

Case Report: Effectiveness of Pulsed Dye Laser 585 nm in Treating Multiple Keloids in Young Female with Body Dysmorphic Disorder (BDD) had Multiple Plastic Surgeries, Jeddah, 2017

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Abstract

Flash Lamp Pulsed Dye Laser (FPDL) is a non-ablative technology that has an excellent reputation in vascular lesion treatment. It is always the first line treatment for scars; these can be successfully treated using different methods, such as ablative lasers or plastic surgery. 43 year old Saudi female known to have body dysmorphic disorder, had long history of repetitive plastic surgeries in different body sites came complaining of her inappropriate body shape and her weight planning for more plastic surgeries. Patients presented 9 months back complaining of multiple keloids at the sites of previous plastic surgeries. PDL 585 nm was started (fluence 4.0 j/cm, pulse width 20 ms, pulse rate 1.5 Hz). PDL showed subjective and clinically improvement in treating keloids, decreasing the size and thickness. Further trials are recommended to confirm our results.

Keywords: Keloids; Pulsed Dye Laser 585 nm; Body dysmorphic disorder;

Introduction

Keloids are a common disorder of fibrosis, secondary to dermal injury after trauma, burns, or surgical excision [1]. Histologically, they are characterized by excessive deposition of collagen in the dermis. In contrast to hypertrophic scars, keloids extend beyond the margin of initial injury, and also produce symptoms such as itch, pain, and swelling [2-4].

Keloids pathogenesis is not completely elucidated, but the abnormal biological behavior of keloid fibroblasts and the complex process of wound healing disorders are believed to be key factors [5].

Flash lamp pulsed dye laser (FPDL) is a non-ablative technology that has an excellent reputation in vascular lesion treatment. FPDLs contain a rhodamine dye excited by a xenon flash lamp that produces light at 585-595 nm; the most commonly used wavelength is 595 nm, near to hemoglobin and

oxyhemoglobin absorption peaks, and it is, therefore, considered to be the most specific laser currently available for the treatment of superficial vascular lesions [6]. Recent research indicates that the growth of keloids is regulated by various growth factors, such as TGF- β transforming growth factor β , CTGF (Connective Tissue Growth Factor), VEGF (Vascular Endothelial Growth Factor), HSP-47 (Heat Shock Protein-47), HSP-27 (Heat Shock Protein-27), PDGF (Platelet Derived Growth Factor), IGF (Insulin-like Growth Factor), IL (Interleukin), and SP (Substance P), which can all promote the proliferation of fibroblasts and collagen synthesis in keloids. Therefore, the above-mentioned factors play an important and complex role in the genesis and development of keloids [5,7,8].

Current indications of FPDL technology have been further extended in order to include nonvascular lesions that have vascular structural involvement, which makes them amenable to be treated with such laser. FPDL is not always the first line treatment for scars; these can be successfully treated using different methods, such as ablative lasers or plastic surgery. Potential adverse events include post-inflammatory pigmentary changes (especially in darker-skinned patients, immediate post-laser purpura, recurrence, and infection). Sun exposure can drastically affect pigmentary changes, and sun avoidance/protection is essential to optimizing outcomes [6].

The Case report

This case is 43 year old Saudi female, not known to have any medical illness, known having Body Dysmorphic Disorder (BDD) and had long history of repetitive plastic surgeries in different body sites (both axillae, lower and mid abdomen, under breasts folds). The patient came complaining of her inappropriate body shape and her weight planning for more plastic surgeries. Patients presented 9 months back complaining of multiple keloids at the sites of previous plastic surgeries (erythematous

and hyperpigmented soft plaques and nodules), also complaining of associated pruritus and discomfort. These keloids were present over the previous plastic surgeries scars (axillae, lower abdomen, umbilical, and lower breast). Their size ranged between 1 and 10 cm whereas their thickness ranged between 1 and 10 mm. They progressively increase in size but not in number. Patient started on Silicone Gel (Figure 1) two times per day for 2 months but patient mentioned no improvement at all which made her more irritated about her look .



