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Re-engineering the sole defects with “STARS” technique

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Introduction: Normal sole is a very specialized skin, customized to bear weight. It is limited to be only present on flexor/volar aspect of feet. A partial loss of sole is not uncommon and can happen as a result of trauma, diabetes or tropical ulcer, etc. Such loss is irreparable as it is not possible to do surgically; or otherwise, reconstruct it by transferring cross sole flap will lead to huge donor site morbidity. In selected cases, a partial thickness grafts or free/rotational skin flaps from other sites was done to overcome such losses. But these are susceptible to failures leading to recurrences, infections, dehiscence, etc., leading to morbidity and losses. In many other cases, such as diabetes/tropical ulcer amputation may be resorted for cost-effective rehabilitation.

Aim: The aim of the study is to re-engineer the sole defects with “STARS” technique.

Method: The authors have developed a technique using the autologous platelet cells in PRP form for regenerating and engineering the growth of normal sole in such condition. It is “Sandeep’s Technique for Assisted Regeneration of Skin” (STARS) for complete healing of wounds with autologous self activated Platelet Rich Plasma (PRP). This technique involves the autologous PRP local infiltrate in the wound margin on every 4th day, till complete regeneration takes place and wound heals. The wounds were dressed daily/alternate day with only moist saline. This is an early disclosure of 12 prospective case associated with ulcers/ wounds of sole.

Findings: The observations in terms of diagnosis, age, sex, defect sizes, number of therapeutic STARS sessions and final clinical outcomes were disclosed. All defects of sole, healed to normal/near normal clinical features on count of thickness, color and sensitivity. In addition, randomized histopathological biopsies from such engineered sole was done and studied for micro logical characteristics, which also shows the normal HPE regeneration of sole, in contrast to natural healing which demonstrates a cicatrized tissue base.

Interpretation: With the STARS technique led by PRP gradual normal sole reconstruction is possible despite co-morbidities. It is a safe and effective regeneration modality, without in-tense surgical and medical intervention. This is perhaps revolutionary and was not possible earlier. A complete healing to normalcy of a specialized skin such as sole by an autologous regenerative medicine is a giant step forward and such clinical reengineering will shape the future of therapeutic handling of regenerative medicine products towards previously thought irreparable damages/losses, including sole.

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