Combination of a non-ablative 1,550 nm erbium:glass fractional laser and mesotherapy using autologous platelet-rich plasma in treatment of both male and female androgenetic alopecia

Ratchathorn Panchaprateep, MD, PhD

Division of Dermatology, Department of Medicine, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

Introduction: Platelet-rich plasma (PRP) has emerged as a new treatment modality in dermatology, and preliminary evidence has suggested that it might have advantages to treat androgenetic alopecia (AGA). PRP contains various growth factors and it is postulated to increase effectiveness when injury occurred. This study was conducted to determine whether there are additional effects of PRP combined with fractional laser therapy.

Objective: To investigate the efficacy and safety of a combination of a 1,550 nm erbium:glass fractional laser and PRP for the treatment of both male and female androgenetic alopecia.

Materials and Methods: Six women (Ludwig classification I-III) and three men (Norwood-Hamilton classification IIIv-IV) with AGA underwent two sessions of non-ablative fractional laser (Mosaic HP, Lutronic Inc, NJ, USA) followed by PRP injection on the affected area at 1-month interval. PRP was prepared using Ycellbio-kit (WeCare Plus Co.,Ltd, Bangkok, Thailand). Clinical efficacy was analyzed by global photography assessment using standardizing seven-point rating scale (-3 to +3), target area hair counts, hair mass index (Haircheck®) and patient self-assessment. Adverse events were recorded and pain was scored using a visual analog scale (VAS).

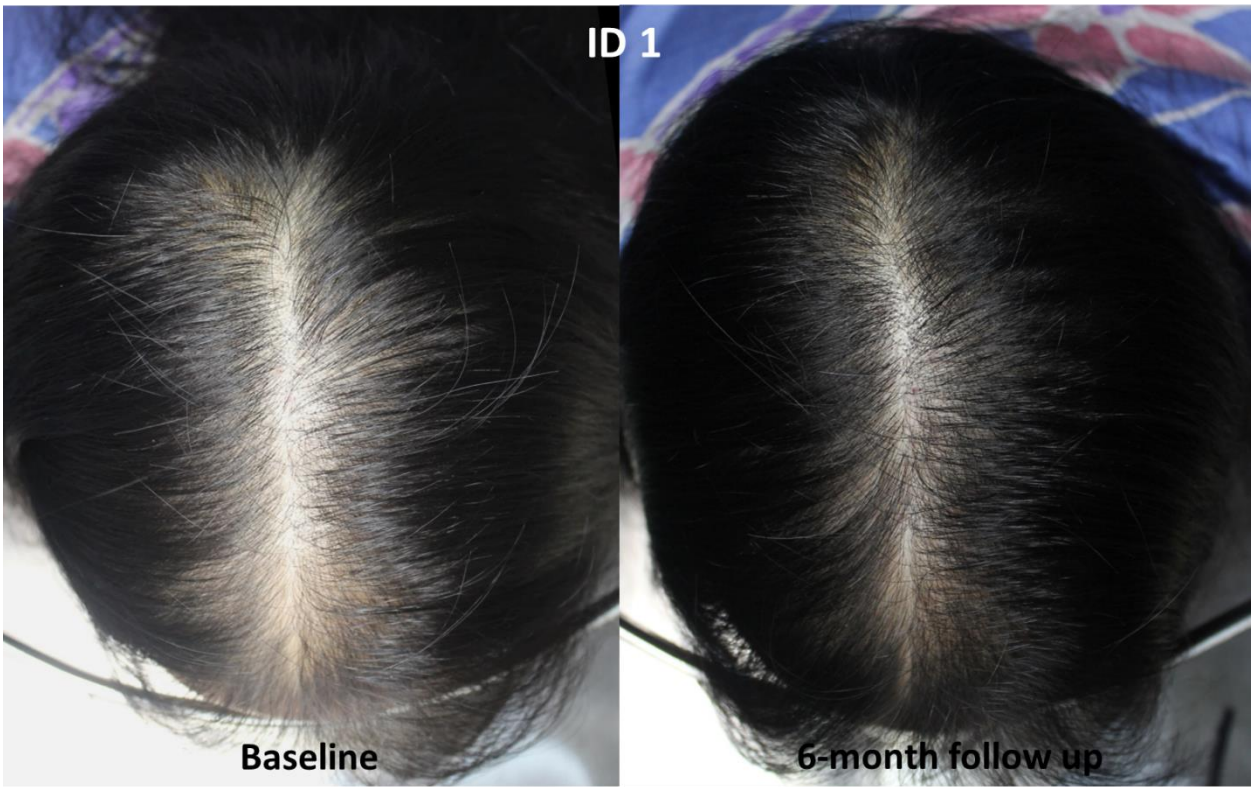
Results: At 6 months after complete the treatment, all patients were improved by the global photography of vertex area (two were slightly, three moderately, and four markedly improved)

