

# Platelet-Rich Plasma (PRP) Therapy in Dermatology.

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## ABSTRACT

**Background:** Platelets present in the human blood produces a wide range of hormones. The activated forms of platelets are actively motile and their motility is clearly shown by the author in a video recorded through a simple microscope and uploaded in YouTube (Moving platelets & PRP\_Dr Lokendra Yumnam at [www.youtube.com/watch?v=du4nav0Fvy](http://www.youtube.com/watch?v=du4nav0Fvy)). The platelet-rich plasma can be prepared easily at any side-laboratory attached to the Dermatology OPD. The same may be used in treatment of many skin conditions previously thought to be very difficult to be treated. The author presents results of administering one PRP therapy in patients with androgenic alopecia, disfiguring lesions on face, recalcitrant ulcers including ulcers in leprosy patients, lichen sclerosus, vitiligo and also enhancing skin-graft uptake in scars. The results of PRP therapy in many refractory skin conditions are promising. More researches need to be taken up in this form of magical therapy. This may open up new avenues in the successful treatment of many skin conditions which are hitherto considered to be non-treatable.

**Keywords:** Platelet-rich plasma therapy, vitiligo, lichen sclerosus, recalcitrant ulcers.

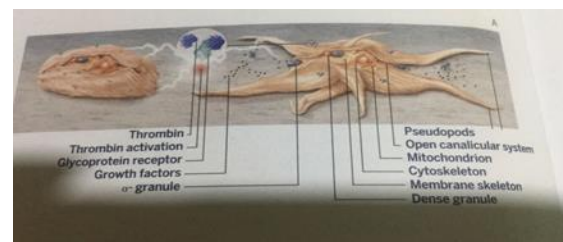
## INTRODUCTION

Platelets are living cells which are present in the blood. They exist in two forms viz. (i) the resting or inactivated state and (ii) the activated state. The resting platelets circulating in the blood are biconvex discoid in shape. They change in their morphology when they get activated. [Figure 1] The changes in shape in the process of becoming fully activated platelets are best seen on electron microscopy.

The activated platelets produce certain growth factors which are beneficial to human beings such as platelet derived growth factor (PDGF), transferring growth factor (TGF 1 & 2), vascular endothelial growth factor (VEGF), epidermal growth factor (EGF), fibroblast growth factor (FGF), platelet-derived endothelial growth factor (PDEGF), interleukin 1 (IL-1), insulin-like growth factor (IGF) etc. All the growth factors have different activities on different cells of the human body.

The author presents a video of moving platelets (activated form) for the first time (See: YouTube videos "MOVING PLATELETS & PRP\_DR LOKENDRA YUMNAM" [www.youtube.com/watch?v=du4Znav0FvY](http://www.youtube.com/watch?v=du4Znav0FvY)). This was seen on light microscopy and was recorded just

before giving the PRP to a patient during PRP therapy session at Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Porompat, Imphal, Manipur, India. In the aforementioned videos available in YouTube, it was seen that most of the platelets were moving, some with side-to-side movement while some others show flickering movement. These are the activated platelets. Some of them remain in clumps also.



**Figure 1: Schematic pictures of inactivated (left) and activated (right) platelets**

Platelet-rich plasma (PRP) for therapeutic purposes in dermatology can be obtained easily in the side-laboratory of Out-Patient Department (OPD) by using a blood sample from the same patient to whom the PRP is to be administered. The drawn blood sample is centrifuged. After the process, the translucent supernatant one-third of the sample is the plasma which is subjected to further centrifuge. The lower one-third portion is rich in platelets [Figure 2a-c]. With a simple pipette this can be collected and can be used for treatment of many skin conditions which are refractory to many conventional therapies. And many of these skin conditions are quite

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debilitating and disfiguring to the patient's appearance.



Figure 2: Process of PRP preparation in the side lab of Dermatology OPD (a) Drawing blood sample (b) Centrifuging the sample (c) Supernatant PRP

### CASE REPORTS

PRP therapy is mostly used for treatment of androgenic alopecia (commonly referred as hair loss), for local rejuvenation and for treatment of recalcitrant ulcers. The ensuing images are of some patients treated in the Dermatology Department of JNIMS, Imphal, Manipur.

[Figure 3 & 4] shows the result in alopecia after one month of administering one dose of PRP.

[Figures 5 & 6] show faces of two ladies who showed dramatic improvement after one month of getting PRP therapy session. The images by themselves show that PRP is quite effective in facial rejuvenation. [Figure 7 & 8] show the result in the

treatment of recalcitrant ulcer in two different persons, one having the lesion in the forearm and the other person with the lesion on the ankle. The second images were taken after one month of initiation of therapy.



Figure 3 & 4: Comparison between before and one month after PRP treatment



Figure 5 & 6: Two ladies before and after PRP therapy





**Figure 7 & 8: Result of PRP therapy in recalcitrant ulcer**

PRP therapy was found to be effective even in the treatment of ulcer because of borderline lepromatous leprosy [Figure 9]. The result was quite obvious after one month of the therapy.



**Figure 8: Result of PRP therapy in ulcer in a BL patient**



**Figure 9: Lichen sclerosus: Before and after PRP therapy**

PRP therapy was also used in the treatment of lichen sclerosus. The result was dramatic as the clinical manifestations reduced markedly after one month of therapy [Figure 9].

Encouraging result, again, was seen in the treatment of static vitiligo [Figure 10].



**Fig. 10: Static vitiligo: Before and after PRP therapy**

In another patient with burn scars on the anterior chest wall, skin grafting was tried with no resultant improvement. The grafts were not taken up by the scar tissue (red spots on [Figure 11a]). PRP therapy was tried. And the grafts started growing [Figure 11b].



**Figure 11a & b: Skin graft uptake before and after PRP therapy**

## CONCLUSION

The results of PRP therapy in many refractory skin conditions are promising. More researches need to be taken up in this form of magical therapy. This may open up new avenues in the successful treatment of many skin conditions which are hitherto considered to be non-treatable.

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