



## PLATELET RICH PLASMA, AN EFFECTIVE TOOL IN THE MANAGEMENT OF NON HEALING DIABETIC ULCERS

### Dermatology

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### ABSTRACT

The ulceration of foot in diabetes is common and disabling. Disability and tendency to recur is high. Despite treatment these ulcers become chronic wounds. Wound healing is a complex process involving biological and molecular events which attracts different types of cells to the wound site causing differentiation and angiogenesis. The application of PRP causes a local enrichment of growth factors which enhances the tissue healing process. Here we describe a case of non-healing diabetic ulcer which showed drastic improvement after 3 sittings of PRP.

### KEYWORDS

Non Healing Ulcers, Diabetic Ulcers, Plasma Rich Protein

#### INTRODUCTION:

The burden of diabetic foot disease is on an increasing trend. Diabetic peripheral neuropathy is a main factor responsible for foot ulceration<sup>1</sup>. Proper assessment and rapid diagnosis ensures better prognosis. Management is based on the type of wound and the foot condition.

#### CASE REPORT:

A 65yr old male presented with a non-healing wound on his left sole for the past 6 months. He gives history of serous discharge from the wound. There was no associated pain. He had similar complaints in the past for the past 5 years. Each episode he has taken various treatments and the wound has resolved. He is a known case of uncontrolled Type 2 diabetes mellitus on insulin. No other comorbidities present.

On examination, 9 x 7 cm ulcer with sloping edges, seen proximal to the toes on the left sole. The base has slough and floor of the ulcer is muscle. No bony involvement noted.

On routine investigations, his sugars were found to be high and hemoglobin was normal. Wound debridement was done following which, he was subjected to 3 sittings of PRP therapy, 3 weeks apart. After the 2 weeks, considerable improvement was noted with granulation tissue at the base. In around 8 weeks the ulcer almost healed.

#### DISCUSSION:

Ulceration of foot is a common disabling complication of diabetes Mellitus and can lead to amputation of the limb. Wound healing is a complex and dynamic process. Healing process can be impaired by patient factors and wound factors. Patient factors responsible for non-healing of ulcers in Diabetes are local neuropathy, vascular changes and depressed host defenses whereas the wound factor is infection. Management of these ulcers a serious global health issue. Different forms of dressings have been tried. Silver containing dressings have been used as it provides antimicrobial action and promotes healing<sup>2</sup>. Other dressings that have been used include hydrogel dressings for healing ulcers<sup>3</sup>, alginate dressings<sup>4</sup> and foam dressings<sup>5</sup>.

A newer modality of treatment is the autologous platelet rich plasma therapy, which is now used to treat hard to heal acute and chronic wounds. It consists of cytokines, growth factors, chemokines and fibrin scaffold derived from the patients' blood. It acts by inducing molecular and cellular processes of normal wound healing.

A study conducted by Del Pino-Sedeno et al<sup>6</sup>, demonstrated statistically significant benefit in using platelet rich plasma for the treatment of diabetic ulcers. Another study done by Li Y et al<sup>7</sup>, revealed that among the 829 patients subjected to RCT, 95% showed significant improvement in healing process and shortened the healing time. All patients required multiple sittings of therapy with mean gap between

sittings being around 3 weeks. There are no specific complications reported till date other than the complications caused due to secondary infection or ulcer itself.

#### CONCLUSION:

Currently, autologous platelet rich plasma is found to be an effective, safe and feasible treatment for diabetic foot ulcers. It should be considered an adjuvant for chronic refractory cases.

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**CONFLICT OF INTEREST:** The authors declare that they have no conflict of interest.



**FIG 1- clinical picture of the ulcer at the time of presentation**



**FIGURE 2- clinical picture of the ulcer after debridement and first sitting of platelet rich plasma**



**FIGURE 3- clinical picture of the ulcer after the second sitting of platelet rich plasma therapy. Granulation tissue is seen.**



**Figure 4 : clinical picture of the ulcer at the end of three sittings showing a completely healed ulcer.**

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