Scar Massage Techniques: A Review Article

Bharath Prakash Reddy J[1], Ravi Kumar Chittoria[2]

How to cite this article:
Bharath Prakash Reddy J, Ravi Kumar Chittoria. Scar Massage Techniques: A Review Article. Jr of Glob Med Edu and Res. 2024;7(1):17-20.

Abstract

Cutaneous scarring is common after trauma, surgery and infection and occurs when normal skin tissue is replaced by fibroblastic tissue during the healing process. The pathophysiology of scar formation is not yet fully understood, although the degree of tension across the wound edges and the speed of cell growth are believed to play central roles. Prevention of scars is essential and can be achieved by attention to surgical techniques and the use of measures to reduce cell growth. In this article we will discuss about prevention of scar-by-scar massage technique.

Keywords: Scar; Scar Massage; Treatment; Review Article.

INTRODUCTION

The origin of the word 'scar' can be traced to Greek word "eskhara" (in French "escharre"). The word 'scar' was first used in English in the 14th century.

A scar can be defined as a fault or blemish resulting from some former condition, wound, sore or burn. Scar formation is an inevitable consequence of wound healing in which the normal skin is replaced by a fibrous tissue. This scar tissue lacks the characteristics of the normal uninjured skin.

Author Affiliation: [1]Senior Resident, Department of Plastic Surgery, [2]Professor, Head of IT Wing and Telemedicine, Department of Plastic Surgery & Telemedicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

Corresponding Author: Ravi Kumar Chittoria, Professor, Head of IT Wing and Telemedicine, Department of Plastic Surgery & Telemedicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

E-mail: drchittoria@yahoo.com

Received on: 14.08.2024 **Accepted on:** 16.10.2024

As per the International Advisory Panel on Scar Management, scar is classified into mature scar, immature scar, linear hypertrophic scar, widespread hypertrophic scar, minor keloid and major keloid. (Table 1)

Care of the burn skin and scars requires specific treatments to reduce and control the inflammation stage and its consequences.[1,2] Adapted rehabilitation technique restores flexibility and limits esthetic and functional sequelae. The treatment will progress and be adapted throughout the scar maturation process. Several specific manual massages are part of the treatment but have tobe applied respecting the inflammation, the fragility, and the localization of the scar.[3-5]

Technique

Vitropression Test: Application of pressure with help of a diascope (transparent glass slide) will lead to alteration of the skin lesion, mostly used for differentiating vascular from nonvascular lesions and observing for the blanching response in case of presence of vascularity in lesions such as scars, telangiectasia, angioma, vascular tumors.

Morice Orthodermic Stretching: Fixed pulpaire pressure associated with a moderated stretching supported in the inverse direction of the retraction. (fig. 1) This kind of massages is frequently used on the face and dorsal side of the hand.

Table 1: Types of scars and clinical features

Scar type	Description
Immature scar	Pink slightly raised
	Sometimes itchy
	Firm but not hard
	Begins soon after injury, months to resolve
	Peaks at a few weeks after injury
Mature flat scar	Flat scar without erythema, stable
	No symptoms
Hypertrophic linear scar	Ropy (elevated) and pink or red
	Evolves from immature scar within several weeks
	Progressive enlargement for months before slow decrease in activity
	Often itchy or slightly sore to touch
	Resolution results in a persistently elevated scar that is no longer pink
Hypertrophic wide scar	Elevated, pink or red
	Arises from widespread injury such as a burn
	Frequently with severe pruritis and can be tender
	Very stiff with limitation of mobility across joint surface
Minor keloid	Round or elevated, extends beyond scar
	Most often at site of pierced earring or surgical incision
	Strong genetic component which is different than hypertrophic scars
	Simple surgical excision with very high rate of recurrence
Major keloid	Elevated, large often irregular in shape (*i.e.*, butterfly appearance)
	Frequently seen in multiple locations on person
	Initial injury can be very minor
	Often symptoms of pain and pruritis are debilitating
	Treatment options are limited

Fig. 1: Morice Orthodermic Stretching

Punctual Crushing: Used during the inflammatory stage and allows to crush the edges of grafts or hypertrophic scars. (fig. 2) The pressure is moderated, vertical, and realized with the pulp of one or several fingers. The pressure can be circular but without practicing however of friction or lifting fingers.

