

Role of Autologous Lipoaspirate Therapy in Prevention of Abnormal Scarring

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Abstract

Aim of this case report is to assess the role of Autologous Lipoaspirate therapy in prevention of abnormal scarring. Clinical examination of the wound site before and after the use of autologous lipoaspirate therapy was done. In chronic non healing wounds, ALA therapy accelerates the process of wound healing by secondary intention and hastens the wound bed preparation for cover by skin graft/flap.

Keywords: Autologous lipoaspirate; Scar; Burns.

INTRODUCTION

Optimum healing of a cutaneous wound requires a well orchestrated integration of the complex biological and molecular events of cell migration and proliferation and extracellular matrix (ECM) deposition, angiogenesis, and remodeling.¹ Normal wound healing is a dynamic and complex process involving co-ordinated interactions between

diverse immunological and biological systems. It involves a cascade of carefully and precisely regulated steps and events that correlate with the appearance of various cell types in the wound bed throughout the distinct phases of the healing process.

MATERIALS AND METHODS

The study is done in a tertiary care hospital in South India. The subject is a 37 year old male, with no comorbidities, with alleged history of accidental spill of hot water over head under the influence of alcohol and sustained second degree superficial burns over head and anterior neck (Fig. 1). Admitted in Burns ICU, where he was managed with antibiotics, IV Fluids, analgesics. Dressings done, regenerative therapies done and scar management done. Procedure done included collagen dressing, Cyclical NPWT, Hydrojet assisted and enzymatic debridement, APRP and LLLT, Liposuction and Autologous lipoaspirate graft. (Fig. 2)

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Fig. 1: Scald burn at the time of admission



Fig. 2: Autologous lipoaspirate therapy

RESULTS

The subject showed healing without scar formation within short period of hospital stay (Fig. 3)



Fig. 3: Healed scar

DISCUSSION

The normal pace of wound healing and epithelialization is at the rate of 1 mm/

day. Optimum recovery requires the wound bed and the patient to be fit. The advanced wound healing therapies aim to hasten the process of wound healing by expediting the advancement of epithelial edge of the wound. Many growth factors have been used to advance the epithelialisation but the paradigm of wound healing is changing from repair of the tissue towards the regeneration of the tissue. The pre requisite for regeneration of tissue is the presence of stem cells in the wound environment. Stem cell therapy is clinically applied as a safe and effective method for repair of several types of tissue damage.^{2,3} In our study we used lipoaspirate, harvested as per the technique described by Rigotti *et al.* Inpatients who are not fit for surgery/unwilling for surgery, we used ALA therapy as an adjunct to regular management of the wound. In this group of patients, ALA therapy accelerated wound healing and wound bed preparation for cover by SSG/flap. Due to small sample size statistical analysis could not be done. A randomised control study with adequate sample size with wounds of different aetiology is desirable to substantiate the results. The most abundant and accessible source of adult stem cells is adipose tissue and MSCs have been obtained by lipo-suction of human adipose tissue. The yield of MSCs from adipose tissue is approximately 40-fold greater than that from bone marrow.⁴

CONCLUSION

In burn wounds, ALA therapy accelerates the process of wound healing.

Conflicts of Interest

This study does not require any institutional approval.

DECLARATIONS

Authors' contributions:

All authors made contributions to the article.

Availability of data and materials:

Not applicable

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Consent for publication:

Not applicable

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