compared to baseline. Hair density (terminal hair count) significantly increased by 17.8% (105.7±4.5 to 124.6±41/cm^2) (*p=0.008*). Hair mass index also showed significant increase by 17.3% (30.22±9.1 to 35.44±11.9) (*p=0.008*). The treatment is fair-tolerated and the mean VAS for pain was 2.7 (0-5) and 5.8 (3-8) for laser treatment and PRP injection, respectively. Adverse effects were limited to transient erythema and mild burning sensation on the treated area. Broken hair shaft during laser treatment was observed in four out of nine patients (44.4%), especially in patients with thinner hair shaft. No significant adverse effects were observed.

Conclusion: a combination of a 1,550 nm erbium:glass fractional laser and PRP is a safe and effective treatment option for both male and female androgenetic alopecia. However, larger and longer randomized, double-blind, placebo-controlled trials are suggested for long-term efficacy and safety.

Key words: Androgenetic alopecia, Platelet-rich plasma (PRP), non-ablative fractional laser, female pattern hair loss

Figure 1 global photographs show baseline and 6 months after two treatment sessions.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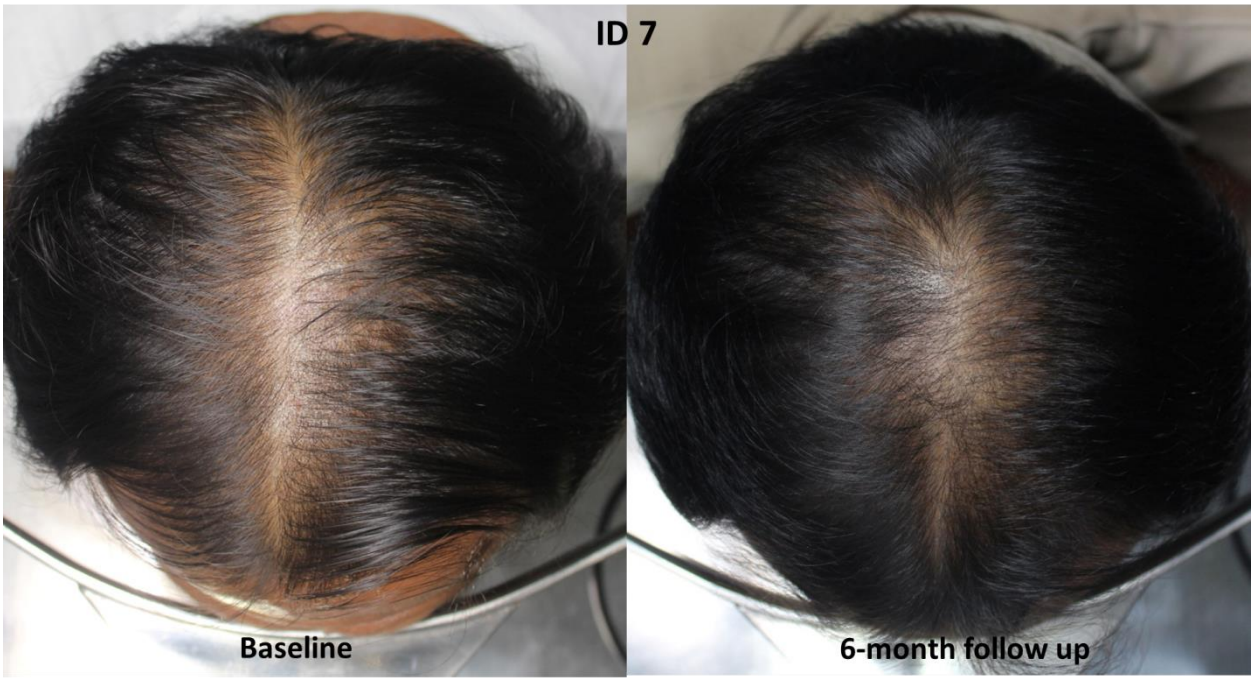
Baseline
6-month follow up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