

## Combined use of fractional ErYAG laser and Platelet-Rich Plasma in posttraumatic scarring treatment

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### SUMMARY

Scarring is often challenging to manage. Various laser treatments are helpful in addressing abnormal color and texture in order to improve the appearance of posttraumatic scar. Resurfacing of depressed scars with ablative ErYAG laser causes thermal injury to the epidermis and a portion of dermis, resulting in vaporization, collagen injury and re-epithelization. Platelet-rich plasma (PRP) contains autologous growth factors, which could act synergistically with growth factors induced by ErYAG fractional laser treatment in order to enhance the wound-healing response. The combination of treatments, carried out by using fractional ablative laser treatment and PRP application, should enhance both efficacy of fractional laser and PRP application.

The objective of this study is to establish the effectiveness of the combined use of fractional ErYAG laser treatment and PRP application in posttraumatic scarring treatment.

Fourteen patients affected with atrophic and hypertrophic posttraumatic scars were enrolled. Each patient underwent 2 sessions of treatments, each consisting of short pulse fractional ErYAG laser treatment with approximately ablation of 146  $\mu\text{m}$  followed by PRP application on the right side of the scar and fractional ErYAG laser treatment alone on the left side of the scar. Digital photographs of all patients were taken. Photographic data were analyzed by using Sign Test. Fourteen pairs of pre- and post-treatment photographs were evaluated independently by two plastic surgeons, on scale of 0–100% improvement. If there was no difference between the treated region and the adjacent normal skin, it was rated 100%.

The study showed that the scar severity grade in all patients was greatly reduced on all treatment areas, but the improvement was more efficient on the side treated with both fractional ErYAG laser treatment and PRP. Nine of 14 pairs of photographs were rated at 100%. That treated side of scars the evaluators rated an 86.8% improvement

on average (median 90%) according to only laser treated site with a 76% improvement. No hypopigmentation or bulk heating scarring occurred.

Lasers are an important treatment option in the management of scarring. This study showed that the combined use of fractional ablative laser and PRP is more effective than fractional laser treatment alone in improving posttraumatic scars. The treatment end point the therapy was highly effective.

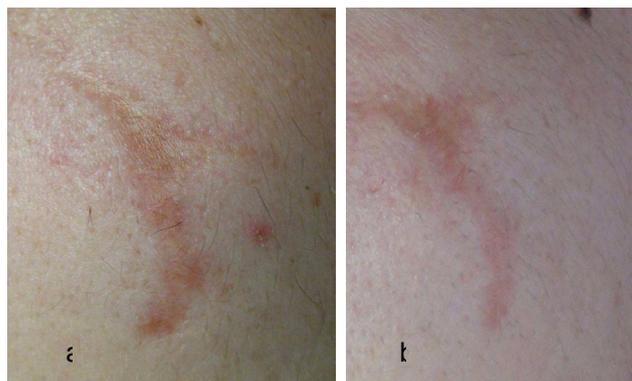


Fig. 1: a) Scar before the laser therapy; b) 4 months after the treatment.

### REFERENCES

1. Eppley BL, Pietrzak WS, Blanton M: Platelet-rich plasma: a review of biology and applications in plastic surgery. *Plastic and Reconstructive Surgery* (2006) Vol.118, Issue: 6, Pages: 147e-159e
2. Fabbrocini G, Fardella N, Monfrecola A, et al. Acne scarring treatment using skin needling. *Clin Exp Dermatol*. 2009;34:874-879
3. Cervelli V, Nicoli F, Spallone D, Verardi S, Sorge R, Nicoli M and Balzani A: Treatment of traumatic scars using fat grafts mixed with platelet-rich plasma, and resurfacing of skin with the 1540 nm nonablative laser, *Clinical and Experimental Dermatology*, Volume 37, Issue 1, January 2012, Pages: 55–61