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ROLE OF PLATELET RICH PLASMA IN SOLE RECONSTRCTION

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INTRODUCTION

The skin on the plantar side of the foot is stressed heavily by full weight of the person and shear forces. The tissue is adapted to this task by having a very thick dermal layer, septofibrous subcutaneous fat and a firm adherence to the underlying bones. Similar features are not seen in any other part of skin of the human body.

Loss of sole of foot is not an infrequent occurrence. It can occur with trauma, pressure sore, surgical excision etc. Reconstruction of sole of foot is a complex undertaking that needs to consider a multitude of factors. These factors include weight bearing, sensation, shear strength, attitude of joints, patient compliance, mobility etc.

It is very difficult to treat non healing ulcers, especially over pressure bearing areas like soles. At present there is no defined guidelines for treatment of non-healing ulcers. Current management requires multiple surgical interventions, drugs and intense local dressing and offloading followed by grafting or by flaps. Also there is pain associated with dressings and decreased quality of life. Many patients undergo amputations to reduce the morbidity. Platelet rich plasma, an emerging cellular therapy can be applied in such cases.

CASE SUMMARY

- A 14 year old female child presented with non-healing ulcer over left sole since 9 years. She gave history of injury to the left foot with a broken glass which gradually increased in size. She underwent split skin grafting for the same in 2009 which was rejected completely over a month inspite of bedrest. She was managed with dressings since then and the ulcer became chronic. She came to AVBRH for amputation as a permanent solution.
- She had foot deformity and corrective osteotomy was done in 2009 for vertical talus over left foot along with SSG. Left foot talonavicular fusion with calcaneocuboidal stabilization done in 2010.
- She presented on January 31st 2019 with a non-healing ulcer of size 4cmX3cm, 0.7cm deep over the sole of left foot, with unhealthy granulation and scanty serous discharge with indurated non tender edge.
- Her hemoglobin was 8gm% which was optimized to 10gm% to start PRP therapy.
- Wound swab was sent for culture which showed growth of coagulase positive staphylococci sensitive to amikacin. Patient was started on inj amikacin and PRP treatment according to STARS technique available at AVBRH. It included PRP infiltration on every 4th day, in the progressively healing wound margins, till wound heals. 10 mL of autologous venous blood was used and centrifused to produce fresh PRP, which was infiltrated at the dose of 0.2 ml-0.5 ml per cm of length, in the wound margin by a 22 G/24 G needle. Such infiltrations were repeated every 4th day till the wound heals completely. Local care was provided by dressing with normal saline. No further surgeries such as debridements or reconstructions were done. Offloading splint was given.

Clinical photographs of ulcer on admission and after cleaning.

Clinical photographs of ulcer showing reduction in size of ulcer with healthy granulation tissue and finally regeneration of epithelium with PRP treatment. (Progressive healing)

RESULT

Patient has received 12 PRP cycles from 31/1/2019 to 16/3/2019 and her wound healed completely. The quality of skin regenerated over the wound is almost normal sole like skin.

CONCLUSION

A complete healing of a non-healing ulcer without surgery and intense dressing is a milestone in wound management. PRP is a safe, affordable and an innovative modality of management of such cases.

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