Fig. 2: Punctual Crushing

Static Fold: Statics folds are realized during the inflammation stage on a solid epidermis and when the vitropression test is close to 2 seconds. (fig. 3) They improve various plans if sliding and have an action on the suppleness of the skin.

Fig. 3: Static Fold

Palpate-Rolling: When the vitropression test gets closer to 3 seconds, the static fold evolves in rolled fold. This also significantly softens the deep plans and fibrosis scars. (fig. 4)

Fig. 4: Palpate-Rolling

DISCUSSION

Scarring is the inevitable consequence of tissue injury as opposed to tissue regeneration which is the true restoration of the normal architecture of the skin. True tissue regeneration after injury occurs only in the fetus during the first two trimesters and in amphibians who can even regenerate amputated limbs.[6] In the optimal outcome of a thin flat thin linear scar, the sequence of tissue repair after injury is tightly regulated.[3] After initial platelet aggregation, provisional matrix is deposited, followed by influx of inflammatory cells and subsequent cell proliferation including fibroplasia and angiogenesis. Wound healing overlap, and are followed by cellular apoptosis with resolution of inflammation.[7] Permanent matrix deposition (collagen) begins within 3 days. Maximal collagen deposition occurs in the first few weeks with a combination of type 1 and type 3, followed by many months of collagen breakdown and synthesis with increasing type 1 collagen with increased organization and scar strength. These phases of inflammation, cell proliferation and collagen remodeling result in a fine line scar in the scenario of an incison ("normal" scar), and a wider flat scar in the scenario of an injury over a broader area.[8]

CONCLUSION

Treatment of skin and scar following burn injuries must be performed with caution and requires the input of the whole multidisciplinary team. It is necessary to align the treatment according to the stage of scar maturation.

REFERENCES

1. Anthonissen M, Daly D, Janssens T, Van den Kerckhove E. Theeffects of conservative treatments on burn scars: a systematicreview. Burns. 2016;42(3):508–18.https://doi.org/10.1016/j.burns.2015.12.006. Epub 2016 Jan 15.
2. Gavroy JP, Poveda A, Oversteyns B, Plantier G, Rouget D,Griffe O, Teot L, Costagliola M, Ster F. Intérêt du "test de vitropression" dans le suivi des cicatrices de brulures a partir de 50observations. Ann Medit Burns Club. 1995;VIII(1).
3. Cho YS, Jeon JH, Hong A, Yang HT, Yim H, Cho YS, KimDH, Hur J, Kim JH, Chun W, Lee BC, Seo CH. The effect ofburn rehabilitation massage therapy on hypertrophic scar afterburn: a randomized controlled trial. Burns. 2014;40(8):1513–20.https://doi.org/10.1016/j.burns.2014.02.005. Epub 2014 Mar 12.
4. Shin TM, Bordeaux JS. The role of massage in scar management:a literature review. Dermatol Surg. 2012;38(3):414–23. https://doi.org/10.1111/j.1524-4725.2011.02201.x. Epub 2011 Nov 7.
5. Roques C, Téot L, Frasson N, Meaume S. PRIMOS: an opticalsystem that produces

three-dimensional measurements of skinsurfaces. J Wound Care. 2003;12(9):362–4. PMID: 14601231

6. Scars and Scar Massage [Internet]. Reference: THE_SMA_03 Published: March 2020 Review date: March 2022
7. Téot L, Mustoe TA, Middelkoop E, *et al.*, editors., Cham (CH): Springer; 2020. Textbook on Scar Management: State of the Art Management and Emerging Technologies [Internet]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK586057/
8. Docteur N. Frasson, Marie Valange, Isabelle Almeras, Mathieu Izquierdo, and Gwenola Ster, Docteur. Treatment of Immature Scars: Manual Massages. In. Available from: https://doi.org/10.1007/978-3-030-44766-3_65