

CASE REPORT

Platelet-Rich-Plasma (PRP) for Androgenic Alopecia : A Case Report

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Introduction:

Platelet-rich plasma (PRP) has become a newer method for the treatment of various types of alopecia. It is an exciting non-surgical therapeutic option for patients who require stimulation of hair growth for hair loss conditions. Those patients who suffering from androgenic alopecia (genetic hair loss) were considered for PRP therapy¹. PRP injections in treating androgenic alopecia were trigger natural hair growth and maintain it by increasing blood supply to the hair follicle and increasing the thickness of the hair shaft. Sometimes this approach is combined with other hair loss procedures. Hair loss has a significant influence on psychological distress and is associated with low self-esteem and depression². Treatment options for androgenic alopecia are very limited and include topical minoxidil and oral finasteride (FDA approved) either alone or in combination. However, there are several reported side effects such as headache and increase in other body hairs for minoxidil whereas loss of libido has been reported with oral finasteride³. Finasteride also interferes with genital development in a male fetus and is contraindicated in pregnant women and those likely to become pregnant. But in this prospective, PRP is safe, reliable, effective and non surgical treatment for hair growth. Published medical literature from Europe and the United States confirms the safety and use of PRP therapy. It has been used a medial adjunct therapy for over two decades for skin and wound healing. PRP therapy has established itself to be effective as a medical treatment modality in the specialty fields of plastic and cosmetic surgery, sports medicine and orthopedics⁴.

PRP contains many growth factors that stimulate the hair follicle's growth. And human blood contains essential and specific growth factors that assist in tissue regeneration and healing. Growth factors are known to activate the proliferative phase and transdifferentiation of hair and stem cells and produce new follicular units. bFGF is reported to promote the in vitro proliferation of papilla cells, and thereby plays a key role in elongating hair shaft⁵. Androgenic alopecia or male pattern baldness is a very common type of hair loss observed in both males and females. PRP has attracted attention in several medical fields because of its ability to promote wound healing. Activation of alpha granules of platelets releases numerous proteins, including platelet-derived growth factor (PDGF), transforming growth factor (TGF), vascular endothelial growth factor (VEGF), insulin-like growth factor (IGF), epidermal growth factor (EGF) and interleukin (IL)⁶. It is hypothesised that growth factors released from platelets may act on stem cells in the bulge area of the follicles, stimulating the development of new follicles and promoting new vascularisation⁷.

PRP was prepared by double spin method, in which blood cell layers were manually separated. Activation of platelets through coagulation triggers the secretion of various growth factors, which produce mitogenic effects in various cell types. Activated PRP promotes the proliferation of dermal papillary cells and prevents their apoptosis.

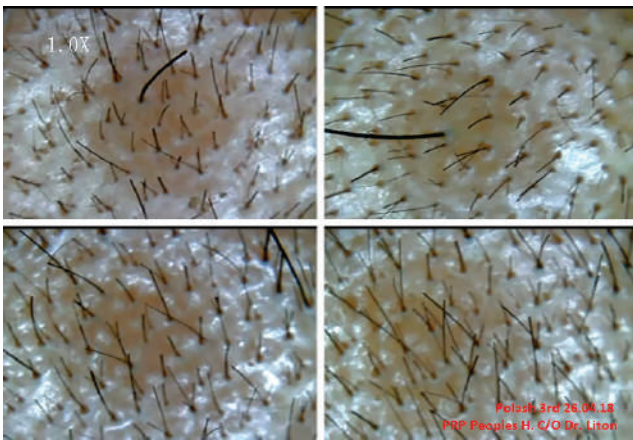


Figure 1: Pre-treatment trichoscan image

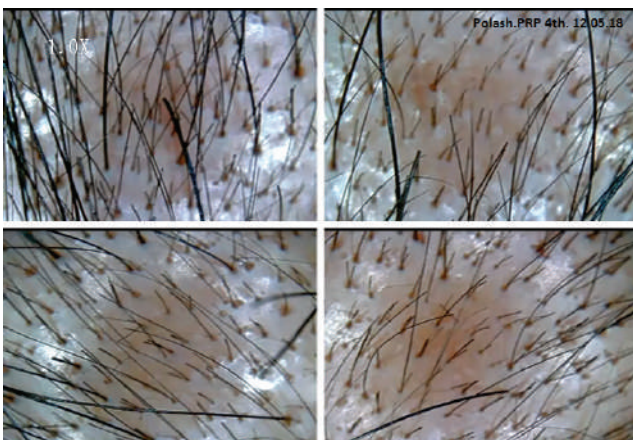


Figure 2: Post-treatment trichoscan image.

PRP was prepared by collecting 40 cc of fresh blood in anticoagulant (CPDA) containing sterile vaccutainers in minor operation theatre under proper aseptic precaution. The tubes were rotated in a centrifugation machine at 1500 revolutions per minute for 6 minutes. The first centrifugation is called “soft spin”, which allows blood separation into three layers, namely bottom RBC layer (55% of total volume), topmost acellular plasma layer called platelet poor plasma (PPP, 40% of total volume) and an intermediate PRP layer (5% of total volume) called the “buffy coat”. Separated buffy coat with PPP was collected with the help of Finn pipette in another test tube. This tube underwent a second centrifugation, which was longer and faster than the first, called “hard spin”, comprising at 2500 revolution per minute for 15

minutes. This allows the platelets (PRP) to settle at the bottom of the tube. The upper layer containing PPP was discarded and the lower layer of PRP was loaded in 5(five) 01ml insulin syringe.

One hour prior to administration of PRP, anaesthetic cream was applied over the bald area. Area of the scalp to be treated was cleaned with , spirit. With the help of insulin syringe PRP was injected over affected area by nappage technique (multiple small injections in a linear pattern one-cm apart) under proper aseptic precaution in minor operation theatre. A total volume of 5 ml was injected. The treatment was repeated every four weeks for six sessions. At each visit patients overall satisfaction and hair fall condition should be checked. After 06(six) months overall evaluation should be done of all the patients.

A significant reduction in hair loss was observed between first and second injection as noticed by patients. But after fifth session a moderate improvement in hair volume and coverage is seen. Overall, patient satisfaction is high.



Figure 3: Pre-treatment & Post-treatment Photograph

The side effects after PRP injections were minimal pain, redness at the time of injections and pinpoint bleeding.

There is also the chance that you could have a negative reaction to the anesthetic used in the therapy. If you decide to pursue PRP therapy for hair loss, let your doctor know in advance about your tolerance to anesthetics.

Conclusion:

PRP injection for androgenic alopecia is a simple, cost-effective and feasible treatment option for hair loss and can be regarded as a valuable adjuvant treatment modality for androgenic alopecia. Although PRP has sufficient theoretical scientific basis to support its use in hair restoration, Clinical evidence is still weak. Considering its excellent safety profile and relatively low cost, PRP hair treatment is a promising treatment option for patients with thinning hair.

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