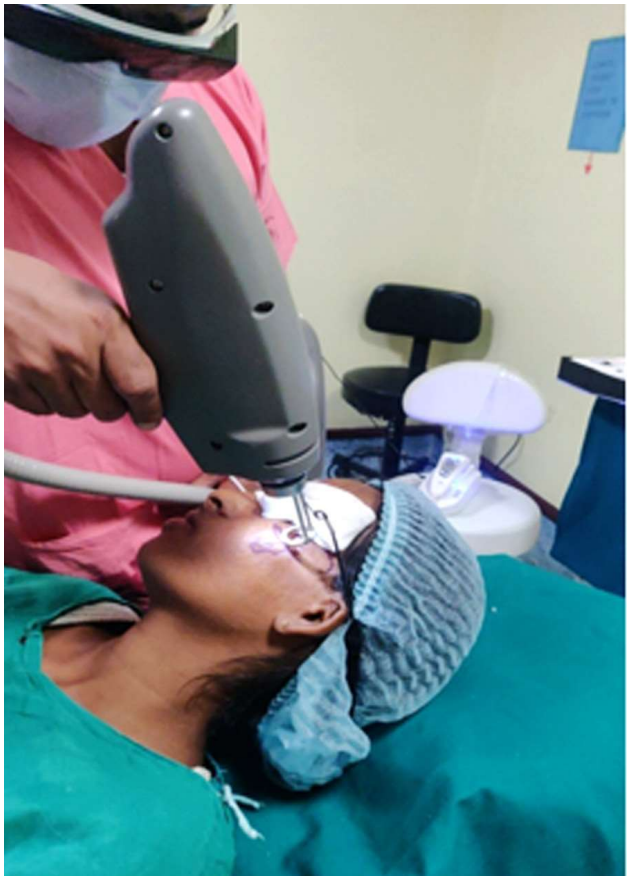

**Fig. 2:** High Level Laser Therapy

**Fig. 3:** Intralesional steroid injection

**Fig. 4:** Topical Onion Extract Application

**Fig. 5:** Low level Laser therapy

## RESULTS

The pre-procedural and post-procedural Vancouver scar scale(VSS) parameters are comparisons showed that there was a significant difference after application of algorithm of scar managent. The pre-procedural VSS score was 5/13. The post-procedural VSS score was 2/13. Post therapy clinical photograph also showed improvement. (Figure 6)

**Fig. 6:** Post procedural after 2 months

## DISCUSSION

Scar control is complicated and difficult for a variety of reasons. The exact pathophysiology of scar formation is unknown, but several elements are thought to play a role, including the degree of tension across the wound's margins and the rate at which cells grow. Variable systems exist to assess changes in scar appearance, but theoretical models to evaluate current therapy are lacking. As a result, the amount of valuable data generated from prospective randomized research has been limited. Scar prevention and treatment can, however, be accomplished through a variety of methods.

Collagen remodeling it takes around 12-18 months for the scar to mature and gain tensile strength of 70-80% of uninjured skin. Immature scars are prone to hypertrophy and give poor results after scar revision.[2] Adjunct treatments like use of silicone sheet can be given during this period. Early intervention is needed it is wiser to do it only after 8-12 weeks in adults and 6 months in children smaller than 7 years of age. In our study we used various modalities of treatment for scar management as follow. Silicone gel sheets-Beneficial in inhibiting hypertrophic scar formation are thought to shrink scars by increasing hydration and local skin temperature beneath the occlusive membrane. Silicone gel sheets are administered as soon as two weeks following a surgery in patients with predisposed factors for hypertrophic scarring.[2] Compression therapy improves wound healing by local vasoconstriction over post inflammatory burns area. 15-25 mm HG improves burn and hypertrophic scar thickness,erythema and hardness.[2] Wound healing associates with initial inflammation that normally slowly wanes. At this point, massage may promote mature scarring. However, in patients with risk factors, inflammation rises rather than subsides. Because massage stretches the scar, it could induce and worsen hypertrophic scars and keloids. Thus, scar massage in high-risk patients should be avoided.[3] Onion extract has fibroblast-inhibiting characteristics, which lower fibro proliferative activity and ECM synthesis while enhancing MMP-1 expression.[4] Onion extracts influence scar formation by inhibiting inflammatory processes, fibroblast proliferation, and fibroblastsynthesizing capacity. In the case of excessive scar formation in HTSs and keloid scars, onion extract has anti-proliferative actions that suppress fibroblast proliferation and reduce scar size.[5] Insufficient oxygen delivery can cause difficulties in wounds, preventing the usual healing process. Increased oxygen delivery to wounds especially necrotic ones like diabetic ulcer will hasten the healing process. It has been demonstrated that LLLT can aid to remove hypoxia and ischemia in tissue that has been caused by vascular blockage.

## CONCLUSION

Application of updated 2020 algorithm for the prevention and treatment of scar found to be a useful tool for systematic approach for scar management.

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