Figure 1: Silicon gel used twice per day

On the next visit, she was asking about other line of treatment and was depressed about her skin problem. So PDL 585 nm (Figure 2) was started (fluence 4.0 j/cm, pulse width 20 ms, pulse rate 1.5 Hz).



Figure 2: PDL machine used in our clinic

Preparation of Laser involved patient consent with complete explanation of the procedure and possible complications and side effects, patient was lying over laser bed exposing the sites of keloids, eye protective equipment were used for the patient and laser protective glasses were used by the doctor and assistant (Figure 3). The patient had four sessions between each session and the other a duration of 4 weeks. Patient mentioned improvement in the keloids size after the second session with obvious shrinking clinically (decreasing in size, after the fourth session it was hyperpigmented flattened plaques). Results of the

laser sessions are shown in (Figures 4 and 5). No side effects or complications were documented. Patient was not known to have any allergies and no same family history of keloids.



Figure 3: Eye protective glasses used by doctor and assistant

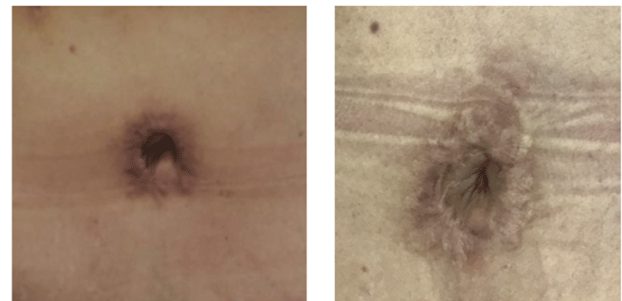


Figure 4: Umbilical region on site of surgery: Left picture (before treatment erythematous thick plaque); Right picture (after laser hyperpigmented patch)

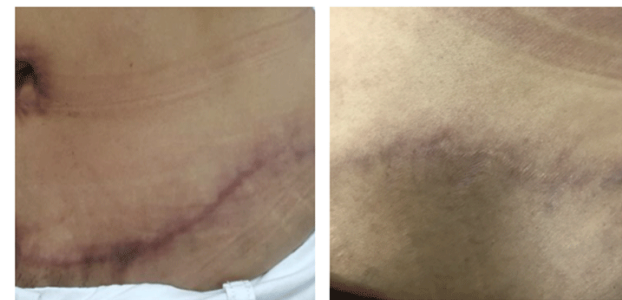


Figure 5: Left lower abdomen on site of surgery: Left picture (before treatment erythematous hyperpigmented thick plaque); Right picture (after laser hyperpigmented patch)

Discussion

As Ablative laser were known to be used as a line of treatment for keloids we tried PDL for our patient. PDL is usually used for vascular associated disorders like capillary malformation.

We considered in our study that the PDL is targeting the cutaneous blood vessels and its proliferations at the sites of keloid malformation. After using the PDL we observed clinically that the keloid thickness and size were decreasing. The patient was tolerating the Laser session with no complains. Patient

psychological status was improved and patient was satisfied.

Al-Mohamady et al concluded in their study that PDL and long-pulsed Nd: YAG laser treatments for hypertrophic scar and keloids showed significant improvements with no difference between the two modalities [9]. However in analysis of the results of 102 cases, the response of hypertrophic scars to 1064 nm Nd: YAG laser treatment was better than keloids [10].

Akaishi et al revealed that Nd:YAG laser treatment is very effective in the treatment of keloids and hypertrophic scars regardless of the origin and multiplicity of scarring, the location of the scar(s), patient age, or the tension on the scar [11].

Among important effects of lasers in treating scars is the fact that laser generate heat, which begins inflammation and in turn raises vascular permeability, matrix metalloproteinase production, and collagen fiber fascicle decomposition [12,13].

Conclusion

PDL showed subjective and clinically improvement in treating keloids, decreasing the size and thickness. Further trials are recommended to confirm our results.

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